United States Department of the Interior
Bureau of Land Management

Environmental Assessment

DOI-BLM-UT-W010-2018-0018-EA

September 2018 Competitive Oil and Gas Lease Sale
Salt Lake Field Office Area Parcels

Townships 5-9 North and 11 South, Ranges 6-9 East, multiple sections, Salt Lake Meridian; Summit, Rich and Utah Counties, Utah.

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Utah State Office and Salt Lake Field Office

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1.0 PURPOSE & NEED

1.1 Introduction

The Salt Lake Field Office (SLFO) has prepared this environmental assessment (EA) to disclose and analyze the environmental consequences for the selling of parcels and subsequent lease issuance to successful bidders from the September 2018 Competitive Oil And Gas Lease Sale. This EA is a site-specific analysis of potential impacts that could result from the implementation of a proposed action or alternatives to the proposed action. This EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant impacts could result from the analyzed actions.[1] This EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of Finding of No Significant Impact (FONSI). If the decision maker determines that this project has significant impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) may be signed for this EA approving the selected alternative, whether the proposed action or another alternative. A DR, including a FONSI statement, for 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 governing land use plans (LUPs), as amended (Section 1.4).

This chapter presents the purpose and need of the proposed project, as well as the relevant issues, i.e., those elements of the human environment that could be affected by the implementation of the proposed project. In order to meet the purpose and need of the proposed project in a way that resolves the issues, the Bureau of Land Management (BLM) has considered and/or developed a range of action alternatives. These alternatives are presented in Chapter 2. The potential environmental impacts or consequences resulting from the implementation of each alternative considered in detail are analyzed in Chapter 4 for each of the identified issues. Agencies that were consulted and a summary of public participation are detailed in Chapter 5. References, acronyms and appendices are contained in Chapter 6. Appendix A identifies each parcel (by assigned number, legal description, acreage) and the applicable stipulations and notices. Appendix B describes each stipulation and notice, Appendix C contains relevant maps, and Appendix D includes the interdisciplinary team checklist. Appendix E contains the public comments and BLM's responses.

1.2 Background

The BLM's 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 (Section 1.5). The Federal Onshore Oil and Gas Leasing Reform Act of 1987 [Section

[1] Significance is defined by NEPA and is found in regulation 40 Code of Federal Regulations (CFR) 1508.27.

5102(a)(b)(1)(A)] directs the BLM to conduct quarterly lease sales in each state whenever eligible lands are available for leasing.

Expressions of Interest (EOI) to nominate parcels for leasing by the BLM are submitted by the public. From these EOIs, the BLM determine whether or not the existing analyses in the land use plans, as amended, provides an adequate basis for leasing oil and gas resources or if additional NEPA analysis is needed before making a leasing recommendation.

The BLM determined that preparation of an EA was necessary for parcels in the SLFO. This EA and an unsigned FONSI are made available to the public along with the list of available lease parcels and stipulations and notices for a 15-day public comment period on the BLM's NEPA Register[2] (also known as ePlanning). The UTSO Oil and Gas Leasing webpage[3] is also updated and maintained for the lease sale. Additional information regarding the BLM's leasing process is also made available for public review and reference. After the end of the public comment period, the BLM analyzes and incorporates the comments where appropriate and changes to the EA and/or lease parcel list are made, if necessary. The final parcel list with stipulations and notices is made available to the public through a Notice of Competitive Lease Sale (NCLS) which starts a 10-day protest period, and includes the revised EA and an unsigned FONSI. If any changes are needed to the parcels or stipulations/notices from the protests, an erratum to the NCLS would be posted to the BLM website to notify the public of the change, prior to the lease sale.

The parcels would be available for sale at an online auction held by the BLM, tentatively scheduled for the week of September 10, 2018. If a parcel is not purchased at the lease sale by competitive bidding, it may still be leased non-competitively within two years after the initial offering. Parcels obtained may be re-parceled by combining or deleting other previously offered lands. Mineral estate that is not leased within a two-year period after an initial offering will no longer be available and must go through a competitive lease sale process again prior to being leased.

An issued lease may be held for ten years, after which the lease expires unless oil or gas is produced in paying quantities (43 CFR 3107.2). A producing lease can be held indefinitely by economic production.

The act of leasing does not authorize any development or use of the surface of lease lands without further application by the operator and approval by the BLM. A lessee must submit an Application for Permit to Drill (APD) (Form 3160-3) to the BLM for approval and must possess an approved APD prior to any surface disturbance in preparation for drilling.[4] Any stipulations and/or notices attached to the standard lease form must be complied with before an APD may be approved. If APDs are received, the BLM would conduct additional site-specific NEPA analysis before deciding whether to approve the APD and what additional conditions of approval (COA) would be applied.

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[2] The NEPA Register is a BLM environmental information internet site and can be accessed online at: https://eplanning.blm.gov/epl-front-office/eplanning/lup/lup_register.do. Search records by Utah, Salt Lake Field Office and Environmental Assessment. Scroll to the September 2018 Competitive Oil and Gas Lease Sale entry.
[3] Utah BLM's Oil and Gas Leasing program webpage can be accessed online at: https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/utah.
[4] Additional information regarding the BLM's oil and gas management program can be accessed online at: https://www.blm.gov/programs/energy-and-minerals/oil-and-gas.

Following BLM's approval of an APD, a lessee may produce oil and gas from the well in a manner approved by BLM in the APD or in subsequent sundry notices. The operator must notify the appropriate BLM authorized officer (AO) 48 hours before starting any surface disturbing activity approved in the APD.

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 or later edition). Compliance with valid, nondiscretionary statutes (laws) is included in the standard lease terms. Nondiscretionary actions include the BLM's requirements under federal environmental protection laws, such as the Clean Water Act, Clean Air Act, Endangered Species Act, National Historic Preservation Act, and Federal Land Policy and Management Act, which are applicable to all actions on federal lands, including split estate. Also included in all leases are two mandatory stipulations for the statutory protection of cultural resources and threatened or endangered species (Handbook H-3120-1).

Once a 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 additional restrictions attached to the lease in form of lease stipulations (43 CFR 3101.1-2) and lease notices (43 CFR 3101.1-3). All 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.

The preliminary parcel list for this lease sale contained 26 parcels covering 36,395.64 acres within the SLFO, including 23,340.98 acres of Federally-managed land and 13,054.66 acres of split-estate land. The mineral rights for all these parcels are owned by the Federal government and administered by the SLFO. The legal descriptions and acreages of the nominated parcels are contained in Appendix A. After an initial review by the BLM, it has been determined that none of these parcels or portions thereof are being deferred within the SLFO.

1.3 Purpose and Need

The purpose of the Proposed Action is to respond to the nominations or expressions of interest for oil and gas leasing on specific federal mineral estate through a competitive leasing process. The need for the Proposed Action is established by the BLM's responsibility under the Mineral Leasing Act (MLA) of 1920, as amended, the Mining and Minerals Policy Act of 1970, the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act), and the Federal Land Policy and Management Act (FLPMA) and to promote the development of oil and gas on the public domain. Parcels may be nominated by the public, the BLM or other agencies. The MLA establishes that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where consistent with FLPMA and other applicable laws, regulations, and policies.

1.3.1 Decision to be Made

The BLM will decide whether to lease any or all of the nominated parcels or portions thereof and, if so, under what lease terms (stipulations and/or notices).

1.4 Conformance with BLM Land Use Plans

The alternatives described below are in conformance with the governing land use plans (as amended, supplemented, and maintained) because they are specifically provided for in the planning decisions as follows:[5]

- Pony Express Resource Management Plan and Record of Decision (RMP/ROD, BLM 1990), Minerals Program Decision 2 categorizes all lands in Salt Lake, Utah and Tooele counties that are available for leasing along with any applicable stipulations that would be attached to leases (BLM 1990; pages 23-28 and Figure 5). The Pony Express RMP/ROD is augmented by the DR prepared for the Pony Express RMP Oil and Gas Supplemental Environmental Assessment (EA UT-020-89-11, BLM 1989) and the ROD prepared for the greater sage-grouse planning effort (DOI-BLM-UT-9100-2013-0002-EIS, BLM 2015).
- Isolated Track Planning Analysis (Iso-Track PA, BLM 1985) addressed only surface management and reserved mineral estate decisions to a later date. Mineral estate management directions for oil and gas leasing were subsequently addressed in the DR prepared for the Bear River East Plan Amendment (EA UT-020-91-32, BLM 1994) and the ROD prepared for the greater sage-grouse planning effort (DOI-BLM-UT-9100-2013-0002-EIS, BLM 2015).
- Randolph Management Framework Plan (MFP, BLM 1980), Minerals Program Decision M-1.2 categorizes all lands in Rich County that are available for leasing. The MFP is augmented by the DR prepared for the Bear River East Plan Amendment (EA UT-020-91-32, BLM 1994) and the ROD prepared for the greater sage-grouse planning effort (DOI-BLM-UT-9100-2013-0002-EIS, BLM 2015).

The BLM's 1989 Pony Express RMP Oil and Gas Supplemental EA and FONSI (BLM 1989) reviewed a reasonable development scenario for seismic and exploration activities.

The BLM's 1994 Bear River East Plan Amendment and Decision Record (BREPA, BLM 1994) reviewed oil and gas leasing activity and established new leasing categories for mineral estate, including stipulations for leasing within Cache, Davis, Morgan, Rich, Summit, Wasatch, and Weber counties.

The BLM's 2015 Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region (ARMPA, BLM 2015) implemented greater sage grouse management goals and objectives.

The alternatives are also consistent with the land use plan decisions related to the management of the following resources/uses, including but not limited to: fire/fuels, geology/mineral resources, invasive species/noxious weeds, lands, livestock grazing, recreation, socio-economics, travel/transportation, soil/vegetation, visual resources, and forestry.

[5] The page numbers, maps or figures used for the land use plan decisions are found in the respective land use plans and are not referring to those found directly in this EA.

1.5 Relationship to Statutes, Regulations, or Other Plans

The proposed action is consistent with federal statutes and regulations (as amended), Executive Orders, and Department of Interior and BLM policies [including Manuals, Handbooks, Instruction Memoranda (IM) and Information Bulletins (IB)] and is in compliance, to the maximum extent possible, with state laws and local and county ordinances and plans. These statutes, regulations, policies, and plans include, but are not limited to:

Statutes

- Federal Land Policy and Management Act of 1976 (FLMPA)
- Mineral Leasing Act of 1920 (MSA)
- Mining and Minerals Policy Act of 1970 (MMPA)
- Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA)
- National Historic Preservation Act of 1966 (NHPA)
- Bald and Golden Eagle Protection Act of 1962 (BGEPA)
- Endangered Species Act of 1973 (ESA)
- Migratory Bird Treaty Act of 1918 (MBTA)

Regulations

- 40 CFR Part 93 Subpart E
- 43 CFR 1600
- 43 CFR 3100
- 40 CFR 1500 – 1508
- 36 CFR 800

Manuals[6]

- BLM Manual 6840 – Special Status Species

Handbooks[7]

- Competitive Leasing Handbook (H-3120-1)

Policies/Instruction Memoranda[8]

- Updating Oil and Gas Leasing Reform – Land Use Planning and Lease Parcel Reviews (WO IM 2018-034)
- Implementation of Greater Sage-Grouse Resource Management Plan Revisions or Amendments – Oil & Gas Leasing and Development Prioritization Objective (WO IM 2018-26)
- Utah Riparian Management Policy (2006)
- Utah's Standards for Rangeland Health (1997)
- Utah BLM Drinking Water Source Protection Zone (2010)

[6] BLM manuals can be accessed online at: https://www.blm.gov/media/blm-policy/manuals.
[7] BLM handbooks can be accessed online at: https://www.blm.gov/media/blm-policy/handbooks.
[8] BLM instruction memoranda and information bulletins can be accessed online at: https://www.blm.gov/media/blm-policy/instruction-memorandum and https://www.blm.gov/media/blm-policy/information-bulletin.

Agreements

- MOU Among the United States Department of Agriculture, the United States Department of Interior and the United States Environmental Protection Agency Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions through the NEPA Process (2011)
- National Interagency MOU Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions through NEPA (2011)
- State Protocol Agreement Between the Utah State Director of the Bureau of Land Management and the Utah State Historic Preservation Officer Regarding the Manner in which the Bureau of Land Management Will Meet its Responsibilities Under the National Historic Preservation Act and the National Programmatic Agreement Among the BLM, the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers (2001)

State of Utah Plans/Rules

- Utah Wildlife Action Plan (2015)
- The Utah Oil and Gas Conservation Act (1955)
- The Utah Oil and Gas Conservation General Rules

County Plans

- Rich County Master Plan, as revised
- Summit County Master Plan, as revised
- Utah County Master Plan, as revised

BLM Activity Plans/Strategies

- Randolph Habitat Management Plan (1982)
- Crawford Mountain Habitat Management Plan (1986)
- T&E Habitat Management Plan (1990)
- Air Resource Management Program Strategy (2015)
- Air Resources Management Strategy (ARMS) (2011)

Other EISs/EAs and studies that influence the scope of this document

- Salt Lake District Oil and Gas Leasing Environmental Analysis Record (EAR) (1975)
- Salt Lake District Office Weed EA and DR (1996)
- Proposed Pony Express RMP and Final EIS (1988)
- Draft Pony Express RMP and Draft EIS (1988)
- Oil and Gas Leasing Supplemental Pony Express Resource Area and DR (1989)
- Bear River East Plan Amendment and DR (1994)
- Utah Greater Sage-Grouse Proposed Land Use Plan Amendment and Final EIS (2015)
- Utah Greater Sage-Grouse Draft Land Use Plan Amendment and Draft EIS (2013)
- Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development 2008 Phase III Inventory – Onshore United States (2015)
- BLM's Air Resource Management Program Strategy (2015)
- Utah BLM Air Resource Management Strategy (2011)

- Threatened and Endangered Species Reports for Canada lynx, Mexican spotted owl, western yellow-billed cuckoo, and four fish covered by the Upper Colorado River Recovery Program (razorback sucker, humpback chub, bonytail chub, and Colorado pikeminnow) (BLM 2018a)
- Cultural Resources Review for the September 2018 West Desert District Oil and Gas Lease Sale (Utah SHPO Case No. 18-0187) (BLM 2018b)
- Oil Shale and Tar Sands resources on lands administered by the BLM in Colorado, Utah and Wyoming and Final EIS (2012)

In order to reduce redundant paperwork and analysis in the NEPA process (40 CFR 1502.20 and 1502.21) the previous documents and their associated information or analysis are hereby incorporated by reference based on their use and consideration by various authors of this document.

1.6 Identification of Issues

Each parcel was reviewed by an interdisciplinary parcel review (IDPR) team composed of BLM resource specialists (Section 5.4). The review began on 10/2/2017 when the public nominations were due to the BLM. IDPR site visits were completed on 11/14/2017 and 11/21/2017. This team identified resources within the parcels which might be affected and considered potential impacts using current office records, geographic information system (GIS) data, and site visits. The results of the IDPR reviews are contained in the Checklist, Appendix D. External coordination is described in Sections 5.2 and 5.3. The IDPR team identified the following issue statements:

Air Quality

How would dust, haze, pollutants, and other emissions that could result from exploration or development impact air quality?

Greenhouse Gases/Climate Change

How would operational activities and corresponding discharges that could result from exploration or development impact greenhouse gases or contribute to climate change?

Minerals

What notices would need to be applied to protect the subsurface, surface and mineral resources?

Special Status Animal Species

Could exploration or development activities affect the habitat or needs of special status animal species within the parcels?

What notices would need to be applied to protect aquatic species habitat including associated water quality, quantity/depletion, riparian, instream habitat attributes?

Wildlife Excluding Special Status Species

Could exploration or development activities affect the habitat and/or needs of wildlife (including big game and migratory birds) within and adjacent to the parcels?

What notices would need to be applied to protect wildlife?

Visual Resources

Could exploration or development activities affect the visual resource inventory or management classification and goals within and adjacent to the parcels?

2.0 ALTERNATIVES

2.1 Introduction

This EA addresses two alternatives (Alternative A – Proposed Action, and Alternative B – No Action, No Leasing).

Other alternatives were not considered because the issues identified during scoping did not indicate a need for additional alternatives or protective measures beyond those contained in the Proposed Action. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the Proposed Action.

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 no surface occupancy (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.

2.2 Analysis Assumptions

2.2.1 Reasonably Foreseeable Development Scenario

The Reasonably Foreseeable Development Scenario (RFDS) is a planning tool to provide a reasonable estimate of what oil and gas exploration and development activities might be proposed, should a decision be made to lease the area. The RFDS is a 20-year forward-looking estimation of oil and gas exploration and development that is exclusive of other concerns that might compete for use of land in a multiple-use scenario. The SLFO has classified oil and gas potential as low. If relevant resource conditions have changed (e.g., establishment of wells capable of producing oil or gas in paying quantities per 43 CFR 3107.2-3), the SLFO would re-evaluate the RFDS to address the new geologic information.

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 APD.

In general, activities are anticipated to take place as described in the following sections (2.2.2-2.2.7). These sections provide a general discussion of possible post-leasing RFDS activities. All of these activities would require additional NEPA review when a lease holder submits an APD.

Utah County Parcels

In 1989, the BLM prepared the Pony Express RMP oil and gas supplemental environmental assessment (EA UT-020-89-011) (BLM 1989). This supplemental EA outlined a RFDS, as follows:

<u>Seismic Activity:</u>

- One Seismic line
- 50 miles long and 12 feet wide
- 1.46 acres disturbed per mile = 73 acres total

Exploration drill pad (including roads):

- Anticipate three wells on Federal mineral estate in 11 years (1989-2000)
- 6.8 acres per well pad x 3 = 20.4 acres disturbance

Producing wells:

- No producing wells anticipated

The RFDS underestimated the number of wells drilled on federally-managed mineral estate from 1989 to 2000 by three wells. From 2000 until present, five more wells were drilled, and none within the past five years. (State of Utah Well History Database 2017).[9] Since there is only one active Federally-managed surface or mineral estate lease in the Pony Express Resource Area, for the purposes of the analysis for each resource, the RFDS projects that three wells would be drilled and pads with roads and pipelines would be constructed in conjunction with the eleven parcels in Utah County subject to the terms, conditions, stipulations and notices of the lease. It is assumed that disturbance from access roads would be approximately 1.8 acres for each well (0.5 mile of road per well). The SLFO estimated that 20.4 acres would be disturbed (3 wells (including roads) x 6.8 acres).

Currently, no federally-managed surface or sub-surface estate wells are producing in Utah and Rich County. Summit County has 2 oil wells and 1 natural gas well on Federally-managed surface and/or sub-surface estate.

Rich and Summit County Parcels

All fifteen of the Rich and Summit County parcels are within the Rich GRSG Population Area (RPA) as identified in the preparation of the Sage Grouse EIS, and are completely within Priority Habitat Management Area (PHMA) as designated in the 2015 Record of Decision (ROD) for the EIS. Appendix R of the EIS predicted that 33 wells would be drilled in the population area over 15 years, 12 of which would be on Federally-managed surface or sub surface estate, and that seven of those wells would produce hydrocarbons. The RPA is 1,733,838 acres. The parcels in the RPA add up to 18,190 acres. With 33 wells projected for the RPA, that would be one well for every 52,540 acres, so 0.34 wells for the 18,190 acres comprising the parcels. Thus, we would round up and assume 1 well for the fifteen parcels in Rich and Summit counties. Although the maximum average disturbance for the access road is projected at 13.6 acres. This disturbance includes state and county maintained routes. It is assumed that new disturbance from access roads would be approximately 1.46 acres for each well. The SLFO estimated that 5.46 acres would be disturbed (1 well (including roads) x 5.46 acres).

Seismic Activity:

- 75 miles of seismic lines for a total disturbance of 90 acres

Exploration Activity (including roads) for one well:

- Anticipate three pads in 11 years
- 5.46 acres per well pad x 1= 5.46 acres of disturbance
- Average disturbance is projected to be 4 acres for the pad.

[9] State of Utah Well History Database data accessed online at: https://oilgas.ogm.utah.gov/oilgasweb/live-data-search/lds-well/well-history-lu.xhtml

- Average disturbance is projected to be a maximum of 13.6 acres road disturbance
- Average disturbance is projected to be 3.6 acres pipeline disturbance

However, when the RFDS were developed, it was assumed areas within PHMA that areas within four miles of an occupied lek would be designated as NSO, but the ROD designated all PHMA as NSO, effectively precluding development. Therefore, well pads could be built to access privately owned sub-surface estate from privately-managed surface, then those pads could be used to directionally drill into the federally-managed sub-surface estate minerals. There are also several parcels (totaling 8,042 acres) in Rich and Summit counties that are within three miles of the Utah-Wyoming state line. The federally-managed surface on the Wyoming side is designated General Habitat Management Area, and the Rich parcels could potentially be directionally drilled from either the private owned surface or by Right of Way sites on BLM managed surface in Wyoming. Since the parcels are located in the *2008 Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development* (BLM 2008) low oil and gas densities, these scenarios would occur rarely, if at all. Therefore, the RFDS for the Rich and Summit County parcels is one well, with no federally-managed surface disturbance in Utah.

The RFDS for all 26 parcels would be 4 wells, one of which may produce hydrocarbons, and a total of 27.2 acres of disturbance. Utah county parcels would have 3 wells with the disturbance of 20.4 acres and Rich and Summit County parcels would have 1 well with the disturbance of 6.8 acres.

2.2.2 Well Pad and Road Construction

Where the surface is not federally owned, the operator is required to obtain a Surface Access Agreement. Surface Access Agreement is addressed in Onshore Oil and Gas Order No. 1 (O.O. #1.III.D.4).

Equipment for well pad construction could consist of dozers, scrapers, excavators and graders. All well pads would be reclaimed. All available topsoil from each well pad would be stripped and stockpiled around the edge of the pad for future reclamation. When needed, topsoil would be spread over interim reclamation areas, seeded, left in place for the life of the well, and the remaining topsoil would be used during the final reclamation process. Disturbance for each well pad could range from 1.0 acre up to 3.5 acres depending on numerous factors such as depth and type of well (vertical, directional, horizontal).

For this analysis, it was assumed that disturbance for well pads would be a maximum of 6.8 acres per well to account for any infrastructure (e.g., pipelines) that would be required if the wells were to go into production. 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 30-foot construction width and would be constructed of native material. After completion of road construction activities, the 30-foot construction width would be reclaimed to an 18-foot wide crowned running surface as well as drainage ditches. The location of the wells would not be known until the APD stage.

2.2.3 Well Drilling and Completion Operations

A drilling rig would be transported to the well pad (along with other necessary equipment). Drilling would commence with well spud. Typical drilling operations would include: adding joints of drill pipe at the surface as the hole deepens; circulating drilling fluids to cool the drill bit and remove the drill cuttings; pulling the drill pipe from the hole to replace worn drill bits; and setting strings of casing and cementing them in place. Air and/or water-based drilling fluid may be used to drill the hole. Prior to setting the production casing, open-hole well logs may be run to identify potentially productive horizons. If the evaluation concludes that sufficient natural gas and/or oil are present and recoverable, steel production casing would be installed and cemented in place. Drilling activities on a well would typically occur 24 hours per day, seven days per week, and would require approximately 20 workers. It could require from two to four weeks to drill a well depending on the depth and complexity of the well.

Once a well has been drilled and evaluated to have sufficient oil and/or natural gas, completion operations would begin. Well completion involves perforating the production casing in target zones, followed by hydraulic fracturing (fracking) of the formation. Fracking operations include injecting an agent (e.g., water, gel, liquid, carbon dioxide, and/or nitrogen) into the formation under pressure. The fracking agent would likely contain sand or other proppant material to keep the fractures from closing, thereby allowing fluids to be produced from the formation. The next phase of completion would be to flow and test the well to determine rates of production.

Typical equipment and vehicles used during completion activities might include carbon dioxide tanker trucks; sand transport trucks; water trucks; oil service trucks used to transport pumps and equipment for fracking; flat beds and gin trucks to move water tanks, rigs, tubing, and fracking chemicals; logging trucks (cased hole wireline trucks); pickup trucks to haul personnel and miscellaneous small materials; and workover rigs.

Completion activities on individual wells may occur 24 hours per day, seven days per week, and would require approximately 20 to 40 workers. Completion of an individual well could take from 7 to 30 days, depending on the number of completion zones.

Hydraulic Fracturing

Hydraulic fracturing (also known as fracking) is a well stimulation technique used to increase oil and gas production from underground rock formations. Fracking would also be evaluated at the APD stage should the lease parcel be sold/issued and a development proposal submitted. The following paragraphs provide a general discussion of the fracking process that could potentially be implemented if development were to occur, including well construction information and general conditions encountered within the SLFO.

Fracking involves the injection of fluids through a wellbore under pressures great enough to fracture the oil and gas producing formations. The fluid is generally comprised of a liquid such as oil, carbon-dioxide or nitrogen, and proppant (commonly sand or ceramic beads), and a minor percentage of chemicals to give the fluid desirable flow characteristics, corrosion inhibition, etc. The proppant holds open the newly created fractures after the injection pressure is released. Oil and gas flow through the fractures and up the production well to the surface.

Fracking has been used by oil and natural gas producers since the late 1940s and for the first 50 years was mostly used in vertical wells in conventional formations. Fracking is still used in these settings, but the process has evolved. Technological developments (including horizontal drilling) have led to the use of fracking in unconventional hydrocarbon formations that could not otherwise be profitably produced.

The use of horizontal drilling through unconventional reservoirs combined with high-volume water based multi-stage fracking activities has led to an increase in oil and gas activity in several areas of the country which has, in turn, resulted in a dramatic increase in domestic oil and gas production nationally. However, along with the production increase, fracking activities are suspected of causing contamination of fresh water by creating fluid communication between oil and gas reservoirs and aquifers. The Environmental Protection Agency (EPA) recently conducted an assessment of fracking on drinking water resources (https://www.epa.gov/hfstudy) [EPA 2016].

Presently, there are no unconventional reservoirs in the SLFO that are being exploited using high-volume water based hydraulic fracturing techniques.

Oil and Gas Fields

The parcels in Utah County are approximately 6 miles northeast to the nearest oil and gas field (Castle Gate). The parcels in Summit and Rich County are approximately 20 to 30 miles from the nearest oil and gas fields (Painter, East Painter, Whitney Canyon, and Carter Creek) located north of Evanston, Wyoming.

2.2.4 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. 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 (e.g., juniper green) 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.

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.

If natural gas is produced (which is more likely to occur than the production of oil (UDOGM, 2017)), construction of a gas sales pipeline would be necessary to transport the gas. An additional Sundry Notice, right of way (ROW) and NEPA analysis would be completed, as needed, for any pipelines and/or other production facilities proposed across public lands. BLM Best Management Practices (BMPs), such as burying the pipeline and/or installing the pipeline within the road, would be considered at the time of the proposal.

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. The Gold Book includes environmental BMPs; these measures are designed to provide for safe and efficient operations while minimizing undesirable impacts to the environment.

Exploration and development on split-estate lands are also addressed in the Gold Book, along with IM 2003-131, Permitting Oil and Gas on Split-Estate Lands and Guidance for Onshore Oil and Gas Order No. 1, and IM 2007-165, Split-Estate Report to Congress – Implementation of Fluid Mineral Leasing and Land Use Planning Recommendations. Proper planning and consultation, along with the proactive incorporation of these BMPs into the APD Surface Use Plan of Operations by the operator, would typically result in a more efficient APD and environmental review process, increased operating efficiency, reduced long-term operating costs, reduced final reclamation needs, and less impact to the environment.

2.2.5 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.

2.2.6 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.

2.2.7 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 A – Proposed Action

Alternative A would offer for lease 26 nominated parcels (36,395.64 acres) which have been proposed for auction in this lease sale. The leases would include the standard lease terms and conditions for development of the surface of oil and gas leases provided in 43 CFR 3100 along with all stipulations mandated by policy and by the governing Land Use Plans (LUP). Legal land descriptions along with corresponding stipulations as well as notices added to address resource issues found through review and analysis that would be attached to each parcel are located within Appendix A. The parcel acreages would be offered for sale in the following categories (BLM 2015a, BLM 1994, and BLM 1990):

Open (Category 1 – Standard Lease Terms)	10,638.73 acres
Controlled Surface Use/Timing Limitations (Category 2 – Moderate Constraints)	549.30 acres
No Surface Occupancy (Category 3 – Major Constraints)	25,207.61 acres

Areas offered for oil and gas leasing would be subject to measures necessary to mitigate adverse impacts, according to the categories, terms, conditions, and stipulations identified in the land use plans, as amended (including the Greater Sage-Grouse ARMPA).

In addition to protections provided for under the standard terms of a lease (BLM Form 3100-11), and the LUPs, the Competitive Leasing Handbook, H-3120-1, also requires the following two standard stipulations be added to every lease: the Cultural Resources Protection Stipulation and the Threatened and Endangered Species Act Stipulation.

Cultural Resources Protection Stipulation

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act, 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.

Endangered Species Act Stipulation

The lease may now and hereafter contain plants, animals, and their habitats determined to be special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objectives to avoid BLM approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modification to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligation under requirements of the Endangered Species Act as amended, 16 U. S. C. § 1531 et seq. including completion of any required procedure for conference or consultation.

All other stipulations from the governing LUPs being applied to the parcels are detailed in Appendix B.

BLM regulations at 43 CFR 3101.1-2 allow, at a minimum, for the relocation of proposed oil and gas leasing operations up to 200 meters and/or timing limitations up to 60 days to provide additional protection to ensure that proposed operations minimize adverse impacts to resources, uses, and users.

Additional measures would be applied to some leases to further protect specific resources (Appendix A). In addition to the stipulations provided for by the governing LUPs (as amended) and BLM policies, Lease Notices have been developed for conservation measures and would be applied on specific parcels as warranted by subsequent IDPR review. The addition of prescribed notices would be applied to all leasing categories. All notices are detailed in Appendix B.

2.4 Alternative B – No Action

The No Action Alternative would not offer any of the nominated parcels in the lease sale. The parcels could be considered for inclusion in future lease sales. Surface management would remain the same and ongoing oil and gas development would continue on surrounding private, state, and federal leases.

2.5 Alternatives Considered

No other alternatives to the Proposed Action were identified that would meet the purpose and need of agency action. The Interior Board of Land Appeals has held that subsumed in a no action alternative is consideration of not leasing any or all parcels. *See Biodiversity Conservation Alliance et al*., 183 IBLA 97, 124 (2013). The No Action alternative allows the authorized officer to resolve resource conflicts by deferring or removing before offering those parcels for sale.

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 Checklist as found in Appendix D and introduced in Chapter 1 of this EA. 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 (Appendix D).

3.2 General Setting

The proposed action would result in the leasing for oil and gas development on 26 parcels covering 36,395.64 acres within the SLFO (Figure 1). The parcel legal land descriptions are contained in Appendix A. The parcel settings are based on the IDPR site visits (BLM 2017) and office records such as soil surveys.

Under the governing land use plans (Section 1.4), areas are offered for oil and gas leasing subject to measures necessary to mitigate adverse impacts, according to the categories, terms, conditions, stipulations and notices. Stipulations and/or notices serve to modify the rights granted by the standard lease terms when the BLM determines that conflicts exist between the relative resource values, uses, and/or users and oil and gas operations that cannot be adequately managed under the standard lease terms or by relocating the proposed operations up to 200 meters or delaying operations by up to 60 days (43 CFR 3101.1-2).

The leasing categories, corresponding acreages, surface ownership for each parcel is shown in Table 1.

Table 1. Acreage of Leasing Categories by Parcel.

Parcel Number	Standard Stipulations	Moderate Constraints (CSU/TL)	Major Constraints (NSO)	Acreage Total	Private Surface	Federal Surface
001	-	-	400.00	400.00	400.00	-
002	-	-	400.00	400.00	400.00	-
003	-	-	1,719.12	1,719.12	102.44	1,616.68
004	-	-	1,920.00	1,920.00	25.76	1,894.24
005	-	-	40.00	40.00	40.00	
006	-	-	1,923.00	1,923.00	-	1,923.00
007	-	-	2,080.00	2,080.00	-	2,080.00
009	-	-	1,600.00	1,600.00	-	1,600.00
012	-	-	520.00	520.00	-	520.00
013	-	-	71.66	71.66	71.66	-
014	-	-	33.94	33.94	33.94	-
015	-	-	2,161.86	2,161.86	-	2,161.86
016	-	-	1,434.96	1,434.96	-	1,434.96
017	-	-	2,026.04	2,026.04	-	2,026.04
018	-	-	1,436.13	1,436.13	30.92	1405.21
027	1,220.08	-	-	1,220.08	1,058.06	162.02

Parcel Number	Standard Stipulations	Moderate Constraints (CSU/TL)	Major Constraints (NSO)	Acreage Total	Private Surface	Federal Surface
028	-	-	257.60	257.60	219.46	38.14
029	247.82	337.30	801.00	1,386.12	784.01	602.11
030	-	-	2,200.00	2,200.00	2,200.00	-
031	-	-	1,920.00	1,920.00	1,920.00	-
032	1,292.44	-	-	1,292.44	417.06	875.38
033	2,175.81	-	-	2,175.81	1,175.22	1,000.59
034	2,196.92	-	-	2,196.92	1,604.24	592.68
035	1,619.27	60.40	564.3.00	2,243.97	1,664.53	579.44
036	1,785.58	45.10	-	1,830.68	487.17	1,343.51
037	100.81	106.50	1,698.00	1,905.31	420.19	1,485.12
Total	10,638.73	549.30	25,207.61	36,395.64	13,054.66	23,340.98
CSU = Controlled Surface Use, TL = Timing Limitations, NSO = No Surface Occupancy						

The Rich County group of parcels (or portions thereof) consist of: 14 parcels (001, 002, 003, 004, 006, 007, 009, 012, 013, 014, 015, 016, 017, & 018) covering 17,766.71 acres (Figure 2). Parcels 001 and 014 also intersect Summit County. The leasing categories for the Rich and Summit County parcels are No Surface Occupancy.

These parcels are located south and southeasterly of the town of Woodruff, Utah. The terrain in this area is considered high desert plateau with relatively open flat valleys interspersed with numerous steep sided streams valleys and dry washes. The vegetation is a sagebrush-steppe which contains mostly treeless landscapes, sagebrush, native bunchgrasses, and wildflowers. Some parcels (001, 003, & 004) have scattered juniper trees.

The Summit County group of parcels (or portions thereof) consist of: 3 parcels (001, 005, & 014) covering 427.02 acres (Figure 3). Parcels 001 and 014 also intersect Rich County. The leasing categories for these parcels are No Surface Occupancy.

The location of these parcels are adjacent to Interstate 80. The Union Pacific Railroad transects parcel 005 and 014. Their ROWs have been excluded from the legal descriptions in Appendix A. The terrain in this area is as described above for the Rich County parcels. The vegetation can be classified also as sagebrush-steppe with spots of rocky outcrops.

The parcels (or portions thereof) located in Utah County consist of: 11 parcels (027, 028, 029, 030, 031, 032, 033, 034, 035, 036 & 037) covering 18,628.93 acres (Figures 4, 5, 6 and 7). These parcels are located at the northwest edge of the Colorado Plateau physiographic province and consist of steep mountainous terrain north of US Highway 6 and high elevation plateau areas with deep, steep sided canyons as part of the Price River drainage system generally south of the US Highway 6. Vegetation north of US Highway 6 consists of conifer and aspen forests on the north sides of canyons with sagebrush, juniper, and oakbrush on the south facing sides of the steep drainages. South of US Highway 6 the vegetation is mainly open sagebrush steppe with some aspen and conifer stands in the drainages. The leasing categories are a mix of No Surface Occupancy, Controlled Surface Use-Timing Limitations and Open-Standard Stipulations. The Union Pacific Railroad transects parcels 028, 030, and 035. However, these parcels do not have federal ROWs.

3.3 Resources/Issues Brought Forward for Analysis

The affected environment of the proposed action and no action alternatives were considered and analyzed by the IDPR team as documented in the Checklist, Appendix D. The checklist indicates which resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis. Resources which could be impacted to a level requiring further analysis are described in this chapter and impacts to these resources are analyzed in Chapter 4.

3.3.1 Air Quality

Air quality is affected by various natural and anthropogenic factors. Industrial sources such as power plants, mines and oil and gas extraction activities within the region 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 or 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 well locations would be considered on-road mobile emissions. Engine exhaust from drilling operations would be considered off-road mobile emissions.

National Ambient Air Quality Standards

The Clean Air Act (CAA) required the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for criteria pollutants considered harmful to public health and the environment (EPA 2018h). Table 2 shows NAAQS for the EPA designated criteria pollutants (EPA 2018i). The Utah Division of Air Quality (UDAQ) is responsible to ensure compliance with the NAAQS within the state of Utah.

Table 2. Primary Criteria Pollutant NAAQS.

Pollutant	Primary/ Secondary	Averaging Time	Level*	Form
Carbon Monoxide (CO)	primary	8 hours	9 ppm	Not to be exceeded more than once per year
		1 hour	35 ppm	
Lead (Pb)	primary and secondary	Rolling 3 month average	0.15 $\mu g/m^3$ (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)	primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
	primary	1 year	12.0 $\mu g/m^3$	Annual mean, averaged over 3 years

Pollutant	Primary/ Secondary	Averaging Time	Level*	Form
Fine Particulate Matter ($PM_{2.5}$)	secondary	1 year	15.0 $\mu g/m^3$	Annual mean, averaged over 3 years
	primary and secondary	24 hours	35 $\mu g/m^3$	98th percentile, averaged over 3 years
Respirable Particulate Matter (PM_{10})	primary and secondary	24 hours	150 $\mu g/m^3$	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)	primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

* Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air ($\mu g/m^3$).

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO_2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O_3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O_3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO_2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO_2 standards or is not meeting the requirements of a SIP call under the previous SO_2 standards [40 CFR 50.4(3)]. A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

The UDAQ issued its 2017 Annual Report (UDAQ 2018a) which includes information on areas of the state where monitoring data shows that levels of criteria pollutants exceed NAAQS.[10] In accordance with this annual report, the Rich and Summit county parcels do not occur within non-attainment areas. The Utah County parcels do occur within a PM_{10} non-attainment area.

In a September 2016 letter to the EPA, the Governor of Utah provided recommendations for Utah area designations and non-attainment boundaries for the 8-hour ozone national ambient air quality standard (Utah 2016). UDAQ (2016) shows the analysis prepared to support that recommendation. The EPA has reviewed the recommendation and formal designations are anticipated in 2018. The Governor of Utah recommended that Rich, Summit and a portion of Utah counties be designated as attainment/unclassifiable. The portion of Utah County containing the parcels in this lease sale occur outside of their non-attainment area boundary for ozone.

Table 3 summarizes the UDAQ's 2014 emissions inventory (EI) by county (UDAQ 2018a). This EI includes point, area, and mobile sources that represent the most recent statewide inventory available.

[10] These areas are referred to as non-attainment areas. An "unclassified" designation indicates that sufficient air monitoring is not available to make a determination as to attainment status. For regulatory purposes an unclassified county is considered the same as attainment.

Table 3. 2014 Triennial Inventory of Criteria Pollutants.

County	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_X	VOC
Summit	11,492.91	4,235.71	7,758.22	1,089.37	113.35	18,666.37
Rich	3,889.54	344.53	2,417.86	476.83	3.07	7,742.26
Utah	52,088.92	12,687.43	15,374.78	3,039.53	228.00	28,840.45
Measured in tons/year.						

Although not listed as a NAAQS criteria pollutant, volatile organic compounds (VOC) along with NO_X, are precursors to the formation of ozone and are listed by UDAQ as a pollutant that, if the threshold is exceeded, would require an approval order (UDAQ 2018b).

This EA addresses mobile off-road engine exhaust emissions from drilling activities, venting and flaring emissions from completion and testing activities, emissions from ongoing production activities, and fugitive dust emissions, specifically emissions of total particulate matter of less than 10 micrometers (PM_{10}), from heavy construction operations. PM_{10} emissions are converted from total suspended particulates by applying a conversion factor of 25%. $PM_{2.5}$ is not specifically addressed as it is included as a component of PM_{10}. $PM_{2.5}$ is converted from PM_{10} by applying a conversion factor of 15%. This EA does not consider mobile on-road emissions as they are dispersed, sporadic, temporary, and not likely to cause or contribute to an exceedance of the NAAQS.

Prevention of Significant Deterioration

Under the Prevention of Significant Deterioration (PSD) provisions of the CAA, incremental increases of specific pollutant concentrations are limited above a legally defined baseline level (EPA 2018a). 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. The parcels in this lease sale occur within PSD Class II areas and do not occur adjacent to National Parks or other sensitive areas.

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 (EPA 2018b and EPA 2018h). 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) (EPA 2018c) for all industries that emit one or more of the pollutants in major source quantities, including the oil and gas extraction sector (NAICS 211) (EPA 2018d).

3.3.2 Greenhouse Gases/Climate Change

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years such as temperature and precipitation. Climate change includes both historic and predicted climate shifts that are beyond normal weather variations.

Climate change is defined by the Intergovernmental Panel on Climate Change (IPCC) as "a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use" (IPCC 2013).

The IPCC states: "Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased" (IPCC 2013). The global average surface temperature has increased approximately 1.5°F from 1880 to 2012 (IPCC 2013). Warming has occurred on land surfaces, oceans and other water bodies, and in the troposphere (lowest layer of earth's atmosphere, up to 4-12 miles above the earth).

Earth's atmosphere has a natural greenhouse effect wherein naturally occurring gases such as water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and fluorinated gases absorb and retain heat (EPA 2018e). Without the natural greenhouse effect, earth would be approximately 60°F cooler (BLM 2010). Current ongoing global climate change is caused, in part, by the atmospheric buildup of Greenhouse Gases (GHGs), which may persist for decades or even centuries. Based on their concentrations, retentions, and strengths, GHGs vary in how they act and remain in the atmosphere (EPA 2018e). Each GHG has a global warming potential (GWP) that accounts for the intensity of each GHG's heat trapping effect and its longevity in the atmosphere (EPA 2018f).

The buildup of GHGs such as CO_2, CH_4, N_2O, and other less common gases since the start of the industrial revolution has substantially increased atmospheric concentrations of these compounds compared to background levels. At such elevated concentrations, these compounds absorb more energy from the earth's surface and re-emit a larger portion of the earth's heat back to the earth rather than allowing the heat to escape into space than would be the case under more natural conditions of background GHG concentrations.

A number of activities contribute to the phenomenon of climate change, including emissions of GHGs (especially CO_2 and CH_4) from fossil fuel development, large wildfires, activities using combustion engines, changes to the natural carbon cycle, and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over different temporal scales due to their differences in global warming potential (described above) and lifespans in the atmosphere. For example, CO_2 may last 50 to 200 years in the atmosphere while CH_4 has an average atmospheric lifetime of 12 years (BLM 2010).

The IPCC concluded that "warming of the climate system is unequivocal" and "most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations." (IPCC 2007). Extensive research and development efforts are underway in the field of carbon capture and sequestration (CCS)

technology, which could help direct management strategies in the future. The IPCC has identified a target worldwide "carbon budget" to estimate the amount of CO_2 the world can emit while still having a likely chance of limiting global temperature rise to 2°C above pre-industrial levels. The international community estimates this budget to be 1 trillion tonnes of carbon (IPCC 2015 and WRI 2018).

Continuing the planet's long-term warming trend, globally averaged temperatures in 2017 were 0.90 degrees Celsius (1.62 degrees Fahrenheit) warmer than the 1951 to 1980 mean. That is second only to global temperatures in 2016 (NASA 2018). In 2001, the IPCC (2007) indicated that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (Hansen *et al.* 2006) has confirmed these findings, but also indicated that there are uncertainties regarding how climate change may affect different regions. Observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Data indicate that northern latitudes (above 24° N) have exhibited temperature increases of nearly 1.2°C (2.1°F) since 1900, with nearly a 1.0°C (1.8°F) increase since 1970 alone. It also shows temperature and precipitation trends for the conterminous United States. For both parameters, varying rates of change are shown, but overall increases in both temperature and precipitation.

As stated by EPA (2018f), the GWP was developed to allow comparisons of the global warming impacts of different GHGs. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO_2. Shown in Table 4, the GHGs are presented using the unit of Metric Tons of CO_2 equivalent (MT CO_2e),[11] a metric to express the impact of each different GHG in terms of the amount of CO_2 making it possible to express GHGs as a single number. For example, 1 ton of CH_4 would be equal to 25 tons of CO_2 equivalent, because it has a GWP over 25 times that of CO_2. The GWP accounts for the intensity of each GHG's heat trapping effect and its longevity in the atmosphere. The GWP provides a method to quantify the cumulative effects of multiple GHGs released into the atmosphere by calculating CO_2 equivalent for the GHGs.

Table 4. Greenhouse Gases and Their Global Warming Potentials.

Pollutant	**Carbon Dioxide (CO_2)**	**Methane (CH_4)**	**Nitrous Oxide (N_2O)**	**Hydrofluorocarbons (HFCs)**	**Perfluorocarbons (PFCs)**	**Sulfur Hexafluoride (SF_6)**
GWP	1	25	298	Up to 14,800	7,390-12,200	22,800
Source: https://www.epa.gov/ghgemissions/overview-greenhouse-gases#carbon-dioxide. Utilize the tabs for each gas.						

Because GHGs circulate freely throughout Earth's atmosphere, climate change is a global issue. The largest component of global anthropogenic GHG emissions is CO_{2recen}. Global anthropogenic carbon emissions reached about 7,000,000,000 MT per year in 2000 and an estimated 9,170,000,000 MT per year in 2010 (Boden *et al.* 2013). Oil and gas production contributes to GHGs such as CO_2 and CH_4. Natural gas systems were the second largest anthropogenic source category of CH_4 emissions in the United States in 2015 with 162.4 MMT CO_2e of CH_4 emitted into the atmosphere. Those emissions have decreased by 31.6 MMT CO_2e (16.3 percent) since 1990 (EPA 2017).

[11] GHGs can also be measured as Million Metric Tons (MMT CO2e).

3.3.3 Minerals

Utah County parcels are located in steep terrain. The topography may structure mineral extraction to avoid slope failures, optimal surface configuration and eliminate large hill slope-cuts. In 1981 Congress designated Special Tar Sands Areas. Parcels 034 and 037 are located within the Argyle Canyon-Willow Creek Special Tar Sands Area.

Development of saleable, leasable and locatable minerals are still authorized and can be in conjunction of oil and gas development and leasing.

3.3.4 Special Status Animal Species

Special Status Animal Species include the following: Threatened, Endangered, Proposed, Candidate, and BLM Sensitive. Section 7 of the Endangered Species Act (ESA) requires BLM land managers to ensure that any action authorized, funded or carried out by the BLM is not likely to jeopardize the continued existence of any threatened or endangered species. Consultation with USFWS is required on any action authorized by the BLM or another Federal agency that affects a listed species or that jeopardizes or modifies critical habitat.

The management of special status species is guided by the BLM 6840 Manual, Special Status Species Management (2008). The objective of the 6840 Manual is to: 1) To conserve and/or recover ESA-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species and 2) To initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood of and need for listing of these species under the ESA.

There are seven federally listed species potentially occurring in or near the parcels: Canada lynx (*Lynx canadensis*), Mexican spotted owl (*Strix occidentalis lucida*), western yellow-billed cuckoo (*Coccyzus americanus*), and the four fish covered by the Upper Colorado River Recovery Program (razorback sucker [*Xyrauchen texanus*], humpback chub [*Gila cypha*], bonytail chub [*Gila elegans*], and Colorado pikeminnow [*Ptychocheilus lucius*]).

3.3.4.1 Canada Lynx

The Canada lynx was listed under the ESA as threatened in the contiguous United States in March 2000 (65 FR 16051 16086). Critical habitat for Canada lynx was designated in September 2014, but no critical habitat was designated in Utah (79 FR 54781 54846). Lynx habitat in Utah is considered to be peripheral (USFWS 2005). Lynx habitats in the west are typically subalpine coniferous forests with cold, snowy winters (Ruediger *et al.* 2000). Lynx denning habitat is characterized by the presence of large woody debris and usually consists of older successional stands or mature stands (Ruediger *et al.* 2000). Threats to lynx include habitat loss, alteration, and fragmentation; competition from other predators, such as coyotes, mountain lions, or bobcats; and trapping. Increased winter recreational use in lynx habitat is also a concern. Roads and trails with compacted snow may facilitate access of competitors and predators into lynx habitat (Ruediger *et al.* 2000).

Lynx density is highly dependent on prey abundance; their primary prey are snowshoe hares. Early to advanced successional forest stands with a dense, multi-layered understory are optimal for snowshoe hares, and thus important as lynx foraging habitat (Ruediger *et al*. 2000). Older forests with an understory of shrubs and small trees are also valuable to lynx, particularly in the Rocky Mountains, as they provide habitat for snowshoe hares.

Confirmed records of lynx in Utah are very rare (McKelvey *et al.* 1999). The majority of historical records are from the Uinta Mountains. Hair snare transects surveyed between 1999 and 2001 in suitable habitat did not detect any lynx on the Uinta-Wasatch-Cache National Forest, although lynx hair was found on the Manti-La Sal National Forest in 2001. Some collared individuals from the reintroduced Colorado population have been documented in Utah; lynx are known to disperse over long distances. Dispersal movements of several hundred miles have been recorded (Ruggiero *et al.* 1999).

A resident population is not known to occur in the lease sale area and there is no critical habitat or Lynx Analysis Unit (LAU) designated in the lease sale area. LAUs are designated areas (approximately the size of a female lynx home range) within core habitat that are subject to conservation measures (Interagency Lynx Biology Team 2013). However, there is montane coniferous habitat, as well as 8,675 acres of crucial snowshoe hare habitat (UDWR 2017a) on some of the Utah County parcels, and the adjacent Forest Service lands immediately to the north have been identified as linkage habitat (Forest Service 2003). There is potential for transitory nonresident use of the Utah County lease sale parcels 027, 029, 030, 032, 033, 034, 035, 036, and 037 by lynx. The Rich and Summit County parcels lack montane coniferous habitats and snowshoe hare habitat (UDWR 2017a) and are therefore not expected to provide habitat for lynx.

3.3.4.2 Mexican Spotted Owl

The Mexican subspecies of spotted owl was listed as threatened in 1993 (58 FR 14248 14271); critical habitat was designated in 2004 (69 FR 53182 53298).

The Mexican spotted owl occupies a variety of habitats in different parts of its range. In Utah, Mexican spotted owls typically use sparsely vegetated steep, narrow canyons within riparian deciduous, pinyon-juniper, ponderosa pine, or mixed coniferous habitats. Nests are commonly located inside caves or along sheltered canyon ledges (Lewis 2014). Elsewhere the species inhabits cool, moist areas with dense, mixed conifer and pine-oak habitats along steep rocky slopes, and nests in live trees in natural platforms (e.g., dwarf mistletoe brooms) and in snags (USFWS 2008b). Spotted owls are nonmigratory.

The species is known to occur in southern and eastern Utah, including Carbon and Duchesne counties, which border the lease sale parcel area in Utah County. The nearest critical habitat is 36 miles away in Carbon County, while the nearest occurrence (UDWR 2013b) is 50 miles away in Emery County. Potential cliff and tree habitat is present in some of the Utah County lease sale parcels. The Willey and Spotskey 1997 model (Lewis 2018), which typically overestimates suitable habitat (Lewis 2014), shows small areas of possible habitat in Rich and Summit counties (34 acres in parcels 001, 004, and 016) and Utah County (399 acres in parcels 029, 030, 031, 032, 033, 034, 035, 036, and 037).

3.3.4.3 Yellow-billed Cuckoo

The western distinct population segment (DPS) of the yellow-billed cuckoo was federally listed as a threatened species in 2014 (79 FR 59991 60038). The western DPS includes the entire range of the species in the western United States, including the entire state of Utah. Critical habitat for the cuckoo was proposed in 2014 but the designation has not been finalized.

Breeding western yellow-billed cuckoos are riparian obligates and currently nest almost exclusively in low to moderate elevation riparian woodlands with multilayered broadleaf trees and shrubs that are 20 hectares (50 acres) or more in extent within arid to semiarid landscapes. They are most commonly associated with cottonwood–willow–dominated vegetation cover, but the composition

of dominant riparian vegetation can vary across its range. At the landscape level, the amount of cottonwood–willow-dominated vegetation cover and the width of riparian habitat influence western yellow-billed cuckoo breeding distribution. Riparian patches used by breeding cuckoos vary in size and shape, ranging from a relatively contiguous stand of mixed native/exotic vegetation to an irregularly shaped mosaic of dense vegetation with open areas (Halterman *et al*. 2015). Historically cuckoos were probably common to uncommon summer residents in Utah. The current distribution of yellow-billed cuckoos in Utah is poorly understood, though they appear to be an extremely rare breeder in lowland riparian habitats statewide (Parrish *et al* 2002).

Potential yellow-billed cuckoo riparian habitat occurs on parcels in all three counties, although there are no records on or near the parcels. The nearest proposed critical habitat is 42 miles away in eastern Summit County.

3.3.4.4 Upper Colorado Recovery Program Fishes

The Utah County parcels are in the Upper Price River Watershed, which is part of the Upper Colorado River Basin. The razorback sucker, humpback chub, bonytail chub, and Colorado pikeminnow are all listed as federally endangered and are managed through the Upper Colorado River Recovery Program (UCRRP). This area is not part of designated critical habitat for any of the four listed fish, and they are not expected to occur in the area of the lease sale, but the UCRRP has determined that any water depletion in the Upper Colorado River Basin may adversely impact the fish and require consultation on any water depletions which may occur anywhere in the Basin (USFWS 2007).

3.3.4.5 BLM Sensitive Species

In addition to the federally listed species, there are an additional 24 terrestrial and aquatic species that are designated sensitive by the BLM that potentially occur with the parcels (Table 5). Sensitive species are those species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act.

Table 5. BLM sensitive species potentially occurring within the parcels.

Common Name	Scientific Name	Status	Habitat
Amphibians			
Western Toad	*Anaxyrus boreas*	SS	High elevation ponds and slow moving water for breeding, riparian and forest for non breeding
Birds			
American Three-toed Woodpecker	*Picoides dorsalis*	SS	Sub-alpine coniferous forests
American White Pelican	*Pelecanus erythrorhynchos*	SS	Shallow lakes, marshlands, rivers
Bald Eagle	*Haliaeetus leucocephalus*	SS, BGEPA	Lowland riparian
Black Swift	*Cypseloides niger*	SS	Cliffs, lowland riparian
Bobolink	*Dolichonyx oryzivorus*	SS	Wet meadow, agricultural fields
Burrowing Owl	*Athene cunicularia*	SS	High desert scrub, grasslands
Ferruginous Hawk	*Buteo regalis*	SS	Pinyon-juniper, cliffs, grassland, shrub-steppe

Common Name	Scientific Name	Status	Habitat
Golden Eagle	*Aquila chrysaetos*	BGPA	Cliffs, open country
Grasshopper Sparrow	*Ammodramus savannarum*	SS	Grassland
Greater Sage-grouse	*Centrocercus urophasianus*	SS	Sagebrush
Lewis's Woodpecker	*Melanerpes lewis*	SS	Ponderosa pine, lowland riparian
Long-billed Curlew	*Numenius americanus*	SS	Grassland
Northern Goshawk	*Accipiter gentilis*	CA	Mature mountain forests, riparian
Sharp-tailed Grouse	*Tympanuchus phasianellus*	SS	Shrubsteppe, grassland
Short-eared Owl	*Asio flammeus*	SS	Wetland, grassland, shrubland
Snowy Plover	*Charadrius nivosus*	SS	Playa, sparsely vegetated areas near water
Fish			
Bonneville Cutthroat Trout	*Oncorhynchus clarkii utah*	CA	Streams in the Bear and Weber River watersheds
Colorado River Cutthroat Trout	*Oncorhynchus clarkii pleuriticus*	CA	Streams in the Price River watershed
Mammals			
Townsend's Big-eared Bat	*Corynorhinus townsendii*	SS	Many habitats with roost sites (caves, cliffs, mines, building)
Fringed Bat	*Myotis thysanodes*	SS	Many habitats with roost sites (caves, cliffs, mines, building, cavities in decadent trees and snags)
White-tailed Prairie Dog	*Cynomys leucurus*	SS	Shrubland
Pygmy Rabbit	*Brachylagus idahoensis*	SS	Areas of tall dense sagebrush with loose soils
Reptiles			
Smooth Greensnake	*Opheodrys vernalis*	SS	Wet meadow
SS = BLM Sensitive; CA = Conservation Agreement; BGEPA = Bald and Golden Eagle Protection Act.			

3.3.4.6 Greater Sage-Grouse

The greater sage-grouse is currently a BLM sensitive species. On October 2, 2015, the USFWS determined the greater sage-grouse was not warranted for protection under the ESA (80 FR 59857) following a planning effort completed by the BLM and U.S. Forest Service that resulted in the *Utah Greater Sage-grouse Approved Resource Management Plan Amendment* (ARMPA; BLM 2015a). Management of the species is guided by the ARMPA, and fluid mineral leasing in greater sage-grouse habitat is also guided by Instruction Memorandum 2018-026, *Implementation of Greater Sage-grouse Resource Management Plan Revisions or Amendments – Oil & Gas Leasing and Development Prioritization Objective*.

The ARMPA delineated sage-grouse habitat into Priority Habitat and General Habitat Management Areas (PHMA and GHMA). PHMA are lands identified as having the highest value for maintaining sustainable greater sage-grouse populations. GHMA are areas of occupied greater sage-grouse habitat (seasonal or year-round) outside of PHMA where some special management would apply to sustain greater sage-grouse populations.

Most of the parcels (25,752 acres) are within PHMA, including all of the parcels in Rich and Summit Counties (Rich Population Area) and about half of the Utah County parcels (Carbon Population Area) (Figures 8 and 13, respectively). Seasonal habitats within the lease parcel area include breeding and nesting, brood-rearing/summer, and winter habitats. There is no GHMA within the lease sale area, although there are 547 acres of opportunity areas, outside of PHMA, within 4 miles of leks (UDWR 2017b) in Utah County (Figure 17). Opportunity areas are those areas that do not currently contribute to the life cycle of sage-grouse, but where restoration or rehabilitation efforts can provide additional habitat when linked to existing sage-grouse populations (UDWR 2013a). There are a total of 22 leks on or within 3.1 miles of lease parcels in Rich and Summit Counties. Of these, two leks are on lease parcels, another four leks are within 0.25 mile of a lease parcel, and the remaining 16 leks are between 0.25 and 3.1 miles from a lease parcel. In Utah County there are a total of 5 leks within 3.1 miles of a lease parcel. Of these, none are located on a lease parcel, two are within 0.25 mile of a lease parcel, and another three are between 0.25 and 3.1 miles of a lease parcel (UDWR 2017b).

Based on lek counts from 2004 to 2013, the Rich population ranges between 1,800 and 6,900 birds. One of Utah's largest populations, the Rich Population Area is in the northeast corner of Utah that links to populations in Idaho and Wyoming. This population area is composed of large, relatively contiguous habitats and is connected with large Wyoming greater sage-grouse populations. Anthropogenic disturbances are present within the population area, and sage-grouse winter habitat has been reduced due to mechanical vegetation treatments to thin sagebrush density in Rich County over the last 3 to 4 decades. Nonetheless, the large amount of remaining upper elevation, contiguous habitat likely makes the populations more resilient than more habitat-restricted greater sage-grouse populations in Utah (USFWS 2013). Lek counts between 1994 and 2013 indicate that the population is stable (BLM/Forest Service 2015). The Conservation Objectives Team (COT) report (USFWS 2013) considered this population to be stable with potential for growth, as well as resilient to known threats. Average lek attendance in 2013 (17.93 males per trend lek) was the lowest during the period of 2008 through 2017. Counts of male grouse on trend leks from 2014 through 2017 range from a low of 22.26 to a high of 38.11 males per trend lek. In addition the total number of leks in the Rich population area increased from 61 in 2013 to 68 in 2017. These facts support the conclusion that this population is stable (BLM 2017a).

The Utah County lease sale parcels are located within the Emma Park portion of the Carbon Population Area. The Emma Park area is dominantly mountain big sagebrush, with patches of black sagebrush on shallow, rocky slopes and basin big sagebrush along the major drainages. Upper elevations have mixed stands of aspen and Douglas fir interspersed with mountain shrub communities. The Emma Park area supports a medium-sized greater sage-grouse population in a relatively small, geologically and vegetatively diverse landscape. Based on lek counts from 2004 to 2013, the Emma Park population is estimated to range between 288 and 640 birds. The population has been directly and indirectly impacted by various anthropogenic disturbances (grazing, coalbed methane development, highways, powerlines). Although the limiting factors are not well understood, the primary influences on this population are precipitation, limited

sagebrush habitat, and anthropogenic disturbances. The size of the population area combined with the non-migratory behavior of the birds may make this population more susceptible to stochastic events. The COT report (USFWS 2013) considers this population "at-risk." Based on lek counts from 1997 – 2013, the Emma Park population is stable to slightly increasing (BLM/Forest Service 2015). Counts of male grouse on trend leks from 2014 through 2017 range from a low of 19.64 to a high of 25.73 (males per trend lek), exceeding the counts for every year from 2008 through 2013 (BLM 2017b). In addition, the total number of leks in the Carbon population area increased from 24 in 2013 to 25 in 2017. These facts support the conclusion that this population is stable to slightly increasing (BLM 2017a).There are records of sage-grouse from the Anthro Mountain population migrating nearly 40 km to summer in the Emma Park population area (Crompton 2005). The Anthro Mountain population is a neighboring population that is considered part of the larger Carbon Population Area. This movement is believed to be minimal – enough to maintain a genetic linkage between the two populations, but not such that the Anthro population is dependent upon the Emma Park population area. Lek counts for the Anthro population have reached record highs during the last few years (Maxfield 2018).

3.3.5 Wildlife

3.3.5.1 Big Game

Moose (*Alces americanus*), mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), and Rocky Mountain elk (*Cervus elaphus*) are the primary big game species found within the parcels. UDWR has identified areas of crucial habitats that are considered essential to the life history requirements of big game species, such that continued degradation and loss of crucial habitats would lead to declines in carrying capacity and/or numbers of big game species.

Almost all of the parcels are within crucial moose habitat, including 19,175 acres of crucial summer habitat, of which 2,310 acres in the Utah County parcels are designated calving habitat, and 19,679 acres of crucial winter habitat. Some areas provide crucial habitat for both summer and winter, so there is overlap in the habitat designations (UDWR 2017a). Moose are primarily browsers and depend on a diet of shrubs and young deciduous trees for much of the year. Moose in Utah are associated with riparian habitat types, but are not exclusively tied to them. They have done well in drier habitats in northern Utah which are dominated by mountain mahogany, Gambel oak, serviceberry, quaking aspen, and burned over coniferous forests. Moose also use thick stands of conifer as shelter in the winter and for thermoregulation during the summer (UDWR 2009).Refer to Figures 9, 14, and 18 for parcels with moose habitat within Rich, Summit and Utah counties, respectively.

All of the parcels are within crucial mule deer habitat, including 18,412 acres of crucial summer habitat and 23,562 acres of crucial winter habitat. Some areas provide crucial habitat for both summer and winter, so there is overlap in the habitat designations (UDWR 2017a). Even though vegetative communities vary throughout the range of mule deer, habitat is nearly always characterized by areas of thick brush or trees interspersed with small openings. The thick brush and trees are used for escape cover, whereas the small openings provide forage and feeding areas. Mule deer do best in habitats that are in the early stages of plant succession (UDWR 2014). Refer to Figures 10, 15, and 19 for parcels with mule deer habitat within Rich, Summit and Utah counties, respectively.

Some of the parcels in Rich County provide 4,476 acres of crucial yearlong pronghorn habitat, some of which provides fawning habitat (UDWR 2017a) (Figure 11). There is no crucial

pronghorn habitat designated on the Summit or Utah County parcels. In Utah, nearly all pronghorn populations occur in shrub-steppe habitat. Large expanses of open, low rolling or flat terrain characterize the topography of most of those habitats. Of particular importance in sustaining pronghorn populations is a strong forb component in the vegetative mix. The presence of succulent forbs is essential to lactating does and thus fawn survival during the spring and early summer. High quality browse, protruding above snow level, is especially critical to winter survival of pronghorn (UDWR 2009).

Most of the parcels provide crucial Rocky Mountain elk habitat, including 12,006 acres of summer range, of which 1.4 acres in Summit County are designated calving habitat, and 17,594 acres of winter habitat. Some areas provide crucial habitat for both summer and winter, so there is overlap in the habitat designations (UDWR 2017a). Although elk inhabit most habitat types in Utah, they prefer to spend their summers at high elevations in aspen/conifer forests.

Elk will spend the winter months at mid to low elevation habitats that contain mountain shrub and sagebrush communities (UDWR 2015). Refer to Figures 12, 16, and 20 for parcels with elk habitat in Rich, Summit and Utah counties, respectively.

3.3.5.2 Migratory Birds

A variety of migratory songbird species use habitats within the parcels for breeding, nesting, foraging, and migratory habitats. Migratory birds are protected under the Migratory Bird Treaty Act of 1918 (MBTA). The MBTA makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products, unless it is a permitted action. The Executive Order 13186 sets forth the responsibilities of Federal agencies to further implement provisions of the MBTA by integrating bird conservation principles and practices into agency activities and by ensuring that Federal actions evaluate the effects of proposed actions and agency plans on migratory birds. BLM's role under the MBTA is to adequately manage migratory birds and their habitats, and to reduce the likelihood of a sensitive bird species from being listed under the Endangered Species Act.

In addition, a Memorandum of Understanding (MOU) between the BLM and United States Fish and Wildlife Service (USFWS) (BLM MOU WO-230-2010-04) provides BLM further direction for project-level NEPA guidance for meeting MBTA conservation and compliance. The emphasis is on the identifying sensitive bird species and habitats through the USFWS 2008 Birds of Conservation Concern (BCC) Species List (USFWS 2008), the Utah Partners in Flight (UPIF) Species List (IM 2008-050), and BLM Sensitive Species List (BLM 2011a). The MOU direction includes evaluating the effects of BLM's actions on these species during the NEPA process, including effects on bird population and habitat. The BLM is to implement approaches to lessen the likelihood of impacts by having project alternatives that avoid, minimize and mitigate adverse impacts for migratory birds and the habitats they depend upon that are most likely to be present in the project area.

The project area is within the Northern Rockies (Rich and Summit counties) and Southern Rockies/Colorado Plateau (Utah County) Bird Conservation Regions (BCR) (USFWS 2008a). The UPIF Priority Species List (Parrish *et al*. 2002), the BCC lists for Region 10 (Northern Rockies) and Region 16 (Southern Rockies/Colorado Plateau) (USFWS 2008a), the Raptor Inventory Nest Survey database (RINS 2017), the Utah Natural Heritage Database (Utah Division of Wildlife Resources 2013), Breeding Bird Survey records (Pardieck *et al.* 2017), and eBird records (eBird 2017) were used to identify potential habitat for priority species that could

occur within the parcels. Table 6 lists the UPIF Priority Species and USFWS BCC species potentially occurring within the lease sale area.

The Northern Rockies BCR is dominated by coniferous forest habitats, although the parcels are mostly located in the lower-lying Wyoming Basin, which is characterized by sagebrush shrubland and shrubsteppe habitat. In the Southern Rockies/Colorado Plateau BCR various coniferous forest types (often lodgepole pine) interspersed with aspen dominate higher elevations. These are replaced by piñon-juniper woodlands on the lower plateaus (NABCI 2000).

In addition, the lease sale area includes habitats designated as important for birds globally as well as within the state of Utah. There are 12,644 acres of lease sale parcels in Rich and Summit counties within the Deseret Land and Livestock Ranch Important Bird Area (IBA), a Global IBA which is characterized by topographic and vegetative diversity, and valuable riparian habitat, and supports over 260 bird species, many of which are BLM sensitive or priority migratory bird species.

There are also 17,155 acres of the parcels within Bird Habitat Conservation Areas (BHCA), mostly within the South Rich BHCA, with smaller areas within the North Rich and Emma Park BHCAs (Evans and Martinson 2008).

The migratory bird primary nesting period occurs from April 1 through July 31.

All of the parcels lie within habitat used by a variety of raptors. Raptor spatial and temporal nest buffers and timeframes are species-specific and are defined by the Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (Romin and Muck 2002).

In addition to providing habitat for breeding birds, important winter use areas for bald eagles have been identified in the project area (BLM 1990). The bald eagle is considered a winter resident species in Rich and Summit counties. All of the parcels in these counties are within known bald eagle winter concentration areas that include roost sites and foraging habitat.

Table 6. Potential Priority Migratory Birds (Excluding Special Status Species).

Common Name	Scientific Name	UPIF	BCR10	BCR16	1st Breeding	2nd Breeding	Winter
American Avocet	*Recurvirostra americana*	✓			Wetland	Playa	Migrant
American Bittern	*Botaurus lentiginosus*			✓	Wetland	Wetland	Migrant
Bendire's Thrasher	*Toxostoma bendirei*			✓	Low Desert Scrub	Low Desert Scrub	Migrant
Black-necked Stilt	*Himantopus mexicanus*	✓			Wetland	Playa	Migrant
Black Rosy-Finch	*Leucosticte atrata*	✓	✓	✓	Alpine	Alpine	Grassland
Black-throated Gray Warbler	*Setophaga nigrescens*	✓			Pinyon-Juniper	Mountain Shrub	Migrant
Brewer's Sparrow	*Spizella breweri*	✓	✓	✓	Shrubsteppe	High Desert Scrub	Migrant
Broad-tailed Hummingbird	*Selasphorus platycercus*	✓			Lowland Riparian	Mountain Riparian	Migrant
Calliope Hummingbird	*Selasphorus calliope*		✓		Mountain Riparian	Mountain Shrub	Migrant
Cassin's Finch	*Haemorhous cassinii*		✓	✓	Aspen	Sub-Alpine	Lowland

Common Name	Scientific Name	UPIF	BCR10	BCR16	1st Breeding	2nd Breeding	Winter
						Conifer	Riparian
Flammulated Owl	*Psiloscops flammeolus*		✓	✓	Ponderosa Pine	Sub-Alpine Conifer	Lowland Riparian
Grace's Warbler	*Setophaga graciae*			✓	Ponderosa Pine	Mixed Conifer	Migrant
Gray Vireo	*Vireo vicinior*	✓		✓	Pinyon-Juniper	Northern Oak	Migrant
Juniper Titmouse	*Baeolophus ridgwayi*			✓	Pinyon-Juniper	Pinyon-Juniper	Pinyon-Juniper
Loggerhead Shrike	*Lanius ludovicianus*		✓		High Desert Scrub	Pinyon-Juniper	High Desert Scrub
Mountain Plover	*Charadrius montanus*	✓		✓	High Desert Scrub	High Desert Scrub	High Desert Scrub
Olive-sided Flycatcher	*Contopus cooperi*		✓		Sub-Alpine Conifer	Ponderosa Pine	Migrant
Peregrine Falcon	*Falco peregrinus*		✓	✓	Cliff	Lowland Riparian	Wetland
Pinyon Jay	*Gymnorhinus cyanocephalus*			✓	Pinyon-Juniper	Ponderosa Pine	Pinyon-Juniper
Prairie Falcon	*Falco mexicanus*			✓	Cliff	High Desert Scrub	Agriculture
Sagebrush Sparrow	*Artemisiospiza nevadensis*	✓	✓		Shrubsteppe	High Desert Scrub	Low Desert Scrub
Sage Thrasher	*Oreoscoptes montanus*		✓		Shrubsteppe	High Desert Scrub	Migrant
Swainson's Hawk	*Buteo swainsoni*		✓		Agriculture	Aspen	Migrant
Veery	*Catharus fuscescens*			✓	Lowland Riparian	Lowland Riparian	Migrant
Virginia's Warbler	*Oreothlypis virginiae*	✓			Northern Oak	Pinyon-Juniper	Migrant
Williamson's Sapsucker	*Sphyrapicus thyroideus*		✓		Sub-Alpine Conifer	Aspen	Migrant
Willow Flycatcher	*Empidonax traillii*		✓	✓	Lowland Riparian	Mountain Riparian	Migrant

3.3.6 Visual Resources

In accordance with its mandate in the FLPMA, the BLM inventories and manages the scenic values of the public lands in accordance with national level policies established in BLM Manual Series 8400: Visual Resource Management (VRM). The BLM's VRM system uses four types of management classes (Classes I through IV) and their associated objectives to describe the different degrees of surface disturbance or modification allowed on the public lands (Table 7). VRM classes for the parcels included in this analysis were established in the planning process for the governing land use plans, as amended (Section 1.4). BLM has since updated the Visual Resources Inventory (VRI) Scenic Quality Evaluation (BLM 2011c) for the majority of the project area, in accordance with BLM Handbook 8410-1, Visual Resource Inventory. Scenic

quality is a measure of the visual appeal of a tract of land. In the visual resource inventory process, public lands are given an A, B, or C rating based on the apparent scenic quality which is determined using seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. Further, BLM Handbook 8410 directs, "Inventory classes are informational in nature and provide the basis for considering visual values in the RMP process. They do not establish management direction and should not be used as a basis for constraining or limiting surface disturbing activities."

Although some parcels may have been inventoried containing a higher relative value of visual resources (e.g., VRI Class II or Scenic Quality Rating A), these areas are still managed under the assigned VRM classes established in the governing land use plans. VRM Classes are established during a land use planning decision making process. Changing the VRM classes is outside the scope of this EA and any changes would require a land use plan amendment. Table 7 identifies the VRM Class, VRI Class and leasing category applied to each nominated lease parcel. The VRM classes apply to BLM-administered surface only so no analysis is warranted for parcels that solely overlap private lands. For the acreages of land ownership within each parcel, see Table 1.

Table 7. VRM Class, Tentative VRI Class, and Leasing Category by Parcel.

Parcel Number	Leasing Category	VRM Classes (Federal Surface Only)	Tentative VRI Classes	Scenic Quality Rating
003	NSO	II/III/IV	III/IV	B
004	NSO	II/III/IV	III/IV	B/C
006	NSO	IV	III/IV	C
007	NSO	IV	III/IV	C
009	NSO	IV	IV	C
012	NSO	III	IV	C
015	NSO	IV	III/IV	C
016	NSO	IV	IV	C
017	NSO	III/IV	IV	C
018	NSO	III/IV	IV	C
027	Standard	III	II	A
028	NSO	IV	II	A
029	Standard/CSU/ NSO	III	II	A
032	Standard	III	II	A
033	Standard	III	II	A
034	Standard	III	II	A
035	Standard/CSU/NSO	III	II	A
036	Standard/CSU	III	II	A
037	Standard/CSU/NSO	IV	II/III	A/B
Total	Standard/CSU/NSO			

4.0 ENVIRONMENTAL IMPACTS

4.1 Introduction

This chapter discusses the environmental consequences of implementing the alternatives described in Chapter 2. For each alternative, the environmental effects are analyzed for the resource topics that were carried forward for analysis in Chapter 3.

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 and occur later or farther away from the resource but are still reasonably foreseeable. 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.

4.2 Direct Impacts from Potential Development

The issuance of leases would not produce direct impacts because leasing is administrative in nature. However, the issuance of a lease does convey an expectation that exploration and development would occur as indirect and cumulative impacts as a result of leasing the parcels.

4.3 Indirect Impacts from Potential Development

4.3.1 Alternative A – Proposed Action

4.3.1.1 Air Quality

Existing Sources of Pollution

The area within SLFO including the Wasatch Front 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.

The act of leasing would not result in changes to air quality. However, should the leases be issued; development and production 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. Emission inventories would need to be developed.

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 the NEPA Process (BLM 2011b) and the Federal Land Managers' Air Quality Related Values Work Group (FLAG) 2010 air quality guidance document (U.S. Forest Service *et al.* 2010). 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 CAA. Minor sources are not controlled by regulatory agencies responsible for implementing the CAA (Title V operating permit requirements). 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.

During well development there could be 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 could be 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 $PM_{2.5}$) would be produced by vehicles servicing the wells. Emissions are estimated to be minor and less than one ton per year per well.

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 would be from oil storage tanks and smaller amounts from other production equipment. Small amounts of HAPs would be 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.

Due to the very small level of anticipated development, an emissions inventory (EI) has not been conducted for this lease sale. However, a typical oil or gas well EI is estimated and is shown in Table 8 and for the purpose of this analysis it is based on the following assumptions:

- Each oil and gas well would cause 6.8 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 14 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 exceedances of the NAAQS.

Table 8. Emissions Inventory Estimate.

	1	**2**			**3**				**4**			
	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	0.00
					PM_{10}	**NO_X**	**CO**	**VOC**				
Activity (5)					0.34	13.37	1.89	1.08	Tons			
Production (6)					0.00	0.01	0.01	6.44	tpy			

1 - Construction Emissions (Tons)

2 - Drilling Emissions (Tons)

3 - Completions Emissions (Tons)

4 - Ongoing Production Emissions (Tons/Year)

5 - Activity Emissions (Total emissions for drilling and completion the well)

6 - Production Emissions (Ongoing annual emissions for the well)

Emission factors for activities of the proposed action were based on and production emissions from oil storage tanks was estimated based on information available at: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors.

The estimated EI for a typical well could include particulate matter of less than 10 micrometers in diameter (PM_{10}), nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOCs). Emissions of sulfur dioxide (SO_2) and lead (Pb) from oil and gas development activities are minor and are not included. $PM_{2.5}$ is not specifically included as it is a component of PM_{10}.

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 2018g). Production emissions from oil storage tanks were 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 (APCD 2017).

Based on the emissions estimates contained in Table 8, and considering the location of the parcels relative to population centers and Class I 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 sale of these parcels are not likely to result in major impacts to air quality nor are they likely to cause a violation 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.

Stipulation/Notices

The following stipulation for Rich County parcels and lease notices for all of the parcels would be applied:

UT-S-421 (Air Quality Monitoring)

As per the Randolph MFP, this stipulation would be applied to all parcels occurring within Rich County. This stipulation would require a lease holder to monitor the quality of the air prior to any development on the lease.

UT-LN-96 (Air Quality Mitigation Measures)

BMPs that address oil and gas development emissions that may minimize local or regional air quality impacts would be required at the time of development on any of the leases. The BMPs would include:

- All internal combustion equipment would be kept in good working order.
- Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer.
- Open burning of garbage or refuse would not occur at well sites or other facilities.
- Drill rigs would be equipped with Tier II or better diesel engines.
- Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater.
- Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers.
- During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible.
- Well site telemetry would be utilized as feasible for production operations.
- Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr for engines <300HP; and 1g NOx/bhp-hr for engines >300HP.

UT-LN-99 (Regional Ozone Formation Controls)

BMPs that address oil and gas development emissions that may contribute to regional ozone formation would be required at the time of development on any of the leases. The BMPs would include:

- 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

UT-LN-101 (Air Quality)

BMPs that address oil and gas development emissions from internal combustion gas field engines would be required at the time of development on any of the leases. The BMPs would include:

- 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 NOx 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 NOx per horsepower-hour.

UT-LN-102 (Air Quality Analysis)

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. In summary, the BLM does look to mitigate pollutants via lease stipulations and notices and further NEPA actions throughout the lease process. Stipulations and notices would be applied to leases when issued to notify the operator of what would be required (stipulation) and what could potentially be required (notice) at the APD stage. This allows the potential lessee, at the time of bidding on the parcel, to be informed of the range of requirements that could be expect when lease rights are exercised. Additional air quality control measures may be warranted and imposed at the APD stage (such as mitigation measures, best management practices, and an air emissions inventory). The BLM would do this in coordination with the EPA, UDAQ and other agencies that have jurisdiction on air quality. By applying stipulations and notices, leasing would have little impact on air quality. At the APD stage, further conditions of approval (COAs) could be applied based on the environmental analysis for the APD. These control measures are dependent on future regional modeling studies or other analysis or changes in regulatory standards.

4.3.1.2 Greenhouse Gases/Climate Change

Availability of Input Data

There are many uncertain factors that affect the potential for GHG emissions estimates: a lease may not be sold, so no GHG emissions would be expected; a lease may be sold but never explored, so again there would be no GHG emissions; a lease may be sold and an exploratory well drilled that showed no development potential, so minimal GHG emissions would occur; or a lease may be sold, explored, and developed. GHG emission estimates also would change due to specific production volumes and variability in flaring, construction, and transportation. At this stage, it is difficult to discern with certainty what end uses for the fuels extracted from a particular leasehold might be reasonably foreseeable.

Accurate assessments of GHG emissions are not possible at the leasing stage since emissions are dependent on factors such as specific equipment used and duration of use, applicant-committed emission controls, and the expected production rate from the oil or gas well. These factors are not known at the leasing stage. Furthermore, additional infrastructure such as pipelines, roads, compressor stations, gas plants and evaporation ponds are also not reasonably foreseeable at the leasing stage and are dependent on the level of development that may occur if a parcel is leased.

The act of leasing would not result in changes to GHGs. However, should the leases be issued; development and production of those leases could impact GHG conditions. Indirectly however, GHG emissions are a potential effect of the subsequent fluid mineral exploration and/or development of any leases that are issued. Oil and gas activities may lead to the installation and production of new wells, which may consequently produce an increase in GHG emissions. The primary sources of GHG emissions related to exploration or development could include the following:

- Fossil fuel combustion for construction and operation of oil and gas facilities – vehicles driving to and from production sites, engines that drive drill rigs, etc. These produce CO2 in quantities that vary depending on the age, types, and conditions of the equipment as well as the targeted formation, locations of wells with respect to processing facilities and pipelines, and other site-specific factors;
- Fugitive CH_4 – CH_4 that escapes from wells (both gas and oil), oil storage, and various types of processing equipment. This is a source of global CH_4 emissions. These emissions have been estimated for various aspects of the energy sector, and starting in 2011, producers are required under 40 CFR 98, to estimate and report their CH_4 emissions to the EPA; and
- Combustion of produced oil and gas – it is assumed that future operations would produce marketable quantities of oil and/or gas. Combustion of the oil and/or gas would release CO_2 into the atmosphere.

In recent years, many states, tribes, and other organizations have initiated GHG inventories, tallying GHG emissions by economic sector. The U.S. EPA provides links to statewide GHG emissions inventories (EPA 2017). Estimates of GHG emissions were made by incorporating production and consumption data and emissions factors [Energy Information Administration (EIA 2018), Utah Division of Oil Gas and Mining (UDOGM 2018), and (EPA 2018g)] to equate potential activities to GHG emissions in the form of carbon dioxide equivalent (CO2). Some additional data, including the projected volume of oil or natural gas produced for an average well, number of wells (as well as other factors described in Section 3.3.1 Air Quality) were used to provide GHG estimates.

At this time, the BLM is disclosing the likelihood and potential magnitude of indirect and downstream GHG emissions but is not able to disclose potential impacts to climate change from the estimated downstream GHG emissions related to the proposed lease sale. The inconsistency in results of scientific models used to predict climate change at the global scale, coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level. It is therefore beyond the scope of existing science to relate a specific source of GHG emission or sequestration with the creation or mitigation of any specific climate-related environmental effects. Although the effects of GHG emissions in the global aggregate are well-documented, it is currently impossible to determine what specific effect GHG emissions resulting from a particular activity might have

on the environment. Analysis of impacts at this leasing stage would be speculative and would be not be based "reasonable projections and assumptions."

Emissions from Potential Development

Potential GHG emissions from speculative future oil or gas well production on the parcels was calculated assuming one well per parcel and an emissions estimate value. Total GWP, which includes direct and indirect emissions of carbon dioxide, methane, and nitrous oxide from an oil or gas well (including well development and production) are 1,192 tons per year (tpy) CO_2-e for a single operational well and 2,305 tons per year CO_2-e for a single drill rig. For 4 potential wells, this would equate to 4,768 tpy CO_2-e for wells and 9,220 tpy CO_2-e for rigs. Accurate assessments of GHG emissions are not possible at the leasing stage since emissions are dependent on factors such as specific equipment used and duration of use, applicant-committed emission controls, and the expected production rate from the oil or gas well. These factors are not known at the leasing stage. Furthermore, additional infrastructure such as pipelines, roads, compressor stations, gas plants and evaporation ponds are also not reasonably foreseeable at the leasing stage and are dependent on the level of development that may occur if the parcels are leased.

Downstream Greenhouse Gas Emissions

Downstream GHG emissions are estimated based on an average cumulative production rate of 268,050 Mcf (one million cubic feet) gas over the life of a well, based on the production history for the townships in which the parcels are located (UDOGM 2018). Indirect GHG emissions are also only calculated for carbon dioxide based on combustion of the product.

Using the RFDS of one producing well, and an EPA emissions factor of 0 0.054717 metric tons (MT) of CO_2 of gas (EPA 2018), indirect GHG emissions can be estimated at 220,004 MT. Actual GHG emissions may range from zero (assuming no lease parcels sold or developed) to an indeterminate upper range based on realized production rates, control technology, and physical characteristics of any gas produced.

As it is not possible to assign a "significance" value or impact to these numbers, the emissions estimates themselves are presented for disclosure purposes. With respect to the rough estimates of indirect CO_2 emissions, it should be noted that it is a difficult to discern with certainty what end uses for the fuels extracted from a particular leasehold might be reasonably foreseeable. For instance, some end uses of fossil fuels extracted from Federal leases include: combustion of transportation fuels, fuel oils for heating and electricity generation, as well as production of asphalt and road oil, and the feedstocks used to make chemicals, plastics, and synthetic materials. At this time, there is some uncertainty with regard to the actual development that may occur.

Uncertainties of GHG Calculations

Although this EA presents a quantified estimate of potential GHG emissions associated with reasonably foreseeable oil and gas development, there is uncertainty in GHG emission estimates due to uncertainties with regard to eventual production volumes and variability in flaring, construction, and transportation.

End Uses

The estimates above provide a complete GHG lifecycle of a well from site inspection to possible indirect emissions through combustion. A rough estimate was possible using publicly available information and using estimates from future production for reasonably foreseeable development.

With respect to the rough estimates of indirect CO2 emissions, it should be noted that it is a difficult to discern with certainty what end uses for the fuels extracted from a particular leasehold might be reasonably foreseeable.

It is important to note that the BLM does not exercise control over the specific end use of the oil and gas produced from any individual federal lease. The BLM has no authority to direct or regulate the end use of the produced oil and/or gas. As a result, the BLM can only provide an estimate of potential GHG emissions using national approximations of where or how the end use may occur because oil, condensate, and natural gas could be used for combustion of transportation fuels, fuel oils for heating and electricity generation, as well as production of asphalt and road oil, and the feedstocks used to make chemicals, plastics, and synthetic materials.

Monetizing Costs and Benefits: Social Cost of Greenhouse Gases

The BLM finds that including monetary estimates of the social cost of GHGs (SC GHG) in its NEPA analysis for this Proposed Action would not be useful. Because the BLM is not doing a cost-benefit analysis in this NEPA document, monetizing only SCC GHG would not be instructive.

Possible Future Best Management Practices, Standard Operating Procedures, and/or Mitigation Measures

The BLM holds regulatory jurisdiction over portions of natural gas and petroleum systems, identified by the EPA. Exercise of this regulatory jurisdiction has led to development of Best Management Practices (BMPs), which are state-of-the-art mitigation measures applied to oil and natural gas drilling and production to help ensure that energy development is conducted in an environmentally responsible manner. The BLM encourages industry to incorporate and implement BMPs to reduce impacts to air quality through reduction of emissions, surface disturbances, and dust from field production and operations. Typical measures are mentioned below:

- Open burning of garbage or refuse would not occur at well sites or other facilities;
- Drill rigs would be equipped with Tier II or better diesel engines;
- Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater;
- All internal combustion equipment would be kept in good working order;
- Flared hydrocarbon gases at high temperatures in order to reduce emissions of incomplete combustion through the use of multi-chamber combustors;
- Watering dirt roads during periods of high use to reduce fugitive dust emissions;
- Co-location wells and production facilities to reduce new surface disturbances;
- Use of natural gas fired or electric drill rig engines;
- The use of selective catalytic reducers and low-sulfur fuel for diesel-fired drill rig engines;
- Adherence to BLM's Notice to Lessees' (NTL) concerning the venting and flaring of gas on Federal leases for natural gas emissions that cannot be economically recovered;
- Protecting hydraulic fracturing sand from wind erosion;
- Implementation of directional drilling and horizontal completion technologies whereby one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores;

- Requiring that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; and
- Performing interim reclamation to reclaim areas of the pad not required for production facilities and to reduce the amount of dust from the pads.

In addition, the BLM and EPA, encourages oil and natural gas companies to adopt proven, cost-effective technologies and practices that improve operational efficiency and reduce natural gas emissions. In October 2012, EPA promulgated air quality regulations for completion of hydraulically fractured gas wells (EPA 2011). These rules required air pollution mitigation measures that reduced the emissions of volatile organic compounds during gas well completions. Mitigation included utilizing a process known as a "green" completion in which natural gas brought up during flowback is captured in tanks rather than in open fluid pits. Among other measures to reduce emissions include the USEPA's Natural Gas STAR program. The EPA's U.S. inventory data shows that industry's implementation of BMPs proposed by the program has reduced emissions from oil and gas exploration and development (EPA 2017).

Lease stipulations and notices would be applied the same as under Air Quality (Section 4.3.1.1).

4.3.1.3 Minerals

The issuance of leases would not directly impact other mineral extraction activities. Development of saleable, leasable and locatable minerals would still be authorized. In the event federal oil and gas rights are leased, the lessee would be required to obtain surface use agreements with the appropriate surface land owner. To inform potential lessees of the issues related to other potential mineral extraction activities a lease notice would be attached for Tar Sands Areas and lease notice for slopes in excess of 30 percent. Lease notice UT-LN-85 would be applied to parcels 034 and 037. The steep terrain may require care in placement of drill pads and access routes to avoid large hill-slope cuts. Lease notice UT-LN-60 would be applied to all parcels in Utah County. Steep slope protections would also be warranted on all of the remaining parcels in Rich and Summit counties [UT-S-104 (NSO – Slopes in Excess of 30%)].

4.3.1.4 Special Status Animal Species

Development of the lease parcels could result in negative effects to these species, including loss, degradation, and fragmentation of habitat; direct mortality due to destruction of individuals (or eggs) within nest and den sites or due to vehicle strikes along access roads; and noise impacts that could disturb wildlife during sensitive periods, reducing the survivorship or reproductive success of the affected wildlife or driving them away from otherwise suitable habitats**.**

4.3.1.4.1 Canada Lynx, Mexican Spotted Owl, and Yellow-billed Cuckoo

Negative effects to federally listed animal species (Canada lynx, Mexican spotted owl, western yellow-billed cuckoo) due to development on the parcels would be minimized or eliminated by the required avoidance and conservation measures specified in the appropriate lease notices and stipulations (Appendix A). These measures include requirements for surveys and monitoring, seasonal and spatial restrictions, noise limitations, rehabilitation/revegetation, and other practices (e.g. NSO, road restrictions, riparian protection). The affected parcels and applicable stipulations and notices for federally listed species are summarized in Table 9. In addition, federally listed species sites located within sage-grouse PHMA on federal lands would be protected from disturbance and habitat loss by implementation of the NSO stipulations required for PHMA.

PHMA covers 70 percent of the total lease sale area, including all of the parcels in Rich and Summit counties and 40 percent of the parcels in Utah County.

Table 9. Federally Listed Animal Species Stipulations and Notices.

Species	Parcels		Stipulation	Notice
	Utah County	Rich and Summit Counties		
Mexican Spotted Owl	027, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037	NA - outside of species range	Handbook H-3120-1 Endangered Species Act	T&E-06 Mexican Spotted Owl
Yellow-billed Cuckoo	027, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037	001, 002, 003, 004, 005, 006, 007, 009, 012, 013, 014, 015, 016, 017, 018.	Handbook H-3120-1 Endangered Species Act	T&E-31 Western Yellow-billed Cuckoo
Canada Lynx	027, 029, 030, 032, 033, 034, 035, 036, 037	NA - no habitat in parcels	Handbook H-3120-1 Endangered Species Act	T&E-10 Canada Lynx

If lease development occurs on adjacent private land (using directional drilling), then surface management measures may not apply to the private surface, and negative effects to these species could result on nearby federal lands. Due to the disjunct pattern of federal ownership in the project area, any of the parcels could be affected by impacts from development on adjacent private lands. In the future when parcels with federally listed species or their habitats are proposed for development, consultation with the USFWS would be required. The BLM's conclusion is that with the implementation of conservation and mitigation measures in the ESA lease stipulation and notices, the project "may affect, but is not likely to adversely affect" the Mexican spotted owl and western yellow-billed cuckoo. The project is consistent with the "not likely to adversely affect" determination and USFWS concurrence of April 4, 2007 (USFWS 2007b) for Canada lynx. Refer also to the consultation identified in Section 5.2.

4.3.1.4.2 Upper Colorado Recovery Program Fishes

Typically some amount of water use is required for drilling and development activities. It is unknown at this time how much water would be needed for development activities. Based on our programmatic consultation with the USFWS, they have determined that any water depletions in the Upper Colorado River basin may affect and are likely to adversely affect the endangered fish (USFWS 2007); therefore, as part of the conservation and mitigation measures for endangered Colorado River fish, they require consultation on anticipated water depletions. To inform potential lessees of the need for consultation with USFWS on development of parcels in Utah County, lease notice T&E-03 would be attached for all parcels in Utah County. Additional mitigation and conservation measures may be required for these parcels if the leases are issued and proposed for development and after BLM conferences with the USFWS for this action at the development stage. The Endangered Species Act (ESA) stipulation would be applied to all parcels in Utah County. Refer also to the consultation identified in Section 5.2.

4.3.1.4.3 BLM Sensitive Species

Any negative effects to most BLM sensitive species due to development on the parcels would be minimized or eliminated by the required measures specified in the appropriate lease notices and/or stipulations (Appendix B). These measures include requirements for surveys and monitoring, seasonal and spatial restrictions, noise limitations, rehabilitation/revegetation, and other practices (e.g. NSO, road restrictions, riparian protection). The affected parcels and applicable stipulations and notices for sensitive species are summarized in Table 10.

The notices and stipulations for the bald eagle, golden eagle, pygmy rabbit, white-tailed prairie dog, western toad, and smooth greensnake would be expected to effectively minimize the effects of lease development to a negligible level, maintaining habitat and protecting wildlife habitats from disturbances during sensitive periods. However, the notices and stipulations for migratory birds, other raptors (other than eagles), and bats protect occupied sites from disturbance during crucial periods, such as the breeding season, but allow development at inactive sites, or in habitat outside of crucial periods (e.g. migratory bird nesting habitat can be developed during the fall and winter), resulting in a loss of habitat. These species would be protected from disturbance effects during crucial periods but could be subject to reductions in crucial seasonal habitats. The extent of this habitat loss cannot be analyzed at the lease sale level, but would be addressed during the environmental review process for APDs.

Sensitive species sites located within sage-grouse PHMA would be protected from disturbance and habitat loss by implementation of the NSO stipulations required for PHMA. PHMA covers 70 percent of the total lease sale area, including all of the parcels in Rich and Summit counties and 40 percent of the parcels in Utah County. If lease development occurs on adjacent private land (using directional drilling), then surface management measures may not apply to the private surface, and negative effects to these species could result on nearby federal lands. Due to the disjunct pattern of federal ownership in the project area, any of the parcels could be affected by impacts from development on adjacent private lands.

In addition to the federally listed fish in the Colorado Basin discussed previously, waters in Utah County also provide habitat for the Colorado River cutthroat trout. Waters in Rich and Summit Counties provide habitat for the Bonneville cutthroat trout. Development activities may impact fish habitat through water use and depletion, increased sediment or erosion, or changes to water quality and temperature. Cutthroat trout are most sensitive to disturbance during spawning activities which typically occur in the late spring to early summer. It is unknown at this time how much water would be needed or what development activities would occur. Habitat would be indirectly protected through stipulations controlling use within 600 or 1,200 feet from live water and allowing no surface occupancy on slopes greater than 30%. The extent of this habitat loss cannot be analyzed at the lease sale level, but would be addressed during the environmental review process for APDs. Therefore these stipulations noted in Table 10 would be added.

These stipulations and notices would inform the lessee of the presence of habitat in or adjacent to the lease parcel and provide additional protections through providing a spatial buffer, limiting activities on steep slopes, and providing a timing buffer limiting activities during spawning season.

Table 10. Sensitive Species Stipulations and Notices (Not Including Sage-Grouse)

Species	Utah County			Rich and Summit Counties		
	Lease Parcel	Stipulation	Notice	Lease Parcel	Stipulation	Notice
Birds						
American Three-toed Woodpecker, American White Pelican, Black Swift, Bobolink, Grasshopper Sparrow, Lewis's Woodpecker, Long-billed Curlew, Sharp-tailed Grouse, Snowy Plover	All	none	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird	All	none	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird
Bald Eagle	All	UT-S-417 CSU/TL Bald Eagle Roost Sites; UT-S-265 CSU/TL Crucial Raptor Nesting Sites	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird; UT-LN-37 Bald Eagle Habitat; UT-LN-44 Raptors; UT-LN-107 Bald Eagle	All	UT-S-281 CSU/Timing Limitation Bald Eagle Habitat/Nesting Areas	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird; UT-LN-37 Bald Eagle Habitat; UT-LN-44 Raptors; UT-LN-107 Bald Eagle;
Golden Eagle	All	UT-S-265 CSU/TL Crucial Raptor Nesting Sites	UT-LN-44 Raptors; UT-LN-45 Migratory Bird; UT-LN-40 Golden Eagle Habitat	All	UT-S-420- TL Raptor Eyeries	UT-LN-44 Raptors; UT-LN-45 Migratory Bird; UT-LN-40 Golden Eagle Habitat
Burrowing Owl, Northern Goshawk, Short-eared Owl	All	UT-S-265 CSU/TL Crucial Raptor Nesting Sites	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird; UT-LN-44 Raptors; UT-LN-104	All	none	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird; UT-LN-44 Raptors; UT-LN-104
Ferruginous Hawk	All	UT-S-265 CSU/TLCrucial Raptor Nesting Sites	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird; UT-LN-44 Raptors;	All	UT-S-420- TL Raptor Eyeries	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird; UT-LN-44 Raptors
Mammals						
Fringed Bat, Townsend's big-eared bat	All	none	UT-LN-49 Utah Sensitive Species	All	none	UT-LN-49 Utah Sensitive Species
White-tailed Prairie Dog	030	none	UT-LN-49 Utah Sensitive Species	All	UT-S-219 NSO White-tailed Prairie Dog Towns	UT-LN-49 Utah Sensitive Species

Species	Utah County			Rich and Summit Counties		
	Lease Parcel	**Stipulation**	**Notice**	**Lease Parcel**	**Stipulation**	**Notice**
Pygmy Rabbit	NA	NA	NA	All	none	UT-LN-49 Utah Sensitive Species
Reptiles						
Smooth Greensnake	All	none	UT-LN-49 Utah Sensitive Species	All	none	UT-LN-49 Utah Sensitive Species
Amphibians						
Western (boreal) toad	All	none	UT-LN-49 Utah Sensitive Species	NA	NA	NA
Fish						
Bonneville Cutthroat Trout, Colorado River Cutthroat Trout	All	UT-S-155 CSU 1,200 feet of live water	UT-LN-49 Utah Sensitive Species, UT-LN-122 Colorado and Bonneville cutthroat trout habitat	All	UT-S-104 CSU slopes >30%, UT-S-132 CSU within 600 feet of live water	UT-LN-49 Utah Sensitive Species, UT-LN-122 Colorado and Bonneville cutthroat trout habitat

4.3.1.4.4 Greater Sage-Grouse

The total area of parcels in the project area is 36,974 acres; 70 percent of this area (25,752 acres) is within PHMA and is subject to NSO limitations, including all of the parcels in Rich and Summit counties and 40 percent of the Utah County parcels. There are several parcels (totaling 8,042 acres) in Rich and Summit counties that are within 3 miles of the Wyoming state line. The surface on the Wyoming side is designated General Habitat Management Area, and the Utah parcels could potentially be directionally drilled from either private surface or Right of Way sites on BLM surface in Wyoming. Development sites in Wyoming would be subject to Conditions of Approval specified by the Wyoming ARMPA (BLM 2015b). Additional coordination with Wyoming BLM, Kemmerer Field Office, would occur when and if an APD is received.

Negative effects to this species in most of the PHMA area would be minimized or eliminated by the NSO restrictions and the other applicable stipulations and notices (Table 11). These measures include limitations on the extent and timing of disturbances, facility density, and tall structures, as well as specifying net conservation gain, design feature, and buffer requirements (Appendix B).

If lease development occurs on adjacent private parcels (using directional drilling), then surface management measures may not apply to the private parcels with private minerals underlying them. Therefore, sage-grouse on federal lands may be subject to disturbance impacts from development facilities and activities on private lands, as well as increased predation due to the placement of tall oil and gas structures that act as raptor perches. This may reduce the reproductive success and/or survivorship of the affected sage-grouse, or drive them away from otherwise suitable habitats. Due to the disjunct pattern of federal ownership in the project area, any of the parcels could be affected by impacts from development on adjacent private lands.

In addition there are 547 acres of opportunity habitat, outside of PHMA, within 4 miles of leks (UDWR 2017b) in Utah County which are subject to stipulations UT-S-356 CSU Indirect Impacts From Noise and UT-S-357 CSU Indirect Impacts From Tall Structures. Also in Utah County there are 1,326 acres in parcels 029, 034, 036, and 037 that are within 3.1 miles of a lek but are outside of PHMA/GHMA and not in opportunity habitat. Noise from lease development activities and indirect impacts from tall structures that might provide new perches for avian predators in these areas could negatively affect the sage-grouse using the adjacent leks. All of the affected parcels and applicable stipulations and notices for greater sage-grouse are summarized in Table 11. The content of the notices and stipulations is provided in Appendix B.

Table 11. Greater Sage-Grouse Stipulations and Notices.

Area of Concern	Parcels		Stipulation	Notice
	Utah County	Rich and Summit Counties		
PHMA	028, 029, 030, 031, 035, 037	All	UT-S-347 NSO GRSG PHMAs; UT-S-348 CSU/NSO Disturbance Cap; UT-S-349 CSU/NSO Density Limitation; UT-S-350 CSU/NSO Breeding Season Noise Limitations; UT-S- 352 CSU Tall Structures; UT-S- 353 Timing Limitation GRSG Breeding, Nesting and Early Brood Rearing; UT-S-354 Timing Limitation GRSG Brood Rearing; UT-S-355 Timing Limitation GRSG Winter Habitat	UT-LN-49 Utah Sensitive Species; UT-LN-129 GRSG Disturbance Cap; UT-LN-130 GRSG Density Limitation; UT-LN-131 GRSG Net Conservation Gain; UT-LN-132 GRSG RDFs; UT-LN-133 GRSG Buffer
Sagebrush Focal Areas	NA	004, 013	UT-S-346 NSO GRSG Sagebrush Focal Areas	none
Opportunity Areas within 4 miles of leks.	029, 035, 036, 037	NA	UT-S-356 CSU Indirect Impacts From Noise; UT-S-357 CSU Indirect Impacts From Tall Structures	none
Wyoming adjacent parcels	NA	007, 014, 015, 016, 017, 018	If directionally drilled from Wyoming BLM lands, these parcels may be subject to notices and stipulations from the Wyoming ARMPA.	If directionally drilled from Wyoming BLM lands, these parcels may be subject to notices and stipulations from the Wyoming ARMPA.

4.3.1.5 Wildlife

Development could result in negative effects to wildlife, including loss, degradation, and fragmentation of habitat; direct mortality due to destruction of individuals (or eggs) within nest and den sites or due to vehicle strikes along access roads; and noise impacts that could disturb wildlife during sensitive periods, reducing the survivorship or reproductive success of the affected wildlife or driving them away from otherwise suitable habitats.

4.3.1.5.1 Big Game

Notices and stipulations for big game species (Appendix B) would protect designated crucial habitats from disturbance due to development on the parcels during sensitive periods, such as the fawning or winter, but allow development in habitat outside of crucial periods resulting in the loss, degradation, and fragmentation of crucial habitats. Big game species would be protected from disturbance effects during crucial periods but could be subject to reductions in crucial seasonal habitats. The extent of this habitat loss cannot be analyzed at the lease sale level, but would be addressed during the environmental review process for APDs. The affected parcels and applicable stipulations and notices for big game are summarized in Table 12.

Big game habitat located within sage-grouse PHMA would be protected from disturbance and habitat loss by implementation of the NSO stipulations required for PHMA. PHMA covers 70 percent of the total lease sale area, including all of the parcels in Rich and Summit counties and 40 percent of the parcels in Utah County. The following areas of crucial big game habitat in Utah County are not within sage-grouse PHMA: 10,911 acres moose winter range; 1,926 acres moose calving; 191 acres mule deer winter range; 11,025 acres mule deer summer range; 1,545 acres elk winter range; and 315 acres elk calving.

If lease development occurs on adjacent private parcels (using directional drilling), then surface management measures may not apply to the private surface, and negative effects to these species could result on nearby federal lands. Due to the disjunct pattern of federal ownership in the project area, any of the parcels could be affected by impacts from development on adjacent private lands.

Table 12. Big Game Stipulations and Notices.

Species	Utah County			Rich and Summit Counties		
	Lease Parcel	Stipulation	Notice	Lease Parcel	Stipulation	Notice
Elk calving	028, 029, 030, 031, 032, 033, 034, 035, 037	UT-S-419 Timing Limitation Crucial Elk Calving Areas	none	001, 007, 009, 014, 015, 016	none	UT-LN-09 Crucial Elk Calving And Deer Fawning Habitat
Elk winter	027, 028, 029, 030, 031, 035, 036, 037	UT-S-418 Timing Limitation Crucial Elk Winter Range	none	002, 003, 004, 006, 007, 009, 012, 015, 017, 018	UT-S-301 Timing Limitation Seasonal Wildlife Habitat	none
Moose calving	028, 029, 030, 031, 032, 033, 034, 035, 036	none	UT-LN-07Crucial Moose Calving Habitat	001, 002, 003, 004, 005, 006, 007, 009, 012, 013, 014, 015, 016, 017, 018	none	UT-LN-07Crucial Moose Calving Habitat
Moose winter	027, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037	none	UT-LN-02Crucial Winter Moose Habitat	002, 003, 004	UT-S-301 Timing Limitation Seasonal Wildlife Habitat	UT-LN-02Crucial Winter Moose Habitat
Mule Deer summer/fawning	027, 029, 032, 033, 034, 035, 036, 037	UT-S-249 Timing Limitation Crucial Mule Deer Summer Fawning Areas	none	001, 003, 005, 006, 007, 009, 012, 014, 015, 017, 018	none	UT-LN-09 Crucial Elk Calving And Deer Fawning Habitat
Mule Deer winter	028, 029, 030, 031, 037	UT-S-237 Timing Limitation Crucial Mule Deer Winter Range	none	001, 002, 003, 004, 005, 006, 007, 009, 012, 013, 014, 015, 016, 017, 018	UT-S-235- Timing Limitation Mule Deer Winter Range	none
Pronghorn fawning	NA - no habitat designated	NA	NA	002, 003, 004, 006, 007, 009, 012, 015, 016	none	UT-LN-14 Pronghorn Fawning Habitat
Pronghorn winter	NA - no habitat designated	NA	NA	004, 013, 015, 017, 018	UT-S-301 Timing Limitation Seasonal Wildlife Habitat	none

4.3.1.5.2 Migratory Birds

Notices and stipulations for migratory birds and raptors (Appendix B) provide for survey, monitoring, and seasonal restrictions and spatial buffers that would protect crucial habitats from disturbance due to development on parcels during sensitive periods, such as during the breeding season, but allow development in habitat outside of sensitive periods. Non-sensitive migratory birds, including raptors, would be protected from development-related disturbances during sensitive periods, but could be subject to reductions in crucial seasonal habitats (loss, degradation, fragmentation) due to lease development activities occurring outside of sensitive periods. The extent of this habitat loss cannot be analyzed at the lease sale level, but would be addressed during the environmental review process for APDs. The affected parcels and applicable stipulations and notices for migratory birds (excluding BLM sensitive species) are summarized in Table 13.

Migratory bird species sites located within sage-grouse PHMA would be protected from disturbance and habitat loss by implementation of the NSO stipulations required for PHMA. PHMA covers 70 percent of the total lease sale area, including all of the parcels in Rich and Summit counties and 40 percent of the parcels in Utah County.

Table 13. Migratory Bird (Non-Sensitive) Species Stipulations and Notices.

Species	Utah County			Rich and Summit Counties		
	Lease Parcel	Stipulation	Notice	Lease Parcel	Stipulation	Notice
Migratory Birds	All	none	UT-LN-45 Migratory Bird	All	none	UT-LN-45 Migratory Bird
Raptors	All	UT-S-265 CSU/Timing Limitation Crucial Raptor Nesting Sites	UT-LN-45 Migratory Bird; UT-LN-44 Raptors;	All	UT-S-420 TL-Raptor Eyeries	UT-LN-45 Migratory Bird; UT-LN-44 Raptors

If lease development occurs on adjacent private lands (using directional drilling), then surface management measures may not apply to the private surface, and negative effects to these species could result on nearby federal lands. Due to the disjunct pattern of federal ownership in the project area, any of the parcels could be affected by impacts from development on adjacent private lands.

4.3.1.6 Visual Resources

The issuance of the proposed leases would not directly impact Visual Resources, however, the issuance of the leases does convey an expectation that drilling and development would eventually occur within the parcels in accordance with the reasonably foreseeable development scenario outlined in this EA. These impacts could result from future development in the form of

oil wells/pads, pipelines, compressors, power lines, constructed roads, and other linear features. These impacts would include modifications to the existing landscape's form, line, color, and texture. Development would be assessed under the criteria for cultural modifications, which may detract from the scenery in the form of a negative intrusion. As a result of development, areas currently rated as Scenic Quality A or B could be downgraded to a lower scenic quality rating.

Such proposed development and modifications to the existing landscape would be allowable so long as it conforms to the VRM Class objectives established in the Approved land use plans. In addition, a variety of best management practices, design features, and land use plan-approved stipulations for future mineral resource development would likely mitigate, limit, and/or prevent such impacts to visual resources. Further detailed analysis of the potential impacts to visual resources would be analyzed as appropriate when oil and gas development plans and permits to drill are submitted.

4.3.2 Alternative B – No Action

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. Under the No Action alternative, the 26 parcels totaling 36,395.64 acres would not be leased. There would be no subsequent environmental impacts from oil and/or gas construction, drilling, and production activities. The No Action alternative would result in the continuation of the current land and resource uses in the proposed lease areas. All parcels may be subject to drainage of Federal reserves by development on adjacent state or private leases. The No Action alternative would result in the continuation of the current land and resources use in the proposed lease areas.

The public's demand for oil and gas is not expected to change; oil and gas consumption is driven by a variety of complex interacting factors including energy costs, efficiency, availability of other energy sources, economics, demographics and/or climate. Interest and development on state or private leases would continue. If the parcels are not leased, the BLM may receive an increase in oil and gas exploration requests and issue more exploration permits. Parcels could be re-nominated by the public in the future.

4.3.2.1 Air Quality

The No Action alternative would prevent future potential impacts related to well operations. Air quality would remain the same as current/existing conditions. Alterations in air quality would not be due to oil and gas management activities on the parcels contained in Appendix A. Notices would not be warranted.

4.3.2.2 Greenhouse Gases/Climate Change

The No Action alternative would prevent future potential impacts relating to well operations. Greenhouse gases and climate change would remain the same as current/existing conditions. Alterations in greenhouse gases or climate change would not be due to oil and gas management activities on the parcels contained in Appendix A. Notices would not be warranted.

4.3.2.3 Minerals

The No Action Alternative would not have impacts on mineral resources as the parcels would not be developed.

4.3.2.4 Special Status Animal Species

Canada Lynx, Mexican Spotted Owl, Yellow-Billed Cuckoo, Upper Colorado Recovery Program Fishes, BLM Sensitive Species, and Greater Sage-Grouse

The No Action alternative would not result in potential impacts to special status plant or animal species because the parcels would not be leased and therefore not developed. No disturbance would occur that could impact these species.

4.3.2.5 Wildlife

Big Game and Migratory Birds

The No Action alternative would not result in potential impacts to big game or migratory bird habitats because the parcels would not be leased and therefore not developed.

4.3.2.6 Visual Resources

The No Action alternative would not result in potential impacts to visual resources because the parcels would not be leased, and therefore, would not be developed. Changes in the landscape would not be made due to oil and gas exploration or development of the leases.

4.4 Cumulative Impacts

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.

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 mineral extraction activities. A variety of activities, such as livestock grazing, sightseeing, 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 negligible impacts to resources because of their dispersed nature. Other activities, such as, communication sites, rail road tracks, filming, and the occasional 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 Cumulative Impact Analysis Area (CIAA) because of their more concentrated nature. As 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 Pony Express RMP/EIS and the Bear River East oil and gas leasing EA, are incorporated by reference into Chapter 4. The proposed action would contribute to these cumulative impacts by making 26 parcels available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed. It is assumed that the proposed action would add a total of 4 wells for all 26 parcels, and a total disturbance will be 25.86 acres (Section 2.2.1).

The No Action alternative would not contribute any cumulative impacts because direct/indirect impacts are not anticipated (Sections 4.3.2-4.3.2.5).

4.4.1 Air Quality

The CIAA for air quality is Northern Utah, specifically Summit, Rich and Utah counties with a small overlap into Carbon County, Utah and Uinta County, Wyoming. These areas share regional air quality issues with these counties in Utah, are included in the analysis area for the consideration of cumulative impacts. The CIAA also includes regional Class I areas and other environmentally sensitive areas (e.g., national parks and monuments, wilderness areas, etc.) nearest to the parcels. BLM's Air Resource Management Strategy Model (BLM 2014) also intersects the area of Utah occupied by these parcels.

Past and present actions that have affected and would likely continue to affect air quality in the CIAA include surface disturbance resulting from oil and gas development and associated infrastructure, geophysical exploration, ranching and livestock grazing, range improvements, recreation (including OHV use), authorization of ROWs for utilities and other uses, and road

development. Past and present actions in CIAA that have affected and would likely continue to affect air quality are too numerous to list here but would include the development of power plants; the development of energy sources such as oil, gas, and coal; the development of highways and roads; and the development of various industries that emit pollutants. These types of actions and activities can reduce air quality through emissions of criteria pollutants (including fugitive dust), VOCs, and HAPs, as well as contribute to deposition impacts and to a reduction in visibility.

Based on the relatively minor levels of emissions associated with this proposed development, and the application of BMPs, 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 exceedances of any NAAQS, including those exceedances already occurring within the non-attainment areas of the Utah County.

Other emission contributors would continue at present rates such as construction, urban development, and personal vehicle use along the Wasatch Front. Other exploratory wells have been abandoned within Rich, Summit and Utah counties.

Exceptional events such as a dust storm or major large wildfires could result in very high PM_{10} values across the network. Data of such events would be coordinated with the EPA for review under the exceptional event rules.

Visibility conditions in Class I and Class II area could remain at present rates of increase due to activities along the Wasatch Front.

Similar to the direct/indirect impacts, to mitigate any potential impacts from oil and gas development emissions may have on air quality in the CIAA, BMPs that would be required at the APD stage would include the following lease notices: UT-LN-96 (Air Quality Mitigation Measures), UT-LN-99 (Regional Ozone Formation Controls), UT-LN-102 (Air Quality), and UT-LN-102 (Air Quality Analysis) would be applied to all lease parcels for this sale (Appendix A). Refer to Appendix B for the full text of these lease notices.

4.4.2 Greenhouse Gases/Climate Change

There are no boundaries with which to identify a CIAA for climate change. The proposed action could result in a slight incremental increase in GHG emissions, thus contribute to the global impacts. It is now well established that rising global atmospheric GHG emission concentrations are affecting the Earth's climate. These conclusions are built upon a scientific record that has been created with substantial contributions from the United States Global Change Research Program (USGCRP 1990). Studies have projected the effects of increasing GHGs on many resources normally discussed in the NEPA process, including water availability, ocean acidity, sea-level rise, ecosystem functions, energy production, agriculture and food security, air quality and human health.

Based primarily on the scientific assessments of the USGCRP, the National Research Council, and the ICPP, in 2009, the EPA issued a finding that the changes in our climate caused by elevated concentrations of GHG in the atmosphere are reasonably anticipated to endanger the public health and public welfare of current and future generations. In 2015, EPA acknowledged more recent scientific assessments that "highlight the urgency of addressing the rising concentration of CO_2 in the atmosphere," (EPA 2017). The EPA also found that certain groups are especially vulnerable to climate-related effects. Broadly stated, the effects of climate change observed to date and projected to occur in the future include more frequent and intense heat

waves, longer fire seasons and more severe wildfires, degraded air quality, more heavy downpours and flooding, increased drought, greater sea-level rise, more intense storms, harm to water resources, harm to agriculture, ocean acidification, and harm to wildlife and ecosystems.

It is unknown if the No Action Alternative would result in decreased emissions, thus a reduced global climate change impact. It cannot be predicted if any oil and gas extracted from the proposed action would be combusted as fuel, or used as manufacturing material. In addition, other sources of fossil fuels may be extracted and combusted to meet the energy demands not met by extracting hydrocarbons from the parcels.

Research on climate change impacts is an emerging and rapidly evolving area of science, but given the lack of adequate analysis methods it is not possible to identify specific local, regional, or global climate change impacts based on potential GHG emissions from any specific project's incremental contributions to the global GHG burden. The climate change research community has not yet developed tools specifically intended for evaluating or quantifying end-point impacts attributable to the emissions of GHGs from a single source, and we are not aware of any scientific literature to draw from regarding the climate effects of individual, facility-level GHG emissions. The current tools for simulating climate change generally focus on global and regional-scale modeling. Global and regional-scale models lack the capability to represent explicitly many important small-scale processes. As a result, confidence in regional- and sub-regional-scale projections is lower than at the global scale. There is thus limited scientific capability in assessing, detecting, or measuring the relationship between emissions of GHGs from a specific single source and any localized impacts. As a consequence, impact assessment of effects of specific anthropogenic activities cannot be performed. Additionally, specific levels of significance have not yet been established. Therefore, climate change analysis for the purpose of this document is limited to accounting and disclosing of factors that contribute to climate change. In the coming decades, climate change may lead to changes in the Mountain West and Colorado Plateau such as warmer temperatures, less snowfall, more frequent or severe drought, increased wildland fire potential, and other potential impacts.

Future foreseeable development could contribute to cumulative GHG emissions from existing fossil fuel combustion and fugitive CH_4 releases. Sources could continue to include oil/gas facilities, vehicles traveling to/from existing facilities, changes to the demographics and public uses of oil/gas resources along the Wasatch Front or the general region of Northern Utah. GHGs that are released would continue to vary depending on the age/condition of facilities/equipment/vehicles utilized for a wide variety of activities in Utah.

4.4.3 Minerals

The CIAA only includes parcels from the September and December 2018 lease sales in Utah that occur within or immediately adjacent to the SLFO. Future development of the leases could result from leasing. Based on trends over the past 3 years, parcels may be nominated for oil and gas leases and potentially developed accordingly. Prior to the September 2018 lease sale, the SLFO has 100 authorized leases (183,699 acres)[12]. The SLFO has 20 active leases which encompasses 24,175 acres prior to the September 2018 sale, an additional 699 acres (1 lease) are pending and an additional 79 leases encompassing a total of 158,866 acres are in lease suspension. Any

[12] Analysis BLM GIS layers: BLM Utah Oil and Gas Lease, Lands Available Non-Competitively Oil and Gas and Suspended Oil and Gas Leases

existing leases in this area can be reasonably expected to have exploration and potential development. Energy production would accumulate on non-federally-managed surface or sub-surface estate (s). As noted in Section 2.2.1, leasing up to 26 parcels covering 36,395.64 acres and potential development of up to 4 wells on 27.2 acres would result in a minor loss of access to mineral resources. Surface disturbance would be based on the development of the mineral estate. Directionally drilled or horizontally drilled development may increase density of roads, pipelines and/or structures within Rich, Summit and Utah County. The past, present, and foreseeable future actions include development of new and existing mineral rights, such as possible future rights-of-way, saleable contracts or permits, mining claims, and coal, oil shale leases, and future oil and gas leases. Prior to the September 11, 2018 lease sale, the BLM received nominations for the December 11, 2018 sale. These new nominations are adjacent to the proposed September leases. The BLM received nominations for 17 parcels (29,290.88 acres) in Carbon County managed by the Price Field Office. Those parcels are adjacent to the 11 parcels in Utah County nominated for the September sale. Also, received an additional 7 parcels (6,515.09 acres) in Rich and Morgan County for the December 11, 2018 sale. Consequently, cumulative impacts to minerals would be minor even with the additional acreages proposed in future lease sale(s). Often times parcels are not acquired through the competitive lease sale and non-competitive lease sale as described in Section 1.2. Therefore if the nominated parcels are not acquired, there would be no cumulative impacts.

4.4.4 Special Status Animal Species

4.4.4.1 Canada Lynx, Mexican Spotted Owl, and Yellow-Billed Cuckoo

The CIAA for Canada lynx, Mexican spotted owl, and yellow-billed cuckoo is the SLFO planning area. Past, present and future uses and impacts in the cumulative impact area may include oil and gas development, fuels reduction and habitat restoration projects, wildfire, spread of invasive and noxious weeds, realty actions, urbanization (e.g. roads, power and pipe lines), continued agricultural activities and recreational impacts. Cumulative impacts include loss and/or degradation of sensitive species habitats, habitat fragmentation, increased predation, loss of prey species, and disruption or alteration of seasonal migration routes. Leasing and ensuing development of one or more of these parcels may contribute to a reduction in the overall abundance of most affected species through direct and indirect impacts, but it would not be expected to increase cumulative effects to levels that would compromise the viability of any listed species population, or the use of broader intact landscapes within or near the cumulative impact area. The Proposed Action would contribute to these cumulative impacts by making the parcels available for lease sale and mineral development, with the potential for future surface disturbance should the lease parcels be developed.

4.4.4.2 Upper Colorado Recovery Program Fishes

The CIAA for this resource is the Colorado River system. Past, present, and reasonably foreseeable future actions that contribute to cumulative impacts in this area include oil and gas exploration and development, irrigation, urban development, recreational activities, and activities associated with the Upper Colorado River Endangered Fish Recovery Program. Cumulative impacts such as decreased water quality and quantity, decreased habitat quality, habitat fragmentation, and mortality result from decreased stream flow, erosion, improperly placed culverts, elevated salinity, and contamination. Decreased stream-flows reduce or eliminate both the extent and quality of suitable habitat by increasing stream temperatures, and subsequently by reducing dissolved oxygen levels.

Such impacts may be more pronounced during periods of natural cyclic flow reductions (fall and winter or periods of drought). A loss of streamflow can also reduce a stream's ability to transport sediment downstream. Sediment amount is influenced by the number of road/stream crossings, bank slope, amount of exposed soil, type of vegetation in the area, frequency and intensity of rainfall, soil type (amount of salinity), soil contamination, and the implementation and effectiveness of erosion control measures.

The cumulative impacts of the proposed action are expected to be increased sediment loads. Sediment loads above background levels can reduce pool depths, bury stream substrates and spawning gravels, adhere to aquatic insects and the gills of fish, alter channel form and function, and result in other forms of habitat degradation. Elevated salinity levels, over extended periods of time, may become toxic for aquatic ecosystems and fish species. In addition, improperly placed, shaped, and sized culverts in roads can act as fish barriers on key streams or exacerbate erosion and cause head cutting. However, the implementation of conservation measures may reduce potential cumulative effects.

4.4.4.3 BLM Sensitive Species

The CIAA for BLM sensitive species is the SLFO planning area. Past, present and future uses and impacts in the cumulative impact area may include oil and gas development, fuels reduction and habitat restoration projects, wildfire, spread of invasive and noxious weeds, realty actions, urbanization (e.g. roads, power and pipe lines), continued agricultural activities and recreational impacts. Cumulative impacts include loss and/or degradation of sensitive species habitats, habitat fragmentation, increased predation, loss of prey species, and disruption or alteration of seasonal migration routes. Leasing and ensuing development of one or more of these parcels is likely to contribute to a reduction in the overall abundance of most affected species through direct and indirect impacts, but it would not be expected to increase cumulative effects to levels that would compromise the viability of any sensitive species population, or the use of broader intact landscapes within or near the cumulative impact area. The Proposed Action would contribute to these cumulative impacts by making the parcels available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed.

Cumulative impacts in this area for aquatic species include oil and gas exploration and development, irrigation, urban development, and recreational activities. Cumulative impacts such as decreased water quality and quantity, decreased habitat quality, habitat fragmentation, and mortality result from decreased stream flow, erosion, improperly placed culverts, elevated salinity, and contamination. Decreased stream-flows reduce or eliminate both the extent and quality of suitable habitat by increasing stream temperatures, and subsequently by reducing dissolved oxygen levels.

Such impacts may be more pronounced during periods of natural cyclic flow reductions (fall and winter or periods of drought). A loss of streamflow can also reduce a stream's ability to transport sediment downstream. Sediment amount is influenced by the number of road/stream crossings, bank slope, amount of exposed soil, type of vegetation in the area, frequency and intensity of rainfall, soil type (amount of salinity), soil contamination, and the implementation and effectiveness of erosion control measures.

The cumulative impacts are expected to be increase in sediment. Sediment loads above background levels can reduce pool depths, bury stream substrates and spawning gravels, adhere to aquatic insects and the gills of fish, alter channel form and function, and result in other forms

of habitat degradation. Elevated salinity levels, over extended periods of time, may become toxic for aquatic ecosystems and fish species. In addition, improperly placed, shaped, and sized culverts in roads can act as fish barriers on key streams or exacerbate erosion and cause head cutting.

4.4.4.4 Greater Sage-Grouse

The CIAA for the greater sage-grouse is the SLFO planning area. Past, present and future uses and impacts in the cumulative impact area may include oil and gas development, fuels reduction and habitat restoration projects, wildfire, spread of invasive and noxious weeds, realty actions, urbanization (e.g. roads, power and pipe lines), continued agricultural activities and recreational impacts. Cumulative impacts include loss and/or degradation of seasonal habitats, habitat fragmentation, increased predation, and disruption or alteration of seasonal migration routes. The NSO restrictions attached to the PHMA make it unlikely that leasing and ensuing development of one or more of these parcels would contribute to a reduction in the overall abundance of sage-grouse, although directional drilling operations from adjacent private lands would not be subject to these restrictions, and would affect sage-grouse on those private lands and possibly on adjacent public lands through disturbance impacts and the increase in tall structures. However, it would not be expected to increase cumulative effects to levels that would compromise the viability of any sage-grouse population or the use of broader intact landscapes within or near the cumulative impact area. The Proposed Action would contribute to these cumulative impacts by making the parcels available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed. Neither of the sage-grouse population areas (Rich and Carbon) within the lease sale area have reached the 3 percent disturbance cap. Assuming the RFD scenario of 6.8 acres of disturbance in the Rich population Area and 20.4 acres in the Carbon Population Area, neither population area would exceed the disturbance cap (Rich 1.04 percent, Carbon 2.21 percent).

4.4.5 Wildlife

4.4.5.1 Big Game

The CIAA for big game species is the SLFO planning area. Past, present and future uses and impacts in the cumulative impact area may include oil and gas development, fuels reduction and habitat restoration projects, wildfire, spread of invasive and noxious weeds, realty actions, urbanization (e.g. roads, power and pipe lines), continued agricultural activities and increased recreational impacts. Cumulative impacts include loss and/or degradation of crucial big game habitats, habitat fragmentation, and disruption or alteration of seasonal migration routes. Leasing and ensuing development of one or more of these parcels is likely to contribute to a reduction in the local abundance of big game species through direct and indirect impacts, but it would not be expected to increase cumulative effects to levels that would compromise the viability of any big game species population or the use of broader intact landscapes within or near the cumulative impact area. The Proposed Action would contribute to these cumulative impacts by making the parcels available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed.

4.4.5.2 Migratory Birds

The CIAA for migratory birds is the SLFO planning area. Past, present and future uses and impacts in the cumulative impact area may include oil and gas development, fuels reduction and habitat restoration projects, wildfire, spread of invasive and noxious weeds, realty actions,

urbanization (e.g. roads, power and pipe lines), continued agricultural activities and recreational impacts. Cumulative impacts include loss and/or degradation of migratory bird breeding and foraging habitat, habitat fragmentation, increased predation, and disruption or alteration of seasonal migration routes. Leasing and ensuing development of one or more of these parcels is likely to contribute to a reduction in the overall abundance of most affected species through direct and indirect impacts, but it would not be expected to increase cumulative effects to levels that would compromise the viability of any migratory bird population or the use of broader intact landscapes within or near the cumulative impact area. The Proposed Action would contribute to these cumulative impacts by making the parcels available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed.

4.4.6 Visual Resources

The CIAA for visual resources includes the area of the parcels plus direct line of sight in the foreground-middleground (defined as 3-5 miles in Handbook 8410) surrounding the outermost boundary of the parcel. Continued urban development could occur adjacent to or nearby the parcels. Land tenure adjustments could occur making landscape management approaches more difficult to achieve VRM management goals.

5.0 CONSULTATION AND COORDINATION

5.1 Introduction

The issues included in Section 1.6 identifies those that are analyzed in detail in Chapter 4. The Checklist (Appendix D) provides the rationale for issues that were considered but not analyzed further. The issues were identified through the public and agency involvement process described in Sections 5.2 and 5.3 below.

5.2 Persons, Groups, and Agencies Consulted

Persons, agencies and organizations that were consulted with during this EA are identified in Table 14.

Table 14. Persons, Agencies and Organizations Consulted.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Kemmerer Field Office Price Field Office Green River District	Coordinated with as adjacent field office partners or other BLM offices with similar resources.	An email was sent to Kemmerer Field Office on 1/16/2018. Comments or concerns were not expressed. Coordination with Price Field Office occurred in December 2017 through January 2018 via emails and phone calls. They concurred that there are no impacts to Livestock Grazing and that lands with wilderness characteristics are not present. Additional information was provided (i.e. GIS layers, Price Field Office RMP references) for the parcels that are adjacent to Carbon County. Green River District fisheries biologist was consulted regarding Upper Colorado River Recovery Program Fishes and the USFWS determination of water depletions in the basin affecting the listed fish.
National Park Service	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on November 13, 2017. A map and GIS shapefiles were sent to the NPS on November 13, 2017 via email. Comments or concerns were not expressed.
United States Fish and Wildlife Service	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on November 13, 2017. An early email was sent on November 13, 2017 transmitting the corresponding shapefiles. There are seven listed species present in the area of the parcels (refer to Section 3.3.4). USFWS concurrence was received on June 8, 2018 with a no adverse affect to yellow-billed cuckoo, Colorado River Endangered Fish, and Mexican spotted owl. No adverse affect determination from USFWS was received on April 4, 2007 for the Canada lynx.
United States Forest Service	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on November 13, 2017. Comments or concerns were not expressed.
Public Lands Policy Coordination Office	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on November 13, 2017. An e-mail with GIS shape-files was sent to UDWR to satisfy the requirements of IM-2012-43.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Utah Division of Wildlife Resources	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on November 13, 2017. An early email was sent on November 13, 2017 transmitting the corresponding shapefiles. Comments of change of surface rights for T11S R9E Section 14 and for T11S R9E Section 13, the lessee will be required to obtain a surface use agreement with SITLA to utilize the surface.
State Institutional Trust Lands Administration	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on November 13, 2017.
State Historic Preservation Office	Consultation as required by NHPA (16 USC 470)	No Impact and a No Adverse Effects determination was forwarded to the SHPO on May 7, 2018. Concurrence with that determination of effect was received from the SHPO on May 9, 2018.
Pueblo of Jemez, Hopi Tribe, Paiute Indian Tribe of Utah, Ute Indian Tribe, Eastern Shoshone Tribe, and Northwestern Band of Shoshone Nation.	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1996) and NHPA (16 USC 470)	An invitation to consult letter was sent on 12/21/2017. Coordination and consultation will continue up until the lease auction, at the request of any Tribe.
Rich County Summit County Utah County	Coordinated with as a leasing program partner.	On 4/6/2018, SLFO emailed the Utah County and Rich County commissioners regarding the public comment period on the EA. Concerns/comments were not expressed. A follow-up letter was sent to each commissioner/councilor on 7/18/2018.
U.S. Fish and Wildlife Service	Consultation as required by the Endangered Species Act	On November 13, 2017 BLM sent a memorandum to the Utah Field Office of the Fish and Wildlife Service (FWS) enclosing a preliminary list of parcels to be offered at the lease sale. On November 30, the memo was followed up with an email transmitting Geographic Information System (GIS) shape files of the parcels to the FWS. On June 1, 2018, BLM sent another memo to FWS initiating informal consultation for Mexican Spotted Owl, Yellow-billed cuckoo and Colorado River fishes. The memo determined the lease sale "may affect, but is not likely to adversely affect" the fore-named species. On June 8, 2018, the FWS concurred with the finding, concluding consultation for the SLFO.

5.3 Summary of Public Participation

Scoping Period

Section 1.6 Identification of Issues of this EA, describes the public participation process used to identify the issues that are analyzed. The public participation process included a notification posted on the NEPA Register and 30 day review and comment period.

On November 13, 2017, the BLM sent letters 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), Division of Wildlife Resources (UDWR) and the School 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. The BLM also provided GIS shapefiles depicting the proposed sale parcels to contact points within the NPS and UDWR. Consultation will also conclude with the State Historic Preservation Office and the Native American Tribes.

The SLFO notified private land owners on December 12, 2017 via certified mail.

The deadline for the public to nominate areas or otherwise submit EOIs was October 2, 2017.

Comment Period

As introduced in Section 1.2, the preliminary EA and the unsigned Finding of No Significant Impact (FONSI) were posted and made available for a 15-day public review and comment period. The document will be made available online at the Utah State Office's Oil and Gas Leasing Webpage and the BLM's NEPA Register. Upon request these documents can also be reviewed in the public room at the Salt Lake Field Office.

The BLM acknowledges concerns expressed by the public regarding this project. Information within the comments that was background or general in nature was reviewed; however, responses to or clarifications made to the EA from these items are not necessary. Likewise, expressions of position or opinion are acknowledged but do not cause a change in the analysis. As identified in the BLM NEPA Handbook (H-1790-1, Section 6.9.2.2 comment response and Chapter 10 – Environmental Analysis, respectively), the BLM looked for modifications to the alternatives and the analysis as well as factual corrections while reviewing public comments.

BLM received four (4) comment letters on the EA:

1. Farmland Reserve, Inc.
2. WildEarth Guardians
3. Center for Biological Diversity and Western Watersheds Project
4. Trout Unlimited

Copies of these letters will be placed on the UT922's NEPA Register. The comment letter topics included concerns over the BLM's oil and gas leasing policies, private property (uses and goals), determining the RFDS, protecting wildlife habitat (greater sage-grouse and fish), hydraulic fracturing, emission level increases to air quality & greenhouse gases and NEPA adequacy (cumulative impacts, deferring analysis to APD stage and range of alternatives).

Section 5.3.1 identifies changes to this EA that were made as a result of public comments and internal review. Comments and BLM's responses to each of the comment letters are shown in Appendix E.

NHPA Coordination

The 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. The BLM will consult with Indian tribes on a government-to-government basis in accordance with Executive Order 13175 and other policies, if requested by any Tribe. If Tribal concerns are identified,

including impacts on Indian trust assets and potential impacts to cultural resources, they will be given due consideration.

5.3.1 Modifications Based Public Comment and Internal Review

The public comment period and corresponding internal review identified necessary corrections or clarifications to this EA. These modifications include:

1. When warranted 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, pagination or formatting style, and redundancies. The current month/year was replaced onto the title page and the page headers to distinguish from the comment period version of the EA.
2. Section 1.5 – the titles and citations were updated for the special status species and cultural reports.
3. Sections 1.6, 3.3.6, 4.3.1.6, 4.3.2.6 and 4.4.6 – were added to respond to a protest regarding visual resources. Appendix D was updated.
4. Section 2.2.1 – RFDS acreages were corrected.
5. Section 3.3.2 – global warming trend discussion was updated.
6. Section 3.3.4.6 – GRSG information was reorganized and lek and count information was added.
7. Section 3.3.5.1 – big game information was reorganized.
8. Section 3.3.5.2 – a reference for the BLM Sensitive Species List was added.
9. Section 4.3.1.4.1 – the applicable stipulations and notices in Table 9 were updated for Western Yellow-billed Cuckoo. The findings & conclusions in Table 9 and Table 12 were updated for Peregrine Falcon Nesting. The effects determination discussion was updated.
10. Section 4.3.1.5.1 – Table 12 was updated to include notices UT-LN-09 and UT-LN-14.
11. Section 4.3.1.5.2 – Table 13 was edited to remove notice UT-LN-49 and stipulation UT-S-416. Nesting cliff buffers do not intersect the parcels.
12. Sections 4.4.1, 4.4.2, 4.4.3 – cumulative impact analysis information was updated.
13. Section 5.2 – the findings & conclusions in Table 14 were updated for USFWS, SHPO, UDWR, SITLA and SHPO. Coordination with the counties was added.
14. Section 5.3 – was updated to include discussion about the results of the comment period.
15. Section 6.1 – was updated to include necessary changes in the references used, such as corrected hyperlinks or titles. Some references were added and some were removed.
16. Appendix A – was edited to include two notices for mule deer fawning habitat (UT-LN-09) and pronghorn fawning habitat (UT LN-14). Stipulation UT-S-416 was removed from the parcel list.
17. Appendix B – was edited to include notices for mule deer fawning habitat (UT-LN-09) and pronghorn fawning habitat (UT LN-14) were added. Stipulation UT-S-416 was removed.
18. Appendix D – was updated for greenhouse gases (carbon emissions), cultural resources, Native American religious concerns, special status animal species, and hydraulic fracturing.
19. Appendix E – was added to include the comment letters (summaries) and BLM's responses to the points raised.

5.4 List of Preparers

An IDPR Team prepared the document and analyzed the impact of the proposed action upon the various resources (Table 15). They considered the affected environment and documented their determination in the Checklist (Appendix D). Only those resources that would likely be impacted were carried forward into the body of the EA for further analysis.

Table 15. Preparers of This EA.

Name	Title	Responsible for the Following Section(s) of this Document
Angela Wadman	Geologist	Project Lead
Michael Sheehan	Archaeologist	NHPA Compliance
Nancy Williams	Wildlife Biologists	Threatened, Endangered, Candidate and Sensitive Species (Terrestrial Fauna); Migratory Birds, Greater Sage-Grouse, and general wildlife.
Cassie Mellon	Aquatic Ecologist	Threatened, Endangered, Candidate and Sensitive Species (Aquatic Fauna); Wetlands/Riparian Zones/Floodplains, Water Resources, Fish Habitat
Pamela Schuller	Environmental Coordinator	NEPA Compliance; Air Quality; Greenhouse Gases, Native American Consultation
Matt Preston	Acting WDD Manager and Salt Lake Field Manager	Review and Oversight
Marcia Wineteer	Botanist	USFWS Consultation
Melinda Moffit	Natural Resource Specialist	Oil and Gas Leasing Program
Allison Ginn	Outdoor Recreation Planner	Oil and Gas Leasing Program
Erik Vernon	Air Quality Specialist	Oil and Gas Leasing Program
Robin Naeve	Fluid Minerals Branch Chief	Oil and Gas Leasing Program Review and Oversight
Leslie Wilken	Land Law Examiner	Oil and Gas Leasing Program
Sheri Wysong	Fluid Minerals Leasing Coordinator	Oil and Gas Leasing Program Lead

Refer also the interdisciplinary team members identified on the Checklist (Appendix D).

6.0 REFERENCES, ACRONYMS/ABREVIATIONS AND APPENDICES

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6.2 Acronyms/Abbreviations

AO	Authorized Officer
APD	Application for Permit to Drill
ARMPA	Approved Resource Management Plan Amendments
BCR	Bird Conservation Region
BLM	Bureau of Land Management
BMP	Best Management Practice
CAA	Clean Air Act
CFR	Code of Federal Regulations
CIAA	Cumulative Impact Analysis Area
COA	Condition of Approval
CWCS	Comprehensive Wildlife Conservation Strategy
DR	Decision Record
EA	Environmental Assessment
EAR	Environmental Analysis Record
EIS	Environmental Impact Statement
EOI	Expression of Interest
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FFO	Fillmore Field Office
FLPMA	Federal Land Policy and Management Act
FONSI	Finding of No Significant Impact
GIS	Geographical information System
GWP	Global Warming Potential
H	Handbook
IDPR	Interdisciplinary Parcel Review
IM	Instruction Memorandum
LN	Lease Notice
MBTA	Migratory Bird Treaty Act
Mcf	One Million Cubic Feet
MLA	Mineral Leasing Act
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NCLS	Notice of Competitive Lease Sale
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards For Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
O.O.	Onshore Oil and Gas Order
PLPCO	Public Lands Policy Coordinating Office
RPA	Rich GRSG Population Area
RFDS	Reasonably Foreseeable Development Scenario
RMP	Resource Management Plan
ROD	Record of Decision
ROW	Right of Way
S	Stipulation
SHPO	State Historic Preservation Office
SITLA	State Institutional Trust Lands Administration
SLFO	Salt Lake Field Office
UDAQ	Utah Division of Air Quality
UDWR	Utah Division of Wildlife Resources
USFS	United States Forest Service
USFWS	United States Fish & Wildlife Service
UT	Utah
UTSO	Utah State Office
WDD	West Desert District
WO	Washington Office

6.3 Appendices

Appendix A, Parcel List with Stipulations and Notices

Appendix B, Stipulations and Notices

Appendix C, Figures (Maps)

Appendix D, Interdisciplinary Team Checklist

Appendix E, Comments and Responses

Appendix A – Parcel List with Stipulations and Notices

In addition to the parcel specific Stipulations and Notices listed below, the stipulations and notices presented in this table would be applied to all parcels:

Stipulations	Notices
	UT-LN-37: Bald Eagle Habitat
Handbook H-3120-1 (Cultural Resources Protection Stipulation)	UT-LN-40: Golden Eagle Habitat
Handbook H-3120-1 (Threatened & Endangered Species Act Stipulation)	UT-LN-44: Raptors
	UT-LN-45: Migratory Birds
	UT-LN-49: Utah Sensitive Species
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-104: Burrowing Owl Habitat
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	T&E-31: Western Yellow-billed Cuckoo

UT0918 – 001
T. 5 N., R. 6 E., SLM
Sec. 26: S2NE, NW, N2SW, SWSW, NWSE.
400.00 Acres
Rich County, Utah (46.92 ac.)
Summit County, Utah (353.08 ac.)
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures

UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 002
T. 7 N., R. 6 E., SLM
Sec. 12: NE, W2NW, NWSW, W2SE, SESE;
400.00 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-14: Pronghorn Fawning Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation

UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 003
T. 8 N., R. 6 E., SLM
Sec. 12: N2NE, N2NW, SWNW, S2;
Sec. 14: All;
Sec. 26: Lots 1-3, W2NE, W2, NWSE.
1,719.12 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-165: Controlled Surface Use-VRM Class II and III Areas
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-14: Pronghorn Fawning Habitat
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 004
T. 9 N., R. 6 E., SLM
Sec. 13: NENE, NW, NWSW;

Sec. 14: N2, SW, N2SE, SWSE;
Sec. 23: N2NW;
Sec. 24: S2NE, NESW, S2SW, SE;
Sec. 26: All.
1,920.00 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-165: Controlled Surface Use-VRM Class II and III Areas
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-346: No Surface Occupancy-Greater Sage-Grouse Sagebrush Focal Areas
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-14: Pronghorn Fawning Habitat
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 005
T. 5 N., R. 7 E., SLM
Sec. 10: NENE excepting RR ROW.
40.00 Acres
Summit County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent

UT-S-132: No Surface Occupancy-Live Water
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 006
T. 7 N., R. 7 E., SLM
Secs. 4, 8 and 10: All.
1,923.00 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-165: Controlled Surface Use-VRM Class II and III Areas
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat

UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-14: Pronghorn Fawning Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 007
T. 7 N., R. 7 E., SLM
Sec. 12: E2;
Secs. 14 and 24: All;
Sec. 26: E2, E2NW, E2SW.
2,080.00 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-165: Controlled Surface Use-VRM Class II and III Areas
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-14: Pronghorn Fawning Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain

UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 009
T. 7 N., R. 7 E., SLM
Sec. 20: E2;
Secs. 22, and 28: All.
1,600.00 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-14: Pronghorn Fawning Habitat
UT-LN-57: Public Water Reserve
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 012
T. 8 N., R. 7 E., SLM
Sec. 26: N2NE SWNE, N2SENE, E2, NWSE, N2SWSE.
520.00 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-165: Controlled Surface Use-VRM Class II and III Areas
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-14: Pronghorn Fawning Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 013
T. 9 N., R. 7 E., SLM
Sec. 18: Lot 1, NENW.
71.66 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-346: No Surface Occupancy-Greater Sage-Grouse Sagebrush Focal Areas
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation

UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 014
T. 6 N., R. 8 E., SLM
Sec. 20: NWNW excepting RR ROW UTSL027657.
33.94 Acres
Summit County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 015
T. 7 N., R. 8 E., SLM
Sec. 4: All;
Sec. 6: All excepting R/W 8;
Secs. 8 and 18: All.
2,161.86 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-165: Controlled Surface Use-VRM Class II and III Areas
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-14: Pronghorn Fawning Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 016
T. 7 N., R. 8 E., SLM
Secs. 20, 28 and 30: All.
1,434.96 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water

UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial MuleDeer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-14: Pronghorn Fawning Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 017
T. 8 N., R. 8 E., SLM
Secs. 4, 6 and 8: All;
Sec. 18: Lots 1-4; E2, E2NW, NESW.
2,026.04 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-165: Controlled Surface Use-VRM Class II and III Areas
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing

UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 018
T. 8 N., R. 8 E., SLM
Secs. 20 and 28: All excepting R/W 8;
Sec. 30: All.
1,436.13 Acres
Rich County, Utah
Salt Lake Field Office

Stipulations:
UT-S-104: No Surface Occupancy-Slopes in Excess of 30 Percent
UT-S-132: No Surface Occupancy-Live Water
UT-S-165: Controlled Surface Use-VRM Class II and III Areas
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-235: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-281: Controlled Surface Use/Timing Limitation-Bald Eagle Habitat/Nesting Areas
UT-S-301: Timing Limitation-Seasonal Wildlife Habitat
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-420: Controlled Surface Use/Timing Limitation-Raptor Eyries
UT-S-421: Air Quality Monitoring

Notices:
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-09: Crucial Elk Calving and Deer Fawning Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features

UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 027
T. 11 S., R. 8 E., SLM
Secs. 1 and 12: All.
1,220.08 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:
UT-S-155: Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-166: Controlled Surface Use-Visual Resource Management (VRM) Class II and III Areas
UT-S-249: Timing Limitation-Crucial Mule Deer Summer Fawning Areas
UT-S-265: Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-417: Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-418: Timing Limitations-Crucial Elk Winter Range

Notices:
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06: Mexican Spotted Owl
T&E-10: Canada Lynx
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-57: Public Water Reserve
UT-LN-60: Steep Slopes
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat

UT0918 – 028
T. 11 S., R. 8 E., SLM
Sec. 5: Lot 3;
Sec. 6: SWNW;
Sec. 7: SWNW, SW.
257.60 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:
UT-S-155: Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-237: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-265: Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures

UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-417: Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-418: Timing Limitations-Crucial Elk Winter Range
UT-S-419: Timing Limitation-Crucial Elk Calving Areas

Notices:
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06: Mexican Spotted Owl
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-57: Public Water Reserve
UT-LN-60: Steep Slopes
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer

UT0918 – 029
T. 11 S., R. 8 E., SLM
Sec. 13: Lots 1-6, NE;
Sec. 14: Lots 9-12, SW;
Sec. 23: Lot 1, W2NE, SENE, NW, N2SW, SESW, N2SE;
Sec. 24: Lots 1-3, E2NE, W2SW, SESE.
1,386.12 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:
UT-S-155: Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-166: Controlled Surface Use-Visual Resource Management (VRM) Class II and III Areas
UT-S-237: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-249: Timing Limitation-Crucial Mule Deer Summer Fawning Areas
UT-S-265: Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing

UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-356: Controlled Surface Use-Indirect Impacts From Noise
UT-S-357: Controlled Surface Use-Indirect Impacts From Tall Structures
UT-S-417: Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-418: Timing Limitation-Crucial Elk Winter Range
UT-S-419: Timing Limitations-Crucial Elk Calving Areas

Notices:
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06: Mexican Spotted Owl
T&E-10: Canada Lynx
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-57: Public Water Reserve
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer
UT-LN-60: Steep Slopes

UT0918 – 030
T. 11 S., R. 8 E., SLM
Sec. 21: S2SE;
Sec. 22: S2SW;
Sec. 25: SWNW, SW, W2SE;
Sec. 26: W2NE, SENE, E2NW, NESW, S2SW, SE;
Sec. 27: W2, W2SE, SESE;
Sec. 28: All;
Sec. 29: S2SW, SE.
2,200.00 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:
UT-S-155: Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-219: Controlled Surface Use-White-Tailed Prairie Dog Towns
UT-S-237: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-265: Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures

UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-417: Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-418: Timing Limitations-Crucial Elk Winter Range
UT-S-419: Timing Limitations-Crucial Elk Calving Areas

Notices:
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06: Mexican Spotted Owl
T&E-10: Canada Lynx
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-57: Public Water Reserve
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer
UT-LN-60: Steep Slopes

UT0918 – 031
T. 11 S., R. 8 E., SLM
Secs. 33, 34 and 35: All.
1,920.00 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:
UT-S-155: Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-237: Timing Limitation-Crucial Mule Deer Winter Range
UT-S-265: Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-417: Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-418: Timing Limitations-Crucial Elk Winter Range
UT-S-419: Timing Limitations-Crucial Elk Calving Areas

Notices:
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06: Mexican Spotted Owl
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-57: Public Water Reserve
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features
UT-LN-133: Greater Sage-Grouse-Buffer
UT-LN-60: Steep Slopes

UT0918 – 032
T. 11 S., R. 9 E., SLM
Secs. 3, 4, 9 and 10: All.
1,292.44 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:
UT-S-155: Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-166: Controlled Surface Use-Visual Resource Management (VRM) Class II and III Areas
UT-S-249: Timing Limitation-Crucial Mule Deer Summer Fawning Areas
UT-S-265: Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-417: Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-419: Timing Limitations-Crucial Elk Calving Areas

Notices:
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06: Mexican Spotted Owl
T&E-10: Canada Lynx
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-57: Public Water Reserve
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-60: Steep Slopes

UT0918 – 033
T. 11 S., R. 9 E., SLM
Secs. 5, 6, 7 and 8: All.
2,175.81 Acres
Utah County, Utah

Salt Lake Field Office

Stipulations:

UT-S-155:	Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-166:	Controlled Surface Use-Visual Resource Management (VRM) Class II and III Areas
UT-S-249:	Timing Limitation-Crucial Mule Deer Summer Fawning Areas
UT-S-265:	Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-417:	Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-419:	Timing Limitations-Crucial Elk Calving Areas

Notices:

T&E-03:	Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06:	Mexican Spotted Owl
T&E-10:	Canada Lynx
UT-LN-02:	Crucial Winter Moose Habitat
UT-LN-07:	Crucial Moose Calving Habitat
UT-LN-56:	Drinking Water Source Protection Zone
UT-LN-57:	Public Water Reserve
UT-LN-122:	Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-60:	Steep Slopes

UT0918 – 034

T. 11 S., R. 9 E., SLM
Secs. 11, 12, 13, 14 and 15: All.
2,196.92 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:

UT-S-155:	Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-166:	Controlled Surface Use-Visual Resource Management (VRM) Class II and III Areas
UT-S-249:	Timing Limitation-Crucial Mule Deer Summer Fawning Areas
UT-S-265:	Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-417:	Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-419:	Timing Limitations-Crucial Elk Calving Areas

Notices:

T&E-03:	Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06:	Mexican Spotted Owl
T&E-10:	Canada Lynx
UT-LN-02:	Crucial Winter Moose Habitat
UT-LN-07:	Crucial Moose Calving Habitat
UT-LN-56:	Drinking Water Source Protection Zone
UT-LN-57:	Public Water Reserve
UT-LN-85:	Tar Sands Area

UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-60: Steep Slopes

UT0918 – 035
T. 11 S., R. 9 E., SLM
Secs. 17 and 18: All;
Sec. 20: Lots 1-12;
Sec. 28: SWNW, NWSE;
Sec. 29: S2NE, S2NW, S2.
2,243.97 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:
UT-S-155: Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-166: Controlled Surface Use-Visual Resource Management (VRM) Class II and III Areas
UT-S-249: Timing Limitation-Crucial Mule Deer Summer Fawning Areas
UT-S-265: Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-347: No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348: Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349: Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350: Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352: Controlled Surface Use-Tall Structures
UT-S-353: Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354: Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355: Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-356: Controlled Surface Use-Indirect Impacts From Noise
UT-S-357: Controlled Surface Use-Indirect Impacts From Tall Structures
UT-S-417: Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-418: Timing Limitations-Crucial Elk Winter Range
UT-S-419: Timing Limitations-Crucial Elk Calving Areas

Notices:
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06: Mexican Spotted Owl
T&E-10: Canada Lynx
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-57: Public Water Reserve
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-129: Greater Sage-Grouse-Disturbance Cap
UT-LN-130: Greater Sage-Grouse-Density Limitation
UT-LN-131: Greater Sage-Grouse-Net Conservation Gain
UT-LN-132: Greater Sage-Grouse-Required Design Features

UT-LN-133: Greater Sage-Grouse-Buffer
UT-LN-60: Steep Slopes

UT0918 – 036
T. 11 S., R. 9 E., SLM
Sec. 21: All;
Sec. 22: Lots 1-4, NE, NENW, S2NW, N2SW, N2SE;
Sec. 23: N2NE, SENE, N2NW, SENW, NESW, NESE;
Sec. 24: W2NE, NW, SWSW, SESE.
1,830.68 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:
UT-S-155: Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-166: Controlled Surface Use-Visual Resource Management (VRM) Class II and III Areas
UT-S-249: Timing Limitation-Crucial Mule Deer Summer Fawning Areas
UT-S-265: Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-356: Controlled Surface Use-Indirect Impacts From Noise
UT-S-357: Controlled Surface Use-Indirect Impacts From Tall Structures
UT-S-417: Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-418: Timing Limitations-Crucial Elk Winter Range

Notices:
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06: Mexican Spotted Owl
T&E-10: Canada Lynx
UT-LN-02: Crucial Winter Moose Habitat
UT-LN-07: Crucial Moose Calving Habitat
UT-LN-56: Drinking Water Source Protection Zone
UT-LN-57: Public Water Reserve
UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-60: Steep Slopes

UT0918 – 037
T. 11 S., R. 9 E., SLM
Sec. 25: W2NE, SENE;
Sec. 26: NENE, SENW, NESW, NWSE;
Sec. 31: Lots 3, 4, S2NE, E2SW, SE;
Sec. 33: S2;
Sec. 34: SENE, S2;
Sec. 35: Lots 1, 2, 5-12, SW.
1,905.31 Acres
Utah County, Utah
Salt Lake Field Office

Stipulations:

UT-S-155:	Controlled Surface Use-Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas
UT-S-166:	Controlled Surface Use-Visual Resource Management (VRM) Class II and III Areas
UT-S-237:	Timing Limitation-Crucial Mule Deer Winter Range
UT-S-249:	Timing Limitation-Crucial Mule Deer Summer Fawning Areas
UT-S-265:	Controlled Surface Use/Timing Limitation-Crucial Raptor Nesting Sites
UT-S-347:	No Surface Occupancy-Greater Sage-Grouse Priority Habitat Management Areas
UT-S-348:	Controlled Surface Use/No Surface Occupancy-Disturbance Cap
UT-S-349:	Controlled Surface Use/No Surface Occupancy-Density Limitation
UT-S-350:	Timing Limitation/Controlled Surface Use-Breeding Season Noise Limitations
UT-S-352:	Controlled Surface Use-Tall Structures
UT-S-353:	Timing Limitation-Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing
UT-S-354:	Timing Limitation-Greater Sage-Grouse Brood-Rearing
UT-S-355:	Timing Limitation-Greater Sage-Grouse Winter Habitat
UT-S-356:	Controlled Surface Use-Indirect Impacts From Noise
UT-S-357:	Controlled Surface Use-Indirect Impacts From Tall Structures
UT-S-417:	Controlled Surface Use/ Timing Limitation-Bald Eagle Roost Sites
UT-S-418:	Timing Limitations-Crucial Elk Winter Range
UT-S-419:	Timing Limitations-Crucial Elk Calving Areas

Notices:

T&E-03:	Endangered Fish of the Upper Colorado River Drainage Basin
T&E-06:	Mexican Spotted Owl
T&E-10:	Canada Lynx
UT-LN-02:	Crucial Winter Moose Habitat
UT-LN-56:	Drinking Water Source Protection Zone
UT-LN-57:	Public Water Reserve
UT-LN-85:	Tar Sands Area
UT-LN-60:	Steep Slopes
UT-LN-122:	Colorado or Bonneville Cutthroat Trout Habitat
UT-LN-129:	Greater Sage-Grouse-Disturbance Cap
UT-LN-130:	Greater Sage-Grouse-Density Limitation
UT-LN-131:	Greater Sage-Grouse-Net Conservation Gain
UT-LN-132:	Greater Sage-Grouse-Required Design Features
UT-LN-133:	Greater Sage-Grouse-Buffer

Appendix B – Stipulations and Notices

Stipulation Summary Table

NUMBER	UTAH STIPULATIONS
Cultural Resources **Handbook H-3120-1**	**CULTURAL RESOURCE PROTECTION** 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.
Endangered Species Act **Handbook H-3120-1**	**THREATENED AND ENDANGERED SPECIES ACT** The lease area may now or hereafter contain plants, animals or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that would contribute to a need to list such species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. 1531 et seq. including completion of any required procedure for conference or consultation.
UT-S-104	**NO SURFACE OCCUPANCY – SLOPES IN EXCESS OF 30 PERCENT** No surface occupancy or other surface disturbance will be allowed on slopes in excess of 30 percent. **Exception**: An exception may be granted with written permission from the authorized officer of the BLM. **Modification**: None **Waiver**: None
UT-S-132	**NO SURFACE OCCUPANCY – LIVE WATER** No occupancy or other surface disturbance will be allowed within 600 feet of live water. **Exception**: None **Modification**: This distance may be modified when specifically approved in writing by the authorized officer of the BLM. **Waiver**: None
UT-S-155	**CONTROLLED SURFACE USE – RIPARIAN HABITAT AND MUNICIPAL AND NON-MUNICIPAL WATERSHED AREAS** In order to protect riparian habitat and municipal and non-municipal watershed areas, no occupancy or other surface disturbance will be allowed within 1,200 feet of live water. This limitation does not apply to maintenance and operation of producing wells.

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	Exception: If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exemption to this stipulation may be granted if approved in writing by the authorized officer in consultation with the District's watershed specialist. For example, exemptions may be allowed where the riparian zone or the hydrologic influence area of phreatophytes exists less than 1,200 feet from live water. **Modification**: None **Waiver**: None
UT-S-165	**CONTROLLED SURFACE USE – VRM CLASS II AND III AREAS** In order to protect important visual resources in VRM Class II and III areas, activities in these areas will be located and designed in a way to meet Class II and III management criteria. **Exception**: None **Modification**: None **Waiver**: None
UT-S-166	**CONTROLLED SURFACE USE – VISUAL RESOURCE MANAGEMENT (VRM) CLASS II AND III AREAS** In order to protect visual resources in Visual Resource Management (VRM) Class II and III areas, activities in these areas will be located and designed in a way to meet Class II and III management criteria. This limitation does not apply to maintenance and operation of producing wells. **Exception**: If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exception to this stipulation may be granted if approved in writing by the authorized officer in consultation with the District's VRM specialist. For Class II areas, exemptions may be granted whereby changes due to the proposed action repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. For Class III areas, exemptions may be granted whereby changes due to the proposed action repeat the basic elements found in the predominant natural features of the characteristic landscape. This may be achieved through reclamation, topographic or vegetative screening, construction practices and use of non-reflective paints which blend into the viewscape for buildings, tanks, and pipelines. **Modification**: None **Waiver**: None
UT-S-219	**CONTROLLED SURFACE USE – WHITE-TAILED PRAIRIE DOG TOWNS** No occupancy or other surface disturbance will be allowed within white-tailed prairie dog towns, if such activity will result in destruction of the prairie dog town. **Exception**: None **Modification**: None **Waiver**: None
UT-S-235	**TIMING LIMITATION – CRUCIAL MULE DEER WINTER RANGE** In order to protect important wildlife species and habitat values from disturbance, seismic work, well development, rights-of-way, and other disturbance activities excluding maintenance activities would be restricted

NUMBER	UTAH STIPULATIONS
	within mule deer winter range between December 1 and April 15 each year. **Exception**: Specific exceptions may be granted by BLM if it can be shown that the proposed activity will not seriously disturb the wildlife habitat values being protected. **Modification**: None **Waiver**: None
UT-S-237	**TIMING LIMITATION – CRUCIAL MULE DEER WINTER RANGE** In order to protect crucial mule deer winter range, exploration, drilling, and other development activity in will not be allowed from November 15 to April 30. This limitation does not apply to maintenance and operation of producing wells. **Exception**: This can be excepted by the District Manager. **Modification**: None **Waiver**: None
UT-S-249	**TIMING LIMITATION – CRUCIAL MULE DEER SUMMER FAWNING AREAS** In order to protect crucial mule deer summer/fawning areas, exploration, drilling and other development activity will be allowed only from August 1 to April 14 and not allowed from April 15 to July 31. This limitation does not apply to maintenance and operation of producing wells. **Exception**: Specific exceptions may be granted by the BLM if the proposed activity will not seriously disturb wildlife habitat values being protected. This determination will be made by a BLM wildlife biologist in coordination with the UDWR and, if appropriate, the USFWS. Such a determination may result if fawning is completed early and the fawning area is abandoned earlier to allow for disturbing activities for fluid mineral leasing and exploration to start earlier than July 31. **Modification**: None **Waiver**: None
UT-S-419	**TIMING LIMITATION – CRUCIAL ELK CALVING AREAS** In order to protect crucial elk calving areas, exploration, drilling and other development activity will be allowed only from July 1 to April 30 and not allowed from May 1 to June 30. This limitation does not apply to maintenance and operation of producing wells. **Exception**: Specific exceptions may be granted by the BLM if the proposed activity will not seriously disturb wildlife habitat values being protected. This determination will be made by a BLM wildlife biologist in coordination with the UDWR and, if appropriate, the USFWS. Such a determination may result if calving is completed early and the calving area is abandoned earlier to allow for disturbing activities for fluid mineral leasing and exploration to start earlier than June 30. **Modification**: None **Waiver**: None
UT-S-418	**TIMING LIMITATION – CRUCIAL ELK WINTER RANGE** In order to protect crucial elk calving areas, exploration, drilling and other development activity will be allowed only from May 1 through November 30 and not allowed from December 1 to April 30. This limitation does not apply to maintenance and operation of producing wells.

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	Exception: Specific exceptions may be granted by the BLM if the proposed activity will not seriously disturb wildlife habitat values being protected. This determination will be made by a BLM wildlife biologist in coordination with the UDWR and, if appropriate, the USFWS. Such a determination may result if calving is completed early and the calving area is abandoned earlier to allow for disturbing activities for fluid mineral leasing and exploration to start earlier than June 30. **Modification**: None **Waiver**: None
UT-S-265	**CONTROLLED SURFACE USE/TIMING LIMITATION – CRUCIAL RAPTOR NESTING SITES** In order to protect crucial raptor nesting sites, exploration, and drilling and other development activity within 0.5 mile radius of the sites will be allowed from September 1 to December 31 and not allowed from January 1 to August 31. This limitation does not apply to maintenance and operation of producing wells. **Exception**: Specific exceptions may be granted by the BLM if the proposed activity will not seriously disturb wildlife habitat values being protected. This determination will be made by a BLM wildlife habitat biologist in coordination with the UDWR and, if appropriate, the USFWS. Such a determination may be made if the raptor nest in question is not active at the time of proposed activity. Quite often raptors will have alternate nesting sites available. If a raptor pair is using such an alternative site, it would be necessary to protect the inactive nest from disturbing activities for fluid mineral leasing and exploration. However, it should be noted that all eagle nests, active or inactive, are protected by the Eagle Act and must be left intact and cannot be removed from their original location. **Modification**: None **Waiver**: None
UT-S-281	**CONTROLLED SURFACE USE/TIMING LIMITATION – BALD EAGLE HABITAT/NESTING AREAS** In order to protect important bald eagle habitat/nesting areas, exploration, drilling and other development activities within 0.5 mile radius of the sites will be allowed only from April 1 to October 31. This limitation does not apply to maintenance and operation of producing wells. These areas are also protected year round from any surface disturbing activities which would cause the destruction of roost trees. **Exception**: Specific exceptions may be granted by the BLM if the proposed activity will not serious disturb wildlife habitat values being protected. This determination will be made by a BLM wildlife biologist in coordination with the Utah Division of Wildlife Resources and the USF&WS. Such a determination may result if the roost site no longer exists or other roost sites are found to have taken over in importance to the bald eagles present to allow for disturbing activities for fluid mineral leasing and exploration. **Modification**: None **Waiver**: None
UT-S-417	**CONTROLLED SURFACE USE/TIMING LIMITATION BALD EAGLE ROOST** Development or exploration activity would not be allowed within a 0.5 mile radius of bald eagle roost sites from 11/15 – 3/15 of each year. This

NUMBER	UTAH STIPULATIONS
	restriction does not apply to maintenance and operation of producing wells. **Exception**: The authorized officer may grant an exception if the BLM biologist, in coordination with the DWR and USFWS have determined that the activity will not disturb the bald eagle roost habitat values as they are being protected. The roost must no longer be in existence or other roost sites have taken over in importance to the bald eagles present. **Modification**: None **Waiver**: None
UT-S-301	**TIMING LIMITATION – SEASONAL WILDLIFE HABITAT** In order to protect seasonal wildlife habitat, exploration, drilling, and other development activity will be allowed only during the period from April 16 to November 30. This limitation does not apply to maintenance and operation of producing wells. **Exception**: Exceptions to this limitation in any year may be specifically approved in writing by the authorized officer of the BLM. **Modification**: None **Waiver**: None
UT-S-346	**NO SURFACE OCCUPANCY – GREATER SAGE-GROUSE SAGEBRUSH FOCAL AREAS** No surface occupancy within Greater Sage-Grouse sagebrush focal areas (SFA). **Exception:** None **Modification:** None **Waiver:** None
UT-S-347	**NO SURFACE OCCUPANCY – GREATER SAGE-GROUSE PRIORITY HABITAT MANAGEMENT AREAS*** No surface occupancy within Greater Sage-Grouse Priority Habitat Management Areas (PHMA). **Exception:** The Authorized Officer with concurrence with the State Director, may grant an exception only where the proposed action: i. Would not have direct, indirect, or cumulative effects on GRSG or its habitat; OR, ii. Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to GRSG. The conservation gain must include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts. The Authorized Officer may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed action satisfies (i) or (ii). Such finding shall initially be made by a team of one field biologist or other GRSG expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publically available at least quarterly. **Modification:** None

NUMBER	UTAH STIPULATIONS
	Waiver: None *The other greater sage-grouse stipulations would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted
UT-S-348	**CONTROLLED SURFACE USE/NO SURFACE OCCUPANCY – DISTURBANCE CAP** Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent on all lands (regardless of land ownership) at each level: 1) PHMA associated with a GRSG population area (referred to as biologically significant units {BSU} when coordinating across state lines) and 2) within the proposed project analysis area to protect PHMA and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above (UT-S-347 GRSG) were granted. See Appendix E of the GRSG Approved RMP Amendment for disturbance calculation instructions. **Exception:** None **Modification:** None **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-349	**CONTROLLED SURFACE USE/NO SURFACE OCCUPANCY – DENSITY LIMITATION** Limit the density of energy and mining facilities within Priority Habitat Management Areas (PHMA) during project authorization to an average of one energy/mineral facility per 640 acres on all lands (regardless of land ownership) in PHMA within a proposed project analysis area to protect PHMA and the life-history needs of GRSG from habitat loss and limit fragmentation in PHMA. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above (UT-S-347 GRSG) were granted. See Appendix E of the GRSG Approved RMP Amendment for calculation details. **Exception:** None **Modification:** None **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-350	**TIMING LIMITATION/CONTROLLED SURFACE USE – BREEDING SEASON NOISE LIMITATIONS** Limit noise from discrete anthropogenic disturbances within Priority Habitat Management Areas (PHMA), including activities from construction, operation and maintenance, to below 10 decibels above ambient sound levels (baseline as available at the signing of the GRSG RMP Amendment ROD or as first measured thereafter) at occupied leks from 2 hours before to 2 hours after official sunrise and sunset during breeding season to protect strutting Greater Sage-Grouse from auditory disturbance associated with development during the breeding season. **AND**

NUMBER	UTAH STIPULATIONS
	Limit project related noise in other PHMA habitats and seasons where it would be expected to reduce functionality of habitats that support associated GRSG populations in order to protect GRSG from direct disturbance near leks within PHMA. **Exception:** None **Modification:** As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate measures would be implemented where necessary to minimize potential for noise impacts on PHMA GRSG population behavioral cycles. **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-352	**CONTROLLED SURFACE USE – TALL STRUCTURES*** Limit the placement of permanent tall structures** within Priority Habitat Management Areas (PHMA) breeding and nesting habitats to minimize placement of structures that introduction of e new perching and/or nesting opportunities for avian predators. **Exception:** None **Modification:** None **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted. **For the purposes of this restriction, a tall structure is any man-made structure that provides for perching/nesting opportunities for predators (e.g., raptors and ravens) that are naturally absent, or that decreases the use of an area by GRSG. A determination as to whether something is considered a tall structure will be made based on local conditions such as existing vegetation or topography.
UT-S-353	**TIMING LIMITATION – GREATER SAGE-GROUSE BREEDING, NESTING AND EARLY BROOD REARING*** Manage uses to prevent disturbance to GRSG populations and habitat by applying seasonal restrictions (e.g., no surface disturbance) between Feb 15 – June 15, in Greater Sage-Grouse Priority Habitat Management Areas (PHMA) breeding, nesting, and early brood-rearing habitat to seasonally protect those habitats from disruptive activity. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with the appropriate State of Utah agency. **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-354	**TIMING LIMITATION – GREATER SAGE-GROUSE BROOD-REARING** Manage uses to prevent disturbance to GRSG populations and habitat by applying seasonal restrictions (e.g., no surface disturbance) between April 15 – August 15 in the Greater Sage-Grouse (GRSG) Priority Habitat

NUMBER	UTAH STIPULATIONS
	Management Areas (PHMA) brood-rearing habitat to seasonally protect that habitat from disruptive activity. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with the appropriate State of Utah agency. **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-355	**TIMING LIMITATION – GREATER SAGE-GROUSE WINTER HABITAT** Manage uses to prevent disturbance to GRSG populations and habitat by applying seasonal restrictions (e.g., no surface disturbance) between Nov 15 – March 15 in Priority Habitat Management Areas (PHMA) for Greater Sage-Grouse (GRSG) winter habitat to protect GRSG within PHMA from disruptive activity during the winter season. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with the appropriate State of Utah agency. **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-356	**CONTROLLED SURFACE USE – INDIRECT IMPACTS FROM NOISE** Areas outside of Priority Habitat Management Areas (PHMA), portions of the State of Utah's opportunity areas within 4 miles of a lek that is located within PHMA will be subject to the following constraints: Limit noise from discrete anthropogenic disturbances (during construction, operation, or maintenance) so it will not exceed 10 decibels above ambient sound levels (baseline as available at the signing of the GRSG RMP Amendment ROD or as first measured thereafter) at occupied leks within PHMA from 2 hours before to 2 hours after official sunrise and sunset during breeding season (e.g., while males are strutting); **AND** Limit project related noise in other PHMA habitats and seasons where it would be expected to reduce functionality of habitats that support associated GRSG populations in order to protect GRSG from indirect disturbance near leks within PHMA. **Exception:** None **Modification:** As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate measures would be implemented where necessary to minimize potential for noise impacts on PHMA GRSG population behavioral cycles.

NUMBER	UTAH STIPULATIONS
	Waiver: None
UT-S-357	**CONTROLLED SURFACE USE – INDIRECT IMPACTS FROM TALL STRUCTURES** Areas outside of Priority Habitat Management Areas (PHMA), portions of the State of Utah's opportunity areas within 4 miles of a lek that is located within PHMA will be subject to the following constraints: Limit the placement of permanent tall structures** adjacent to breeding and nesting habitats to minimize placement of structures that introduce new perching and/or nesting opportunities for avian predators. **Exception:** None **Modification:** None **Waiver:** None **For the purposes of this restriction, a tall structure is any man-made structure that provides for perching/nesting opportunities for predators (e.g., raptors and ravens) that are naturally absent, or that decreases the use of an area by GRSG. A determination as to whether something is considered a tall structure will be made based on local conditions such as existing vegetation or topography.
UT-S-420	**CONTROLLED SURFACE USE/TIMING LIMITATION – RAPTOR EYRIES** Drilling activities will not be allowed within one mile of active raptor eyries between March 1 – July 15 of each year. **Exception**: None **Modification**: None **Waiver**: None
UT-S-421	**AIR QUALITY MONITORING** Require applicants for projects or actions on Public Lands, which may change air quality, to establish an air quality monitoring program. Air quality should be monitored for a year prior to project initiation and during project operation by the applicants at their expense. **Exception**: None. **Modification**: None **Waiver**: None

Notice Summary Table

NUMBER	UTAH LEASE NOTICES
UT-LN-02	**CRUCIAL WINTER MOOSE HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing crucial moose winter habitat. Exploration, drilling and other development activities would be restricted from December 1 through April 30 to protect crucial winter range. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-07	**CRUCIAL MOOSE CALVING HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing crucial moose calving habitat. Exploration, drilling and other development activities would be restricted from May 1 through June 30 to protect moose calving.
UT-LN-09	**CRUCIAL ELK CALVING AND DEER FAWNING HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing crucial elk calving or deer fawning habitat. Exploration, drilling and other development activities may be restricted from May 15 through June 30 to protect calving / fawning. Modifications may be required in the Surface Use Plan of Operations including seasonal timing restrictions to protect the species and its habitat.
UT-LN-14	**PRONGHORN FAWNING HABITAT** The lessee/operator is given notice that this lease has been identified as containing crucial pronghorn fawning habitat. No surface use or otherwise disruptive activity allowed from May 1 through June 29 within identified crucial/important pronghorn fawning habitat from disruptive activity. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-37	**BALD EAGLE HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing Bald Eagle Habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect the Bald 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.
UT-LN-40	**GOLDEN EAGLE HABITAT** 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.
UT-LN-44	**RAPTORS** Appropriate seasonal and spatial buffers shall be placed on all known raptor nests in accordance with Utah Field Office Guidelines for Raptor Protection from Human and Land use Disturbances (USFWS 2002) and Best Management Practices for Raptors and their Associated Habitats in Utah (BLM 2006). All construction related activities will not occur within these buffers if pre-construction monitoring indicates the nests are active, unless a site-specific evaluation for active nests is completed prior to construction and if a BLM wildlife biologist, in consultation with USFWS and UDWR, recommends that activities may be permitted within the buffer. The BLM will coordinate with the USFWS and UDWR and have a recommendation within 3-

NUMBER	UTAH LEASE NOTICES
	5 days of notification. Any construction activities authorized within a protective (spatial and seasonal) buffer for raptors will require an on-site monitor. Any indication that activities are adversely affecting the raptor and/or its' young the on-site monitor will suspend activities and contact the BLM Authorized Officer immediately. Construction may occur within the buffers of inactive nests. Construction activities may commence once monitoring of the active nest site determines that fledglings have left the nest and are no longer dependent on the nest site. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-45	**MIGRATORY BIRD** 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.
UT-LN-49	**UTAH SENSITIVE SPECIES** 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.
UT-LN-52	**NOXIOUS WEEDS** The lessee/operator is given notice that lands in this lease have been identified as containing or is near areas containing noxious weeds. Best management practices to prevent or control noxious weeds may be required for operations on the lease.
UT-LN-53	**RIPARIAN AREAS** The lessee/operator is given notice that this lease has been identified as containing riparian areas. No surface use or otherwise disruptive activity allowed within 100 meters of riparian areas unless it can be shown that (1) there is no practicable alternative; (2) that all long-term impacts are fully mitigated; or (3) that the construction is an enhancement to the riparian areas. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-56	**DRINKING WATER SOURCE PROTECTION ZONE** 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

NUMBER	UTAH LEASE NOTICES
	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. 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. 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. 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), 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) and the Surface Operating Standards and Guidelines for Oil and Gas Development, The Gold Book, Fourth Edition-Revised 2007 (which provides information and requirements for conducting environmentally responsible oil and gas operations). Additional mitigation measures may be necessary to prevent adverse impacts from oil and gas exploration and development activities. Mitigation measures may include submitting an erosion control plan with best management practices (BMPs) that address rigorous interim reclamation which might include surface roughening, vegetative buffer strips, etc.; and sediment control through the use of sediment logs, silt fences, erosion control blankets, outlet/inlet protection of water control features such as culverts or diversion ditches, sediment traps, run on/run off pad design features. If project activities are close to sensitive areas or water sources a semi or closed-loop drilling system should be required.
UT-LN-57	**PUBLIC WATER RESERVE** The lessee/operator is given notice that lands in this lease have been identified as a designated Public Water Reserve. Surface occupancy or use is subject to the Public Water Reserve Executive Order No. 107. Modification to the Surface Use Plan of Operations may be required for the protection of the reserve up to and including no surface occupancy or use. Protection of a designated public water reserve as discussed in Public Water Reserve Executive Order No. 107. This limitation does not apply to operations and maintenance of producing wells.
UT-LN-60	**STEEP SLOPES** The lessee/operator is given notice that this lease has been identified as containing steep slopes. No surface use or otherwise disruptive activity allowed on slopes in excess of 30 percent without written permission from the Authorized Officer. Modifications to the Surface Use Plan of Operations may

NUMBER	UTAH LEASE NOTICES
	be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-85	**TAR SANDS AREA** Section 350 of the Energy Policy Act of 2005, enacted August 8, 2005, and amended the Mineral Leasing Act to authorize the Secretary of Interior to issued oil and gas leases in special tar sand areas. Please be advised that all or part of this lease parcel lies within a Special Tar Sands Area. The successful bidder should be aware that special tar sands underlie this lease area. The authorized officer may modify the location or timing of oil and gas activities to provide for future tar sand development.
UT-LN-96	**AIR QUALITY MITIGATION MEASURES** The lessee is given notice that the Bureau of Land Management (BLM) in coordination with the U.S. Environmental Protection Agency and the Utah Department of Air Quality, among others, has developed the following air quality mitigation measures that may be applied to any development proposed on this lease. Integration of and adherence to these measures may help minimize adverse local or regional air quality impacts from oil and gas development (including but not limited to construction, drilling, and production) on regional ozone formation. • All internal combustion equipment would be kept in good working order. • Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer. • Open burning of garbage or refuse would not occur at well sites or other facilities. • Drill rigs would be equipped with Tier II or better diesel engines. • Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater. • Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers. • During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible. • Well site telemetry would be utilized as feasible for production operations. • Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr for engines <300HP; and 1g NOx/bhp-hr for engines >300HP. Additional site-specific measures may also be employed to avoid or minimize effects to local or regional air quality. These additional measures will be developed and implemented in coordination with the U.S. Environmental Protection Agency, the Utah Department of Air Quality, and other agencies with expertise or jurisdiction as appropriate based on the size of the project and magnitude of emissions.

NUMBER	UTAH LEASE NOTICES
UT-LN-99	**REGIONAL OZONE FORMATION CONTROLS** 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: • 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
UT-LN-101	**AIR QUALITY** 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 NOx per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. AND All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NOx per horsepower-hour. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-102	**AIR QUALITY ANALYSIS** 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.
UT-LN-104	**BURROWING OWL HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing Burrowing Owl Habitat. Modification to the Surface Use Plan of Operations may be required in order to protect the Burrowing Owl 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.
UT-LN-107	**BALD EAGLE** The Lessee/Operator is given notice that the lands in this parcel contains nesting/winter roost habitat for the bald eagle. The bald eagle was de-listed in 2007; however, it is still afforded protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 1940). Therefore, avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside the bald eagle breeding or roosting season. A temporary action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding or roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances, i.e. creation of a permanent structure. The following avoidance

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	and minimization measures have been designed to ensure activities carried out on the lease will not lead to the need to consider listing the eagle as threatened or endangered. Integration of, and adherence to the following measures will facilitate review and analysis of any submitted permits under the authority of this lease. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s), and be conducted according to protocol. 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season of January 1 to August 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 5. Temporary activities within 0.5 miles of winter roost areas, e.g., cottonwood galleries, will not occur during the winter roost season of November 1 to March 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 6. No permanent infrastructure will be placed within 1.0 mile of nest sites. 7. No permanent infrastructure will be placed within 0.5 miles of winter roost areas. 8. Remove big game carrion from within 100 feet of lease roadways occurring within bald eagle foraging range. 9. Avoid loss or disturbance to large cottonwood gallery riparian habitats. 10. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species. Additional measures may also be employed to avoid or minimize effects to the species between the lease sale stage and lease development stage. These additional measures will be developed and implemented in coordination with the U.S. Fish and Wildlife Service.
UT-LN-122	**COLORADO OR BONNEVILLE CUTTHROAT TROUT HABITAT** The lessee/operator is given notice that this lease has been identified as containing steep slopes adjacent to streams occupied by the Colorado or Bonneville Cutthroat Trout, a Utah Conservation Agreement Species. No surface use or otherwise disruptive activity allowed on slopes in excess of 30 percent from April 15th through July 1 without written permission from the Authorized Officer. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-128	**FLOODPLAIN MANAGEMENT** The lessee/operator is given notice that, in accordance with Executive Order 11988, to avoid adverse impact to floodplains 1) facilities should be located

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	outside the 100 year floodplain, or 2) would be minimized or mitigated by modification of surface use plans within floodplains present within the lease.
UT-LN-129	**GREATER SAGE-GROUSE – DISTURBANCE CAP** Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent of 1) PHMA associated with a GRSG population area (referred to as biologically significant units {BSU} when coordinating across state lines) and 2) within the proposed project analysis area, on all lands (regardless of ownership) at each level. (See Appendix E of the GRSG Approved RMP Amendment for disturbance calculation instructions)
UT-LN-130	**GREATER SAGE-GROUSE – DENSITY LIMITATION** Limit the density of energy and mining facilities within Priority Habitat Management Areas (PHMA) during project authorization to an average of one energy/mineral facility per 640 acres on all lands (regardless of land ownership) in PHMA within a proposed project analysis area to protect PHMA and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA.
UT-LN-131	**GREATER SAGE-GROUSE – NET CONSERVATION GAIN** In Priority and General Habitat Management Areas (PHMA and GHMA) all actions that result in habitat loss and degradation will require mitigation that provides a net conservation gain to the Greater Sage-Grouse (GRSG). Mitigation must account for any uncertainty associated with the effectiveness of the mitigation and will be achieved through avoiding, minimizing and compensating for impacts. Mitigation will be conducted according to the mitigation framework found in Appendix F in the Utah Approved Management Plan Amendment.
UT-LN-132	**GREATER SAGE-GROUSE – REQUIRED DESIGN FEATURES** Apply the Required Design Features (RDF)* in Appendix C of the Utah Approved Management Plan Amendment when developing a lease within Priority and General Habitat Management Areas (PHMA and GHMA). *RDFs may not be required if it is demonstrated through the NEPA analysis that the RDF associated project/activity is: • Documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable; • An alternative RDF, state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for GRSG or its habitat; • Provide no additional protection to GRSG or its habitat.
UT-LN-133	**GREATER SAGE-GROUSE - BUFFER** In Priority and General Habitat Management Areas (PHMA and GHMA), the BLM will apply the lek buffer-distances identified in the USGS Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Open File Report 2014-1239) in accordance with Appendix B, Applying Lek-Buffer Distances, consistent with valid and existing rights and applicable law in authorizing management actions.

T&E Lease Notices Summary Table

NUMBER	UTAH T&E LEASE NOTICES
T&E-03	**ENDANGERED FISH OF THE UPPER COLORADO RIVER DRAINAGE BASIN** The Lessee/Operator is given notice that the lands in this parcel contain Critical Habitat for the Colorado River fish (bonytail, humpback chub, Colorado pike minnow, and razorback sucker) listed as endangered under the Endangered Species Act, or these parcels have watersheds that are tributary to designated habitat. Critical habitat was designated for the four endangered Colorado River fishes on March 21, 1994(59 FR 13374-13400). Designated critical habitat for all the endangered fishes includes those portions of the 100-year floodplain that contain primary constituent elements necessary for survival of the species. Avoidance or use restrictions may be placed on portions of the lease. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s). 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Avoid loss or disturbance of riparian habitats. 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable riparian habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 6. Conduct watershed analysis for leases in designated critical habitat and overlapping major tributaries in order to determine toxicity risk from permanent facilities. 7. Implement Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, Technical Note 423). 8. Drilling will not occur within 100 year floodplains of rivers or tributaries to rivers that contain listed fish species or critical habitat. 9. In areas adjacent to 100-year flood plains, particularly in systems prone to flash floods, analyze the risk for flash floods to impact facilities, and use closed loop drilling, and pipeline burial or suspension according to Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, Technical Note 423, to minimize the potential for equipment damage and resulting leaks or spills. Water depletions from *any* portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect or adversely modify the critical habitat of the four resident endangered fish species, and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletion amounts must be reported to BLM. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.

T&E-06	**MEXICAN SPOTTED OWL** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for Mexican spotted owl, a federally listed species. The Lessee/Operator is given notice that the lands in this lease contain Designated Critical Habitat for the Mexican spotted owl, a federally listed species. Critical habitat was designated for the Mexican spotted owl on August 31, 2004 (69 FR 53181-53298). Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs within or outside the owl nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s). 2. Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the conservation measures below if project activities occur within 0.5 mile of suitable owl habitat. Determine potential effects of actions to owls and their habitat. a. Document type of activity, acreage and location of direct habitat impacts, type and extent of indirect impacts relative to location of suitable owl habitat. b. Document if action is temporary or permanent. 3. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 4. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in canyon habitat suitable for Mexican spotted owl nesting. 6. For all temporary actions that may impact owls or suitable habitat: a. If the action occurs entirely outside of the owl breeding season (March 1 – August 31), and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey. b. If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity must be delayed until outside of the breeding season. c. Rehabilitate access routes created by the project through such means as raking out scars, re-vegetation, gating access points, etc. 7. For all permanent actions that may impact owls or suitable habitat: a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities. b. If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC). c. Avoid drilling and permanent structures within 0.5 mi of suitable habitat unless surveyed and not occupied.

	d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims. e. Limit disturbances to and within suitable habitat by staying on approved routes. f. Limit new access routes created by the project. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.
T&E-10	**CANADA LYNX** The Lessee/Operator is given notice that the lands in this parcel contain potential habitat for Canada lynx, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend on the nature of the proposed development, as well as proposed timing and location. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures are generally adapted from the standards and guidelines listed in Chapter 7 (Conservation Measures) of the LCAS (Ruediger 2000) and include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s), and be conducted according to protocol. 2. Based on data and information gathered in item 1, lease activities within, or in proximity to, occupied lynx habitats will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Avoid all surface disturbing actions within occupied denning habitat. 4. Avoid construction and surface disturbing actions in proximity to potential denning habitat during the breeding season (mid-April to July). 5. Activities involved with routine maintenance and operation will only occur during daytime hours, when lynx are least active. 6. Where technically and economically feasible, wells will be remotely monitored within lynx habitat. 7. Limit disturbance to and within suitable habitat by staying on approved access routes. 8. Limit new access routes created by the project. 9. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded (e.g., straightening of curves, widening of roadway etc.) in a manner that is likely to lead to significant increases in traffic volume, traffic speed, increased width of the cleared ROW, or would foreseeably contribute to development or increases in human activity in lynx habitat. When these types of upgrades are proposed, a thorough analysis of potential direct and indirect impacts to lynx and lynx habitat should be conducted. 10. Minimize impacts to habitats that support lynx prey. 11. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and to minimize

	or eliminate drilling in suitable lynx habitat. Additional measures may also be employed to avoid or minimize effects to the species at the development stage and will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the Endangered Species Act.
T&E-31	**WESTERN YELLOW-BILLED CUCKOO** The Lessee/Operator is given notice that the lands in or adjacent to this parcel contain potentially suitable habitat that falls within the range for western yellow-billed cuckoo, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend upon whether the action is temporary or permanent, and whether it occurs within or outside the breeding and nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action could continue for more than one breeding season and/or cause a loss of habitat or displace western yellow-billed cuckoos through disturbances. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to, these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Avoidance and minimization measures include the following: 1. Habitat suitability within, and within a 0.5-mile buffer, of the proposed project analysis area will be identified prior to lease development to identify potential survey needs. 2. If suitable or proposed critical habitat is present, protocol Breeding Season Surveys will be required within, and within 0.5-mile buffer, of the proposed project analysis area prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by permitted individual(s), and be conducted according to protocol. 3. For all temporary actions that may impact cuckoo or suitable habitat: a. If action occurs entirely outside of the cuckoo breeding season (June 1 – Aug 31), and leaves no structure or habitat disturbance, action can proceed without a presence/absence survey. b. If action is proposed between June 1 and August 31, presence/absence surveys for cuckoo will be conducted prior to commencing activity. If cuckoo are detected, activity should be delayed until September 1. The cuckoo survey protocol requires four surveys across the breeding season to conclude absence, thus the survey cannot conclude absence of cuckoos until mid-August. c. Eliminate access routes created by the project through such means as raking out scars, revegetation, gating access points, etc. 4. For all permanent actions that may impact cuckoo or suitable habitat: a. Habitat suitability within and within a 0.5-mile buffer of the proposed project analysis area will be identified prior to lease development to identify potential survey needs. b. Protocol level surveys by permitted individuals will be conducted within, or within a 0.5-mile buffer, of the proposed project analysis area prior to commencing activities. c. Avoid drilling and permanent structures within 0.5 miles of suitable or proposed critical habitat unless absence is determined according to protocol level surveys conducted by permitted individual(s). d. During construction and operation phases of the project, ensure noise levels at the edge of suitable habitat do not exceed baseline conditions. Placement of permanent noise-generating facilities should be determined by a noise analysis.

	5. Temporary or permanent actions will require monitoring throughout the duration of the project to ensure that western yellow-billed cuckoo or its habitat is not affected in a manner or to an extent not previous considered. Avoidance and minimization measures will be evaluated throughout the duration of the project. 6. Water produced as a by-product of drilling or pumping will be managed to ensure maintenance or enhancement of riparian habitat. 7. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 8. Ensure that water extraction or disposal practices do not result in change of hydrologic regime that would result in loss or degradation of riparian habitat. 9. Re-vegetate with native species, where possible, all areas of surface disturbance within riparian areas and/or adjacent uplands. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.

Appendix C – Figures/Maps

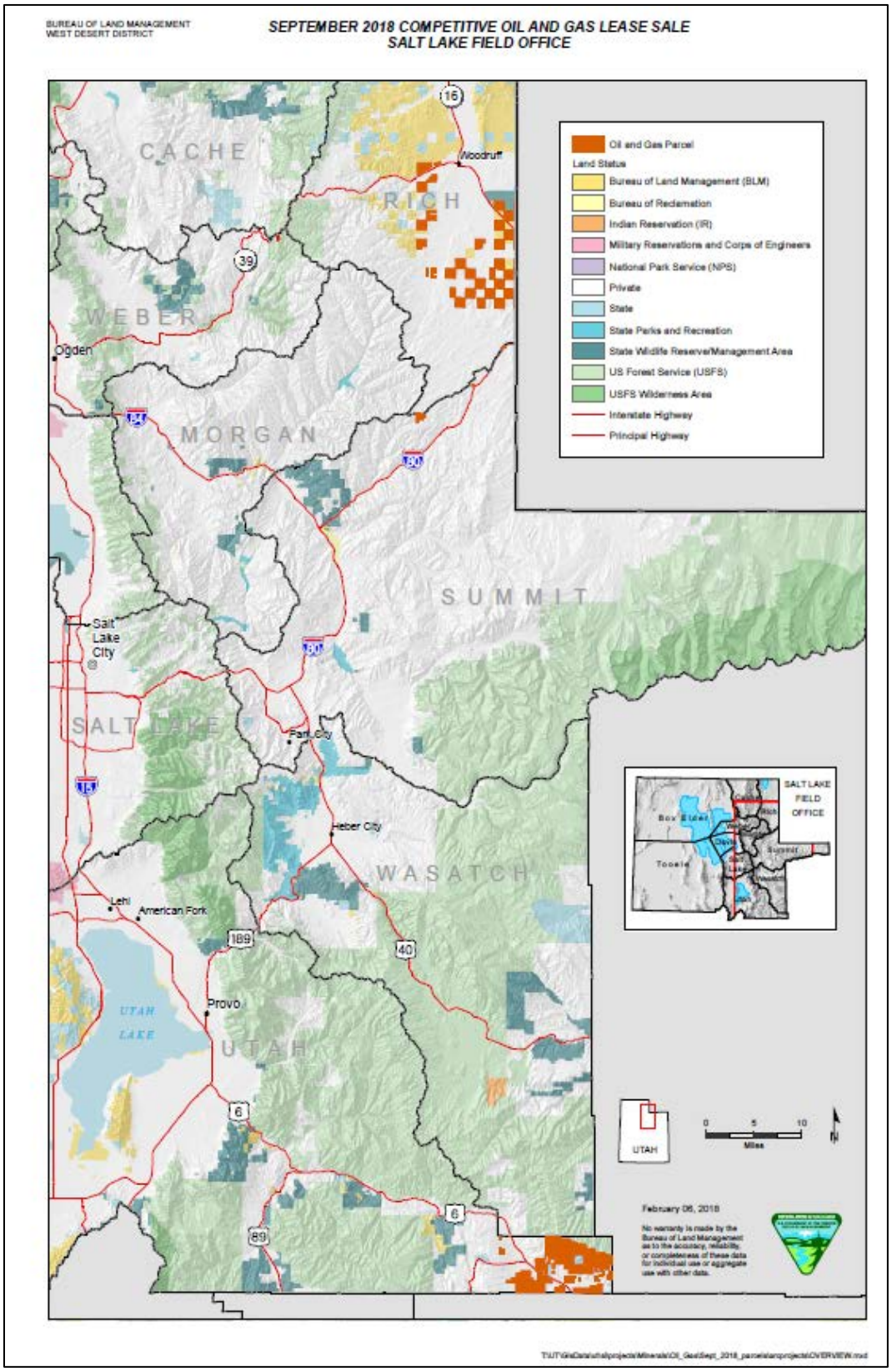

Figure 1. Overview of Salt Lake Field Office Lease Sale Parcels.

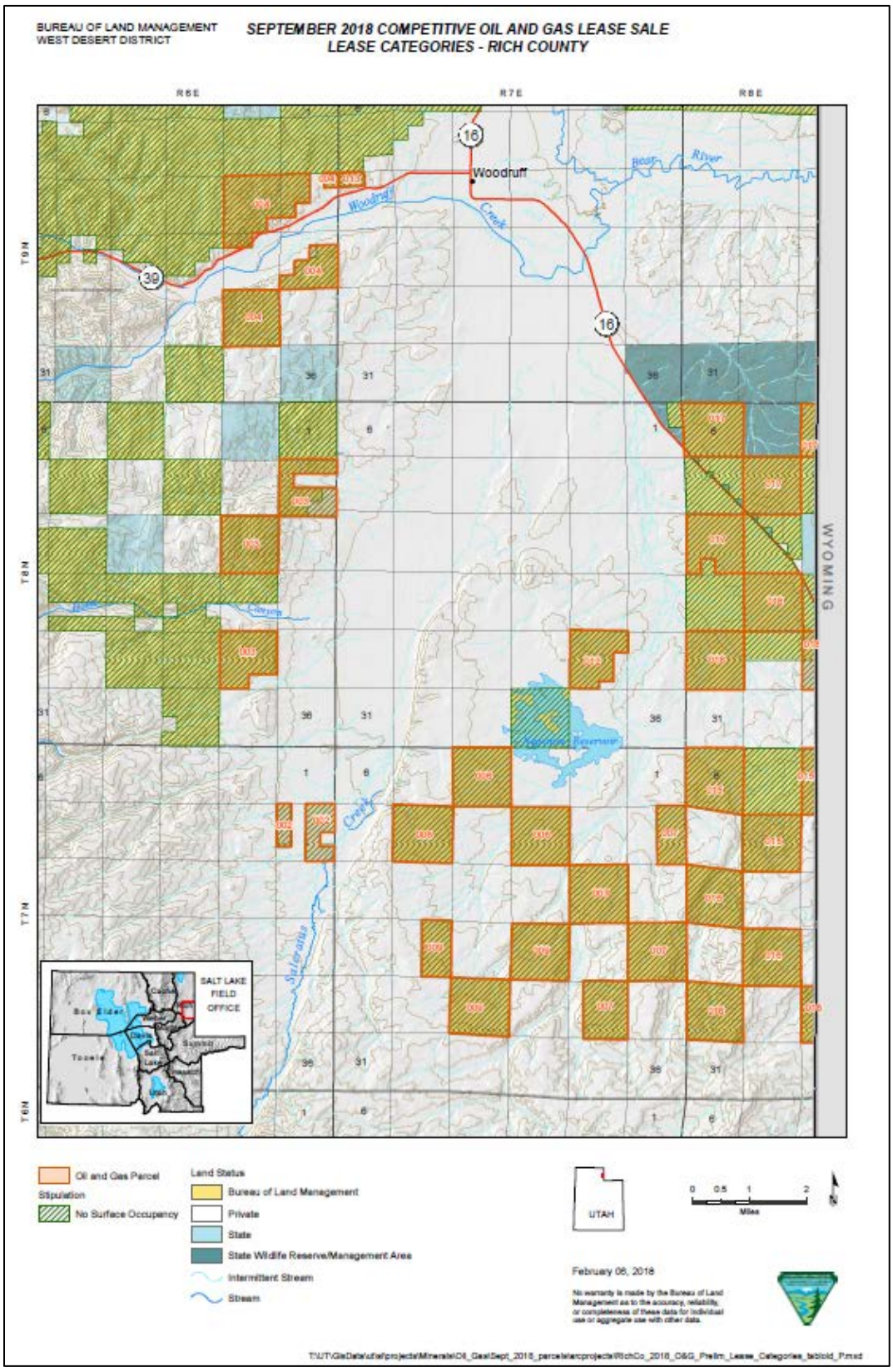

Figure 2. Rich County Leasing Categories.

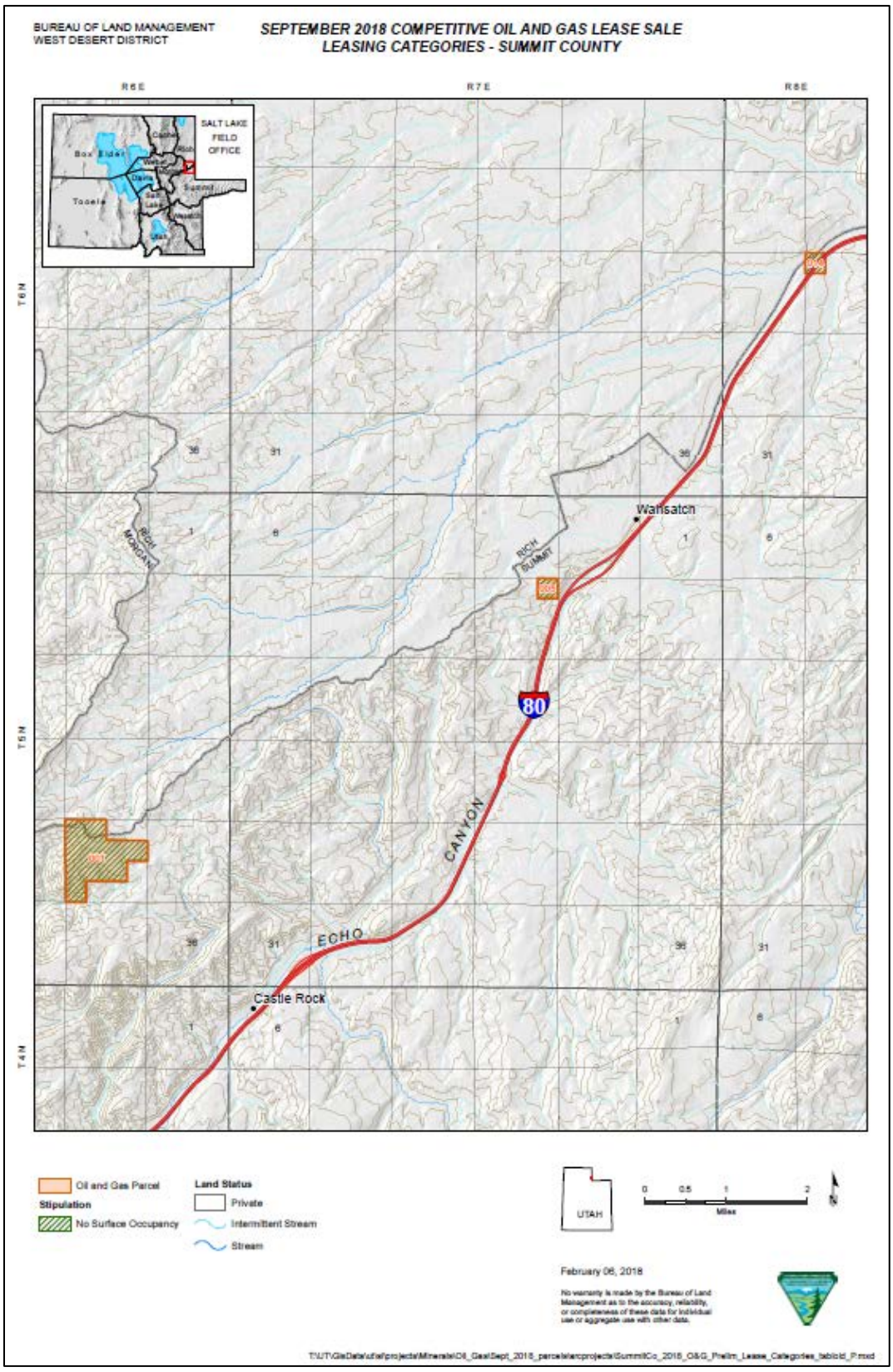

Figure 3. Summit County Leasing Categories.

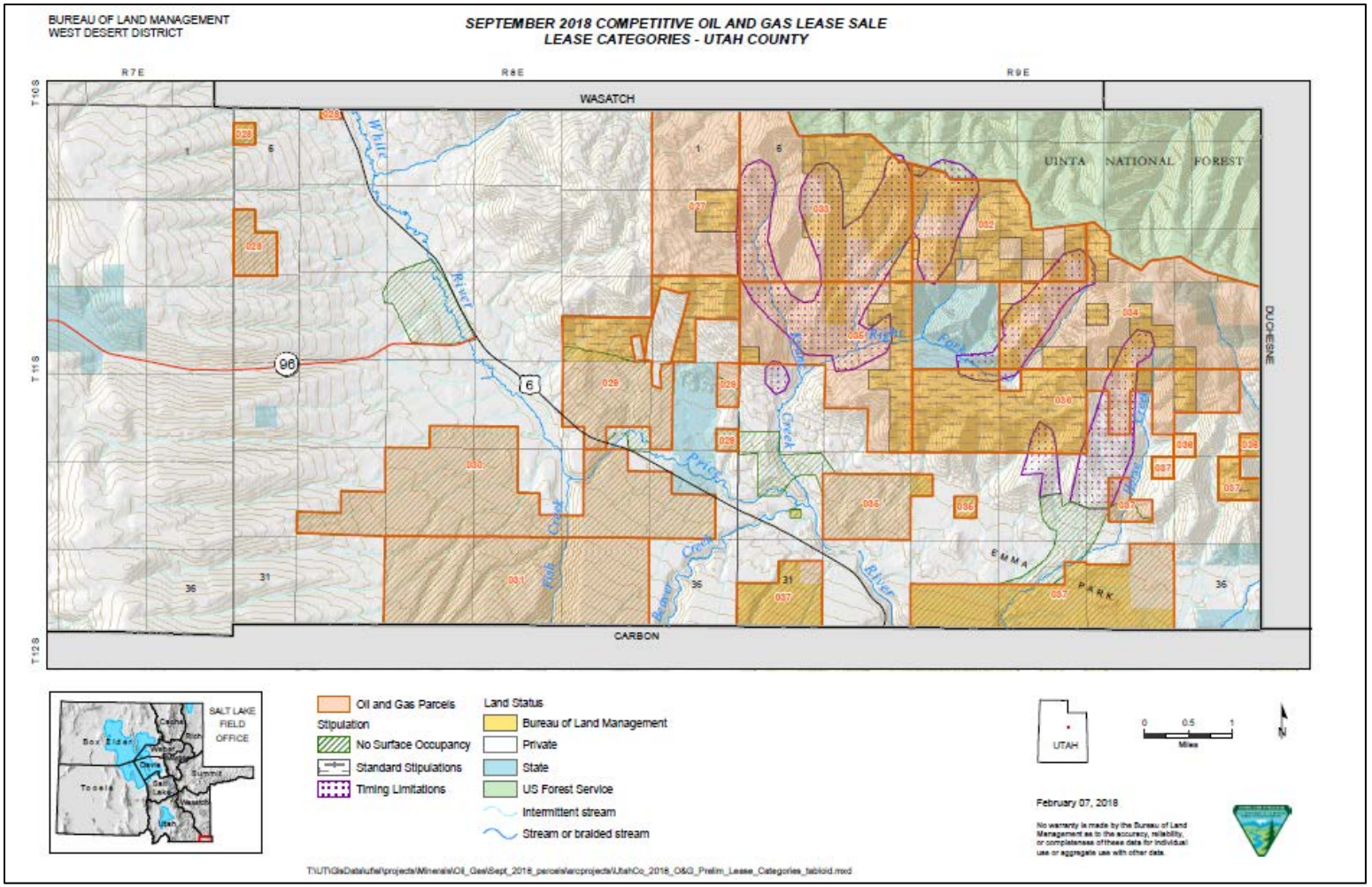

Figure 4. Utah County Leasing Categories.

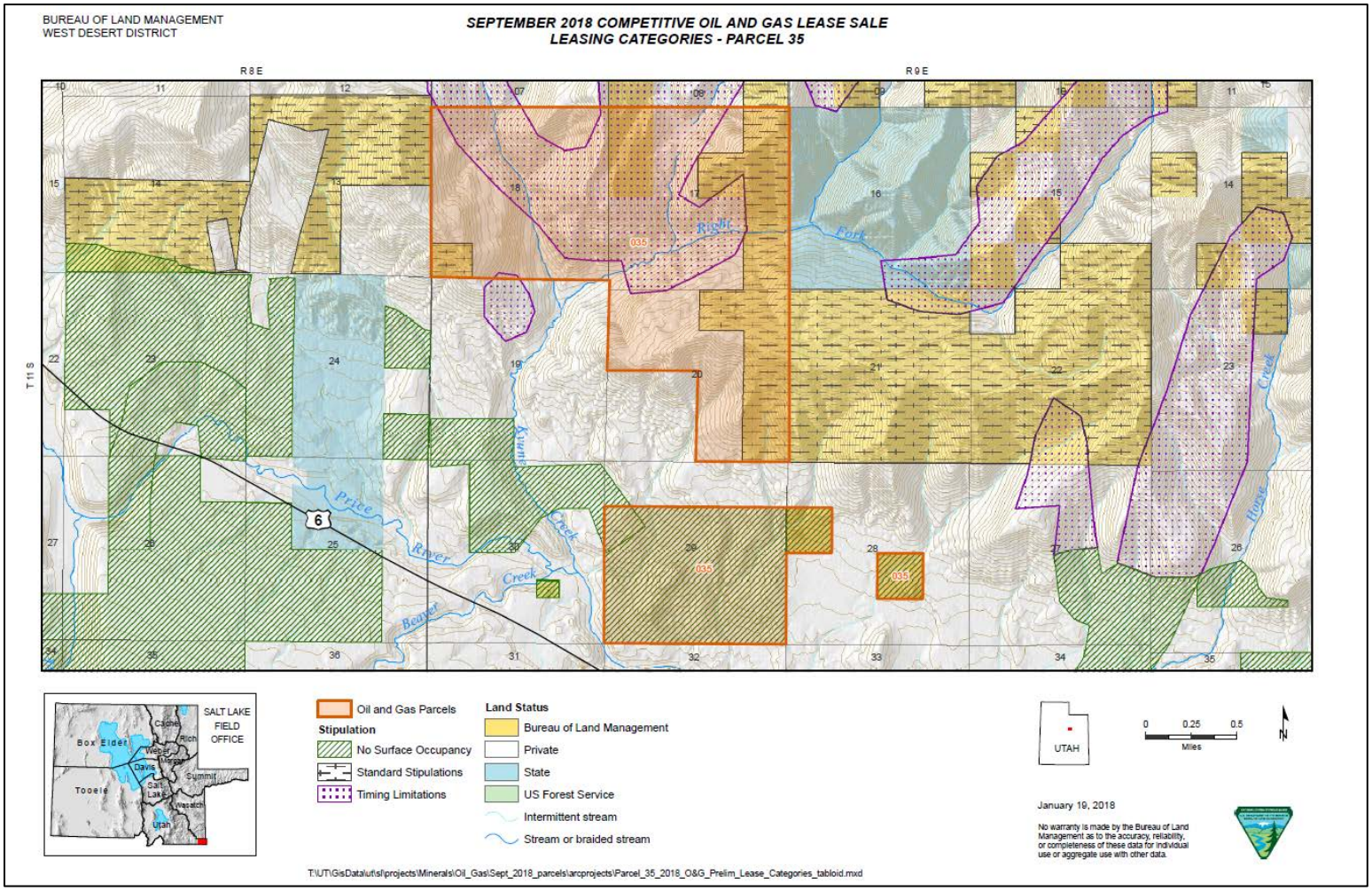

Figure 5. Utah County Parcel 35 Leasing Categories.

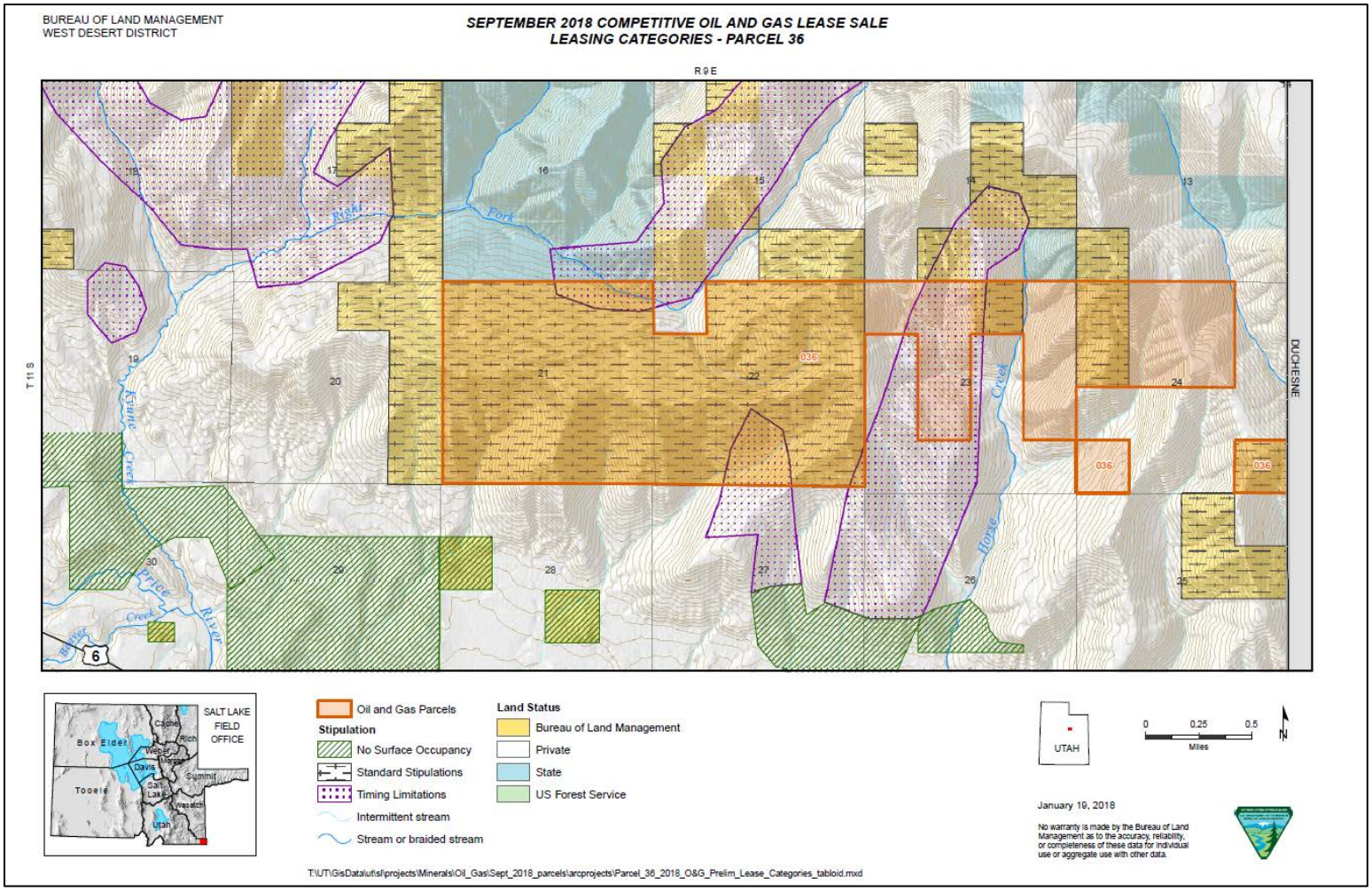

Figure 6. Utah County Parcel 36 Leasing Categories.

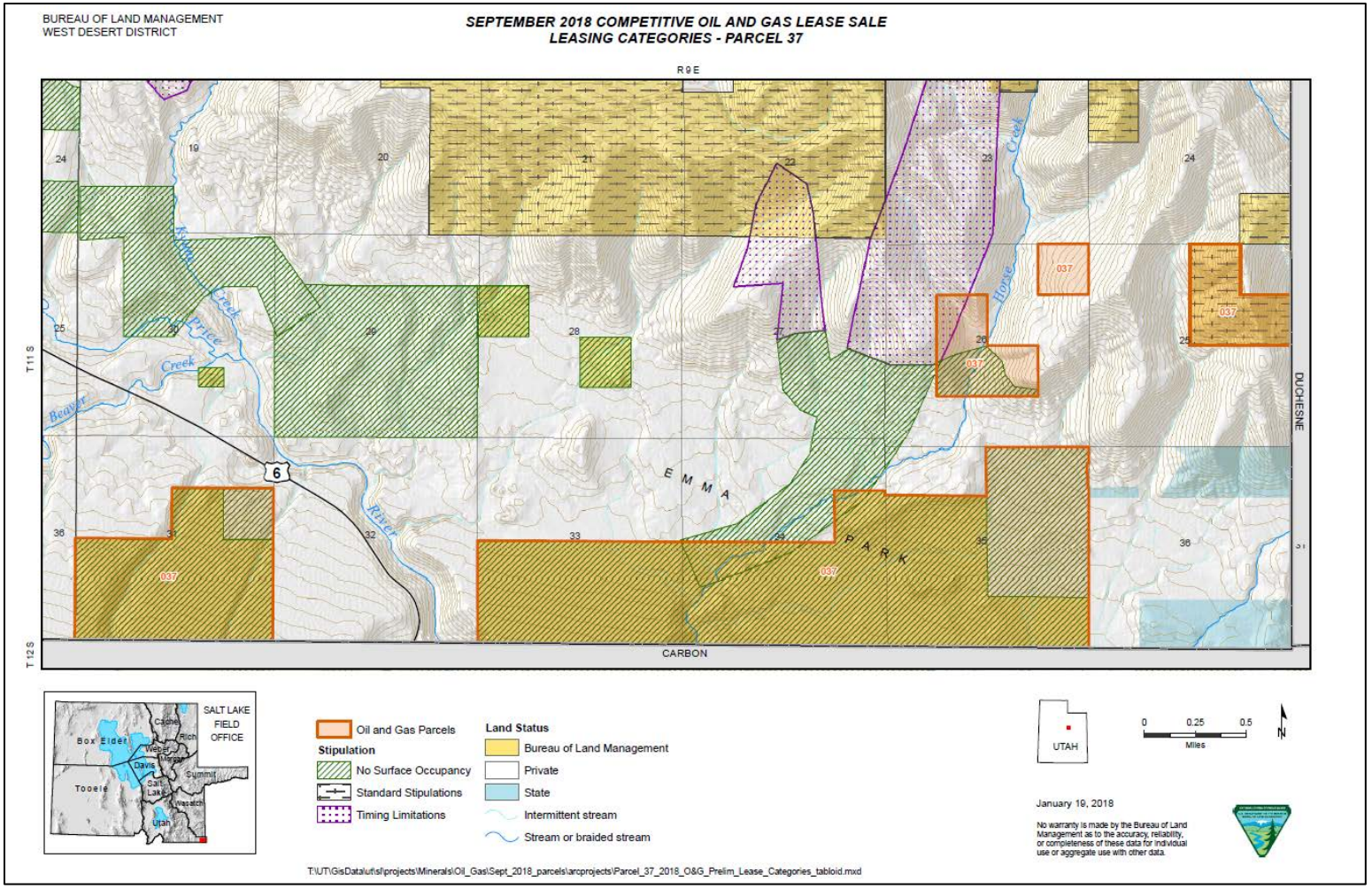

Figure 7. Utah County Parcel 37 Leasing Categories.

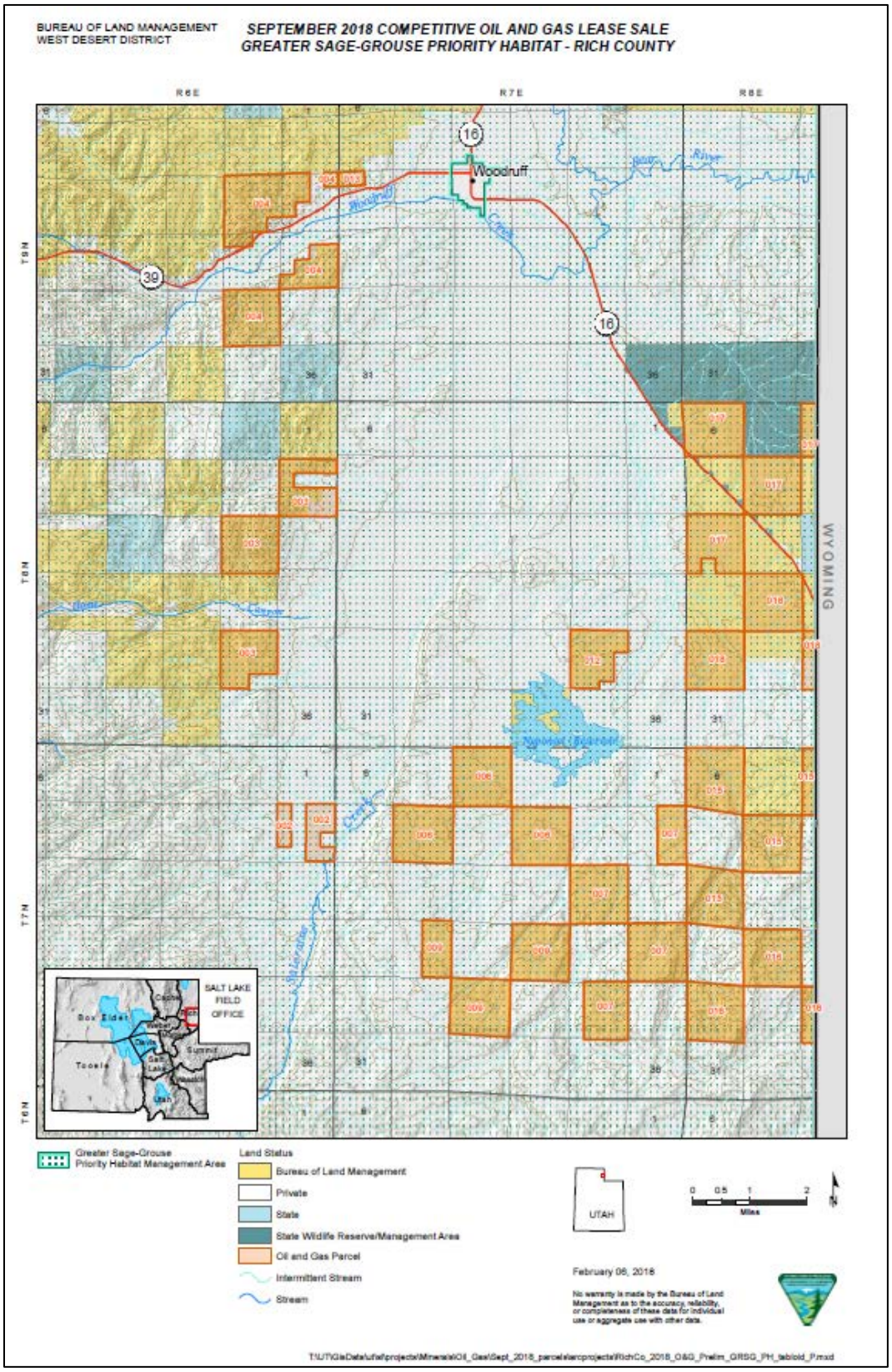

Figure 8. Rich County Greater Sage-Grouse Priority Habitat.

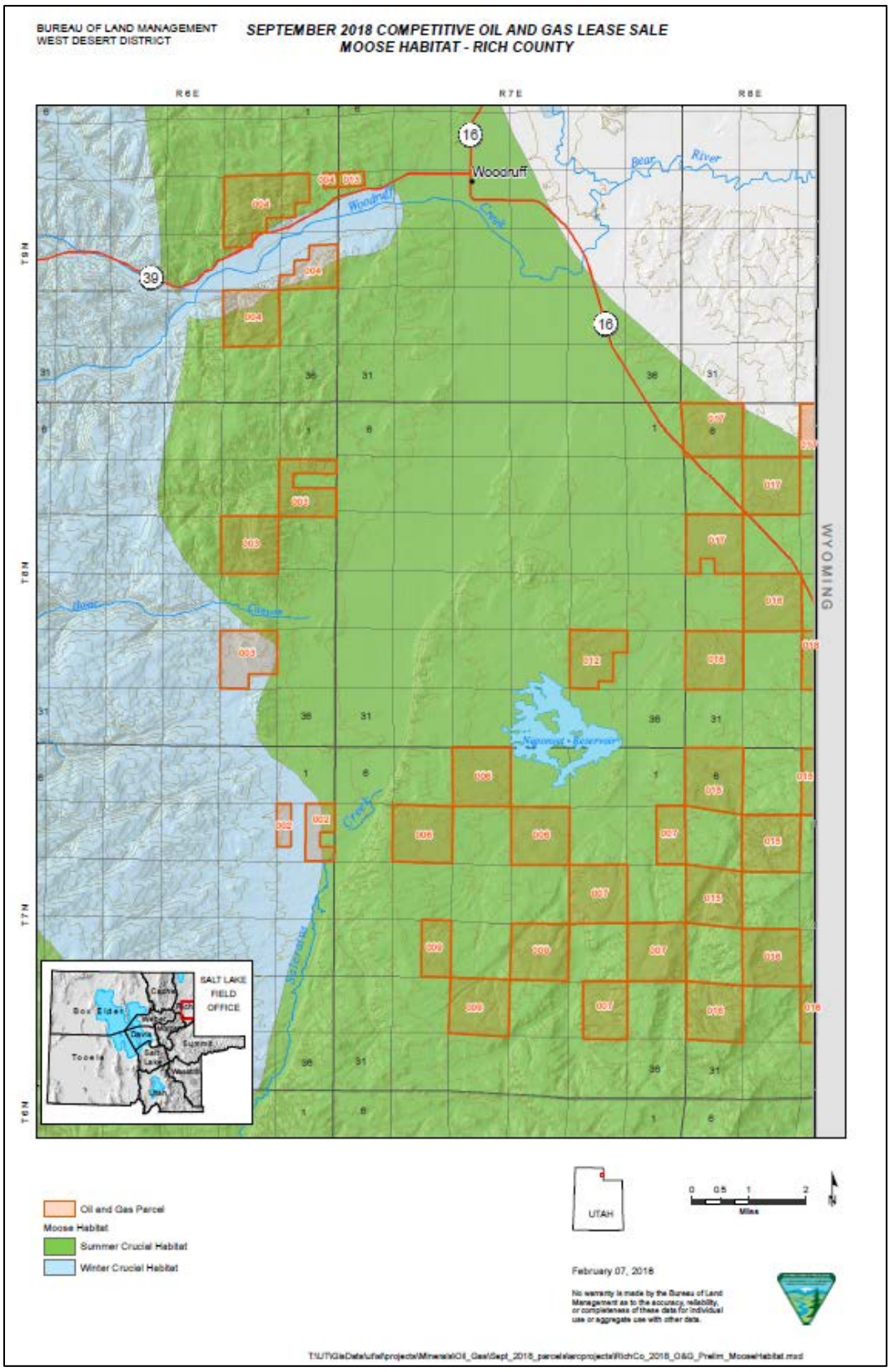

Figure 9. Rich County Moose Habitat.

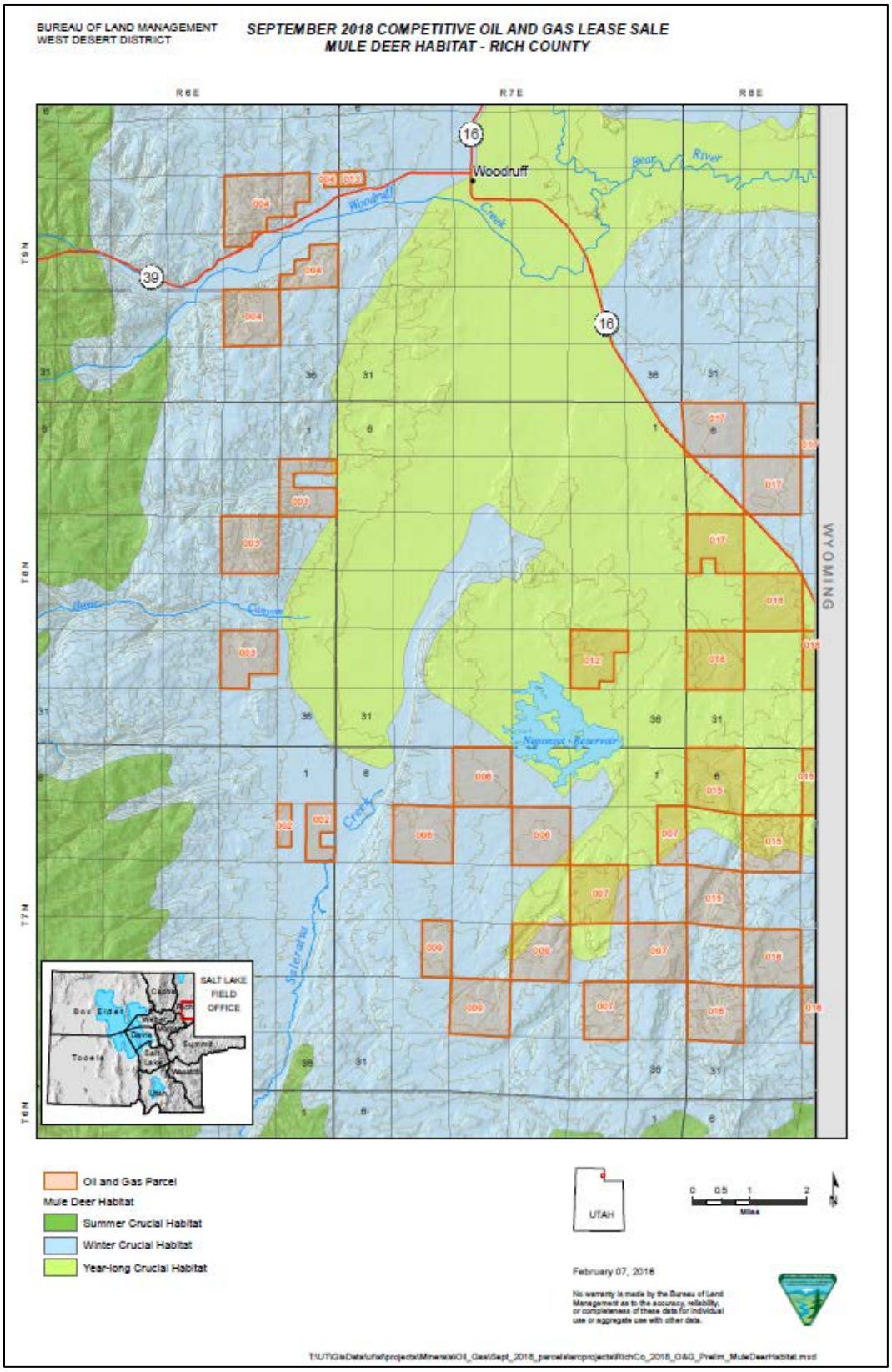

Figure 10. Rich County Mule Deer Habitat.

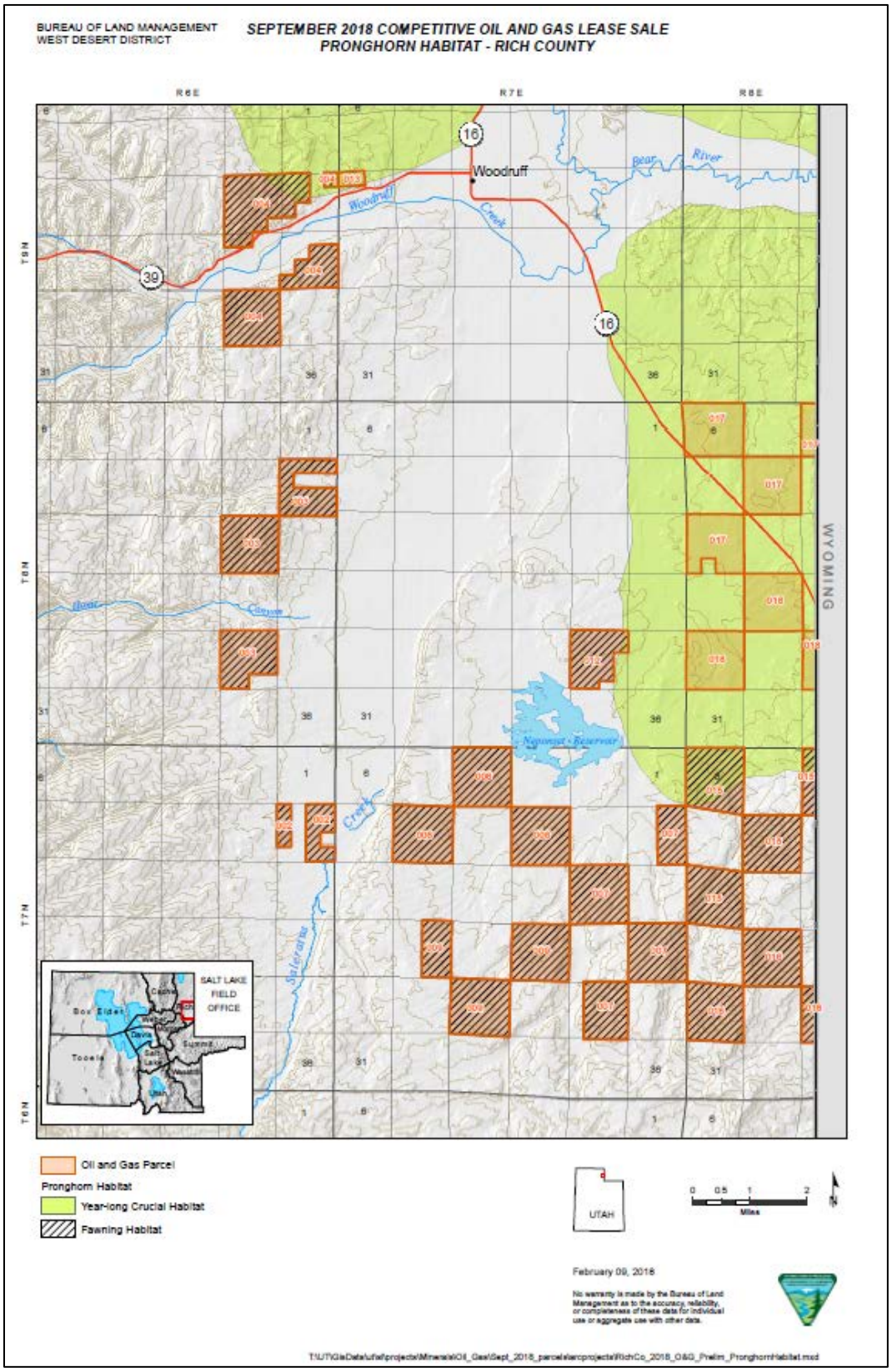

Figure 11. Rich County Pronghorn Habitat.

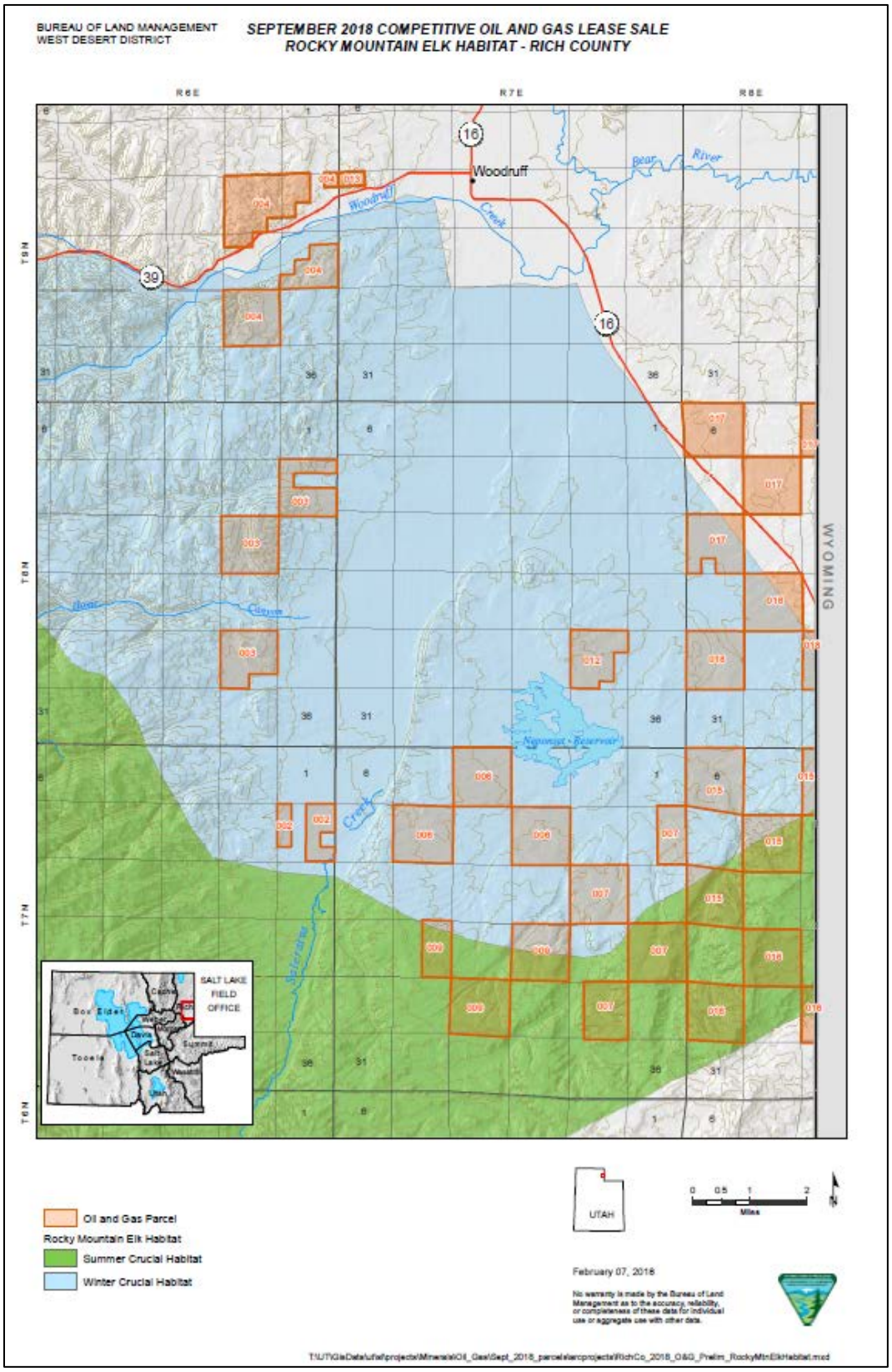

Figure 12. Rich County Rocky Mountain Elk Habitat.

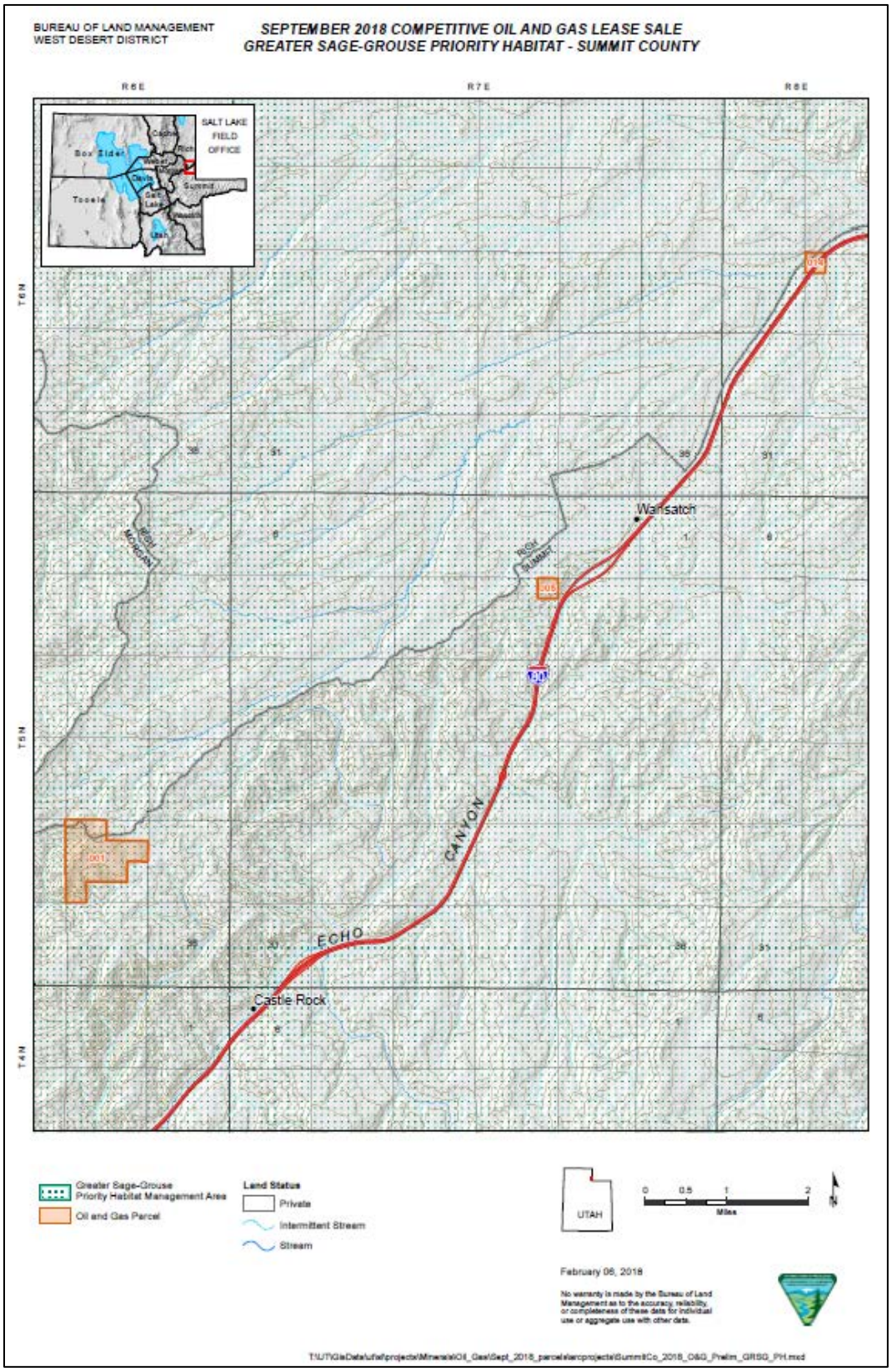

Figure 13. Summit County Greater Sage-Grouse Priority Habitat.

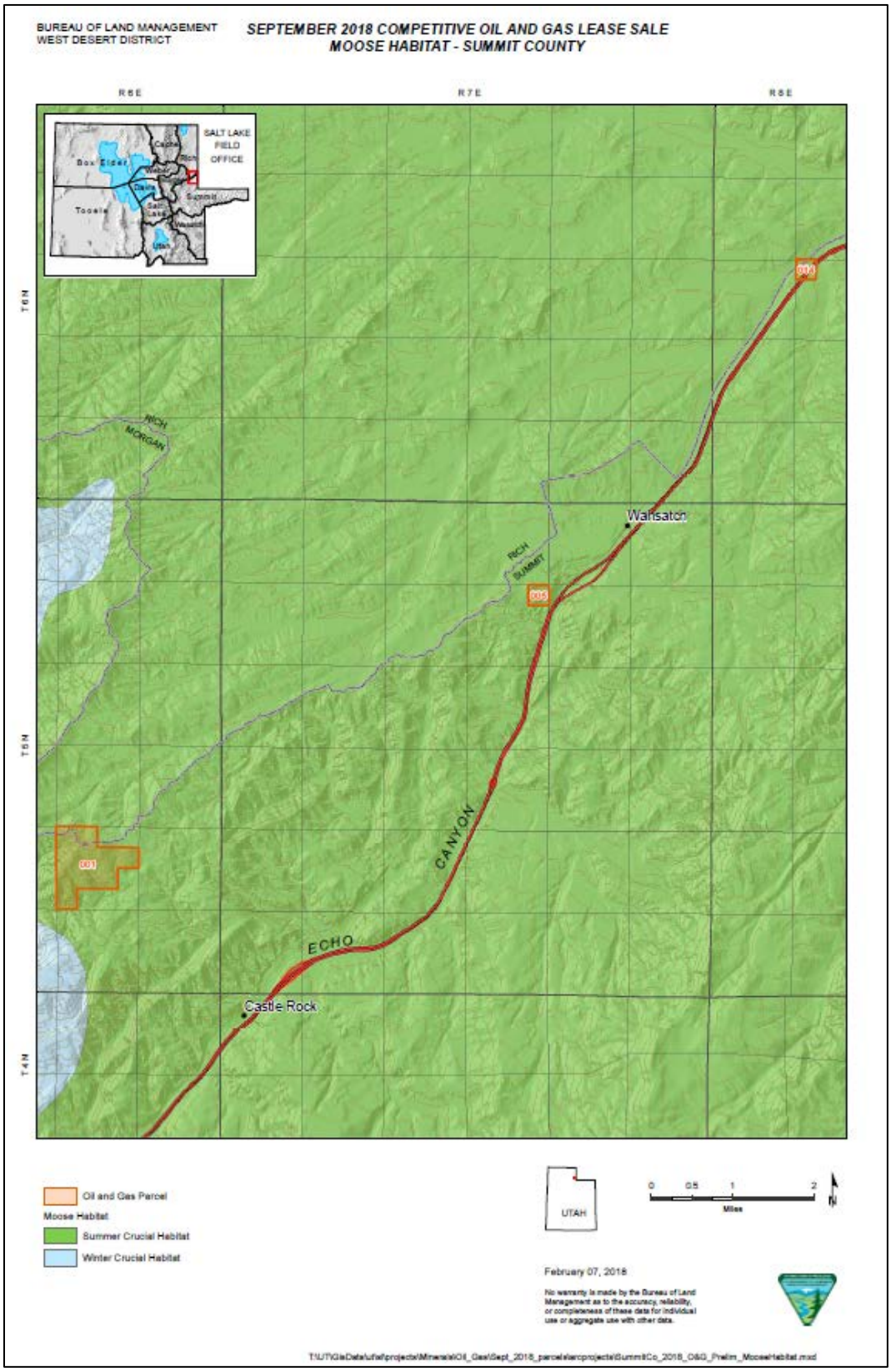

Figure 14. Summit County Moose Habitat.

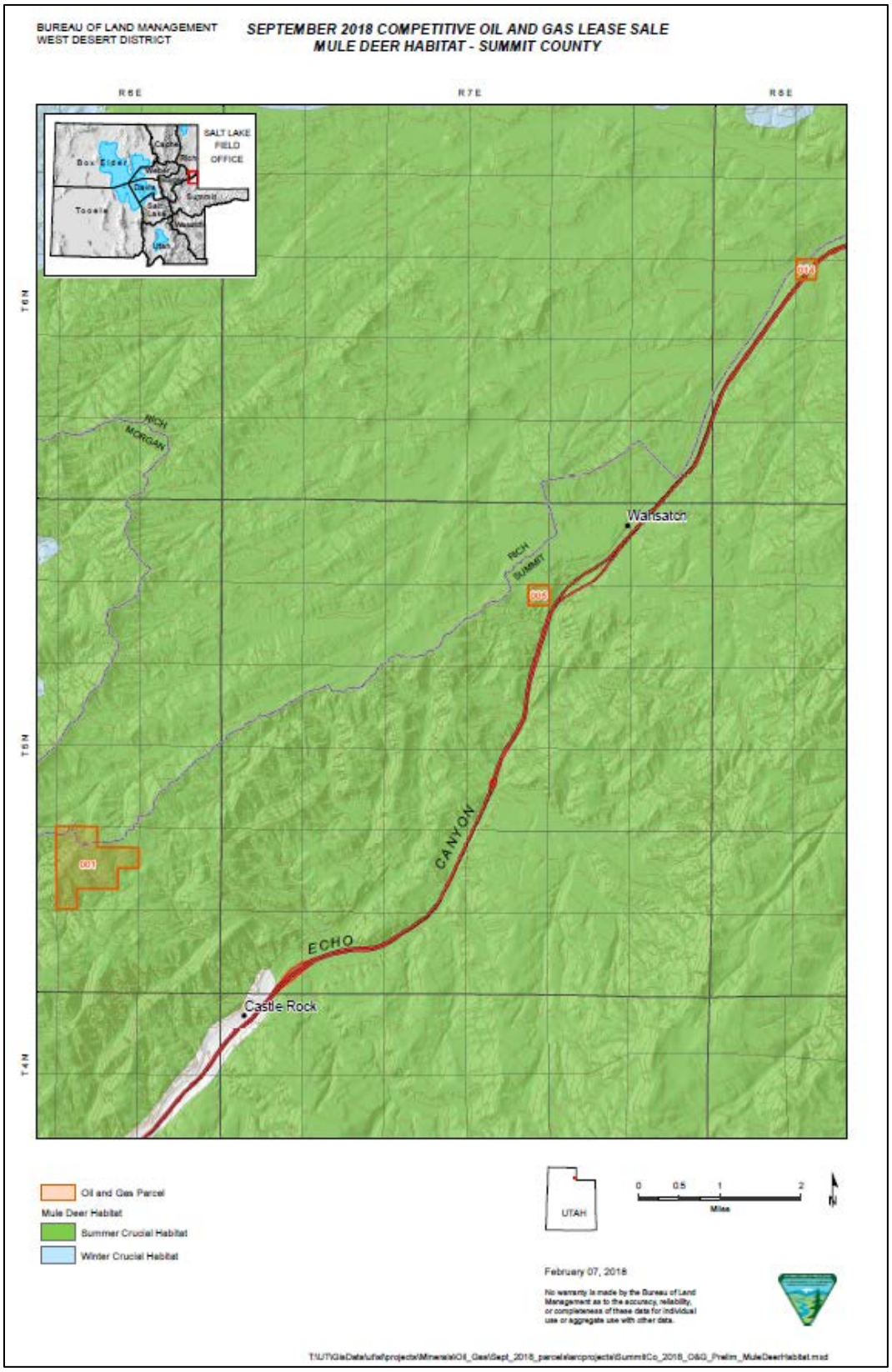

Figure 15. Summit County Mule Deer Habitat.

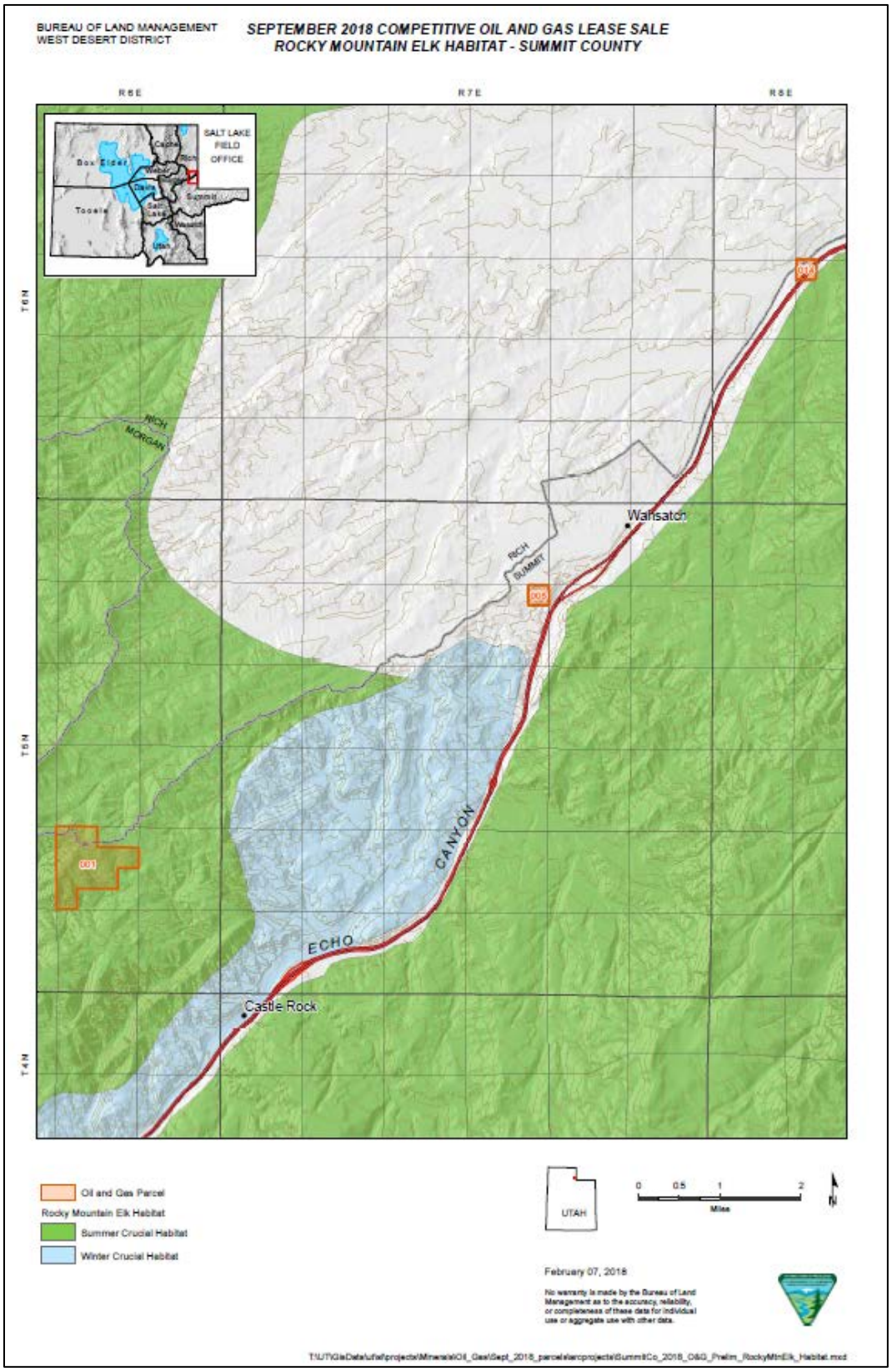

Figure 16. Summit County Rocky Mountain Elk Habitat.

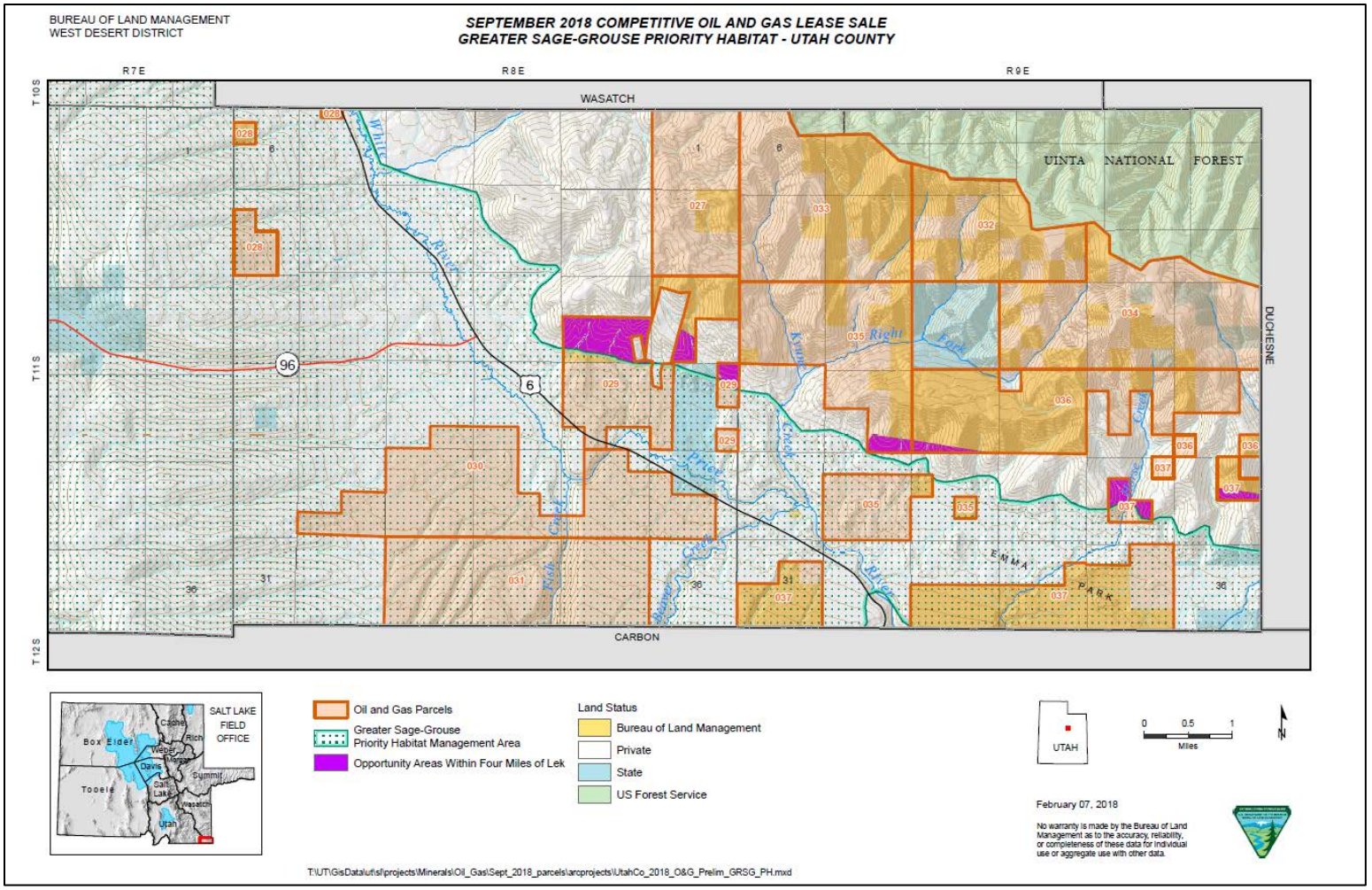

Figure 17. Utah County Greater Sage Grouse Priority Habitat.

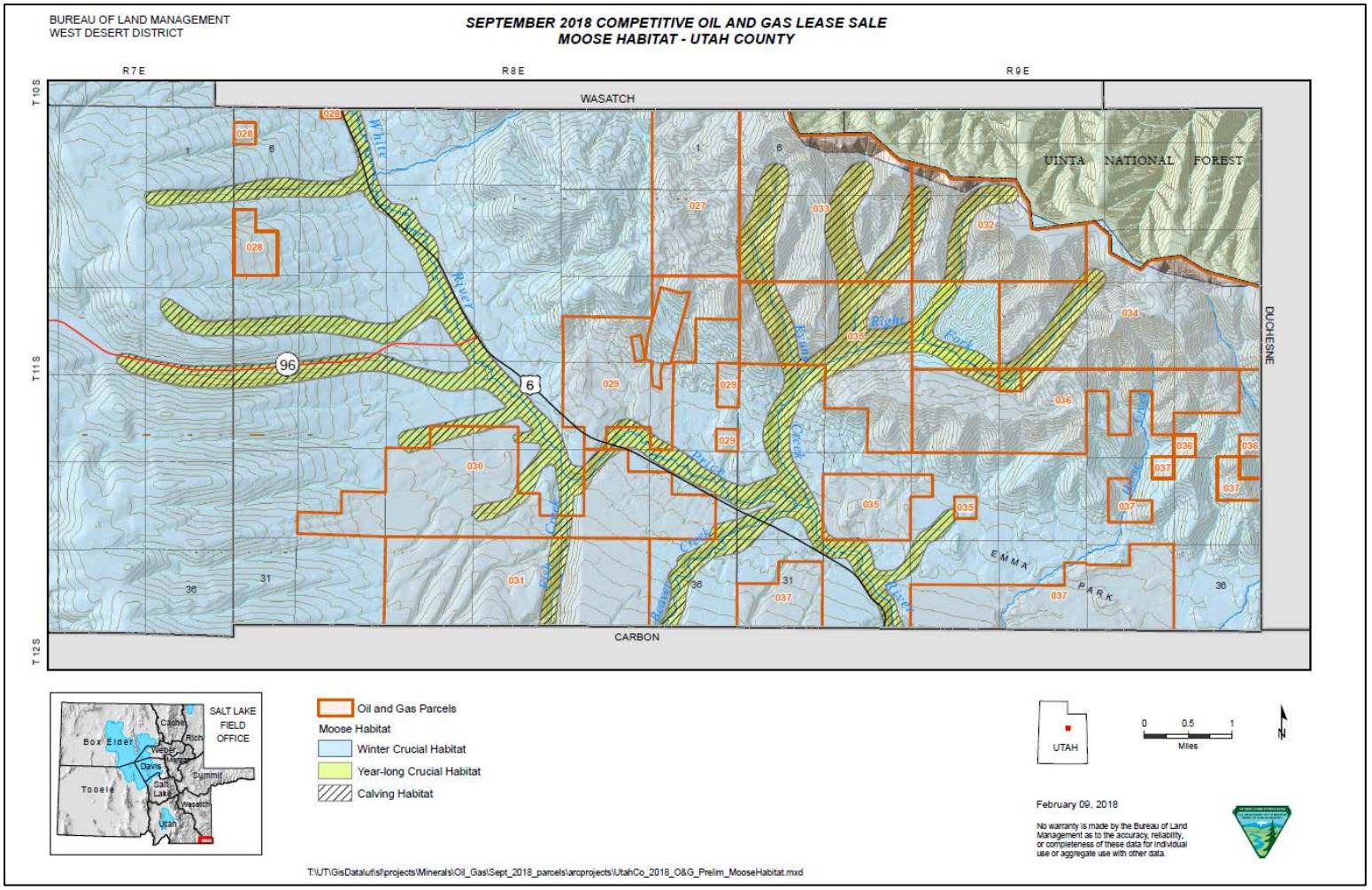

Figure 18. Utah County Moose Habitat.

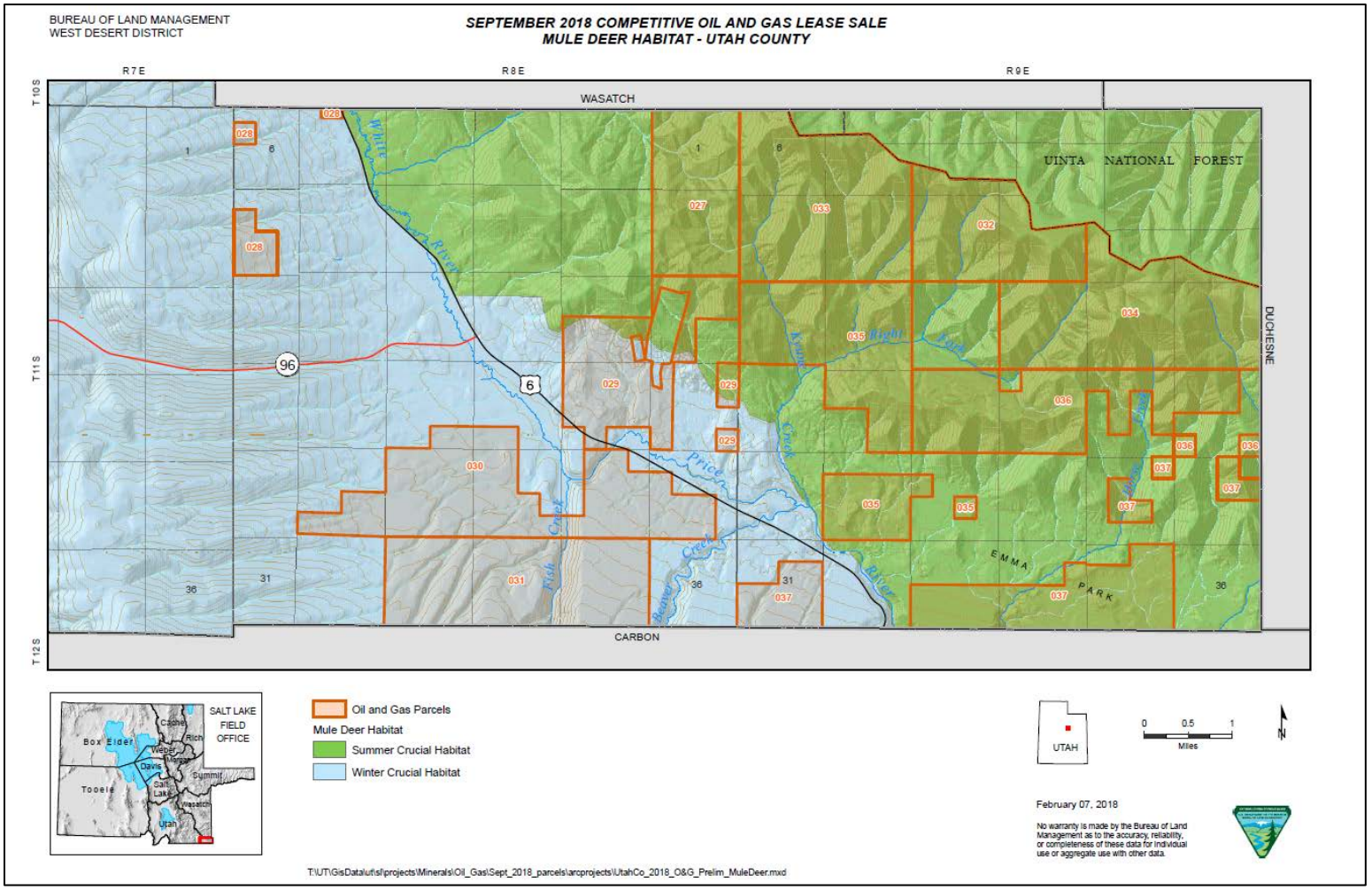

Figure 19. Utah County Mule Deer Habitat.

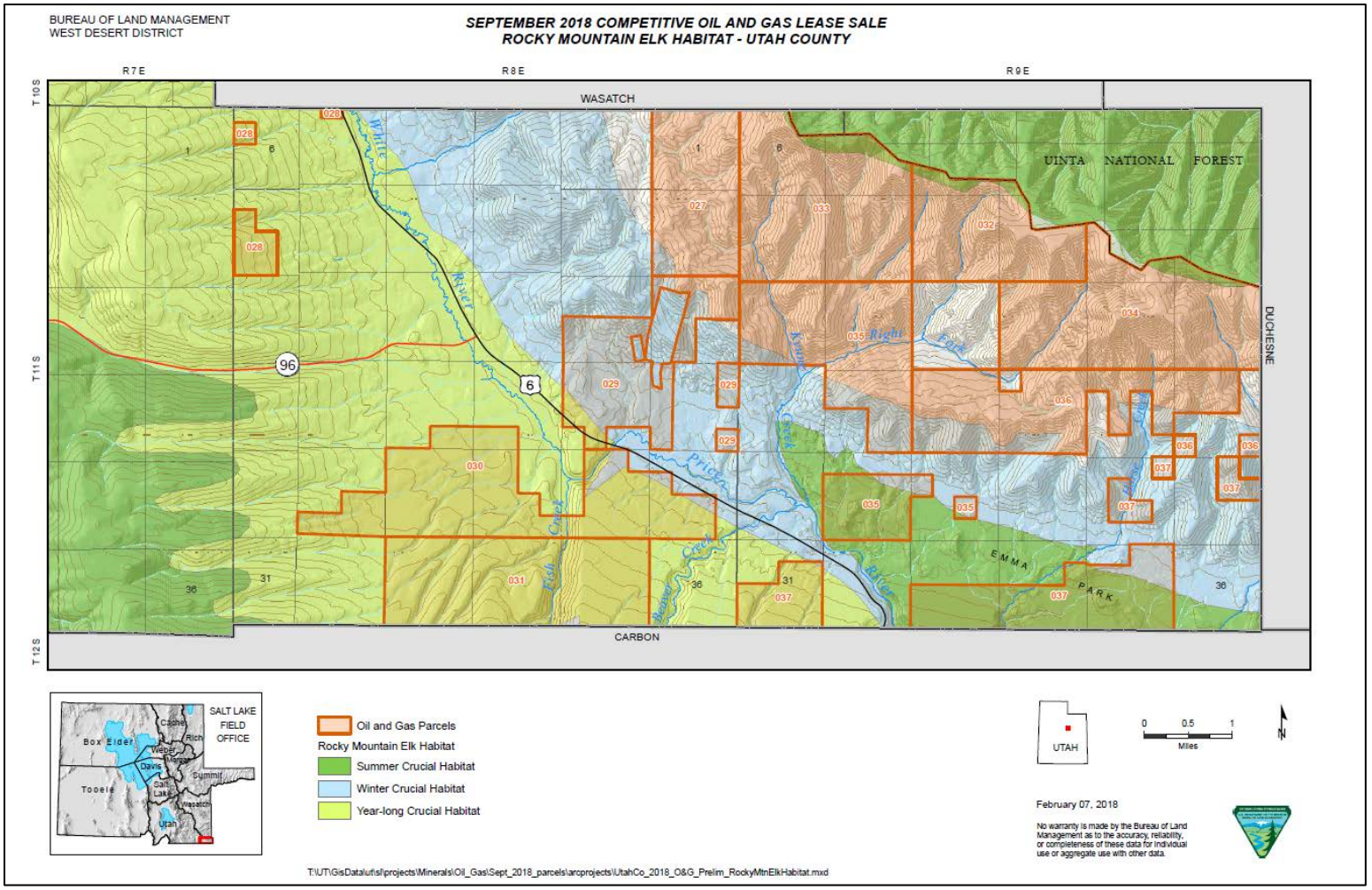

Figure 20. Utah County Rocky Mountain Elk Habitat.

Appendix D – 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

Determi-nation	Resource	Rationale for Determination	Assigned
Resources And Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
PI	Air Quality	Activities related to exploration, construction, drilling, completion, testing, and production of an oil or gas well could result in emissions of pollutants (including those that are regulated) that could affect air quality. Utah County parcels are located within a PM_{10} non-attainment air shed as defined in the Utah Division of Air Quality's 2017 Annual Report. Rich and Summit county parcels are within attainment areas. Application of stipulation UT-S-421 (Air Quality Monitoring) on the Rich County parcels is warranted. Application of lease notices UT-LN-96 (Air Quality Mitigation Measures), UT-LN-99 (Regional Ozone Formation Controls), UT-LN-101 (Air Quality) and LN-UT-102 (Air Quality Analysis) is warranted on all parcels.	Pamela Schuller 3/23/18 Erik Vernon 3/27/18
PI	Greenhouse Gases	Greenhouse Gases are composed mostly of CO_2, CH_4, N_2O, HFCs, PFCs, & SF_6. Primary sources of GHG emissions include fossil fuel combustion, fugitive CH_4, and combustion of produced oil and gas. GHG emissions could occur from construction, drilling, and production equipment and end use of the product(s).	Pamela Schuller 3/23/18 Erik Vernon 3/27/18
NP	Areas of Critical Environmental Concern	The parcels do not intersect or occur adjacent to ACECs.	Pamela Schuller 11/13/17
NI	Cultural Resources	Section 106 of the NHPA requires Federal agencies to consider the effect of any undertaking on cultural resources that are listed on, or might be eligible for listing on, the National Register of Historic Places (historic property). Some parcels may contain historic properties that have been recommended as eligible for inclusion on the National Register of Historic Places. In an effort to identify those historic properties present within the parcels, a literature review has been undertaken and a report is being prepared. Known cultural resources are located in such a fashion (size, density and placement) that avoidance is feasible during exploration for oil/gas resources. At the APD stage, Class III surveys would be completed and all archaeological sites avoided through a COA. Avoidance of historic properties generally would not preclude surface development within the parcel and extraction of the leased minerals. The Cultural Resources Protection Stipulation from Handbook H-3120-1 would be applied to all parcels. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs. On May 9, 2018, the BLM received SHPO concurrence. (BLM 2018b).	Michael Sheehan 5/9/18
NI	Environmental Justice	As defined in EO 12898, minority and low income populations do occur within or use areas within Morgan, Summit, Rich and Utah Counties. All citizens can file an expression of interest or participate in the bidding process (43 CFR 3120.3-2). The stipulations and notices applied to the subject parcels do not place an undue burden on these groups. Leasing the nominated parcels would not cause any disproportionately	Pamela Schuller 11/13/17

Determi-nation	Resource	Rationale for Determination	Assigned
		high and adverse effects on minority or low income populations. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	
NI	Farmlands (Prime or Unique)	Parcels 002, 003, 004, 006, 007, 009, & 015 contain soil map units that are classified by the NRCS (2017) as farmland. None of these would be irrigated due to exploration or development activities. These soils would not be utilized in agricultural practices while retained in BLM ownership. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Daniel Heim 2/5/18
NI	Fish Habitat	Waterbodies within parcels 003, 004, 013, 027, 028, 029, 030, 031, 032, 033, 034, 035, 036, and 037 contain fish species (including their associated habitats). When applicable, fisheries habitat is indirectly protected through the application of NSO and CSU/TL Stipulations for greater sage-grouse habitats (Table 10), steep slopes, riparian/wetland habitat etc. and Notices for sensitive species, riparian areas, endangered fish etc. These stipulations/notices would ensure protection of fish habitat. Upper Colorado River Recovery Program Endangered fish are discussed under Special Status Species (Animal). For example, the following would be applied: UT-S-104 (CSU-Slopes in Excess of 30%) and UT-S-132 (CSU-Live Water) for parcels in Rich/Summit Counties. UT-S-155 (CSU-Riparian Habitat and Municipal & Non-Municipal Watershed Areas) for parcels in Utah County. Notices would also be applied: T&E-03 (Endangered Fish of the Upper Colorado River Drainage Basin) on all parcels in Utah County. Future oil and gas exploration may impact fish habitat in these parcels through development, operation and maintenance activities. This stage occurs when a lessee files an APD, outlining in detail the scope of the proposed development. At that time, impacts to fish habitat could be fully analyzed in additional environmental documents through the NEPA process. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs. Refer also to the Threatened, Endangered, Candidate or Special Status Animal Species discussion.	Cassie Mellon 3/27/18
NI	Fuels/Fire Management	Exploration or development would not conflict with the Fire Management Plan goals and objectives. The implementation of appropriate reclamation standards at the APD stage would prevent an increase of hazardous fuels. Fuels and fire management would not be impacted by the lease process. Fuels projects planned for the parcels proposed for competitive leasing would still be able to be implemented. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Randy Kyes 12/06/17
PI	Geology / Mineral Resources/ Energy Production	The Pony Express RMP, Bear River East and EAR addressed the impacts of oil and gas leasing. Oil and gas exploration could lead to an increased understanding of the geologic setting, as subsurface data obtained through lease operations may become public record. This information promotes an understanding of mineral resources as well as geologic interpretation. While conflicts could arise between oil and gas operations and other mineral operations, these could generally be mitigated under 43 CFR 3101.1-2 and under standard lease terms (Sec.	Angela Wadman 3/27/18

Determi-nation	Resource	Rationale for Determination	Assigned
		6) where sitting and design of facilities may be modified to protect other resources. The majority of flow back water from hydraulic fracturing in Utah is recycled and used in future hydraulic fracturing completions. Therefore, the underground injection of hydraulic fracturing flow back in Utah is very limited and presents little potential for inducing seismic activity. In fact, there has been no reported induced seismicity in Utah that was from water injected into Class II wells. Oil and gas wells produce a great amount of wastewater. The majority this water has high salt brine content and must be disposed of in an environmentally safe manner. In Utah, a majority (95%) of this produced water is pumped into Class II injection wells. In certain parts of the country, water injection has caused some induced seismicity in the form of small earthquakes. Two major factors play a role in induced seismicity from water injection. First, the amount of water being injected. Secondly, the local geology of the water injection site. In Utah, the volumes are lower than those states experiencing induced seismicity. Also, the geology is different than those states experiencing induced seismicity. The injection zones are stratigraphically thousands of feet above the basement rock that may contain large unknown faults. Therefore, at this time it appears that induced seismicity from water injection is not a problem in the oil fields of Utah. (Personal communication from John Rogers, Utah Division of Oil, Gas and Mining (UDOGM), March 27, 2018). The RFDS is documented at section 2.2.1. The proposed action would not exceed the level of activity predicted in the RFDS. Any oil and gas development can be managed to avoid or work within other mineral resources. Mining claims were checked on 1/9/20218 and 3 active placer claims were found to be associated with parcel 037. Solid minerals, including coal, were also considered. Coal seams are present in the Utah County parcels. No coal leases exist. There is one permitted mineral material pit in parcel 035. Parcels 034 and 037 are within the designated Special Tar Sands Areas and UT-LN-85 (Tar Sands) would be applied to these parcels. These areas were designated in 1981 by Congress. However leasing can go forward because the Expression of Interest only had oil and gas requests. Coordination with UTSO (Stan Perkes, UTSO Solids Lead) occurred on 1/9/2018. Utah County parcels are within steep terrain. Special attention may be required in placement of drill pads and access routes to avoid unnecessary hill-slope cuts. UT-LN-60 would be applied to all parcels in Utah County. UT-S-104 would be applied to all parcels in Rich/Summit County. In conclusion, there would be no negative affects to mineral resources. Lease Stipulations and Notices are created to mitigate impacts of oil and gas development on other resources.	
NI	Invasive Species/Noxious Weeds (EO 13112)	Noxious/invasive weed species may be present on the subject parcels. 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 filing plans and COAs. Control measures would be implemented during any ground disturbing activity and documented through a PUP/PAR. Additional control and procedural information is documented in the Programmatic EIS Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States and its Record of Decision, (September 2007). If treatment occurs as part of regular operations, BMPs, SOPs and site specific mitigation are applied	Mark Williams 1/24/18

Determi-nation	Resource	Rationale for Determination	Assigned
		at the APD stage as COAs. Negligible impacts would be expected as a result of leasing and exploration. Application of lease notice UT-LN-52 (noxious weed) is warranted on all parcels.	
NI	Lands/Access	The governing land use plans (as amended) allow for oil and gas development with associated infrastructure. Oil and gas leasing is not expected to affect access to public lands. Exploration and development would be subject to all valid pre-existing rights. Any proposals for future projects within the parcels would be reviewed on a site-specific basis and other right-of-way (ROW) holders in the area would also be notified, as per regulations, when an application for ROW is received by this office. Off-lease ancillary facilities that cross public land, if any, may require separate authorizations. Coordination with existing ROW holders and application of SOPs, BMPs and design features at the APD stage, would ensure protection of existing rights. There are no withdrawals, Recreation and Public Purposes Act leases, ROW avoidance, or ROW exclusion areas. Parcel 009 contains a public water reserve. This is addressed in the Water Resources discussion. In accordance with the Special Right-of-Way Act of 1875, the legal descriptions for parcels 005, 014, 015 and 018 exclude the ROWs.	Mary Higgins 2/6/18
NI	Livestock Grazing	Some of the parcels are located within livestock grazing allotments or private pastures. Leasing or production activities would not cause changes to grazing permit terms and conditions. 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, at the APD stage. Impacts to livestock grazing may occur as a result of subsequent actions including exploration development, production, etc. Therefore, reclamation provisions/procedures including re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, range improvement project replacement/restoration (e.g., fences, troughs and cattle guards), noxious weed control, would be identified in future NEPA/decision documents on a case-by-case basis (at the APD stage). In addition, if any range improvement projects could be impacted by wells or associated infrastructure, well pads could be moved 200 meters to avoid rangeland improvements or vegetation monitoring plots as per 43 CFR 3101.1-2. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Daniel Heim 11/29/17
PI	Migratory Birds	The following documents are incorporated: Utah Wildlife Action Plan (2015), Utah Partners in Flight Avian Conservation Strategy Version 2.0. (2002), Birds of Conservation Concern (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), and Utah Supplemental Planning Guidance: Raptor Best Management Practices (BLM UTSO IM 2006-096). Migratory birds are protected under the Migratory Bird Treaty Act (Executive Order 13186). MOU between the BLM and United States Fish and Wildlife Service (USFWS) (BLM MOU WO-230-2010-04) provides BLM further direction for project-level NEPA guidance for meeting MBTA conservation and compliance.	Nancy Williams 12/14/17

Determi-nation	Resource	Rationale for Determination	Assigned
		Bald and golden eagles receive additional protections under the Bald and Golden Eagle Protection Act of 1962. All of the parcels in Rich County are within a bald eagle winter use area and subject to stipulation UT-S-281 Salt Lake. All of the parcels in Utah County are subject to stipulation UT-S-417 (CSU/TL – Bald Eagle Roost Sites). A list of other migratory birds and their habitat that could possibly be affected can be found in Section 3.3.5.2. All of the Rich County parcels are within the Deseret Land and Livestock Ranch Important Bird Area. Future oil and gas exploration may impact migratory birds and their seasonal habitats through development, operation and maintenance activities. This stage occurs when a lessee files an APD, outlining in detail the scope of the proposed development. At that time, impacts to migratory birds could be fully analyzed in additional environmental documents through the NEPA process. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs. Lease notices UT-LN-37 (Bald Eagle Habitat), UT-LN-107 (Bald Eagle), UT-LN-40 (Golden Eagle Habitat), UT-LN-44 (Raptors) and UT-LN-45 (Migratory Birds) would be applied to all parcels. In addition stipulation UT-S-265 (CSU/TL-Crucial Raptor Nesting Sites) would apply to all of the Utah County parcels; stipulation UT-S-420 (TL-Raptor Eyeries) would be applied to parts of Summit County parcels 001 and 014 and all Rich County parcels. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	
NI	National Historic Trails	Parcels 014 and 005 fall within the corridor of the Pony Express, California and Mormon Pioneer NHTs in Echo Canyon. Visual resources within this corridor are already impacted by the presence of Interstate 80 and the Union Pacific Railroad corridors. Both parcels are NSO, so no impacts would occur at the leasing stage. However, at the APD stage, BMPs and other site specific mitigation may be applied as conditions of approval, in order to minimize the cumulative impacts to the NHT corridor. No other leasing parcels fall within a NHT corridor.	Ray Kelsey 2/15/18
NI	Native American Religious Concerns	The following Tribes were invited to consult on this project via certified letter on 12/21/2017: Pueblo of Jemez, Hopi Tribe, Paiute Indian Tribe of Utah, Ute Indian Tribe, Eastern Shoshone Tribe, and Northwestern Band of Shoshone Nation. The Hopi Tribe responded on 1/2/18; supporting the identification of and avoidance of ancestral sites and requested a copy of the literature review. Follow-up with the Hopi Tribe is ongoing. At this time, comments have not been received and concerns have not been expressed from the other Tribes. The BLM will consult with Indian tribes on a government-to-government basis, if requested by any Tribe. Additional coordination and consultation would be initiated at the APD stage. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Pamela Schuller 7/16/18
NI	Paleontology	There are no known paleontological resources within the parcels. If an APD is filed, specific clearances would be conducted and incorporated into that NEPA process. If paleontological resources are located, the AO would to be contacted. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Angela Wadman 12/13/17

Determi-nation	Resource	Rationale for Determination	Assigned
NI	Property Boundary Evaluation	Leasing parcels would have no effect on property boundaries. In accordance with WO IM 2011-122, cadastral survey reviews and verifies the legal land descriptions prior to lease issuance. Detailed land surveys could be warranted at the APD stage. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Mary Higgins 11/30/17
NI	Recreation	Recreational experiences and activities would not be affected by exploration or development. The parcels occur within extensive recreation management areas as per the land use plans. Campgrounds are not located on any of the parcels. Within the parcels, recreational activities are of a dispersed nature and include: OHV riding, hunting, camping and viewing natural scenery. Within Utah County, three parcels (032, 033 and 034) are adjacent to Reservation Ridge/Indian Head Road (on the south and west boundary of Ashley National Forest) which is a 24-mile long scenic drive along graded Forest Service Road 147. Some use by the public occurs on Fish Creek and Price River. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	JuLee Pallette 1/25/18 Roxanne Tea 1/25/18
PI	Greater Sage-Grouse Habitat	SFA/PHMA or opportunity area habitat may exist within the area of the parcels. All of the parcels in Rich and Summit Counties, and Utah County parcels 028, 029, 030, 031, 035 and 037, are within PHMA and subject to the following stipulations: UT-S-347 GRSG, UT-S-348 GRSG, UT-S-349 GRSG, UT-S-350 GRSG, UT-S-352 GRSG, UT-S-353 GRSG, UT-S-354 GRSG, and UT-S-355 GRSG. Parcels 004 and 013 in Rich County are also in SFA, subject to the following stipulations: UT-S-346 GRSG. Also, lease notices UT-LN-129, UT-LN-130, UT-LN-131, UT-LN-132, and UT-LN-133 are attached to the above-mentioned parcels. Parcel 036, and parts of Parcels 035 and 037 are not in PHMA, but are in opportunity habitat within 4 miles of a lek, therefore subject to the following stipulations UT-S-356 GRSG, UT-S-357 GRSG. At the APD stage, Parcels 007, 014, 015, 016, 017, 018 may be subject to stipulations and notices based on the Wyoming ARMPA if directionally drilled from BLM lands within Wyoming. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Nancy Williams 12/13/17
NI	Socio-Economics	Based on the RFDS, no quantifiable additional or decreased economic impact to the local area/counties would be caused by exploration or development. The parcel areas would still receive use by county residents and other visitors including recreationists regardless of alternative selected. Refer to the Economic Profile System Reports prepared on 11/27/17 (EPS 2017) (Agriculture, Public Land Amenities, Demographics, Federal Land Payments, Government Employment, Land Use, Mining, Including Oil & Gas, Non-Labor Income, Service Sectors, Socioeconomic Measures, Timber and Wood Products, Industries that Include Travel & Tourism, WUI and Summary). Additional information is contained in the county general plans and their corresponding resource management plans. Land uses in counties and parcel areas would continue. Land use plan (as amended) allocations would not be altered. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Pamela Schuller 11/27/17
NI	Threatened, Endangered,	A historical population of Clay Phacelia (an endangered species) was found in proximity to parcels 029 and 030. However, no systematic	Mark Williams

Determi-nation	Resource	Rationale for Determination	Assigned
	Candidate or Special Status Plant Species	inventory for the species has been completed. In addition, populations are irruptive. It is possible for no individuals to be present for several years until conditions are conducive; there is long seed life in the soil. Spatial data layers show the parcels are outside the mapped habitat by 3 to 4 miles. Other special status species are not present within or adjacent to the parcels. The standard endangered species stipulation as per Handbook H-3120-1 is attached to all parcels. None of the parcels contain BLM identified sensitive plant species. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs. Consultation with USFWS is on-going.	2/8/18
PI	Threatened, Endangered, Candidate or Special Status Animal Species	The standard endangered species stipulation as per Handbook H-3120-1 is attached to all parcels. Habitat for Canada lynx, yellow-billed cuckoo, Mexican spotted owl, Colorado fishes may be present within the parcels (BLM draft 2018). Therefore the yellow-billed cuckoo lease notice (UT-LN-113) is attached to all parcels and the lease notices for Mexican spotted owls (T&E-06) and Canada lynx (T&E-10) are attached to all of the parcels in Utah County. Canada Lynx (T&E-10) is excluded from parcel 31 due to no snowshoe hare habitat. Critical habitat for the endangered fish of the Upper Colorado River does not occur in the project area, but the Utah County parcels are part of the Upper Colorado River Basin (BLM draft 2018). Any water depletion in the Upper Colorado River Basin may affect and are likely to adversely affect critical habitat for the endangered fish of the Colorado River System (USFWS 2007); therefore, as part of the conservation and mitigation measures for endangered Colorado River fish, they require consultation on anticipated water depletions and lease notice T&E-03 Endangered Fish of the Upper Colorado River Drainage Basin would be applied to all parcels in Utah County to minimize potential impacts. Sensitive species such as pygmy rabbit, burrowing owl, northern goshawk, grasshopper sparrow, short-eared owl, ferruginous hawk, bobolink, Lewis's woodpecker, long-billed curlew, three-toed woodpecker, Townsend's big-eared bat, fringed bat, smooth greensnake, Bonneville or Colorado River cutthroat trout or boreal toad, may be found on all leases; therefore, the Utah Sensitive Species lease notice (UT-LN-49) has been attached to all parcels. UT-LN-122 (Colorado and Bonneville Cutthroat Trout Habitat) on parcels 3 and 4 and all parcels in Utah County Habitat for white-tailed prairie dogs may be found on all of the Rich and Summit County parcels, which would be subject to stipulation UT-S-219 Salt Lake. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Cassie Mellon 11/30/17 Nancy Williams 12/13/17
NI	Travel/ Transportation	The OHV designation for the parcels are Limited to Existing Routes. Public access is currently restricted/limited to several parcels, due to private land and/or fencing and locked gates. Travel and transportation would be minimally impacted by the proposed action, as closure of access routes is not part of the proposed project. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	JuLee Pallette 1/25/18 Roxanne Tea 1/25/18

Determi-nation	Resource	Rationale for Determination	Assigned
NI	Soil and Vegetation Excluding Special Status Species	At this stage (lease sale) there would be no impacts to vegetation resources. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an APD be filed. If additional site specific resource protection measures are needed to prevent unnecessary or undue degradation, these would be developed at the time of the site specific NEPA. It is expected that reclamation procedures would be required to ensure long-term vegetation impacts are minimized. Reclamation provisions/procedures would include re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, noxious weed controls, etc. The parcels contain steep topography; additional discussion of steep slopes is contained within the minerals section. SOPs, BMPs and site specific design features applied at the APD stage including reclamation, may be applied as COAs.	Mark Williams 12/12/17 Danny Heim 1/7/18
PI	Visual Resources	VRM class designations apply to public lands only; they are not applied to non-BLM surface. The SLFO's VRM classes were determined during the land use planning processes (see Section 1.4). Within Utah County, there are 11 parcels. Two of these parcels (030 and 031) are all private surface; the remaining 9 parcels are split-estate. Of the split-estate parcels, all of the BLM acreage of parcel 028 and portions of parcels 035 and 037 are within VRM Class IV. All of the BLM acreage of parcels 027, 029, 032, 033, 034 and 036 and portions of parcels 035 and 037 are within VRM Class III. UT-S-166 (VRM Class II and III) would be applied to all Utah County parcels except 028, 030 and 031. Within Rich/Summit counties, parcels 001, 002, 005, and 014 are all private surface. Parcels 003, 004, 006, 007, 012, 015, 017 & 018 have portions within VRM class II and III areas. Parcels 009, 013, & 016, are totally within VRM Class IV and would not be affected by exploration. UT-S-165 (CSU-VRM Class II and III Areas) would be added to all parcels in Rich/Summit County excluding 001, 002, 005, 009, 013, 014 & 016. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	JuLee Pallette 2/9/18 Roxanne Tea 1/24/18 Mike Nelson 1/24/18 Allison Ginn 9/19/18
NI	Wastes (hazardous or solid)	Hazardous materials are not known to exist on the parcels. Refer also to the Air Quality discussion for specific information on hazardous air pollutants (HAPs). Hazardous materials, if not handled properly that are associated with operations have the potential to be spilled at the lease/drill site. However, the spill would be contained, reported, and cleaned up by the operator. Additional information is provided in Sections 2.2.2 through 2.2.7. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	Alan Jones 1/23/18
NI	Water Resources/ Quality (drinking/ surface/ ground)	Water resources are known to exist within all the parcels. Exploration and development could cause impacts. All parcels in Utah County occur within surface water protection zones for the Price River intake. Parcels 001 and 005 occur in a level 4 surface water protection zone for the Central Weber Basin intakes. Parcel 013 occurs in a level 4 ground water protection zone for Woodruff. Parcels 030 & 031 contain multiple (1 through 4) ground water protection zones for Price municipal.	Cassie Mellon 2/8/18

Determi-nation	Resource	Rationale for Determination	Assigned
		To ensure protection of water & drinking water resources in the above parcels, the following stipulations would be applied: UT-S-155 (CSU-Riparian Habitat And Municipal And Non-Municipal Watershed Areas) would apply to all parcels in Utah County. UT-S-132 (CSU-Live Water) would apply to all Rich and Summit County parcels. In addition, to ensure protection of drinking water source protection zones (DWSPZ) and following IM UT-2010-055, UT-LN-56 (Drinking Water Source Protection Zones) would be applied to parcels 001, 005, 027, 028, 029, 030, 031, 032, 033, 034, 035, 036, & 037. In addition, the following notices would be added to all parcels to inform potential lessees of the requirements of EO 11988: UT-LN-128: Federal Flood Risk Management Standard and UT-LN-53: Riparian Areas. If an APD is filed, and the parcel is not in a DWSPZ, SOPs required by regulation and design features would be sufficient to isolate and protect all usable ground or surface water sources before drilling or exploration begin. The SOPs include the requirements for disposal of produced water contained in Onshore Oil and Gas Order (O.O.) No. 7 and the requirements for drilling operations contained in O.O No. 2. Potential fresh water aquifers zones would be protected by the requirement of casing and cementing the drill hole to total depth. The casing would be pressure tested to ensure integrity prior to drilling out the surface casing shoe plug. Potential impacts would be addressed and a design feature would be included utilizing UT IM 2010-055 (Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development) prior to APD approval. Standard protocols would minimize possibility of releases (cased drill holes, no surface disturbance or occupancy would be maintained within 660 feet of any natural, new disturbance would 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). Parcel 009 contains a public water reserve and UT-LN-57 (Public Water Reserve) would be applied. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	
NI	Hydraulic Fracturing	Hydraulic fracturing is a technique developed in the 1940's. Around 2000, the technique was combined with directional drilling to dramatically increase production from deposits previously considered uneconomical (EPA 2016). The hydraulic fracturing water cycle describes the use of water in hydraulic fracturing, from water withdrawals to make hydraulic fracturing fluids, through the mixing and injection of hydraulic fracturing fluids in oil and gas production wells, to the collection and disposal or reuse of produced water. These activities can impact drinking water resources under some circumstances. Impacts can range in frequency and severity, depending on the combination of hydraulic fracturing water cycle activities and local- or regional-scale factors. The following combinations of activities and factors are more likely than others to result in more frequent or more severe impacts:	Sheri Wysong 6/18/18

Determi-nation	Resource	Rationale for Determination	Assigned
		• Water withdrawals for hydraulic fracturing in times or areas of low water availability, particularly in areas with limited or declining groundwater resources; • Spills during the management of hydraulic fracturing fluids and chemicals or produced water that result in large volumes or high concentrations of chemicals reaching groundwater resources; • Injection of hydraulic fracturing fluids into wells with inadequate mechanical integrity, allowing gases or liquids to move to groundwater resources; • Injection of hydraulic fracturing fluids directly into groundwater resources; • Discharge of inadequately treated hydraulic fracturing wastewater to surface water resources; and, • Disposal or storage of hydraulic fracturing wastewater in unlined pits, resulting in contamination of groundwater resources. "The above conclusions are based on cases of identified impacts and other data, information, and analyses presented in the report. Cases of impacts were identified for all stages of the hydraulic fracturing water cycle. Identified impacts generally occurred near hydraulically fractured oil and gas production wells and ranged in severity, from temporary changes in water quality to contamination that made private drinking water wells unusable" (EPA 2016). If fracking should occur in an area where there is no vertical separation between the hydraulically fractured rock formation and the bottom of the potential underground drinking water source, fracking fluid may be introduced into the source. However, the occurrence of fracking within a potential drinking water source is low, concentrated in a few fields in Wyoming and Montana (EPA 2016). The measures required (spill containment systems, casing integrity testing, pit lining), etc. for all wells drilled in Utah, fracked or not, are adequate to prevent fracking fluids as well as hydrocarbons and produced water from the wells to prevent ground/surface water contamination. The UDOGM has promulgated rules to prevent environmental impacts from fracking (Utah Administrative Code R649-3-39). Further analysis/mitigation of impacts is not warranted.	
NI	Wetlands/ Riparian Zones / Floodplains	Through resource knowledge and/or GIS analysis, all parcels were identified as containing riparian and/or wetland systems. Floodplains (as defined in EO 11988) are also associated with these lentic and lotic systems on all parcels. However, since all parcels would have the following stipulations attached, impacts from exploration/development to those resources would be prevented. UT-S-104 (NSO-Slopes in Excess of 30%) on all parcels in Rich County. UT-S-132 (CSU-Live Water) on all parcels in Rich and Summit Counties. UT-S-155 (CSU-Riparian Habitat and Municipal & Non-municipal Watershed Areas) on all parcels in Utah County. Leasing of parcels would not directly affect these resources. BMPs, SOPs, and site specific mitigation may be applied at the APD stage as COAs.	Cassie Mellon 2/6/18
NP	Wild and Scenic Rivers	The lease parcels do not overlap any suitable WSR segments.	JuLee Pallette

Determi-nation	Resource	Rationale for Determination	Assigned
		The approximately ½ mile wide eligible segment and viewshed corridor for segments of Price River and Fish Creek within the Utah County portion of the project area intersects the following nominated lease parcels: 29, 30, 31, 35 and 37. Although these two segments in Utah County are outside of the Price Field Office Planning Area, they were determined to be eligible for inclusion in the National Wild & Scenic Rivers System in the Price Field Office Final EIS/Proposed RMP (BLM August 2008), with fish habitat cited as the outstandingly remarkable value (ORV). The tentative classifications are "recreation" for the Price River segment and "scenic" for the Fish Creek segment. Suitability under the Wild and Scenic Rivers Act was discussed in the PFO FEIS Appendix C (p. C-57 to 61). Regarding the Price River, the FEIS cites the presence of private property and "extensive residential, agricultural, industrial, transportation, and municipal development in these areas" and "a number of diversions throughout this river area." The FEIS further notes, "The upper segment of the Price River would be especially difficult to manage because of the low percentage of public lands within the corridor and because of the extensive use of the corridor for transportation, power generation, and commercial and residential areas. For Fish Creek (p. C-37 to 39), BLM cited various rationale for the nonsuitability determination, including "Because only 15 percent of the river area is federally owned, management of this river as Wild and Scenic by BLM would not be practical." Regarding the Price River, the FEIS (p. C-57 to 61) cites the presence of private property and "extensive residential, agricultural, industrial, transportation, and municipal development in these areas" and "a number of diversions throughout this river area." The FEIS further notes, "The upper segment of the Price River would be especially difficult to manage because of the low percentage of public lands within the corridor and because of the extensive use of the corridor for transportation, power generation, and commercial and residential areas." The proposed action (leasing) does not affect the rationale cited for the suitability determination of either segment. In 2008, the BLM Price field office determined that both the Fish Creek and Price River segments qualified as eligible but <u>not</u> suitable for inclusion in the WSR System. *See* Price ROD, Map R-30b (BLM October 2008). For eligible segments not determined to be suitable, such as the Price River, the Price ROD (WSR-1) also states, "Any eligible segment not determined to be suitable will receive no special protection specifically for its free-flowing values, outstandingly remarkable values, and tentative classifications." Manual 6400 states, "[T]he BLM's policy goal for eligible and suitable rivers is to manage their free-flowing condition, water quality, tentative classification, and any outstandingly remarkable values **to assure a decision on suitability can be made for eligible rivers**; or in the case of suitable rivers, until Congress designates the river or releases it for other uses. To that end, the BLM has broad discretionary authority, on a case-by-case basis through project-level decisionmaking and the NEPA processes, not to impact river values or make decisions **that might lead to a determination of ineligibility or nonsuitability** (emphasis added)."	2/7/18 Allison Ginn 8/22/18

Determi-nation	Resource	Rationale for Determination	Assigned
		All of the lands within the river corridor are subject to No Surface Occupancy, preventing any wells from placement within the eligible segment corridors. The proposed action would not affect Fish Creek's free-flowing condition, the presence of the identified outstandingly remarkable value (fish- high-quality coldwater fishery), nor the tentative classification (scenic) (see PFO FEIS Appendix C-19). Similarly, the proposed action would not affect the Price River's free-flowing condition, the presence of the identified outstandingly remarkable value (fish- young Colorado pikeminnow, bonytail chub, and razorback sucker), nor the tentative classification (recreational) (see PFO FEIS Appendix C-21). Therefore, the proposed action would not affect the determination of eligibility for either river corridor. The Price RMP determined that the Price River was not suitable in the Record of Decision. The proposed action would not affect the river's free-flowing condition, the presence of the identified outstandingly remarkable value (fish- young Colorado pikeminnow, bonytail chub, and razorback sucker), nor the tentative classification (recreational) (see PFO FEIS Appendix C-21). Therefore, the proposed action would not affect the determination of eligibility for the river corridor.	
NP	Wilderness/WSA	None of the parcels intersect wilderness areas or wilderness study areas.	JuLee Pallette 12/1/17 Roxanne Tea 11/22/17
NP	Lands with wilderness characteristics	Lands with wilderness characteristics determinations/inventories are made on public lands only and therefore, they do not apply to non-BLM surface ownership. The proposed lease parcels do not overlap any lands with wilderness characteristics. SLFO has not received citizen-submitted information or proposals within/or adjacent to the area of the parcels, nor has the staff internally identified areas that would require an update to the current inventory.	JuLee Pallette 2/9/18 Roxanne Tea 1/25/18 Allison Ginn 3/19/18
NP	Wild Horses and Burros	The parcels do not intersect herd areas or herd management areas.	Tami Howell 12/7/17
PI	Wildlife Excluding Special Status Species	All of the parcels contain crucial habitat for big-game species. The following parcels are subject to stipulation UT-S-249 (TL-Crucial Mule Deer Summer/Fawning Areas): 027, 029, 032, 033, 034, 035, 036, & 037. The following parcels are subject to UT-S-237 (Randolph) (TL-Mule Deer Winter Range): 002, 003, 004, 006, 007, 009, 012, 013, 015, 016, 017, & 018. The following parcels are subject to stipulation UT-S-237 (TL-Crucial Mule Deer Winter Range): 028, 029, 030, 031, & 037. The following parcels are subject to stipulation UT-S-419 (Pony Express) (TL-Crucial Elk Calving Areas): 028, 029, 030, 031, 032, 033, 034, 035, 036, & 037. The following parcels are subject to stipulation UT-S-418 (Pony Express) (TL-Crucial Elk Winter Range): 027, 028, 029, 030, 031, 035, 036, & 037. The following parcels are subject to UT-S-301 (TL-Seasonal Wildlife Habitat**)**: 002, 003, 004, 006, 007, 012, 015, 017, & 018. Lease Notices: UT-LN-02 (Crucial Winter Moose Habitat) will be applied to the following parcels in Rich and Summit County: 002, 003, 004, and in	Nancy Williams 12/13/17

Determi-nation	Resource	Rationale for Determination	Assigned
		Utah County: 027, 028, 029, 030, 031, 032,033, 034, 035, 036, and 037. UT-LN-07 (Crucial Moose Calving Habitat) will be applied to the following parcels in Rich and Summit County: 001, 002, 003, 004, 005, 006, 007, 009, 012, 013, 014, 015, 016, 017, 018, and in Utah County: 028, 029, 030, 031, 032, 033, 034, 035, and 036. UT-LN-09 (Crucial Elk Calving And Deer Fawning Habitat) will be applied to parcels: 001, 003, 005, 006, 007, 009, 012, 014, 015, 017, & 018. UT-LN-14 (Pronghorn Fawning Habitat) will be applied to parcels: 002, 003, 004, 006, 007, 009, 012, 015, & 016.	
NI	Woodland / Forestry	Woodland production areas could be present on or adjacent to the parcels. Exploration or development would not limit use or access to any established wood sale areas. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs. Per 43 CFR 5400 Sale of Forest Products, permits are required for severance and removal of forest products regardless of whether the product is utilized or not. This may be applied or addressed as a COA at the APD stage.	Mark Williams 12/12/17

Appendix E – Comments and Responses

The following four (4) organizations submitted comments on this EA:

1. Farmland Reserve, Inc (FRI)
2. WildEarth Guardians (WEG)
3. Center for Biological Diversity and Western Watersheds Project (CBD/WWP)
4. Trout Unlimited (TU)

The comments have been copied in whole or in part here and include a BLM response. Refer also to Section 5.3.1.

#	Commenter	Resource/Issue	Comment	Response
1	FRI	Private Land Surface Disturbances, Impairing Operations/Wildlife Habitat	Farmland Reserve, Inc. ("FRI") owns land throughout the Intermountain area and cares deeply about the land and all its attributes - soil, water, flora, fauna, etc. FRI manages its land for the long-term as sustainable and profitable livestock enterprise, using range management practices that improve cattle forage and serve as good habitat for many species of wildlife. We know from experience that surface disturbances and activities associated with mineral extraction and operator access across FRI property impair FRI's ability to optimize both livestock operations and wildlife habitat. FRI owns significant surface rights (and some mineral rights), commonly known as Deseret Land and Livestock ("DLL") that surround the land in Rich County that is the subject of the EA. Almost 16,000 acres of the 18,190 BLM acres in the Rich and Summit County parcels proposed for lease are located within or adjacent to DLL land. Of those approximately 16,000 acres, only 533 acres are split estates on which FRI owns the surface and the BLM owns the mineral rights. Therefore, approximately 15,500 acres are subject to the no surface occupancy ("NSO") restrictions. Further, these split estates have limited adjacency to other BLM parcels being considered in the lease making it difficult for potential lessees to avoid NSO restrictions by drilling from the split estates to reach the other BLM minerals. FRI, for various reasons explained [below], does not believe the EA accurately depicts the significant impacts to wildlife populations and the environment, and as such, FRI opposes the proposal to lease federal mineral rights as evaluated in EA.	BLM shares land stewardship goals/objectives with FRI. The ARMPA's Fluid Minerals Objective MR-2, states: "Where a proposed fluid mineral development project on an existing lease could adversely affect GRSG populations or habitat, the BLM will work with the lessees, operators, or other project proponents to avoid, minimize, and compensate for adverse impacts to the extent compatible with lessees' rights to drill and produce fluid mineral resources. The BLM will work with the lessee, operator, or project proponent in developing an application for permit to drill for the lease to avoid, minimize, and compensate for impacts on GRSG or its habitat and will ensure that the best information about the GRSG and its habitat informs and helps to guide development of such federal leases." The ARMPA continues at decision MA-MR-24 (Split Estate), which states: “Where the federal government manages the mineral estate in PHMA and GHMA, and the surface is in non-federal ownership, apply the same stipulations, conditions of approval, and/or conservation measures and RDFs applied if the mineral estate is developed on BLM-administered lands in that management area, to the maximum extent permissible under existing authorities, and in coordination with the landowner.” All leases will include an NSO stipulation which could only be accepted if the narrow exception criteria are met, which requires a benefit to greater sage-grouse. Just because it is difficult to directionally drill wells, doesn’t enable the leasee to avoid NSO restrictions. BLM identifies resources/issues it carries forward for detailed analysis In sections 3.0-3.3.5.2 and specifically addresses special status animal species (section 4.3.1.4) and wildlife (section 4.3.1.5). The BLM's oil and gas program process includes the six phases: 1) land use planning, 2) leasing, 3) exploration, 4) operations/production, 5) inspection/enforcement and 6) reclamation. This EA addresses phase 2 and at this time it is unknown whether or not a lease will be issued during the competitive or non-competitive bid processes. Should a lease be issued and an APD filed, phases 3 & 4 would be initiated including the corresponding NEPA & decision making processes. An APD/plan would include site specific proposals for development - well locations, facilities, roads/access, pipelines, ponds, vehicles etc. would be proposed. At that time (phase 3 & 4) the BLM and the surface owner will have more information and can determine impacts to various resources or land uses from the specific/proposed APD. The BLM's Oil and Gas Gold Book and Onshore Order 1 provide the agency's policy for surface management. Interested parties, including the surface owner, retain the right of administrative relief and can challenge the BLM's decisions.
2	FRI	Compliance with IM 2018-26	First, we are concerned about the EA being conducted for BLM lands designated as a Priority Habitat Management Area. The EA indicates that fluid mineral leasing in Greater Sage-Grouse habitat is guided by Instruction Memorandum 2018-026 ("IM"). However, the EA does not follow the IM. The IM specifies, "Where the BLM has a backlog of Expressions of Interest for leasing, the BLM will prioritize its work first in non-habitat management areas, followed by lower priority habitat management areas (e.g., GHMA) and then higher priority habitat management areas (i.e., PHMA, then SFA)." In contrast to this directive, the EA specifically states that "All fifteen of the Rich and Summit County parcels are ... completely within Priority Habitat Management Area." Thus, the EA recognizes that the proposed leased parcels are within the PHMA but fails to place it last on the priority list. Perhaps the EA attempts to validate only offering parcels within PHMAs by indicating that "[t]here are no GHMA within the lease sale area." However, the problem with the EA is precisely the initial inclusion of the PHMAs in the lease sale area, not justifying the lease of PHMA parcels by including them in a pool with relatively few GHMAs or non-habitat areas. We ask that BLM please demonstrate as part of the EA that it has first considered offering leases in areas that fell in either non-habitat management areas of Utah or GHMA areas.	As per WO IM 2018-026, the GRSG Plans established an objective to prioritize oil and gas leasing and development outside of GRSG habitat management areas, but to allow for leasing with appropriate stipulations on all BLM mineral estate designated in the GRSG Plans as “open” for leasing. In effect, the BLM does not need to lease and develop outside of GRSG habitat management areas before considering any leasing and development within GRSG habitat. The IM further clarifies that the “the BLM will continue to work with parties who file expressions of interest and potential lessees to voluntarily prioritize leasing in less-sensitive areas. Consistent with the GRSG Plans, however, parcels may be leased within GRSG habitat management areas without first leasing parcels in non-habitat areas....BLM Offices may also take into consideration other prioritization considerations, but only in-so-far as they are consistent with the governing land use plan. An example would be to prioritize outside of areas where a GRSG adaptive management trigger has been tripped. Other prioritization considerations may include office workload capacity, first-in/first-out, priority for unit obligation wells, processing the easiest applications first, operator drilling plans, operator proposals for units, potential drainage cases, and other resource values that must be considered.” The BLM accepts parcel nominations each year and the resulting number of parcels nominated varies from Field Office to Field Office. A list of nominated parcels is sent by the State Office to the respective Field Office to assess the degree of appropriate pre-lease sale analysis pursuant to the NEPA and other applicable law. It is then up to the respective Field Office to determine how many lease parcels its staff have the capability to process within the given time frames. In the case of the nominated parcels sent to the SLFO, there were 61 parcels within public lands managed by the SLFO. 23 of those parcels overlapped greater sage-grouse, 22 in PHMA and one in an SGMA. The sage-grouse implementation coordinator in the UTSO evaluated the parcels according to IM 2018-026 and determined that all parcels could be carried forward in the parcel list sent to the SLFO.

#	Commenter	Resource/Issue	Comment	Response
				The SLFO staff had sufficient resources to process and analyze all parcels and conduct analysis of the parcels in both GHMA and PHMA within the given time frame. Had the SLFO parcel list been larger or if there were inadequate staff resources, the UTSO, in coordination with that office, could have trimmed the parcel list to a manageable size by excluding parcels in greater sage-grouse habitat based on some type of prioritization sequence or evaluation factors. However, for the September 2018 Lease Sale, there was no need to apply such prioritization sequence criteria because the SLFO staff were able to conduct the necessary analyses of all parcels. For this same reason, BLM did not discuss the parcel-specific factors in the EA. Where the BLM has a backlog of EOI for leasing, the BLM will prioritize its work first in non-habitat management areas, followed by lower priority habitat management areas (e.g., GHMA) and then higher priority habitat management areas (i.e., PHMA, then SFA).
3	FRI	Private Land Impacts, GRSG Habitat and the NSO Stipulation	Second, the EA describes the impacts to federal lands but fails to consider in large part the impacts to private lands. The EA states that, "the RDO [ROD] designated all PHMA as NSO, effectively precluding development. Therefore, well pads could be built to access privately owned sub-surface estate from privately-managed surface, then those pads could be used to directionally drill into the federally-managed sub-surface estate minerals." Unfortunately, the EA merely acknowledges development on adjacent ground could affect sage-grouse on federal ground and offers a cursory conclusion that the NSO would protect against significant sagegrouse impact on federally owned surface parcels. FRI does not believe that the negative affects to the greater sage-grouse would be minimized or eliminated by the No Surface Occupancy ("NSO") designation. It is a clear deficiency that the EA does not analyze nor attempt to quantify the level of impact to the sage-grouse from the activities on private lands that will be the direct result of BLM's leasing activities for oil and gas. For this reason, the EA is deficient. These private land impacts are significant, relating to well sites, exploratory wells, storage facilities, continuous disruption from truck traffic, new roads, new gas pipelines, and other required infrastructure. While FRI completely supports the NSO designation for the entire PHMA and believes it must be maintained to ensure the survival of the sage-grouse, private landowner participation in the sage-grouse recovery has also been essential to the program's success. Recovery and habitat restoration efforts on just BLM property, even if these maintain the NSO designation, will not be sufficient to maintain and improve the sage-grouse community in Rich County. Also, while the EA suggests the "[n]egative effects to this species in most of the PHMA area would be minimized or eliminated by the NSO restrictions and the other applicable stipulations and notices", the stipulations and notices would not apply to oil and gas operations occurring on private ground. The NSO designation forcing the lessees to drill off of FRI's land to reach 16,000 BLM acres of subsurface mineral rights is not without significant impact. To demonstrate the level of impact this "adjacent parcel drilling" approach would have on the sage-grouse, FRI provides the following information related to DLL's sage-grouse habitat and our current sage-grouse recovery efforts. DLL hosts a thriving population of sage-grouse and is an important resource for sagegrouse within the region. DLL has 20% of the sage-grouse habitat in Rich County, yet, because of our proactive management, hosts 54% of the known leks in the county. In 2008 the ranch was designated by the National Audubon Society as a Global Important Bird Area, due to DLL's conservation of important populations of sage-grouse and other avian species. Thus, oil and gas activities on DLL's land adjacent to federal leases would have a disproportionately greater impact on the sage-grouse community - and most of the adjacent land for the Rich and Summit County parcels falls within DLL.	Refer to BLM's response to Comment #1.
4	FRI	CCAA with USFWS	Further, we are currently engaged in discussions with the USFWS on a Candidate Conservation Agreements with Assurances ("CCAA") for the conservation of the Greater Sage-Grouse. While the CCAA has not yet been implemented, consideration should be given in the EA for this process and failure to do so represents another deficiency in the EA. Importantly, if BLM elects to initiate a mineral lease, FRI requests that this action be delayed until the planning process that we are currently engaged in with the USFWS is finalized. After all, it is the private landowner who will be most affected economically should sage-grouse be listed as an endangered species due in part to the BLM's decision of leasing and allowing for development of oil and gas in a PHMA.	During 2014 and 2015, the BLM worked with FRI, UDWR and USFWS in drafting a CCAA and a Candidate Conservation Agreement (CCA) for the greater sage-grouse and the white-tailed prairie dog for land owned/operated by the Deseret Land and Livestock Ranch. BLM's options were limited at that time by the decision making process for the livestock grazing permit renewal efforts on the Deseret allotment and the pending 2015 ROD ARMPA and corresponding implementation guidance from the WO. The FRI, UDWR and USFWS have not finalized a CCAA as of this date. A prospective lessee would have to obtain a SUPO and work with the land owner before any development could occur on that private land.

#	Commenter	Resource/Issue	Comment	Response
5	FRI	GRSG Habitat and the NSO Stipulation	Given the above stated concerns related to the sage-grouse community, we struggle to reconcile BLM's proposal to lease the minerals in PHMAs by imposing the exact surface disturbance on adjacent private land that they expressly forbid on BLM land through the NSOs and stipulations.	Refer to BLM's response to Comment #1.
6	FRI	OSO #1 Compliance and Surface Ownership Agreements	Third, another deficiency with the EA is the BLM's reliance on the Onshore Oil and Gas Order No. 1. The EA suggests that the Surface Use Agreement must be obtained in conformity with the Onshore Oil and Gas Order No. 1. However, that order only addresses Surface Use Agreements for mineral rights underlying privately owned land. Further, The BLM's authority to permit geophysical operations is described under 43 CFR §3150.0-1, which states "The procedures of this part do not apply to ... operations conducted on private surface overlying public lands unless such operations are conducted by a lessee under the rights granted by the Federal oil and gas lease .... " By extension, if the procedures do not apply to private land overlying federal mineral rights not under lease, they certainly do not apply to private land under which federal mineral rights are either the minority or nonexistent. In this instance, the federal mineral rights subject to leasing do not underlie privately owned surface; rather, the privately-owned surface from which the EA suggests drilling must occur has no connection to the federally leased minerals. Therefore, reliance on the requirements for a Surface Use Agreement in the Onshore Oil and Gas Order No. 1 is inappropriate and the lessee of the federal mineral rights cannot force the adjacent privately held surface owner to grant an access, even if the lessee posts a bond. As such, FRI will not entertain nor grant surface use agreements on its DLL land absent some other extenuating circumstance. We will not grant surface access because we feel the impact to our operations and the health of the range does not warrant the disturbance from oil and gas drilling in this area, especially given what we view as the small likelihood for meaningful extraction. Yes, operators could potentially enter private leases of the mineral estate underlying our private land if we do not own the majority of the mineral rights, or operators could attempt to directionally drill from the small but relatively remote split estate parcels, thereby gaining access to the BLM mineral rights. But absent potential operators undertaking these more difficult measures, there is no access to the approximately 16,000 acres within the Rich and Summit County parcels.	BLM agrees that access to the Rich County parcels are more challenging. Obtaining a “NSO” lease may not grant or provide access. Geophysical operations may be conducted on most Federal Lands regardless of whether the Federal Lands are leased or by whom they are leased. As stated in the comments, per 43 CFR 3150.0-1, to conduct geophysical operations on privately surface and federal minerals a lease needs to be obtained. FRI does not have to grant a surface use agreement and by leasing the lands in Rich County, the lease and lessee cannot force the adjacent private land owner (privately owned surface/privately owned mineral estate) to grant access even if the lease is issued. Onshore Oil and Gas Order #1 VI. (O.O #1) does not specifically apply to the parcels in Rich County if the private surface owner (privately owned surface/privately owned mineral estate) refuses to grant access. However, even in Rich County, under a NSO stipulation, the lessee is required to obtain a surface use agreement in coordination with UDOGM, BLM, an the private surface owner(s) where the surface disturbance will occur for directional drilling. That agreement will need to be provided to the BLM prior to the processing of an APD and the lessee must comply with all of regulations, and onshore orders. We also agree access to the parcels in Rich County may or may not be available. If these parcels are leased, the operator(s) will need to figure out how to access the lease(s). If private surface owner(s) will not grant access, the operator(s) can work with the STILA for access, or may need to access these leases from Wyoming. In addition, operator(s) may have to directionally drill from +3 miles to reach the federal mineral estate. These are some factors potential lessee(s) will need to consider if interested in acquiring a lease in Rich County. BLM disagrees that there is a deficiency with the EA. The operator must figure how to access these parcels and in the case of Rich County NSO parcels, the operators may not have access unless a surface use agreement is obtained. At this time, we are unable to speculate how access and development will occur. The EA adequately depicts access issues (refer to section 3.2 and Figure 2) and adequately describes the constraints of NSO and analyzed the parcels accordingly.
7	FRI	RFDS Assumption	Fourth, the EA is also deficient in its analysis based on the assumption that just one producing well will be developed in the Rich and Summit County parcels. This conclusion drives the entire impact analysis and seems fallacious. The RFDS estimates 33 wells over 1.7M acres in the RPA. The EA simply assumes a uniform distribution of wells (acres/well) within the RP A and doesn't attempt to factor in any variables that would aggregate wells within the proposed lease area. It seems entirely inappropriate to simply apportion the average well/per acre over the proposed lease area, because this is the area that is most desired - the area where expressions of interest have already been received. Further, the assumption by BLM that there will be just four exploratory wells seems low. Historical data shows that even though there has never been a producing well on DLL, ten exploratory wells were drilled at DLL from 2001-2012. (This drilling occurred in areas where DLL did not control the mineral rights and, therefore, did not control the access. The environmental impact was significant.) Our experience has shown that operators are willing to invest heavily in exploration even without a positive show. Relying entirely on the RFDS, and basing the projected drilling on a simple acres per well calculation, is too simplistic and fails to take a "hard look" analysis at the historical experience.	The RFDS as prepared for the Randolph MFP and Pony Express RMP as amended by the ARMPA remain valid as defined in Section 2.2.1. The RFDS is a planning tool to provide a reasonable estimate of what oil and gas exploration and development activities might be proposed, should a decision be made to lease the area. The level of oil and gas development has been low as anticipated in these land use plans. The RFDS makes no distinction between exploratory and field development wells. The prediction is for all oil and gas development.
8	FRI	BLM Personnel and Enforcement	Another major concern for FRI is whether the BLM has sufficient personnel and on-board expertise to establish and enforce suitable requirements for the leases and permits now under consideration, or that may be granted in the future for development of federal minerals underlying privately-owned surface. This concern is based on our experience that stipulations intended to protect sensitive resources and surface owners' rights aren't easily enforced without adequate personnel. We would appreciate a discussion with or information from BLM regarding the acres already leased and projected to be leased in Utah for oil and gas extraction and the staffing levels and expertise required for adequate enforcement.	BLM funding and personnel management are outside the scope of this EA. BLM is required to enforce all federal regulations and lease terms.
9	FRI	Pending Decisions	Finally, we request that FRI be kept on the mailing list so that we can receive information regarding pending actions affecting FRI property and inheld federal lands, including preparation of any EA analyzing the overall impacts of a potential lease, so that we can provide formal written comments. Confidentiality was requested from FRI in submission of its comments.	Response is not warranted.

#	Commenter	Resource/Issue	Comment	Response
10	WEG	Leasing Violates NEPA/FLPMA	The BLM failed to comply with NEPA and FLPMA and cannot lease any of the parcels until it updates the underlying RMPs and FEIS. Because both of these plans [Pony Express RMP and House Range RMP] are severely out-of-date and do not account for new, intensified changes to the land, such as multi-stage hydraulic fracturing, the BLM cannot lease any of the proposed parcels until it updates these plans.	Refer to BLM's response to Comment #12.
11	WEG	Hydraulic Fracturing	As the BLM is well aware, with the use of fracking comes a myriad of potentially significant environmental impacts. Fracking has not only opened up vast areas of minerals that were previously uneconomical to extract—thereby expanding the total land area impacted by development—the process of fracking also causes more intense impacts to our public health, air, water, land, and wildlife. Risks include adverse impacts on water, air, agriculture, public health and safety, property values, climate stability, and economic vitality, as well as earthquakes. Here, because the BLM approved both of the applicable RMPs/FEISs almost thirty years ago, both documents fail to analyze the impacts of multi-stage hydraulic fracturing. Indeed, both RMPs anticipate that little to no development will occur. See Pony Express RMP/FEIS at 72 ("There are presently no producing fields or wells within the Pony Express Resource Area. … Leasing levels and lease activities are expected to remain at about the same level in the Pony Express Resource Area unless significant oil and gas finds are made."). From this, it is clear that fracking, presents a new, intensified change use on public lands with significant impacts that exceed those analyzed in the underlying RMPs/FEISs. As a result, the BLM must postpone approval of the leases unless and until it updates the relevant RMPs/FEISs for the lease parcels. Relatedly, the BLM fails to take a hard look at the impacts of fracking in both of its [EAs], despite admitting that fracking [is currently being used in the FFO and] will likely occur in the SLFO. Although the SLFO concludes that "there are no unconventional reservoirs in the SLFO that are being exploited using high-volume water based hydraulic fracturing techniques," SLFO EA at 12, the BLM admits that should development occur, fracking would likely be used. Despite this, the agency concludes that it will only analyze impacts at the APD stage. Id. at 11. Because the underlying RMPs/FEISs for the leases do not analyze fracking, BLM is required to take a hard look at the impacts from fracking in its lease sale EAs and cannot postpone its analysis until it is too late.	The BLM is aware there is a conception that "the use of fracking comes a myriad of potentially significant environmental impacts". Refer to Section 6.3 at Appendix D (Geology/Mineral Resources/Energy Production) regarding hydraulic fracturing correlation with earthquakes in Utah.
12	WEG	An EIS must be prepared and a FONSI cannot be reached.	As currently written, the BLM cannot rely on the September 2018 lease sale EA[s] and FONSI[s] to conclude that no significant environmental impacts will occur because [both] EA[s] fail to include an analysis of the highly controversial, uncertain impacts associated with fracking, including the risks to public health, and fail to discuss cumulative impacts from surrounding lease sales. A federal agency must prepare an EIS when a major federal action "significantly affects the quality of the human environment." The significance of a proposed action is gauged based on both context and intensity. The first intensity factor under NEPA is "the degree to which the proposed action affects public health and safety." There is no doubt the use of fracking impacts public health and safety. Unfortunately, because neither the underlying [RMPs/FEISs] nor the lease sale EA[s] analyze the actual impacts of fracking, e.g., air emissions, truck traffic, amount of water used, etc., there is no way BLM can address this factor or otherwise conclude that impacts will be insignificant. A similar argument applies to the second and third intensity factors, which require, respectively, a look at the degree to which impacts are highly controversial and the degree to which impacts are highly uncertain or involve unique and unknown risks. Here, the [FFO] seems to admit that industry has used fracking within the field office and that its use is recent, thereby leading to unknown impacts. [See FFO EA at 12.] Yet, the [FFO] fails to further address these unknown impacts and instead defers any analysis to the APD stage. Id. As a result, BLM cannot conclude that the impacts from the proposed action will be insignificant. Turning to the final intensity factor — whether the action is related to other actions with individually insignificant but cumulatively significant impacts —the BLM also fails to fully analyze the impacts of the proposed actions in conjunction with surrounding, recent lease sales. Although the [FFO] does include some information on past leases in the EA, it is unclear whether these leases are the leases the from the September 2017 sale which are directly next to the September 2018 leases. The BLM must clarify this and present information regarding the September 2017 leases if these leases are not addressed.	Despite offering two lengthy treatises on the effects tangentially related to fracking in Exhibits 1 and 2 of its letter, WEG has offered no scientifically rigorous, peer-reviewed studies by objective researchers, that, with proper safeguards, the use of fracking impacts public health and safety. Safeguards are implemented at the APD stage, at which time BLM geologists and/or petroleum engineers can evaluate site specific factors such as depth of groundwater compared to the target depth of the well, which is where any fracking would occur. For most wells, the target depth is significantly deeper than the groundwater depth, and fracking cannot directly effect groundwater because there is no interface between the fracking zone and the aquifer. If the geologist/engineer finds that the aquifer and frack zone are in close enough permeate that fractures might permeate the aquifer, the operator would be required to modify the APD until it could be implemented without risk to groundwater. The indirect impacts from fracking, such as those listed in Comment 11, are essentially the same as those from oil and gas development in general. Adding hydraulic fracking as part of the development process does not change the potential impacts in any meaningful way. In accordance with BLM Manual Part 516, Chapter 11, the action currently before BLM is not one that normally requires the preparation of an EIS (approval of an RMP, WSR/NS&HT, coal lease sale, energy facilities, major ROWs, radioactive operations, or mining operations). New circumstances do not automatically require the revision or amendment to a land use plan nor the preparation of an EIS, regardless of the age of the planning decisions. If warranted, an environmental assessment is prepared to analyze the impacts of new circumstances. Section 1.1 outlines BLM's steps it would take if a FONSI cannot be reached. As outlined in Utah BLM's NEPA Guidebook, "the CEQ Guidelines [40 CFR 1501.4 (e)] require that an agency make available a FONSI to the public for review in certain limited circumstances. Therefore an unsigned FONSI should be released with an EA when the EA is made available for public comment. The unsigned FONSI is typically a simple statement accompanying the EA. It allows the public to comment on the significance of the impacts analyzed in the EA."

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			The SLFO EA presents a similar situation. For example, the proposed parcels from the September 2018 lease are less than 10 miles from the December 2017 parcels. Based on the age of the SLFO RMP/FEIS (1989) this document cannot analyze the cumulative impacts of recent oil and gas leasing the area, including the December 2017 lease sale. The SLFO EA also does not address this issue. See generally SLFO EA at 51 ("Cumulative Impacts"). Indeed, nothing in the SLFO lists any past, present, or reasonably foreseeable future actions within the cumulative impacts analysis area for the project. Id. Finally, the draft FONSI[s] for [both EAs] fail to provide any additional information supporting the BLM's finding of no significant impacts. Both FONSIs present identical, [7] one sentence conclusions. FFO, SLFO FONSIs at 1 ("Based on the analysis of potential environmental impacts presented in the EA and consideration of the significance criteria in 40 CFR 1508.27, it has been determined that Alternative A (Proposed Action) would not result in significant impacts on the human environment."). These conclusions are completely unsupported by any additional information or a point by point analysis of the significance factors. Consequently, the record provides no support for and the agency cannot conclude that the proposed actions will not significantly impact the environment.	A detailed FONSI (covering context and intensity) would be prepared and released with the revised EA at the protest period associated with the NCLS. Until revised or amended, the planning-level decisions of an existing land use plan remain valid (Section 1.4). Determining the impacts of hydraulic fracturing remains as an implementation-level decision and it is not necessary to revise the current Randolph MFP or Pony Express RMP. If hydraulic fracturing is part of an APD, it would be addressed at that stage when the details of a proposal are known. Multiple discussions or references to hydraulic fracturing is contained in the EA at sections 2.2.3, 4.3.1.1, 4.3.1.2, 5.3, 6.1 and 6.3 (Appendix D).
13	WEG	Defer analysis to the APD stage.	The BLM also fails to conduct a thorough, site-specific analysis at the lease sale stage as required by existing case law. For example, in both EAs, the BLM states that additional, site specific analysis will be deferred until the Application Permit to Drill ("APD") stage. When a lease constitutes an irretrievable commitment of resources and impacts at the lease sale stage are reasonably foreseeable, an agency is required to analyze the site-specific impacts of a lease before its issuance. See New Mexico ex. rel. Richardson v. U.S. Bureau of Land Mgmt., 565 F.3d 683, 717–18 (10th Cir. 2009); see also Blue Mountains Biodiversity Proj. v. Blackwood, 161 F.3d 1208, 1215 (9th Cir. 1998) ("Nothing in the tiering regulations suggests that the existence of a programmatic EIS for a forest plan obviates the need for any future project-specific EIS, without regard to the nature of magnitude of a project."). "NEPA is not designed to postpone analysis of an environmental consequence to the last possible moment." U.S. Bureau of Land Mgmt. v. Kern, 284 F.3d 1062, 1072 (9th Cir. 2002); see also 40 C.F.R. § 1500.1(b) ("NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken."). This is especially the case if postponing the analysis results in a piecemeal look at the impacts. See 40 C.F.R. § 1508.27 ("Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts."). The Tenth Circuit has explicitly held, within the context of oil and gas leasing, that the BLM must prepare a site-specific EIS at the lease sale stage when two factors are met: 1) there is an irretrievable commitment of resources and 2) impacts are reasonably foreseeable. New Mexico ex. rel. Richardson, 565 F.3d at 717–18. An irretrievable commitment of resources occurs unless the BLM imposes a no surface occupancy ("NSO") stipulation for the entire parcel. Id. at 718. Additionally, if a lease occurs in an area that had seen "considerable exploration" and "a natural gas supply is known to exist beneath the[] parcels," the impacts from leasing are reasonable foreseeable. Id. at 718–19. Here, there is no proposal by the BLM to impose NSO stipulations for the entirety of any of the lease sale parcels. See generally FFO EA, App'x A; SLFO EA, App'x A. Additionally, a [map] of the parcels as compared to exploratory and developed wells demonstrates that all of the parcels are in areas that have been thoroughly explored. As a result, impacts from the leases are reasonably foreseeable, and the BLM is required to conduct site-specific analyses of the impacts of leasing now, as opposed to at the APD stage. See New Mexico ex. rel. Richardson, 565 F.3d at 717–18.	The leasing EA is a site specific analysis of the potential indirect impacts from leasing. When evaluating the potential for impacts from development of parcels proposed for leasing, IDT considers a variety of factors. The parcel locations are reviewed to determine what resources may be impacted from oil and gas development. Scoping input from stakeholders and agencies of expertise is considered. The IDT reviews the land use plan(s) to determine which leasing stipulations would be applied to the parcels that could mitigate those potential impacts. The RFDS is reviewed to assess the scope of the potential impacts. The RFDS is a projection of the number of wells that might be drilled on a parcel, how much surface disturbance would occur from drilling those wells, and the likelihood that the wells would produce hydrocarbons. The development scenario (Chapter 2) is used to determine what kinds of impacts could occur to other resources. Upon a holistic consideration of all these factors, the IDT then determines if additional analysis should be conducted to address remaining unresolved conflicts that were not previously addressed other environmental analysis or programmatic EAs to which the leasing EA is tiered. If not, the rationale for not conducting additional analysis is documented in the IDT Checklist. If more analysis is deemed necessary, it is documented in the leasing EA. Depending on the outcome of the analysis, a parcel or parcels may be deferred, may have Notices attached to it (them) to inform lessees that mitigation may be required at the development stage, or simply conclude that the parcels can be offered without further action. As stated in Section 1.2: "The act of leasing does not authorize any development or use of the surface of lease lands without further application by the operator and approval by the BLM. A lessee must submit an Application for Permit to Drill (APD) (Form 3160-3) to the BLM for approval and must possess an approved APD prior to any surface disturbance in preparation for drilling. The EA analyzes all impacts that are reasonably foreseeable at the lease sale stage. Any stipulations and/or notices attached to the standard lease form must be complied with before an APD may be approved. If APDs are received, the BLM would conduct additional site-specific NEPA analysis before deciding whether to approve the APD and what additional conditions of approval (COA) would be applied." Section 3.2 (Table 1) summarizes the acreage amounts by leasing category (by parcel). NSO stipulations apply to 70% of the parcel acreages. Standard stipulations only are applied to 29% of the parcel acreages. Eighteen of the parcels are entirely within the NSO category; where the courts have found that it is not an irretrievable commitment of resources. The RFDS for all 26 parcels would be 4 wells, one of which may produce hydrocarbons, and a total of 25.86 acres of disturbance. Utah county parcels would have 3 wells with the disturbance of 20.4 acres and Rich and Summit County parcels would have 1 well with the disturbance of 5.46 acres. (Section 2.2.1). Until such time as it is appropriate to conduct robust analysis, the BLM analyzes the reasonably foreseeable impacts and relies on the stipulations and notices listed in the analysis and Appendices A & B. At leasing, the details of an APD is not known by any party, including a successful bidder. Other than leasing and the application of stipulations and notices, other details are not known that are ripe for decision-making. NEPA allows for a phased approach. BLM has not relinquished its decision making author at the leasing stage but it continues through APD/development and reclamation stages.

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14	WEG	Reasonable Range of Alternatives	In [both the FFO EA and] the SLFO EA, the BLM's alternatives analysis presents two options: lease nothing or lease everything. [See FFO EA at 16; SLFO EA 8. Indeed, the FFO admits that "[n]o other alternatives to the Proposed Act were identified that would meet the purpose and need of the Proposed Action." FFO EA at 16. NEPA requires agencies to "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14 (emphasis added). Indeed, at the end of March, a federal district court held that "BLM's failure to consider any alternative that would decrease the amount of extractable coal available for leasing rendered inadequate the Buffalo EIS and Miles City EIS in violation of NEPA." Western Org. of Resource Councils v. U.S. Bureau of Land Mgmt., CV 16-21-GF-BMM, 2018 WL 1456624, at *9 (D. Mont. March 23, 2018).] The BLM must consider an alternative that significantly reduces the proposed acreage for leasing based on other resource considerations or considerations such as climate change. Finally, while Guardians objects to the BLM's proposal to lease given the low development potential of most of the lease parcels, FFO EA at 11, SLFO EA at 8, we at least request the agency give detailed consideration to alternatives that address the likelihood that industry is only seeking the proposed leases in order to stockpile reserves and not actually produce oil and gas. We request the BLM give detailed consideration to the following alternative action: "An alternative that defers offering the proposed lease parcels for sale until at least 50% of all leased federal oil and gas acres in Utah are put into production. This could happen as a result of leases expiring before being put into production, by industry relinquishing leases that have not produced for many years, or by leases being put into production by companies. This alternative would help to incentivize industry to start producing and generating revenue or to give up their ownership of federal oil and gas leases. This alternative would be a reasonable measure for the BLM to impose as a means for protecting the public interest and maximizing revenue for the American public where leases have already been issued." The Mineral Leasing Act makes clear that the BLM, through the Secretary of Interior, has a duty to ensure the best return for the Federal taxpayer. See 30 U.S.C. § 226. Furthermore, NEPA mandates that the BLM conduct site-specific, project-level analyses and that the agency considers a reasonable range of alternatives. 40 C.F.R. § 1502.14. Simply because the outdated Pony Express RMP and House Range Resource Area Management Plans designate certain lands as available for lease, does not mean that the BLM has to lease these lands without further thought or consideration of conditions and alternatives when a site-specific project is proposed. In sum, because the BLM's proposed lease parcels are speculative, risky proposals, under the requirements of the MLA, the BLM must consider an alternative that defers these parcels.	Section 6.6.2 of the NEPA Handbook states: "The NEPA directs the BLM to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources;…" (NEPA Sec102(2)(E)). … The range of alternatives explores alternative means of meeting the purpose and need for the action. … You must analyze those alternatives necessary to permit a reasoned choice (40 CFR 1502.14). For some proposals there may exist a very large or even an infinite number of possible reasonable alternatives. When there are potentially a very large number of alternatives, you must analyze only a reasonable number to cover the full spectrum of alternatives. …" As stated in Section 2.5 (Alternatives Considered): No other alternatives to the Proposed Action were identified that would meet the purpose and need of agency action. The Interior Board of Land Appeals has held that subsumed in a no action alternative is consideration of not leasing any or all parcels. See Biodiversity Conservation Alliance et al., 183 IBLA 97, 124 (2013). The No Action alternative allows the authorized officer to resolve resource conflicts by deferring or removing before offering those parcels for sale. The BLM determined that the proposed action (lease all parcels) and no action (lease no parcels) satisfied an appropriate range of alternatives. The BLM has the ability to select part of each considered alternative in the Decision Record (lease all, portions, or none of the nominated parcels). Therefore, no additional alternatives were identified that would improve the range of alternatives or make it easier for BLM to respond to identified unresolved conflicts. The alternative suggested by WEG to defer offering parcels for sale until at least 50% of all leased areas in Utah are put into production is outside the scope of the analysis. It does not respond to the purpose of and need for agency action at this time. The BLM is obligated to respond to valid expressions of interest in oil and gas leasing submitted by the public regardless of the number of undeveloped existing leases. In addition, WEG has offered no rationale that their "alternative would help to incentivize industry to start producing and generating revenue or to give up their ownership of federal oil and gas leases protecting the public interest and maximizing revenue for the American public where leases have already been issued." The Federal government receives yearly rental for leases whether they produce or not. WEG has offered no cost benefit analysis that the loss of the rentals would be compensated with increased royalties from production.
15	WEG	Air and Greenhouse Gas Emissions (Direct, Indirect and Cumulative Impacts)	The BLM's analyses in the EA[S] also completely omit a quantitative analysis of the reasonably foreseeable air emissions and greenhouse gas emissions that would result from leasing the proposed parcels. For example, it the air emission section, the BLM notes that "[a]ccurate assessments of GHG emissions are not possible at the leasing stage since emissions are dependent on factors such as specific equipment used and duration of use, applicant-committed emission controls, and the expected production rate from the oil or gas well." [FFO EA at 30.[8]] But, the BLM's conclusion that site-specific air emissions are not possible to calculate at the lease sale stage is belied by the fact that the BLM has calculated such emissions before. In the Royal Gorge Field Office of Colorado, the BLM contracted with URS Group Inc. to prepare an analysis of air emissions from the development of seven oil and gas lease parcels. …Either way, the BLM has the capability to analyze these emissions and must do so. The BLM also ignores the cumulative impacts from greenhouse gas emissions that will result from past and future lease sales in Utah and surrounding states. Although Guardians appreciates the fact that the [FFO acknowledges that "[f]uture foreseeable development could contribute to cumulative GHG emissions from existing fossil fuel combustion [,]" EA at 61. ("Since climate change and global warming are global phenomena, for purposes of this NEPA analysis, the analysis presented above about the direct and indirect effects of GHG emissions from the Proposed Action is also an analysis of the cumulative effects of the Proposed Action.")]. And, the BLM's air emissions analysis relies on reports from 2013 to conclude that the 2015 NAAQS standard for ozone will not be exceeded. The BLM's lack of due diligence is particularly alarming because,	BLM discusses/addresses air quality and greenhouses gas emissions in the EA at multiple sections (3.3.1, 3.3.2, 4.2, 4.3.1.1, 4.3.1.2, 4.3.2.1, 4.3.2.2, 4.4.1, 4.4.2, 5.2 (PLPCO), 6.1 (multiple references), and 6.3 (Appendices A, B and D). These include qualitative and quantitative discussions. An emissions inventory estimate is included in Table 7. The air emissions example provided by WEG is in regards to a specific "development potential" of seven leased parcels within the Royal Gorge Field Office. BLM stands it will conduct additional NEPA compliance should an APD be filed on any of these parcels. Before preparing a cumulative impact analysis, a CIAA is identified. For Air Quality, the CIAA is typically the airshed(s) as defined by the EPA or its State equivalent. For greenhouse gases, the CIAA would be global. The multistate approach suggested by the WEG would not result in a valid cumulative impact analysis for either air quality or greenhouse gases. BLM defines it cumulative impact area for air quality and greenhouse gases in Sections 4.4.1 and 4.4.2.

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			as shown by the map below, there are a larger number of leases parcels from the March 2018 sales in Utah, Colorado, and New Mexico in the same geographic area. The scale of leasing in 2017 and 2018 supports the conclusion that the BLM must complete a full cumulative impacts analysis. For example, in 2017 and 2018, the BLM has leased or is planning to lease, the following: [Utah …, Colorado …, Nevada …, New Mexico, Texas, & Oklahoma …, and Wyoming …]. All told, the BLM has leased or is proposing to lease approximately 1101 parcels or 1,271,451.17 acres of publically-owned land in the states listed above in 2017 and 2018.[9] All of these lease sales are occurring in Utah and in states surrounding Utah over similar time period. The BLM's failure to discuss or acknowledge these lease sales is a clear violation of NEPA's mandate to assess cumulative impacts, and the BLM's EA[s] and draft FONSI[s] cannot stand as a result.	
16	WEG	Costs of Reasonably Foreseeable Carbon Emissions	In addition to an incomplete cumulative impacts analysis, the agency summarily dismisses a discussion on the social cost of carbon protocol, a valid, well-accepted, credible, and interagency-endorsed method of calculating the costs of greenhouse gas emissions and understanding the potential significance of such emissions while simultaneously touting the monetary benefits from the lease sale. See [FFO EA EA at 19;] SLFO EA at 39. Failure to use this best available science in the EA violates NEPA's hard look mandate. The social cost of carbon protocol for assessing climate impacts is a method for "estimat[ing] the economic damages associated with a small increase in carbon dioxide (CO2) emissions, conventionally one metric ton, in a given year [and] represents the value of damages avoided for a small emission reduction (i.e. the benefit of a CO2 reduction)." In 2009, an Interagency Working Group was formed to develop the protocol and issued final estimates of carbon costs in 2010. These estimates were then revised in 2013 by the Interagency Working Group, which at the time consisted of 13 agencies. This report and the social cost of carbon estimates were again revised in 2015 ...in 2016. In sum, the social cost of carbon provides a useful, valid, and meaningful tool for assessing the climate consequences of the proposed leasing, and the BLM's complete failure to discuss it or otherwise explain its omission while touting the economic benefits of the lease sale is arbitrary and capricious.	The social cost of carbon protocol (SCC) was developed by a federal Interagency Working Group (IWG) to assist agencies in addressing Executive Order (EO) 12866, which required federal agencies to assess the cost and the benefits of intended regulations as part of their regulatory impact analyses. A recent Executive Order (EO) entitled "Promoting Energy Independence and Economic Growth," issued March 28, 2017, directed that the IWG be disbanded and that technical documents issued by the IWG be withdrawn as no longer representative of federal policy. It further directed that when monetizing the value of changes in greenhouse gas emissions resulting from regulations, agencies follow the guidance contained in OMB Circular A-4 of September 17, 2003. The SCC is an estimate of the economic impacts associated with an increase in carbon dioxide emissions (typically expressed as the cost in dollars per metric tons of emissions) and generally produces a wide range of costs, with the greatest influence on costs caused by the discount rate. A lack of consensus on the appropriate discount rate often leads to large variations in SCC estimates. Although the SCC can be a helpful tool to assess the benefits of CO2 reductions, it does not reflect all damages or benefits due to current modeling and data limitations. Specifically, as discussed in the comprehensive technical review commissioned by the Electric Power Research Institute (EPRI) (Rose et al 2014), a number of fundamental technical issues have been identified with the social cost of carbon modeling approach and estimates. Several of these issues arise from the use of three separate underlying models – with differing frameworks, assumptions, and uncertainties. The EPRI technical review "reveals significant variation across models in their structure, behavior, and results and identifies fundamental issues and opportunities for improvements" (Rose et al.2014). It should also be noted that the social cost of carbon protocol does not measure the actual incremental impacts of a project on the environment and does not include all damages or benefits from carbon emissions. NEPA does not require a cost-benefit analysis (40 CFR Part 1502.23) and one has not been conducted. Without a complete monetary cost-benefit analysis, which would include the social benefits of energy production to society as a whole and other potential positive effects, inclusion of a global social cost of carbon analysis would be unbalanced, potentially inaccurate, and not useful. Consequently, the increased economic activity, discussed in terms of revenue, employment, labor income, total value added, and output are simply the economic impacts associated with the Proposed Action. Economic impact is distinct from "economic benefit" as defined in economic theory and methodology, and the socioeconomic impact analysis required under NEPA is distinct from cost-benefit analysis. .Detailed analysis is not required for the proposed action because 1) it is not engaged in a rulemaking for which the SCC protocol was originally developed; 2) the IWG, technical supporting documents, and associated guidance have been withdrawn; 3) NEPA does not require cost-benefit analysis and the agency did not undertake one here; and 4) because the full social impacts of oil and gas development have not been monetized, quantifying only the costs of GHG emissions would provide information that is both potentially inaccurate and not useful. Refer also to BLM's response to Comment #15.
17	WEG	Leasing Violates the Mineral Leasing Act	Finally, the BLM's proposed leasing runs afoul of the MLA in two key regards. First, it does not appear that most of the lease parcels contain lands that are known or believed to contain oil or gas deposits. See [FFO EA at 11,] SLFO EA at 8. Second, it does not appear that BLM has examined whether any lessee has the intent to diligently develop many of the proposed parcels. On the first matter, the Mineral Leasing Act allows leasing only where there are lands that are "known or believed to contain oil or gas deposits." 30	The EA acknowledges that that these parcels are located in areas of low oil and gas potential (Section 2.2.1). The parcels up for consideration in this EA were from public EOIs and not Bureau nominations; thus there is public interest in these parcels. The example given by WEG is for parcels that had been placed on the deferred lands list until after the new RMP was completed in 2015. BLM considered offering them, but because in the interim, interest in leasing

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			U.S.C. § 226(a). Here, it unclear whether all of the lease parcels include lands that are known or believed to contain oil and gas deposits. At a minimum, the BLM has a duty to confirm where lands proposed for leasing are known or believed to contain oil and gas deposits. The BLM has recently confirmed that leasing in areas with low development potential and little to no industry interest warrants removing parcels from proposed sales. For example, the agency recently removed 20 parcels totaling 27,529 acres in Grand County, Colorado from a proposed lease sale, citing "low energy potential and reduced industry interest in the geographic area[.]" Exhibit 20, BLM, "BLM modifies parcel list for June 2017 oil and gas lease sale" (April 17, 2017). The BLM cannot blindly offer to lease public lands for oil and gas development without undertaking some steps to confirm that there exists reasonable development potential. On the second matter, the BLM cannot lease lands for oil and gas development if there is no intent to diligently develop. The agency confirmed this in a recent decision denying the issuance of an oil and gas lease to a lessee, explaining: "A fundamental requirement of every oil and gas lease, as stated in Section 4 on page 3 of Form 3100-1, is the requirement that the "Lessee must exercise reasonable diligence in developing and producing, and must prevent unnecessary damage to, loss of, or waste of leased resources." This diligent development requirement has its basis in the Mineral Leasing Act of 1920, as amended. See 30 U.S.C. § 187. Thus, an expressed intent by a person offering to purchase a lease to not develop and produce the oil and gas resources on the leasehold would directly conflict with the diligent development requirement and require that the offer be rejected." [Exhibit 21,] BLM, Oil and Gas Noncompetitive Lease Offers Rejected (Oct. 18, 2016). This decision makes clear that the BLM is obligated to ensure that interest in these parcels is legitimate as it did in the case of Ms. Tempest-Williams. Id. The BLM must also apply equal treatment to all potential lessees. The agency owes it to the American people to ensure a fair return on public minerals.	the parcels had lessened it was appropriate to remove them from consideration. That is not the case with the parcels considered here. BLM has no reason to believe that the parcels were not nominated by entities prepared to diligently develop them. BLM's process for administering competitive leases is outlined in H-3120-1. Additional details are also provided on BLM's oil/gas website (https://www.blm.gov/programs/energy-and-minerals/oil-and-gas). A successful bidder must submit a properly executed lease bid form, which constitutes a legally binding lease offer. The bidder must also pay an administrative fee, equal to the first year's advance rental ($1.50 per acre or fraction thereof), and not less than a $2-per-acre minimum bonus bid. During the planning processes for the Pony Express RMP and Randolph MFP (both as amended), BLM determined which areas were closed to leasing and which areas were available subject to standard, major and moderate constraints (Section 1.4, 1.5, and 3.2). BLM's Land Use Planning Handbook (1601-1) at Appendix C, page 26, specifically states that fluid mineral implementation level decision cover the offering of leases with appropriate stipulations. And to address site specific actions such as geophysical exploration, approval or disapproval of APDs with attached restrictions or COAs, well siting, tank battery etc.
18	WEG	Correct Deficiencies or Defer All Parcels	In sum, because the BLM's EA[s] and FONSI[s] for the September 2018 oil and gas lease sale do not comply with NEPA, FLPMA, or MLA, Guardians requests that BLM defer all of the proposed parcels, unless and until it corrects these deficiencies.	Refer to BLM's responses to Comments #10-#17
19	CBD/WWP	Greenhouse Gas Emissions and Climate Change	Oil and gas operations are a major cause of climate change; this is due to emissions from the operations themselves, and emissions from the combustion of the oil and gas produced. Under NEPA's requirement to analyze indirect as well as direct impacts, BLM's environmental review must therefore include not only emissions from drilling operations, but the full "lifecycle" emissions from the combustion, transportation, refining (and leakage) of the oil and gas produced.[1] The [EIS] should calculate the amount of greenhouse gas emissions that will result on an annual basis from (1) each of the fossil fuels that can be developed within the planning area, (2) each of the well stimulation or other extraction methods that can be used, including, but not limited to, fracking, acidization, acid fracking, and gravel packing, and (3) cumulative greenhouse gas emissions expected over the long term (expressed in global warming potential of each greenhouse pollutant as well as CO2 equivalent), including emissions throughout the entire fossil fuel lifecycle discussed above.	CBD/WWP have not established an EIS is required. Refer to BLM's responses to Comments #11 and #15.
20	CBD/WWP	Quantify Potential Emissions	The proposed EAs improperly refuse to engage in any quantitative assessment of the emissions footprint of leasing, despite readily-available tools to do so. The Salt Lake EA, for example, fails entirely quantify greenhouse gas emissions that would result from new oil and gas development. The EA improperly asserts: "Accurate assessments of GHG emissions are not possible at the leasing stage since emissions are dependent on factors such as specific equipment used and duration of use, applicant-committed emission controls, and the expected production rate from the oil or gas well. These factors are not known at the leasing stage. Furthermore, additional infrastructure such as pipelines, roads, compressor stations, gas plants and evaporation ponds are also not reasonably foreseeable at the leasing stage and are dependent on the level of development that may occur if a parcel is leased.[2]" Meaningful consideration of greenhouse gas emissions (GHGs) is clearly within the scope of required NEPA review. The courts have ruled that federal agencies consider indirect GHG emissions resulting from agency policy, regulatory, and leasing decisions. For example, agencies cannot ignore the indirect air quality and climate change impact of decisions that would open up access to coal reserves. The EA[s] fail analyze the impacts of increased oil and gas development on greenhouse gas (GHG) emissions and climate change based on this particular lease parcel sale.	Refer to BLM's response to Comment #15.

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21	CBD/WWP	Meaningful Qualitative Emission Analysis	Greenhouse gas emissions from leasing and development of unconventional wells could exact extraordinary financial costs to communities and future generations, setting aside the immeasurable loss of irreplaceable, natural values that can never be recovered. BLM must provide an accounting of these potential costs in an EIS. The NEPA analysis should therefore put the proposed action's emissions into context using an evaluation of the proposed action's social cost of carbon ("SCC"). The Federal social cost of carbon, which multiple Federal agencies have developed and used to assess the costs and benefits of alternatives in rulemakings, offers a harmonized, interagency metric that can provide decision-makers and the public with some context for meaningful NEPA review.[47] The effects of cumulative greenhouse gas emissions will have far-reaching impacts on and inflict extraordinary harm to natural and social systems. BLM must provide meaningful analysis of the proposed action's contribution to these effects.	Refer to BLM's response to Comment #15.
22	CBD/WWP	Does not Conform to the ARMPA	BLM acknowledges that most of the proposed Salt Lake FO lease sale falls within designated Priority Habitat Management Areas for greater sage-grouse: Most of the parcels (25,752 acres) are within PHMA, including all of the parcels in Rich and Summit Counties (Rich Population Area) and about half of the Utah County parcels (Carbon Population Area) (Figures 8 and 13, respectively). Seasonal habitats within the lease parcel area include breeding and nesting, broodrearing/summer, and winter habitats. SLFO EA at 27. As the EA acknowledges, the Rich population area is one of the largest and most stable in Utah, and important for connectivity to grouse populations in Idaho and Wyoming. Id. Nevertheless, BLM has failed to engage in analysis, as required by the RMP, as to whether these parcels are appropriate for leasing, or whether its management objectives could be better met by prioritizing the leasing of other lands and minerals outside of PHMA. The Utah ARMPAs require BLM to "Prioritize the leasing and development of fluid mineral resources outside of GRSG habitat." Utah ARMPA at 1-11. The Salt Lake and Price RMPs, as amended by the 2015 GRSG ARMPA, requires that "[p]riority will be given to leasing and development of fluid mineral resources, including geothermal, outside of PHMA and GHMA. When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG. The implementation of these priorities will be subject to valid existing rights and any applicable law or regulation, including, but not limited to, 30 USC 226(p) and 43 CFR, Part 3162.3-1(h)." Bureau of Land Management, Utah Greater Sage-Grouse Approved RMP Amendment at 2-25, Objective MR-I (Sept. 2015). The EA, however, proposes leasing areas a majority of which fall within one of the most important sage-grouse population areas in the state, as well as a second area (the Emma Park population) that is already at risk due to anthropogenic disturbance. The EA provides no evidence whatsoever that BLM has considered, let alone prioritized, whether other lands outside of sage-grouse habitat might be more suitable for new leasing than extensive areas of PHMA within the Rich and Emma Park population areas. A proposed lease sale of primarily GRSG habitat, without adequate consideration of impacts on grouse populations and life history requirements, has the potential to violate the ARMPA. Moreover, the EA fails entirely to assess the foreseeable impacts on specific grouse habitats from development outside the No Surface Occupancy Area of the leasehold itself – including access from private surface, or from Wyoming BLM lands where PHMA is not subject to the No Surface Occupancy Stipulation. Without the analysis of factors including importance of the lands in question for habitat function, it is impossible for BLM understand how offering leases within sage-grouse habitat is consistent with ARMPA requirement to prioritize leasing outside such habitat.	Regarding ARMPA prioritization/compliance, refer to BLM's response to Comment #9. BLM specifically addresses the leasing impacts to greater sage-grouse habitat in sections 3.3.4.6, 4.3.1.4.4, 4.4.4.4, 6.1 and 6.3 (Appendices A, B, C and D). BLM acknowledges the possibility of directional drilling, including areas from Wyoming in sections 2.2.1, 2.2.2, 4.3.1.4.4, and 4.4.4.4 and in Appendix D.
23	CBD/WWP	Mailing List	Thank you for this opportunity to assist the BLM. If you have any questions or would like additional information, please contact us per the information below. Please add Western Watersheds Project and Center for Biological Diversity to the notification list for this lease sale if we are not already on it.	Response is not warranted.

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24	TU	Parcels of Concern	Salt Lake FO EA – 16 Parcels of Concern include Parcels [003, 004, 006, 007, 009, 013, 015, 016, 017, 027, 032, 033, 034, 035, 036, [and] 037]. This EA acknowledges the presence of native cutthroat trout habitat for both BCT and Colorado River cutthroat (CRCT), their Sensitive Species status with BLM, adds seasonal considerations for spawning activity, and provides strong stream and riparian stipulations of 600 to 1,200-foot buffer applications. In addition, the analysis and mitigation measures provide adequate protection.	SLFO has reviewed the parcels of concern to verify the application of stipulations and notices. Refer to BLM's response to Comment # 25.
25	TU	Springs	[T]here are an unusually high number of springs, which no doubt account for the healthy fisheries and BCT habitat stability, but also present concerns for us due to their vulnerability from drilling activities. The location of many of the lease parcels are in direct conflict with the location of the springs in addition to other parcels whose proximity happens to be very close to other springs. Increasing the buffers around springs may not be successful in preventing any subsurface contamination issues associated with the myriad of drilling activities and infrastructure that would occur should a well pad and roads be developed here. Since these springs have a high contributing value to the watershed, we recommend the withdrawal of parcels located in areas with springs and the implementation of strong buffers for adjacent parcels within spring proximity.	Depending on planning area boundary and where these parcels are located, multiple stipulations and notices are applied to protect water bodies. Stipulations UT-S-132 (Live Water) and UT-S-155 (Riparian/Wetland Habitat and Municipal/Non-Municipal Watershed Areas) would be applied to all lentic and lotic sites within these parcels (Appendix A). If springs are clustered or are within the respective the buffers of 600 feet or 1200 feet of each other, the area of application would be combined to share the buffered distances from water's edge (and not the distance measured from a centerline). Additional stipulations that protect live waters include: UT-S-129 (Streams, Ponds or Live Watercourse) and UT-S-104 (Slopes in Excess of 30 Percent). Additional notices that protect live waters include: UT-LN-53: Riparian Areas; UT-LN-56: Drinking Water Source Protection Zone; UT-LN-57: Public Water Reserve; UT-LN-60: Steep Slopes; UT-LN-122: Colorado or Bonneville Cutthroat Trout Habitat; and UT-LN-128: Floodplain Management. BLM has determined that the combinations of stipulations and notices along with Utah BLM's riparian area policy, provide adequate protections for managing oil and gas leasing impacts to these resources, including the buffered areas. A plan revision or plan amendment to the Pony Express RMP and the Randolph MFP is not warranted at this time.
26	TU	Drainages Containing Coldwater Fish	Parcels are also located within or adjacent to drainages containing perennial streams and coldwater fish. As viewed in [Figure 2], Woodruff Creek is an important native BCT stream and wild trout stream that flows into the Bear River drainage, and eventually into Woodruff Narrows and Reservoir, a very popular recreation area for Utah, Wyoming and other recreation enthusiasts. It also remains a high value area for native trout restoration. For those parcels in the Price River drainage [(Figure 3)], there is opportunity for considerable impacts to numerous drainages and the Price River itself, should contamination occur. Though our comments are specifically focused on parcels located on BLM lands, our concerns for any parcels located in native trout and wild trout habitat remains strong. The Utah Department of Wildlife Resources has identified both the Bear River and Price River drainage geography as high native trout value habitat for BCT. As mentioned earlier, in order to meet the objectives of the BCT Conservation Agreement, we urge the BLM to implement strong protection measures for these areas. In addition, parcels along the Price River are straddling a designated Utah Blue Ribbon fishery and nearly every waterway in the area (White River, Beaver Creek and others) are high potential for native trout restoration.	Refer to BLM's response to Comment #25.
27	TU	Parcels Upland from Direct Stream Contact	Several of the parcels are located upland from direct stream contact and for these parcels our concerns are targeted at any erosion and sedimentation events, contamination events, or accidents that would compromise the integrity of native and wild trout habitat, and eventually impact the recreational value of these geographic areas.	Refer to BLM's response to Comment #25.

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28	TU	Specific Requests	Specifically, we request the following: 1. We recommend the withdrawal of parcels or portions of parcels 017, 015, 007, and 009 within the Bear River watershed and parcel 035 in the Price River watershed (and which Kuyne Reservoir is located). 2. For those parcels that border areas with springs, we also recommend implementation of the largest buffer restrictions (1,200 feet). 3. For those parcels bordering a Utah Blue Ribbon fishery we recommend implementing the Utah Sensitive Species Stipulation UT-LN-49 and NSO or withdrawal. This area is a high value recreation destination for anglers throughout Utah and the region and any threats to this river system are unacceptable. 4. For the numerous perennial streams that have parcels located within them, we recommend the largest buffer stipulation (1,200 feet) to protect both the direct stream resource but also any downstream effects from drilling activities. This would include Woodruff Creek (Parcels 013 and 004), Home Canyon (Parcel 003), Saleratus Creek (Parcel 006) in the Bear River drainage; Bear Creek and its spring (Parcel 032), Right Fork Kuyne Creek and West Fork Willow Creek (Parcel 034 and 036), Horse Creek (Parcel 036 and 037), Price River (both Parcels 037), and unnamed drainage where Parcels 027 and 033 are located, all in the Price River drainage. 5. Many of the Bear River parcels are located on the Utah-Wyoming border and Wyoming Game and Fish Department should be made aware of this proposed sale and parcel locations, as per the IM2018-034 discussion on BLM field offices and edge effects. We believe this to be a common courtesy among agencies based on a geographic-wide impact to a special status and Sensitive Species recognition.	1. Deferring parcels (in whole or in part) 017, 015, 007, 009, and 035 is not warranted based on the information provided. 2. Refer to BLM's response to Comment #25. 3. The T&E stipulation from H-3120-1 and Utah Sensitive Species notice (UT-LN-49) are applied to all parcels. 4. Refer to BLM's response to Comment #25. 5. Section 5.2 includes a list of agencies and organization BLM has consulted or coordinated with in preparing this EA. If an APD is received as a result of any Rich County parcels being leased, BLM will re-consult or re-engage in detailed coordination with others including Wyoming Fish and Game in the spirit of complying with WO IM 2018-034. Refer also to BLM's response to Comments #2 and #22.