

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

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**Environmental Assessment  
DOI-BLM-UT-0000-2019-0002-Other\_NEPA-SLFO**

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**June 2019 Competitive Oil and Gas Lease Sale  
Salt Lake Field Office Area Parcels**

***Location:*** Townships 7-9 North, Ranges 11-13 West, multiple sections, Salt Lake Meridian, Box Elder County, Utah.

***Applicant/Address:*** Not Applicable.

**April 2019**

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**Environmental Assessment**  
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## **Chapter 1 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 June 2019 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.<sup>1</sup> 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. If not, a Decision Record (DR) may be signed for the 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 plan (LUP), as amended (Section 1.4).

This EA structure includes: Chapter 1 – Purpose and Need; Chapter 2 – Alternatives; Chapter 3 – Affected Environment; Chapter 4 – Environmental Impacts; Chapter 5 – Consultation and Coordination; and Chapter 6 – Appendices. The appendices include: A-Parcel List; B-Stipulations and Notices; C-Figures/Maps; D-Interdisciplinary Parcel Review Team (IDPRT) Checklist; E-References; F-Acronyms/Abbreviations, G-Statutes, Regulations, or Other Plans, H-Air Quality and Greenhouse Gases/Climate Change Background, and I-Comments and Responses.

### **1.2 Executive Summary**

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 (MLA) and the Federal Land Policy and Management Act of 1976 (FLPMA). The Federal Onshore Oil and Gas Leasing Reform Act of 1987 [Section 5102(a)(b)(1)(A)] (FOOGLRA) directs the BLM to conduct quarterly lease sales in each state whenever eligible lands are available for leasing. Refer also to Section 1.5.

Expressions of Interest (EOI) to nominate parcels for leasing by the BLM are submitted by the public. From these EOIs, the BLM prepares the parcels and determines whether or not the existing analyses in the LUPs, as amended, provide an adequate basis for leasing oil and gas resources within these parcels or if additional NEPA analysis is needed before making a leasing decision.

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<sup>1</sup> Significance is defined by the NEPA and is found in regulation 40 Code of Federal Regulations (CFR) 1508.27.

The BLM determined that preparation of an EA was necessary for considering the parcels within the SLFO. This EA and an unsigned FONSI are made available to the public, along with the list of available parcels and stipulations and notices, for a 15-day public comment period on the BLM's NEPA Register<sup>2</sup> (also known as ePlanning). The UTSO Oil and Gas Leasing webpage<sup>3</sup> 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 makes changes to the EA and/or parcel list, 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 unsigned FONSI. If any changes to the parcels or stipulations/notices result 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 June 11, 2019. 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 non-competitively 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 another separate competitive lease sale process 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.<sup>4</sup> An APD may only be approved when an operator complies with any stipulations and/or notices attached to the standard lease form. 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.

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.

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<sup>2</sup> 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](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 June 2019 Competitive Oil and Gas Lease Sale entry.

<sup>3</sup> 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>.

<sup>4</sup> 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>.

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 the form of lease stipulations (S) (43 CFR 3101.1-2) and lease notices (LN) (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 seven (7) parcels covering 9,822.22 acres of Federally-managed lands within the SLFO. 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 parcels are contained in Appendix A. After an initial review by the BLM, none of these parcels within the SLFO or portions thereof are being deferred.

### **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 or non-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 parcels or portions thereof and, if so, under what lease terms (stipulations and/or notices).

#### 1.4 Conformance with BLM Land Use Plan(s)

The alternatives described below are in conformance with the governing LUPs (as amended and maintained) because they are specifically provided for in the planning decisions as follows:<sup>5</sup>

- Record of Decision (ROD) and Rangeland Program Summary for the Box Elder Resource Management Plan (RMP) (BLM 1986), Minerals Program Decision 3 categorizes all lands in Box Elder County that are available for leasing. The ROD is augmented by the DR prepared for the Box Elder RMP Oil and Gas Supplemental EA (DOI-BLM-UT-020-89-11A) (BLM 1989) and amended by the DR prepared for the Box Elder Plan Amendment (Acquired Lands) (DOI-BLM-UT-020-94-07) (BLM 1998).

The BLM's 1989 Oil and Gas Supplemental EA addressed and established the Reasonably Foreseeable Development Scenario (RFDS) within the Box Elder County planning area.

The BLM's Acquired Lands plan amendment reviewed management goals for newly acquired lands and changed leasing categories for certain tracts and established ACECs.

The alternatives described below are also consistent with the LUPs 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.

#### 1.5 Relationship to Statutes, Regulations, or Other Plans

The oil and gas leasing is consistent with applicable 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 applicable state laws and local and county ordinances and plans. These statutes, regulations, policies, and plans include, but are not limited to those identified in Appendix G. Other NEPA documents and relevant studies that are applicable to this analysis include:

- Salt Lake District Oil and Gas Leasing Environmental Analysis Record (EAR) (BLM 1975)
- Salt Lake District Office Weed EA and DR (BLM 1996)
- Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development 2008 Phase III Inventory – Onshore United States (USDI, USDA, and USDE 2008)
- Cultural Resources Review for the June 2019 West Desert District Oil and Gas Lease Sale (Utah SHPO Case No. 19-0236) (BLM 2019)
- Civil Engineering review of the Central Pacific Railroad Grade for the March 2019 Salt Lake Field Office Oil and Gas Lease Sale (BLM 2018).
- Utah Bureau of Land Management Air Resource Management Strategy 2018 Air Monitoring Report (BLM 2019).
- Visual Resources Specialist Report Supplementing the June 2019 Competitive Oil and Gas Lease Sale Salt Lake Field Office Area Parcels (BLM 2019).

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<sup>5</sup> The page numbers, maps or figures used for the planning-level decisions are found in the respective LUPs and are not referring to those found directly in this EA.



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 specialists preparing this document. Refer also to the information contained in Appendix D (IDPRT Checklist) and the Appendix G (Relationship to Statutes, Regulations, or Other Plans).

## **1.6 Identification of Issues**

Identification of issues requiring analysis was accomplished through internal review/discussion, and through addressing scoping comments submitted from the public.

Each parcel was reviewed by an IDPRT composed of BLM resource specialists (Section 5.4). The review began on December 3, 2018 when the public nominations were due to the BLM. The IDPRT identified resources within the parcels which may be affected and considered potential impacts using knowledge of the area, current office records, geographic information system (GIS) data and other agencies with jurisdiction (such as Utah Division of Wildlife Resources).

Resources determined to be present and potentially affected by the alternatives were carried forward for analysis (Sections 1.6.1-1.6.6). Where resources are present but not determined to be impacted or resources are determined not to be present, a rationale for not considering them further is provided in the IDPRT Checklist (Appendix D), and in the external coordination as described in Sections 5.2 and 5.3.

Based on internal review, the following issue statements were prepared:

### **1.6.1 Air Quality**

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

What stipulations and notices would need to be applied to properly manage air quality?

### **1.6.2 Climate Change/Greenhouse Gases**

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

What stipulations and notices would need to be applied to properly manage greenhouse gases/climate change?

### **1.6.3 Central Pacific Railroad Grade**

#### Area of Critical Environmental Concern

Could exploration or development activities affect short or long-term management of the Central Pacific Railroad Grade ACEC?

What stipulations and notices would need to be applied to properly manage the relevant and important historic value associated with the ACEC?

#### Cultural Resources and Historic Context

Would leasing, exploration or development affect short or long-term management of the cultural or historic resources?

What stipulations and notices would need to be applied to properly manage the resource values associated with historic properties?

#### Recreation

How would exploration or development activities affect recreational opportunities and experiences along the Transcontinental Railroad National Backcountry Byway?

How would the recreational setting be affected?

What stipulations and notices would need to be applied to properly manage the resource values associated with recreation opportunities?

#### Travel & Transportation

How would exploration or development activities affect access and traffic along the Transcontinental Railroad National Backcountry Byway?

Would exploration or development activities require use of the railroad grade by large, high-tonnage vehicles? Could the railroad grade accommodate such use without sustaining damage? Would vehicles need to cross the railroad grade, and if so, can this be done without causing impacts?

Would roads accessing the project area require substantial upgrades to accommodate heavy vehicles?

What stipulations and notices would need to be applied to properly manage the resource values associated with the Transcontinental Backcountry Byway?

#### Visual Resources

How would exploration or development activities impact the characteristic landscape and visual setting of the Transcontinental Railroad Backcountry Byway?

What mitigation measures may be possible?

What stipulations and notices would need to be applied to properly manage the resource values associated with visual resources?

### **1.6.4 Geology/Mineral Resources/Energy Production**

What stipulations and notices would need to be applied to properly manage road design, well pad construction, and height or weight restrictions?

### **1.6.5 Wildlife**

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

What stipulations and notices would need to be applied to properly manage wildlife species habitats?

## Chapter 2 Description of 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 in detail because the issues identified during scoping or the alternatives identified during the comment period 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 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 lands within Box Elder County as low potential for oil and gas. If relevant resource conditions 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 the BLM does not know 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.

When and if an APD is submitted for any parcels that may be leased, BLM would adhere to numerous Instruction Memorandums (IMs) (as revised through the life of an active lease) including specific instructions for directional drilling, split estate, bonding, other laws (such as NHPA, ESA). Some of these IMs include:

- Approval of Notice of Intent to Conduct Geophysical Exploration to Federal Oil and Gas Lessee on Split Estate (WO IM 2009-121)
- Cultural Resources Requirements for Split Estate Oil & Gas Development (WO IM-2009-027)
- Split Estate Report to Congress--Implementation of Fluid Mineral Leasing and Land Use Planning Recommendations (WO IM 2007-165)
- Permitting Oil & Gas on Split Estate Lands (WO IM 2003-131)
- Legal Responsibilities on Split Estate Lands (WO IM 1989-201)

- Directional Drilling into Federal Mineral Estate from Well Pads on Non-Federal Locations (WO IM 2018-014).

Management provisions would adhere to the Gold Book best management practices (USDI and USDA 2007). 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.

The Box Elder RMP Oil and Gas Supplemental Environmental Assessment (BLM 1989), analyzed an affected environment of 1,018,342 acres, and predicted a potential of three wells in 11 years for the entirety of Box Elder County.

Seismic Activity:

- 23 miles of seismic lines for a total disturbance of 34 acres

Exploration Activity (including roads) for three wells:

- Anticipate three pads in 11 years
- 6.8 acres per well pad x 3= 20.4 acres of disturbance
- 1.46 acres per access roads x 3=4.38 acres of new road disturbance
- No producing wells anticipated

The seven parcels in the Proposed Action cover 9,822.52 acres (less than 1%) of the 1,018,342 acres analyzed in the Box Elder RMP Oil and Gas Supplemental Environmental Assessment. With three wells estimated for the entirety of Box Elder County, 1% of this total would be 0.03 wells. However, for the analysis of the seven parcels in the Proposed Action, the SLFO rounded up for a maximum of one well to be drilled as a result of the acres associated in the lease sale. The maximum new disturbance will be one well totaling 8.26 acres (well pad and access road disturbance). Since the parcels are located in the 2008 Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development (USDI, USDA, and USDE 2008) low oil and gas densities, these scenarios would occur rarely, if at all.

## **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. Disturbance for each well pad could range from 1.0 acre up to 6.8 acres depending on numerous factors such as depth and type of well (vertical, directional, horizontal). 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. All well pads would be reclaimed. During interim and/or final reclamation, disturbed land would be seeded with a mixture (certified weed free) and rate as required by the BLM.

Depending on the locations of the proposed wells, some new or upgraded access roads are anticipated to 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; roads would also be subject to the NHPA and stipulations noted for each lease parcel. 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. Depending on the depth and complexity of the well, drilling could last from two to four weeks.

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 (also known as, fracking) of the formation (refer below for more information on hydraulic fracturing). 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 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 Box Elder County are more than 100 miles from the nearest known oil and gas fields in northeast Summit County and east of Echo Canyon (Lodgepole, Pineview, Anschutz Ranch, and Anschutz Ranch East).

#### **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, 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., covert 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 (USDI and USDA 2007). 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 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 the seven parcels (covering 9,822.52 acres) which have been proposed for inclusion 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 (BLM Form 3100-11) along with all stipulations mandated by policy (such as the Competitive Leasing Handbook, H-3120-1) and by the governing Land Use Plans (LUP). Legal land descriptions along with corresponding stipulations as well as lease notices added to address resource issues found through review and analysis that would be attached to each parcel are located in Appendix A. All stipulations from the governing LUP(s) and necessary notices being applied to the parcels are detailed in Appendix B. The overall parcel acreages would be offered for sale in the following categories:

Open (Category 1 – Standard Lease Terms)	0 acres
Controlled Surface Use/Timing Limitations (Category 2 – Moderate Constraints)	9,822.52 acres
No Surface Occupancy (Category 3 – Major Constraints)	0 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 plan(s), as amended. Some areas could contain additional stipulations depending on the resources or circumstances present (such as specific wildlife habitats, steep slopes, or riparian areas).

BLM regulations at 43 CFR 3101.1-2 allow 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, stipulations, and lease notices, would be applied to some leases to further protect specific resources (Appendices A and B). In addition to the stipulations provided for by the governing land use plan(s) (as amended) and BLM policies, lease notices have been developed for conservation measures and would be applied on specific parcels as warranted by subsequent IDPRT 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 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 existing federal leases.

### 2.5 Other Alternatives Considered

During the public Comment Period, two new alternatives were suggested:

Attach non-waivable no-surface occupancy stipulations to each of the parcels. This alternative was not analyzed in detail because it does not conform to the RMP (as amended) and is substantially similar in design/similar effects to the Proposed Action and No Action alternatives.



Combine the March 2019 and June 2019 EAs. This alternative was not analyzed because it is substantially similar in design to alternatives (proposed and no action) already analyzed in these EAs and an entirely new EA would have would have substantially similar effects to an alternative that is analyzed in the two separate EAs.

Additional information is contained in Appendix I. Other alternatives to the Proposed Action were not 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 [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 parcels from the lease sale, before offering those parcels for sale. The alternatives carried forward represent those necessary for a reasoned choice (40 CFR 1502.14) and are based on the issues that were identified by the IDPRT.

## Chapter 3 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 IDPRT 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.

### 3.2 General Setting

To date, throughout the entire SLFO, there are 111 authorized leases encompassing 201,466 leased acres and 79 suspended leases encompassing 158,866 acres. An additional 14 leases encompassing 22,740 acres are available for non-competitive sale.<sup>6</sup>

Most recently, in September 2018, parcels within Rich, Morgan, and Summit counties (15 parcels; 17,766.71 acres) and Utah County (11 parcels; 18,628.93 acres) were offered for lease (DOI-BLM-UT-W010-2018-0018-EA). The result of the September sale is that 11 parcels (Rich, Morgan and Summit County) were leased from the 26 parcels offered, totaling 13,655.93 acres. No parcels located in Utah County were leased. As of this date, the March 2019 Lease Sale has not commenced. Results of that sale will be included, once available.

The proposed action would result in additional lease parcels being offered in Box Elder County. The proposed action is to offer leases for oil and gas development on 7 parcels covering 9,822.52 acres within the SLFO (Figure 1). The parcel legal land descriptions are contained in Appendix A. The parcel settings are based on the IDPRT members' knowledge of the area, current office records (such as soil surveys), geographic information system (GIS) data and other agencies with jurisdiction (such as Utah Division of Wildlife Resources).

These parcels are located south, and southeasterly of the town of Kelton, Utah near the area known as Hogup Mountain. The terrain in this area is typical Great Salt Lake Desert playas of the great-basin and-range province. The area includes relatively open flat or gently rolling valleys interspersed ephemeral washes and steep sided mountainous terrain. The vegetation is a cold desert shrub-steppe that contains mostly treeless landscapes with scatterings of Utah Juniper. Typical vegetation found on the parcels include shrubs [sagebrush (Wyoming, black, and bud), horsebrush, black greasewood, shadscale, saltbush and winterfat] and grasses [cheatgrass, Indian ricegrass, bottlebrush squirreltail, needleandthread, bluebunch wheatgrass, basin wildrye, Nevada bluegrass] (NRCS 1997).

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

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<sup>6</sup> Please refer to the Utah Oil and Gas Lease Sale website at: <https://go.usa.gov/xEDtb>.

**Table 1. Leasing Category Acreages by Parcel.**

Number	Standard Stipulations	Moderate Constraints (CSU/TL) <sup>7</sup>	Major Constraints (NSO)	Acreage Total	Private Surface	Federal Surface
014	-	640.00	-	640.00	-	640.00
015	-	1,280.00	-	1,280.00	-	1,280.00
016	-	2,157.41	-	2,157.41	-	2,157.41
017	-	1,267.90	-	1,267.90	-	1,267.90
018	-	1,274.82	-	1,274.82	-	1,274.82
019	-	2,560.00	-	2,560.00	-	2,560.00
020	-	642.39	-	642.39	-	642.39
Total	-	9,822.52	-	9,822.52	-	9,822.52

CSU = Controlled Surface Use, TL = Timing Limitations, NSO = No Surface Occupancy

### 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 IDPRT as documented in the IDPRT 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

The Utah Division of Air Quality (UDAQ) has placed the area of these parcels in an attainment category for the National Ambient Air Quality Standards (NAAQS) for criteria pollutants (UDAQ 2018). The parcels in this lease sale occur within a Prevention of Significant Deterioration (PSD) Class II area and are not near Class I areas such as National Parks or other sensitive areas. Additional background information regarding Air Quality related topics (national ambient air quality standards, emissions inventory, PSD, hazardous air pollutants, and existing sources of pollution) is presented in Appendix H. Table 12 (in Appendix H) summarizes UDAQ's 2014 emissions inventory (EI) by county (UDAQ 2018), which covers the area of these parcels. This EI includes point, area, and mobile sources that represent the most recent statewide inventory available.

#### 3.3.2 Climate Change/Greenhouse Gases

Oil and gas exploration and development activities on a lease (including those associated with these parcels), have the ability to emit pollutants that contribute to greenhouse gases and climate change over the life of a lease. Activities on an individual lease can contribute to local, regional, and global pollutants. Earth's atmosphere has a natural greenhouse effect wherein naturally occurring gases such as water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O)

<sup>7</sup> The BLM approved a land use plan amendment (BLM 1998) that added leasing stipulations for important resources, such as wildlife species. The planning area encompasses the parcels included in this lease sale. The amendment categorized these parcels as "open, with special stipulations," which is equivalent to "moderate constraints (CSU/TL)." These stipulations would only apply to those portions of the parcels that have the resource present.

and fluorinated gases absorb and retain heat (EPA 2018). Additional background information regarding climate change/greenhouse gases related topics (definition, global warming potential/trends, data availability, uncertainties of calculations, end uses, and social costs) is presented in Appendix H.

### **3.3.3 Central Pacific Railroad Grade**

Spanning approximately 1,912 miles, the original Transcontinental Railroad established a rail link between Sacramento, California and Omaha, Nebraska that was completed May 10, 1869 at Promontory Summit, Utah. The completion site is now designated as the Golden Spike National Historic Site administered by the National Park Service (NPS).

In Utah, the path of this rail line passed around the north end of the Great Salt Lake. This changed in 1904 with the completion of the Lucin Cut-off. The Lucin Cut-off created a shorter, more direct, route through northern Utah by employing a causeway across the southern end of the Great Salt Lake. The section of original grade passing along the north end of the Great Salt Lake, known thereafter as the “Promontory Branch,” remained active until 1942 when rails were removed in support of munitions and industrial efforts associated with WWII. The wooden ties were also removed from the grade sometime later. The Promontory Branch, comprised of the Central Pacific Railroad Grade combined with the Union Pacific Railroad grade located east of Golden Spike National Historic Site, encompasses approximately 90 miles (4.7% of the original grade) and is the longest contiguous section of the original 1869 Transcontinental Railroad that remains in existence (Raymond and Fike 1994). The BLM acquired the 1869 Promontory Branch railroad grade from the Southern Pacific Railroad Corporation in 1992.

#### Area of Critical Environmental Concern

The BLM first designated approximately 232 acres of the East and West Central Pacific and Union Pacific Railroad Grades (between Golden Spike National Historic Site and Lucin) as the Central Pacific Railroad Grade ACEC in the Box Elder RMP (BLM 1986), citing important historic resources. The BLM subsequently expanded the ACEC by plan amendment in 1998 to include an additional 5,019 acres. At present, BLM manages 90 miles (approximately 4,364 acres with a 400 foot wide corridor) of the discontinued rail line from historic Promontory to Lucin as an ACEC. The BLM’s management goals for this ACEC are to provide “overall protection, development, and a level of public utilization compatible with the resource” (BLM 1988). The relevant and important value for this ACEC is historic resources, namely the grade of the former first Transcontinental Railroad. The ACEC is subject to No Surface Occupancy for mineral development.

Parcels 014-020 are located south of the ACEC. Although the lease parcels do not overlap the ACEC, vehicular access to these nominated parcels would likely necessitate crossing the railroad grade and ACEC.

#### Cultural Resources and Historic Context

The Central Pacific Railroad grade component of the Promontory Branch was listed as an historic district on the National Register of Historic Places (NRHP) on May 15, 1987 (Dodge 1986). For purposes of this analysis, the historic district will be referred to as the CPRR.

Eligibility for, or listing on, the NRHP requires satisfaction of several conditions: at least one aspect of integrity and at least one of four specific criteria must be present. The aspects of integrity are location, design, setting, materials, workmanship, feeling, and association. While the CPRR retains all seven aspects of integrity, the setting, feeling, and association are particularly important for retaining eligibility of this site (Dodge 1986). The general area has experienced little development other than the construction, operation, and decommissioning of the railroad. This provides insight for the researcher and casual observer into the challenges and decision-making processes associated with building the railroad. Visitors to the area today can essentially experience conditions similar to the area as it was in 1869, albeit without a bustling railroad industry. The criteria for eligibility/listing on the NRHP relevant for the CPRR are association with events that have made a substantial contribution to the broad patterns of our history (Criterion A) and that have yielded, or may be likely to yield, information important in prehistory or history (Criterion D) (36 CFR 60.4). In order to ensure compliance with both the NHPA and Cultural Resources Protection Stipulation, BLM has included UT-LN-159 (Central Pacific Railroad Grade Access) which notifies operators that accessing parcels from, on or across the CPRR for exploration, drilling, construction, or other activities may be limited or prohibited to protect the CPRR's integrity and applies to all parcels. The lessee may not be guaranteed access on existing routes, and may be required to build new routes.

Parcel 018 is located approximately 1.3 miles from the CPRR (Figure 2). All the other parcels in the proposed action are over five miles from the CPRR. The draft June 2019 Lease Sale Cultural Resources Report, currently in progress, will contain information on any prior cultural resources surveys and identified sites within the area of potential effect (APE), which includes the parcels and 0.5 mile buffer around each parcel. The draft 2019 Lease Sale Cultural Resources Report will be submitted to consulting parties for review, pursuant to the NHPA.

#### Recreation & Travel and Transportation

The BLM designated 90 miles of the Promontory Branch as the Transcontinental Railroad Backcountry Byway (BLM 1993).

The BLM has directional signing and interpretive sites installed at more than 16 locations along the railroad grade as well as brochures and other educational materials. The sites of important towns and railroad sidings are marked and their contribution to the development and alignment of the 1869 railroad grade are explained via interpretive signs. Along the byway, visitors also encounter more than 150 examples of late 19<sup>th</sup> and early 20<sup>th</sup> century railroad construction, such as wooden trestles, stone or wooden culverts, wyes, and large earthen structures created as cuts or fills using only manual labor and explosives.

The BLM manages the byway for visitor use and enjoyment via passenger vehicle, off-road vehicles, bicycles, horseback, or on foot. The old wooden trestles located along the grade are no longer safe for vehicle travel and are bypassed with short, constructed roads and marked with warning signs for passenger vehicles. The railroad grade is a maintained gravel road but does not qualify as an all-weather road. Most areas of the grade become very muddy, if not temporarily impassable, after inclement weather.

In 2018, BLM traffic counter data indicated that an estimated 28,248 persons visited all or a portion of the Transcontinental Railroad Backcountry Byway in Utah. The five-year average for visitation from October 2014-2018 is approximately 25,377 visits per year.

The project lies within the central portion of the byway approximately from Peplin Mountain to the Terrace town site. According to the notice of designation for the byway, “A unique aspect of this Byway is the spectacular Great Basin scenery, which remains much the same as it was viewed by train passengers in the 19th century. The eastern portion of the Byway features broad vistas of the northern end of the Great Salt Lake, while the western portion features stunning views of the Pilot, Newfoundland, Grouse Creek and Raft River ranges. Besides the opportunities mentioned above, there are excellent opportunities to explain the principle of multiple use” (BLM 1993).

The current travel & transportation network offers motor vehicle access to most but not all parcels in the proposed action. The southernmost section of parcel 018 is intersected by a primitive, unmaintained two-track route suitable for high clearance vehicles; the northernmost section of parcel 018 has no existing routes. The easternmost section of parcel 017 is intersected by a constructed and occasionally maintained road; the westernmost section of parcel 017 is not intersected by any routes. Parcels 016, 019, and 020 are not intersected by any existing routes. Some roads near the project area are constructed and maintained gravel roads; however, not all of the constructed roads have drainage ditches or are regularly maintained. Other roads in the project area are only two-track primitive routes suitable to high-clearance, four-wheel drive vehicles only.

In the Hogup Mountains, all sections within parcels 014 and 015 are intersected by existing, constructed roads. Access to the Hogup Mountains is currently limited to routes entering from the north, which would necessitate crossing the CPRR. Access to the Hogup Mountains from the south is currently restricted along the Union Pacific Railroad and would require permission from the right-of-way owner to use.

Other recreational activities within all parcels are light and sporadic in scope and duration, consisting mostly of off-highway vehicle use, dispersed camping, small game or predator hunting, and/or target shooting. Most recreational use occurs within the spring and fall seasons when temperatures are moderate.

#### Visual Resources

Parcels 016 through 020 are within the viewshed of the byway (Figure 3). Parcel 018 is located within the foreground (less than 3 miles) of the CPRR, while parcels 019 and 020 are located within the middle ground (3-5 miles). Parcels 016 and 017 are located beyond 5 miles from the CPRR, placing them within the background. Parcels 014 and 015 are behind topographic screening from the CPRR (Figure 3).

The characteristic landscape of the area is low salt desert shrub and grassland covered valleys, benches, and mountains common to the outer boundaries of the Great Salt Lake Desert. Topographic relief in the immediate area of the parcels is provided by the Matlin Mountains and the Hogup Mountains, both of which present moderate slopes with rounded crests and gently sloping benches. Vegetative cover is nearly continuous, consisting predominately of straw yellow grasses and sage green shrubs. Trees are limited to dark green Utah juniper and only sparsely scattered along the sides and crests of the upper slopes. Soils are red, brown, tan, and grey in color.

The general openness of the terrain in the project area lends itself to wide panoramic views that can allow visitors to see for very long distances. On clear days, expansive views are common. Topographic and vegetative screening is limited between Parcels 016 through 020 and the 1869 Transcontinental Railroad Grade. Views from these parcels include the Matlin Mountains, Promontory Mountains, Wasatch Front, Hogup Mountains, Great Salt Lake Desert, Newfoundland Mountains, Silver Island Mountains, Pilot Mountains, and Grouse Creek Mountains. Near parcels 014-015, there is some topographic relief provided by the presence of the Hogup Mountains; however, vegetative screening within these parcels is limited.

Within and immediately adjacent to the parcels, there is little human modification to the landscape. With the exception of the few scattered road developments in the area, there are no power lines, pipelines, communication towers, windmills, solar arrays, or major structures. There are a few small structures located on private land in Salt Lake Meridian, Township 10 North, Range 12 West, Section 7, but these structures are generally hidden by some topographic screening at any distance beyond one mile. As the area has generally been used for winter sheep grazing, a few scattered range improvements are present. The scenery from the Matlin and Ramola sidings to the town site of Terrace looks much as it probably did when viewed from passing rail cars in the late 19<sup>th</sup> century (BLM 1993).

All of the parcels (014-020) overlap public lands rated as a Visual Resources Inventory (VRI) Scenic Quality Class C area (BLM 2011). All of the nominated parcels are managed under VRM Class IV management prescriptions (BLM 1986, BLM 1998) (Figure 3). The management objectives for a VRM Class IV zone are to allow for activities that create a high degree of change and contrast with the characteristic landscape of the area.

### **3.3.4 Geology/Mineral Resources/Energy Production**

These parcels lie within the transition zone between Basin and Range structures to the south and Columbia Plateau structures to the north. The entire area presents a history of complex geologic activity, having suffered uplift, intrusion of igneous rocks, normal, reverse, and thrust faulting, out-pouring of volcanic lavas and ash, erosion, and deposition of lake sediments. Since the last uplift, the valley area experienced inundation and recession of ancient Lake Bonneville to an elevation of 5,200 feet. The exposed geology is comprised of various stratigraphy that includes: lacustrine and alluvial deposits (Holocene to upper Pleistocene), the Salt Lake formation (Miocene), basaltic lava flows (Pliocene and Miocene), Oquirrh Group (Permian and Pennsylvanian), and the Park City Group (Permian) (Hintze 1988). The mountains have no foothills and go from mountains to gentle slopes dipping eastward toward the Great Salt Lake, interrupted by outcrops of basaltic lava. The geologic features include piedmont valleys covered by alluvium and colluvium, playas, and Lake Bonneville features of spits, shorelines, tufas, and aragonite.

All parcels are located in the Utah Test and Training Range Airspace. Prior to any surface disturbing activities, approval and coordination with Hill Air Force Base is required. This area has a height restriction of 100 feet or less for any structures.

#### Oil and Gas

There are no existing oil and gas fields near the parcels. Past seismic surveys were conducted between the 1950s and the 1990s. Seismic exploration gathers subsurface structural geologic data to define and map the presence of subsurface oil and gas reservoirs. Seismic surveys involve the generation of acoustic energy imparted into the ground by the use of vibroseis units and

small, down-hole dynamite explosives (shot holes). Buggy-mounted drills would be used where the terrain slope would not be accessible by vibroseis units. All drill points locations are on terrain less than 11 degrees. Heli-portable drills may also be used to access areas where slope constraints apply. The recording equipment would entail a series of geophones, connected to a recording box and battery, and placed on the ground by field personnel on-foot. No blading, grading, or construction operations is needed to implement any aspect of seismic surveys. Electronic detonators would be used. Once the shot hole is drilled, loaded, and detonated, the hole would be plugged and the area would be raked to blend in the points closely as possible to the pre-existing ground conditions. Seismic exploration is not considered to be an action that is connected to future oil and gas activities that would require further environmental analysis nor does it set a precedent for future actions (Interior Board of Land Appeals 1992). Drilling of wells in an area subsequent to seismic activity is not considered to be a connected action, and a decision to approve seismic exploration would not automatically trigger a decision to approve drilling a well. One action can proceed independently of the other (43 CFR 3151.1). For areas of unknown or low potential oil and gas reserves, operators may choose drill sites after geophysical exploration of subsurface conditions and/or exploration drilling (wildcat wells). Additional drilling in the lease may occur after the presence of a resource producing in paying quantities, and to define the extent of the reservoir.

To date, 13 wells have been drilled in Box Elder County, and the majority of those were dry holes. Utah's State and Institutional Trust Lands Administration (SITLA) offered a competitive lease in October 2018 and sold six parcels totaling 3,676.83 acres within Box Elder County. These parcels are interspersed or located in the general vicinity of the parcels analyzed in this EA. Two wildcat wells were proposed to be drilled in 2008 approximately 3 miles away from parcel 018 (Salt Lake Meridian, T. 10 N., R. 13 W., Section 27, NWNE) on privately owned surface and privately owned minerals. The two locations were abandoned.

Box Elder County's total oil and natural gas production from 2014 to 2018 is zero (0) barrels of oil and zero (0) million cubic feet (Mcf) of gas (UDOGM 2018). The geology of the area and past activity indicate an increase interest for leasing, and oil and gas exploration for the northwestern part of Box Elder County.

#### Engineering Limits of the Central Pacific Railroad Grade

The CPRR grade is a part of the Transcontinental Railroad Grade Backcountry Byway and is maintained by the BLM to accommodate passenger vehicles or off-highway vehicles (refer to section 3.3.3). The CPRR grade is not designed to accommodate vehicles greater than 10,000 lbs. The allowable average daily vehicle traffic for light vehicles (< 6,000 lbs) is 10 vehicles per day and for heavy traffic (> 10,000 lbs) is 1 vehicle per day. Oil and gas vehicle traffic (refer to sections 2.2.1, and 2.2.2) may cause serious damage to the grade (BLM 2018).

#### Solid Mineral Resources

West Box Elder County has produced metals, industrial minerals, and construction materials. Box Elder is known for barite, clay, fluorine-vanadium, diatomite, fertilizers and soil conditioners, evaporates and brines, mica, quartzite, limestone, dolomite, gravel, and gem materials. Production of these minerals have been on an intermittent and limited basis due to low local demand for those materials (BOR 1973). Development of saleable, leasable and locatable minerals are still authorized and can be in conjunction of oil and gas development and leasing. Currently, the project area has no solid mineral extraction and any oil and gas development can



be managed to avoid or work within other mineral resources or future solid mineral extraction. The majority of acres that may be used for oil and gas exploration and production are usually reclaimed within 5 to 25 years. In most instances, oil and gas exploration is a short-term endeavor (2-10 months) and would not appreciably affect solid mineral exploration and development. Oil and gas exploration and development activities may require a new gravel pit up to 2.5 acres nearby the parcels. This acreage would not greatly increase the size or number of gravel pits in the surrounding area, nor burden the nearby communities that use gravel.

### **3.3.5 Wildlife**

#### Big Game

Parcels 016, 017, 018, and 019 are within summer/fawning habitat for pronghorn, totaling 5,190 acres (Figure 4). 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).

#### Migratory Birds

A variety of migratory songbirds, raptors, waterbirds, and shorebirds may use habitats within the parcels for breeding, nesting, foraging, and migratory habitats. The migratory bird primary nesting period occurs from April 1 through July 31. However, migratory birds including waterfowl and shorebirds migrate through the lease sale area during fall and spring migrations.

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. The 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 identification of sensitive bird species and habitats using the USFWS 2008 Birds of Conservation Concern (BCC) Species List (USFWS 2008), the Utah Partners in Flight (UPIF) Species List (IM 2008-050), and the BLM Sensitive Species List. The MOU directs the BLM to evaluate the effects of actions on these species during the NEPA process, including effects on bird populations and habitats. The BLM should implement approaches to lessen the likelihood of impacts by having project alternatives that avoid, minimize and mitigate adverse impacts for migratory birds and habitats that are most likely to be present in the project area.

The project area is within the Great Basin Bird Conservation Region (BCR) (USFWS 2008). The UPIF Priority Species List (Parrish 2002), BCC list for Region 9 (Great Basin) (USFWS 2008), Raptor Inventory Nest Survey database (RINS 2017), Utah Natural Heritage Database (UDWR

2013), Breeding Bird Survey records (Pardieck 2017), and eBird records (eBird 2018) were used to identify potential habitat for priority species that could occur within the parcels. Table 2 lists the UPIF priority species and the USFWS BCC species potentially occurring within the lease sale area.

The Great Basin Bird Conservation Region is a large area encompassing a wide variety of habitats throughout lowlands and mountains (US North American Bird Conservation Initiative 2000). It is a mostly dry region of grassland and semi-desert shrubland spread across the lowlands and flat country, interspersed with a few marshes and lakes that are very important to shorebirds and waterfowl. Parcels within the lease sale area are representative of salt desert and cold desert.

In addition, the lease sale area is approximately 15 miles west of the Great Salt Lake (GSL). The GSL and associated wetlands have been recognized in the North American Waterfowl Management Plan as key to the habitat integrity of the Pacific Flyway which encompasses all of Utah. Avian species such as the American avocet, and American white pelican utilize the Pacific Flyway and the GSL in particular. While there is no riparian or wetland habitat within the parcels, there is potential for waterfowl and shorebirds to utilize the area during migration if produced water is present. Therefore, waterfowl utilizing the GSL area were selected as having potential habitat within the parcels.

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 2002). Golden eagle nests are present in numerous parcels.

**Table 2. Potential Priority Migratory Birds (Excluding Special Status Species).**

Common Name	UPIF	BCR9	Primary Breeding Habitat	Secondary Breeding Habitat	Winter Habitat
American Avocet	✓	✓	Wetland	Playa	Migrant
American golden plover	✓		Wetland	Playa	Migrant
Black-necked stilt		✓	Wetland	Playa	Migrant
Black-throated gray warbler	✓	✓	Pinyon-Juniper	Mountain Shrub	Migrant
Brewer's sparrow	✓	✓	Shrubsteppe	High Desert Scrub	Migrant
Eared grebe	✓		Water	Wetland	Migrant
Golden eagle	✓		Cliff	High Desert Scrub	High Desert Scrub
Green-tailed Towhee	✓		Mountain Shrub	High Desert Scrub	Migrant
Juniper titmouse	✓		Pinyon-Juniper	Pinyon-Juniper	Pinyon-Juniper
Loggerhead shrike	✓		High Desert Scrub	Pinyon-Juniper	High Desert Scrub
Marbled godwit	✓		Wetland	Playa	Migrant
Peregrine falcon	✓		Cliff	Lowland Riparian	Wetland
Pinyon jay	✓		Pinyon-Juniper	Ponderosa Pine	Pinyon-Juniper
Prairie falcon	✓		Cliff	High Desert Scrub	Agriculture
Sage sparrow	✓	✓	Shrubsteppe	High Desert Scrub	Low Desert Scrub
Sage thrasher	✓		Shrubsteppe	Shrubsteppe	Migrant
Virginia's warbler	✓	✓	Northern Oak	Pinyon-Juniper	Migrant

Common Name	UPIF	BCR9	Primary Breeding Habitat	Secondary Breeding Habitat	Winter Habitat
Western grebe	✓		Water	Wetland	Migrant
Whimbrel	✓		Wetland	Playa	Migrant
Wilson's phalarope	✓		Wetland	Water	Migrant

### BLM Sensitive Species

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. 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.

There are 10 terrestrial species that are designated sensitive by the BLM that may occur within all seven parcels (Table 3). Surveys have not been conducted at the time of this lease sale, however habitat for these 10 species is available in all seven parcels. If a species is known to occur within a parcel based on existing datasets (Utah Natural Heritage Program Database, Utah Division of Wildlife Resource records, Raptor Inventory Nest Surveys, or local BLM data), its known occurrence is stated in Table 3.

**Table 3. BLM sensitive species potentially occurring within the parcels.**

Common Name	Scientific Name	Status	Potential habitat and/or occurrence records
<b>Birds</b>			
American white pelican	<i>Pelecanus erythrorhynchus</i>	SS	Preferred nesting habitats are islands, especially those associated with fresh water lakes. Preferred foraging areas are shallow lakes, marshlands, and rivers. The GSL provides habitat for foraging and known breeding colonies exist within the GSL ecological complex. The parcels are within approximately 15 miles of known foraging areas, and are in migration routes of the American Pelican. Due to the distance of the parcels from the GSL and migration route of the American White Pelican this species was selected for additional analysis. Development of the parcels for oil and gas may create temporary habitat for the species.
Burrowing owl	<i>Athene cunicularia</i>	SS	Prefers open grassland and prairies, however burrowing owl owls also use other open situations, such as golf courses, cemeteries, and airports. Nests in mammal burrows, such as ground squirrels or badgers. Burrowing owls have been documented in parcel 015 (RINS 2018), and all parcels may have suitable habitat.
Ferruginous hawk	<i>Buteo regalis</i>	SS	Rely on grassland or shrubsteppe terrain and, in many parts of Utah, nest on the ecotone between these habitats and pinyon-juniper woodlands (Olendorff 1993). May nest in or at the base of juniper, pinyon pine trees in Box Elder County. Raptor surveys have not been conducted within the individual parcels,

Common Name	Scientific Name	Status	Potential habitat and/or occurrence records
			ferruginous hawk is likely to nest and forage within parcels.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	SS	Prefer grasslands of intermediate height and are often associated with clumped vegetation interspersed with patches of bare ground. Surveys have not be conducted, but habitat is available within/near to the parcels.
Long-billed curlew	<i>Numenius americana</i>	SS	Breeding habitat is grassland and agricultural areas. Nest in and around the GSL. Nests found in Box Elder County were typically a grass-lined depression located in a clump of grass (Paton. Peter W.C. and Dalton 1994). Curlews tend to place their nests near manure piles or other conspicuous objects, camouflaging them from aerial predators (Cochran 1987). At the Great Salt Lake, the ground is relatively level, and curlews prefer to nest near the edges of barren alkali flats (Paton. Peter W.C. and Dalton 1994). Surveys have not be conducted, but habitat is available within/near to the parcels.
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	SS	During spring and summer, Columbian sharp-tailed grouse occupy areas of dense forbs and sparse grass cover. Winter habitat comprises mountain shrub and riparian areas (UDWR 2002). Surveys have not be conducted, but habitat is available within/near to the parcels.
Snowy plover	<i>Charadrius alexandrinus</i>	SS	Nests on coastal sandy beaches, at salt evaporation ponds and on the margins of alkaline lakes and ponds in western North America. Surveys have not be conducted, but habitat is available within/near to the parcels.
<b>Mammals</b>			
Kit fox	<i>Vulpes macrotis</i>	SS	In the Great Basin, kit fox are found in shadscale, greasewood, and sagebrush communities (McGrew 1977). While no species observations have been noted in the parcels, suitable habitat exists.
Spotted bat	<i>Euderma maculatum</i>	SS	Can be found in a variety of habitats, ranging from deserts to forested mountains; they roost and hibernate in caves and rock crevices. Surveys have not be conducted, but habitat is available within/near to the parcels.
SS = BLM Sensitive			

## **Chapter 4 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**

The issuance of leases would not produce direct impacts from potential development because leasing is administrative in nature. However, the issuance of a lease does convey an expectation that exploration and development would occur, and therefore, indirect and cumulative impacts may result from leasing the parcels. Direct impacts from lease exploration or development are considered indirect impacts for the purposes of this analysis.

### **4.3 Indirect Impacts from Potential Development**

#### **4.3.1 Alternative A – Proposed Action**

##### **4.3.1.1 Air Quality**

###### Sources of Pollution

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. This discussion remains qualitative as variations in emission control technologies as well as construction, drilling, and production technologies used by various operators make it difficult to accurately estimate potential air quality impacts from modeling at this time. Well development would likely be exploratory and impacts from construction and drilling would be temporary or short-term and would cease after the associated activities.

During well development, there could be emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. NO<sub>2</sub>, SO<sub>2</sub>, 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<sub>2</sub> and CO emissions, with lesser amounts of SO<sub>2</sub>. 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<sub>2</sub>, 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<sub>10</sub> and PM<sub>2.5</sub>) 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.

An emissions inventory (EI) estimate for an oil and gas well for this lease sale is shown in Table 4. Due to the very small level of anticipated development and lack of information regarding potential emissions control technologies an operator may use, the EI is based on the following assumptions:

- Each oil and gas well would cause 8.26 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 4. Emissions Inventory Estimate.**

	1		2		3				4			
	PM <sub>10</sub>	NO <sub>x</sub>	CO	VOC	VOC	NO <sub>x</sub>	CO	PM <sub>10</sub>	NO <sub>x</sub>	CO	VOC	PM <sub>10</sub>
O&G 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 <sub>10</sub>	NO <sub>x</sub>	CO	VOC				

	1	2			3				4			
	PM <sub>10</sub>	NO <sub>x</sub>	CO	VOC	VOC	NO <sub>x</sub>	CO	PM <sub>10</sub>	NO <sub>x</sub>	CO	VOC	PM <sub>10</sub>
Activity (5) Tons					0.34	13.37	1.89	1.08				
Production (6) tpy					0.00	0.01	0.01	6.44				
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: <a href="https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors">https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emission-factors</a> .												

Emissions from a well would include particulate matter of less than 10 micrometers in diameter (PM<sub>10</sub>), nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and volatile organic compounds (VOCs). Emissions of sulfur dioxide (SO<sub>2</sub>) and lead (Pb) from oil and gas development activities are minor and are not included. PM<sub>2.5</sub> is not specifically included as it is a component of PM<sub>10</sub>.

Emission factors for activities of the proposed action were based on information contained in the EPA's Emission Factors & AP 42, Volume I, Fifth Edition (EPA 1995). 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 4, and considering the location of the parcels relative to population centers and proximity to the nearest 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.

Application Notices UT-LN-96, UT-LN-99, UT-LN-101, and UT-LN-102 would be adequate for the leasing stage to disclose potential future restrictions and to facilitate the reduction of potential impacts.

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. Application of these notices would be sufficient to notify the lease holder of additional air quality control measures that are necessary to ensure protection and maintenance of the NAAQS.

#### **4.3.1.2 Climate Change/Greenhouse Gases**

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 CO<sub>2</sub> 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<sub>4</sub> – CH<sub>4</sub> that escapes from wells (both gas and oil), oil storage, and various types of processing equipment. This is a source of global CH<sub>4</sub> 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<sub>4</sub> 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<sub>2</sub> into the atmosphere.

#### 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 1,676 tons per year (tpy) CO<sub>2e</sub> for a single operational well and 2,606 tons per year CO<sub>2e</sub> for a single drill rig. For one potential well, this would equate to 1,676 tpy CO<sub>2e</sub> for well operations and 2,606 tpy CO<sub>2e</sub> for drilling and construction. 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 typically estimated based on the average annual production rate of nearby existing wells. Since no active producing wells are near the lease sale parcels, average production values for the State of Utah are used to calculate downstream GHG emissions. From 2008 to 2018, oil wells in Utah produced an average of 7,339 BBL per well, and gas wells produced an average 63,212 Mcf (UDOGM 2018). Estimates of downstream GHG emissions are calculated for carbon dioxide equivalent based on combustion of the product.

Using the RFDS of one producing well, and an EPA emissions factor of 0.0551 metric tons (MT) of CO<sub>2</sub>e per million cubic feet of gas and 0.43 MT of CO<sub>2</sub>e per barrel (EPA 2018), indirect annual downstream GHG emissions can be estimated at 3,483 MT CO<sub>2</sub>e/yr for a gas well and 3,156 MT CO<sub>2</sub>e/yr for an oil well. Actual GHG emissions may range from zero (assuming parcels are not sold or developed) to an indeterminate upper range based on realized production rates, control technology, and physical characteristics of any gas produced. A range of production estimates and downstream emissions for the field office is presented in Appendix H.

As it is not possible to assign a “significance” value or impact to these numbers, the emissions estimates themselves are presented for disclosure purposes. To express GHG emissions on a scale relatable to everyday life the EPA GHG equivalency calculator can be used (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>). This calculator shows that for the average oil well, the GHG emissions are equivalent to 670 passenger vehicles driven for one year, or energy use for 378 homes for one year.

With respect to the rough estimates of downstream GHG emissions, it should be noted that it is 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.

### 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.

Lease stipulations and notices would be applied the same as under Section 4.3.1.1.

#### **4.3.1.3 Central Pacific Railroad Grade**

##### Area of Critical Environmental Concern

Historic resources are the identified relevant and important values for the ACEC. Impacts to these resources are discussed below in in the "Cultural Resources and Historic Context" section.

##### Cultural Resources and Historic Context

If development of parcels occurs, impacts on the CPRR could occur and are discussed below. No adverse effects to the historic property (i.e., the CPRR) are expected from the proposed action, as defined by 36 CFR 800.5. Effects to historic properties will be further discussed in the June 2019 Lease Sale Cultural Resources Report (in progress) and are expected to have similar resources as described in the March Cultural Resource Report (BLM 2018). Upon completion the Cultural Resources Report will be sent to consulting parties for review, pursuant to NHPA. Although leasing itself is not expected to result in an adverse effect, the BLM would follow appropriate procedures to comply with NEPA and NHPA if the agency leases any of the parcels and receives an APD, to ensure that any potential adverse effect would be avoided, minimized, or mitigated. Compliance with NHPA will include an inventory and/or literature review of all constructed, modified, or utilized features, including transportation corridors that are associated with the project APE.

All historic properties and/or resources, including the CPRR, would be protected by the Cultural Resources Protection stipulation. This stipulation requires the BLM to require lessees to modify exploration or development proposals to protect historic properties and/or resources, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.

A convenient access point to all parcels is from, on, or across the CPRR. Industrial traffic from, on, or across the CPRR could impact the CPRR's grade and associated setting, town sites, sidings, and architectural features as the physical qualities/engineering characteristics of this CPRR are below the minimum standards required to sustain industrial truck traffic (BLM 2018). For example, there are numerous wood and rock culverts that are in disrepair and the allowable bearing pressure these could withstand is currently unknown. For these reasons, notice UT-LN-159 (Central Pacific Railroad Grade Access) notifies operators that accessing parcels from, on or across the CPRR for exploration, drilling, construction, or other activities may be limited or prohibited to protect the CPRR's integrity and applies to all parcels. Further, both the NHPA and Cultural Resources Protection Stipulation contain provisions to protect such properties, or direct BLM disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated. If an APD is received, the BLM will consider methods avoid, minimize, or mitigate adverse effects to the CPRR grade, such as constructed a bridge over the grade to suitable to heavy equipment traffic, or develop an alternative access route which does not cross the CPRR. The application of stipulations and lease notices will help to minimize physical impacts to the CPRR from transportation access for potential development of the parcels. Therefore, direct and indirect effects to the CPRR will be avoided, minimized or mitigated through secondary NHPA Section 106 consultation at the APD stage and the judicious use of the cultural stipulation.

Even with negligible to minor physical impacts to the CPRR, there is potential for the proposed action to cause visual, auditory, or atmospheric impacts to the CPRR. For example, there is the potential for well placement or directional drilling rigs that could impact the visual, auditory, and atmospheric conditions near the CPRR. Additionally, as some parts of the CPRR have limited topographic relief, some visual impacts may occur from, for example, road development to parcels south of the CPRR.

These potential visual, auditory, and atmospheric impacts can be avoided or minimized by implementing design features and best management practices, such as topographic screening, camouflage, careful well placement, strategically designed road placement, interim reclamation, etc. UT-LN-160 (Central Pacific Railroad Grade Cultural Historic District) notifies the lease holder that additional measures may be necessary to ensure protection of the historic integrity of the railroad grade. Considering this, the BLM does not foresee that these impacts would be substantial.

#### Recreation & Travel and Transportation

Although leasing will not result in any direct impacts to recreation and travel and transportation, indirect impacts from leasing may occur if the leases are developed. Development associated with the proposed action could create both short- and long-term impacts for recreationists visiting the Transcontinental Railroad Backcountry Byway. If oil and gas exploration were to occur on any proposed parcels, visitors to the railroad byway may encounter resultant traffic, noise, dust, and large industrial equipment up to 100 feet in height on or adjacent to whichever leased parcel is developed. These impacts are likely to be most noticeable during construction and drilling operations, which are generally short-term.

Accessing parcels in the lease sale with heavy drilling equipment may require substantial improvements and maintenance of existing roads or construction of new roads to circumvent the CPRR. Road improvements or new construction may include widening, crowning, ditching, and

surface gravel. Especially for parcel 018, road construction or upgrades on public or private lands may be visually noticeable from the CPRR, unless sufficient topographical screening is present or roads are strategically placed to avoid visual notice. The upgraded or new roads in the area may improve visitor access and opportunities for off-highway vehicle use, hunting and other activities. However, visual impacts from development could have some negative impact to the overall recreational experience along the byway, especially for visitors specifically seeking quiet recreation opportunities.

Over the long-term, the persistence of visual impacts from upgraded or new roads and a drill pad of several acres within the viewshed of the railroad grade could have a localized negative impact on the scenery and associated historical setting, thus reducing the quality of the vicarious recreational experience of the visitor, for those visitors seeking to avoid new modern disturbances on public lands near the CPRR.

UT-LN-159 (Central Pacific Railroad Grade Access) and UT-LN-160 (Central Pacific Railroad Grade Historic District), in addition to the Cultural Resources Protection stipulation, will help to avoid, minimize, and mitigate impacts to the CPRR, as described above, which may also afford protection of the recreational experience. Additionally, as the byway's notice of designation specifically notes the byway's "excellent opportunities to explain the principle of multiple use" (BLM 1993), development and interpretation of multiple uses in the vicinity of the route is thus compatible with the byway designation.

### Visual Resources

Although leasing will not result in any direct impacts to visual resources, indirect impacts from leasing may occur if the leases are developed. A visual contract rating (BLM 2019) summarizes potential, expected long- and short-term visual impacts associated with development of the proposed action.

Under the RFD (Section 2.2), short-term impacts are expected to include construction of one well pad and associated infrastructure up to 8.26 acres; and some or all of the well pad and infrastructure may be visible from key public access locations, including the Transcontinental Railroad Backcountry byway. The RFDS anticipated low potential for production (Section 2.2.1.). This may preclude the need for storage tanks or other activities and infrastructure involved in production operations and thereby shortening the duration and extent of expected impacts. Long-term impacts are expected to involve a well pad that has been reclaimed by capping the well, re-contouring soils back to the original slope, and re-seeding the site. Based on observable results from other disturbed areas in the near vicinity to the proposed project, initial seeding in the resident soils of the area is not expected to be successful, which may extend the duration of reclamation and any associated visual impacts. At the end of successful reclamation, visual impacts are expected to be negligible to minor. Based on field observations of nearby disturbed areas, successful reclamation may take several decades to achieve under current ecological conditions.

Adjacent scenery and human modification of the landscape are factors in determining the scenic quality rating of public lands, and discordant structures or modifications can decrease the scenic quality rating (BLM 1986). The majority of the parcels are currently rated as scenic quality "C" areas (BLM 2011), the least scenic rating in BLM's inventory system, which therefore cannot be downgraded. All of the parcels are VRM Class IV; anticipated future development would meet Class IV objectives.

#### 4.3.1.4 Geology/Mineral Resources/Energy Production

The issuance of leases would not directly impact other mineral extraction activities. If the proposed parcels are leased, development of saleable, leasable and locatable minerals would still be authorized. Access to all parcels would likely require crossing the CPRR grade. Alternative routes may be required to protect the CPRR grade. To inform potential lessees of the issues related to other potential mineral extraction activities a notice would be attached for parcels with slopes in excess of 30 percent. The steep terrain may require care in placement of drill pads and access routes to avoid large hill-slope cuts. Stipulation UT-S-425 (CSU-Slopes in Excess of 30 %) would be applied to parcels 014, 015, 016, 017, and 019. Notice UT-LN-159 (CPRR Access) would be applied to all parcels. Notice UT-LN-84 (UTTR MOA) would be applied to all parcels. Application of these notices would be sufficient to notify the lease holder of additional measures that are necessary to ensure protection and maintenance of the mineral resources.

#### 4.3.1.5 Wildlife

Development could result in negative effects to wildlife, including loss, degradation, and fragmentation of habitat; altered reproduction, 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.

##### 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 during fawning or winter. However, development may occur outside of these crucial periods resulting in some potential for loss, degradation, and/or fragmentation of crucial habitats. While the extent of these habitat impacts cannot be analyzed at the lease sale level, impacts are not expected to rise to the level that would affect the viability of this pronghorn population due to the low RFDS. Additional analysis would be required during the environmental review process for APDs. The affected parcels and applicable stipulations and notices for big game are summarized in Table 5. If suspected big game migration corridors are validated, management actions to protect them could occur.

If lease development occurs on adjacent non-federal surface or mineral estate (using directional drilling), then surface management measures may be more limited on the non-federal estate, and negative effects to these species could result on nearby federal lands. While, the extent of this habitat loss cannot be analyzed at the lease sale level, impacts are not expected to rise to the level that would affect the viability of this pronghorn population due to the low RFDS. 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.

Application of this lease notice would be sufficient to notify the lease holder of additional measures that are necessary to ensure protection and maintenance of this species.

**Table 5. Big Game Stipulations and Notices**

	Parcel	Stipulation	Notice
Pronghorn fawning	016, 017, 018, 019	none	UT-LN-14 Pronghorn Fawning Habitat

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 migratory bird and raptor habitat from disturbance due to development on parcels during sensitive periods, such as during the breeding season. However, development may occur outside of these sensitive periods resulting in some potential of loss, degradation, and/or fragmentation of habitat. While the extent of these habitat impacts cannot be analyzed at the lease sale level, impacts are not expected to rise to the level that would affect the viability of migratory bird species/population due to the low RFDS. Direct impacts to individuals would be avoided through adherence to guidelines as specified in Romin and Muck (2012). Additional analysis would be required 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 6.

If lease development occurs on adjacent non-federal surface or mineral estate (using directional drilling), then surface management measures may be more limited on the non-federal estate, and negative effects to these species could result on nearby federal lands. While, the extent of this habitat loss cannot be analyzed at the lease sale level, impacts are not expected to rise to the level that would affect the viability of migratory bird species/populations due to the low RFDS. 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.

Application of these stipulations/notices would be sufficient to notify the lease holder of additional measures that are necessary to ensure protection and maintenance of this species.

**Table 6. Migratory Bird (Non-Sensitive) Species Stipulations and Notices.**

	Parcels	Stipulation	Notice
Migratory Birds	All	UT-S-427: Timing Limitation-Waterfowl Habitat	UT-LN-45 Migratory Bird UT-LN-158 Waterfowl and Shorebirds
Raptors	All	UT-S-424 Controlled Surface Use/Timing Limitation – Raptor Nesting Sites	UT-LN-45 Migratory Bird; UT-LN-44 Raptors UT-LN-143 Raptor

BLM Sensitive Species

Development of the parcels could result in negative effects to these species, including loss, degradation, and fragmentation of habitat; altered reproduction, 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.

Notices and stipulations for BLM sensitive species (Appendix B) provide for surveys and monitoring, seasonal and spatial restrictions, noise limitations, rehabilitation/revegetation, and other practices (e.g. road restrictions, riparian protection). These notices and stipulations would likely minimize the effects of lease development, maintaining habitat and protecting wildlife habitats from disturbances during sensitive periods. However, development may occur outside of these sensitive periods resulting in some potential of loss, degradation, and/or fragmentation of habitat. While the extent of these habitat impacts cannot be analyzed at the lease sale level, impacts are not expected to rise to the level that would affect the viability of BLM sensitive

species/populations due to the low RFDS. Additional analysis would be required during the environmental review process for APDs. The affected parcels and applicable stipulations and notices for BLM sensitive species are summarized in Table 7.

If lease development occurs on adjacent non-federal surface or mineral estate (using directional drilling), then surface management measures may be more limited on the non-federal estate, and negative effects to these species could result on nearby federal lands. While, the extent of this habitat loss cannot be analyzed at the lease sale level, impacts are not expected to rise to the level that would affect the viability of BLM sensitive species/populations due to the low RFDS. 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.

Application of these stipulations/notices would be sufficient to notify the lease holder of additional measures that are necessary to ensure protection and maintenance of these species.

**Table 7. Sensitive Species Stipulations and Notices.**

Species	Parcels	Stipulation	Notice
<b>Birds</b>			
American White Pelican, Grasshopper Sparrow, Long-billed Curlew, Sharp-tailed Grouse, Snowy Plover	All	UT-S-427: Timing Limitation-Waterfowl Habitat	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird UT-LN-158 Waterfowl and Shorebirds
Golden Eagle	All	UT-S-424: Controlled Surface Use/Timing Limitation – Raptor Nesting Sites UT-S-423 Controlled Surface Use/Timing Limitation – Eagle Roost Sites	UT-LN-107 Bald and Golden Eagle, UT-LN-39 Golden Eagle Nest Sites, UT-LN-40 Golden Eagle Habitat, UT-LN-44 Raptors, UT-LN-143 Raptor
Burrowing Owl	All	none	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird; UT-LN-44 Raptors; UT-LN-143 Raptor
Ferruginous Hawk	All	none	UT-LN-49 Utah Sensitive Species; UT-LN-45 Migratory Bird; UT-LN-44 Raptors; UT-LN-143 Raptor
<b>Mammals</b>			
Spotted Bat, Kit Fox	All	none	UT-LN-49 Utah Sensitive Species

**4.3.2 Alternative B – No Action**

The No Action alternative (offer none of the 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 seven parcels totaling 9,822.52 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 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 and trends. 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 Climate Change/Greenhouse Gases**

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 and trends. 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 Central Pacific Railroad Grade**

The No Action alternative will have no impact on the ACEC, cultural resources, recreation resources, travel and transportation resources or visual resources along the railroad grade as the parcels would not be leased and would therefore not be developed. Stipulations and notices would not be warranted.

#### **4.3.2.4 Geology/Mineral Resources/Energy Production**

The No Action Alternative would not have impacts on mineral resources as the parcels would not be leased and therefore not be developed. Stipulations and notices would not be warranted.

#### **4.3.2.5 Wildlife**

The No Action alternative would not result in potential impacts to big game, migratory bird, and BLM sensitive species habitats because the parcels would not be leased and therefore not developed. Stipulations and notices would not be warranted.

### **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, placement of wells, pipeline or road rights-of-way maintenance) or the continuation of mineral extraction activities, including sand and gravel. Specific mineral actions include, but are not limited to, Utah School and Institutional Trust Lands (SITLA) lease sales, the March 2019 Competitive Oil and Gas Lease Sale, and potential future lease sales in this same region. 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 parcels; these activities likely result in negligible impacts to resources because of their dispersed nature. Other activities, such as the occasional wildland fire, have also occurred within some or all of the parcels and are likely to occur in the future. The types of activities noted above 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 parcel boundaries, they have the potential to contribute to cumulative effects.

The cumulative impacts as described in the Box Elder RMP Oil and Gas Supplemental EA as amended, are incorporated by reference into Chapter 4. The proposed action would contribute to these cumulative impacts by making seven 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 one well for all seven parcels, and a total disturbance would be 8.26 acres (Section 2.2.1).

Additionally, there is the potential that additional future leasing and/or development of oil and gas parcels on federal and non-federal land may occur within Box Elder County. The RFD and impacts for future leases and potential development in Box Elder County would be similar to those effects described in Section 4.3.1 and this section. Any future proposed leases on federal land would be analyzed in a separate, site-specific NEPA document.

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 Box Elder County with a small overlap into adjacent counties in Idaho and Nevada. These areas share regional air quality issues with this county in Utah, are included in the analysis area for the consideration of cumulative impacts. The CIAA also includes environmentally sensitive areas (e.g., national parks and monuments, wilderness areas, etc.) nearest to the parcels. The closest National Park Service units to these parcels are the Golden Spike National Historic Site (40 miles east of Parcel 019) and the City of Rocks National Reserve (39 miles north-northwesterly of Parcel 018) in Cassia County, Idaho. Likewise, the closest BLM/FS wilderness area is the BLM's Cedar Mountain Wilderness (38 miles south-southeasterly of Parcel 014) in Tooele County, Utah.

Regional haze from emissions could increase in Box Elder County during inversion periods. Visibility from and into NPS units or wilderness areas that are in proximity to the parcels could increase due to human activities.

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 on both federal and non-federal surface 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 maintenance or 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 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. 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 the county(ies).

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

Visibility and deposition conditions in Class I and Class II areas would follow current trends as described on the National Park Service Air Quality Conditions and Trends website (NPS 2018). 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 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 parcels for this sale (Appendix A). Refer to Appendix B for the full text of these notices.

The proposed action, in concert with other past, present, and reasonably foreseeable actions may contribute to an increase of emissions through direct and indirect impacts, but it would not be expected to increase cumulative effects to levels that would compromise the viability of air quality within or near the CIAA.

#### **4.4.2 Climate Change/Greenhouse Gases**

There are no boundaries with which to identify a CIAA for climate change or greenhouse gases. The proposed action could contribute to incremental increases in GHG emissions in northern Utah; thus contributing to global impacts. It is now well established that rising global atmospheric GHG emission concentrations are affecting the Earth's climate (variability in temperatures, precipitation, drought/floods/wildfire, extreme stores, and land cover). These conclusions are built upon a scientific record that has been created with substantial contributions from the United States Global Change Research Program (USGCRP 2017).

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<sub>2</sub> in the atmosphere" (EPA 2018). 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.

National GHG emissions in 2016 represented a 2.4 percent increase from estimated 1990 national GHG emissions and decrease from 2015 by 1.9 percent (126.8 million tons of carbon dioxide equivalents). Decreases in total greenhouse gas emissions between 2015 and 2016 was largely due to decreases in CO<sub>2</sub> emissions from fossil fuel combustion. This decrease was a result of multiple factors, including a change from coal to natural gas or other non-fossil energy sources in the electric power sector, and warmer winter conditions in 2016 resulting in reduced demand for heating fuel in the residential and commercial sectors. These GHG emissions are partly offset by carbon sequestration in forests, trees, urban areas, and agricultural soils, which, in aggregate, offset 11.0 percent of total U.S. emissions in 2016 (EPA 2018).

In Utah, temperatures have been increasing from 1895-2017, while precipitation has remained relatively the same (NCDC (NOAA) 2018). The average temperature for this period was 47.7 °F and has been steadily increasing by 0.2 °F per decade. Statewide annual precipitation for this period averaged 13.44 inches and has been increasing by 0.02 inches per decade. These trends are likely to continue at the same rates with reasonably foreseeable well development associated with the parcels. 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.

The U.S. Geological Survey (USGS) produced estimates of the greenhouse gas emissions resulting from the extraction and end-use combustion of fossil fuels produced on federal lands in the United States, as well as estimates of ecosystem carbon emissions and sequestration on those lands (USGS 2018). The study reports emissions from both the combustion of fuel and fugitives from extraction and transport over a ten year period (2005-2014). Uncertainties in emissions are determined to be 2-5% for combustion, 25-42% for fugitives, and 12-15% for degassed methane from coal mines. In 2014, federal land fossil fuels produced emissions of 1,279.0 million metric tons (MMT) CO<sub>2</sub>, 47.6 MMT CO<sub>2</sub>e of CH<sub>4</sub>, and 5.5 MMT CO<sub>2</sub>e for N<sub>2</sub>O. Compared to nationwide fossil fuel emissions, CO<sub>2</sub> from federal lands account for 23.7%, 7.3% for CH<sub>4</sub>, and 1.5% for N<sub>2</sub>O over the ten year period. In 2014, federal fossil fuel GHG emissions from extraction and combustion in Utah were 43.1 MMT CO<sub>2</sub>e, or 3% of total federal land emissions. Methane emissions in Utah were 3.5 MMT CO<sub>2</sub>e or 7% of total federal land methane emissions. Trends and relative magnitude of emissions are roughly parallel to production volumes.

Carbon storage on federal lands was 83,600 MMT CO<sub>2</sub>e in 2014. Soils stored 63% of carbon with vegetation and dead organic matter storing 26% and 11% respectively. The rate of net carbon uptake (sequestration) varies from 475 MMT CO<sub>2</sub>e/yr to a source (emission) of 51 MMT

CO<sub>2</sub>e due to changes in climate/weather, land use, land cover change, wild fire frequency, and other factors. Between 2005 and 2014, terrestrial ecosystems on federal lands sequester an average of 195 MMT CO<sub>2</sub>e/yr, offsetting about 15% of emissions resulting from fossil fuel extraction and combustion. In Utah, the annual average sequestration over the last ten years was 8.6 MMT CO<sub>2</sub>e/yr, offsetting about 20% of emissions resulting from Utah federal lands fossil fuel extraction and combustion (USGS 2018).

Cumulative GHG emissions from existing and foreseeable oil and gas wells within the field office boundaries from well operation and downstream combustion are calculated in Appendix H. Total cumulative annual emissions are estimated at 285,844 metric tons CO<sub>2</sub>e/yr. An additional one time emission of 10,408 metric tons CO<sub>2</sub>e may occur if the projected new wells are drilled. Compared to state and U.S. emissions for 2016, operational and downstream emissions are approximately 0.8% of major source GHG emissions in Utah and 0.004% of national emission from 2016.

The BLM prepared the Central Basin and Range Rapid Ecoregional Assessment (Cromer 2013), which includes the CIAA. The area of interest covers most of the Great Basin, including the western half of Utah. The CBRREA used an ensemble mean from 6 global climate models to determine future climate change projections in the Central Basin and Range area. The report discusses climate change projections. Results for precipitation suggest there is no strong trend toward either wetter or drier conditions in any month for the Central Basin. With the exception of a slight increase in summer “monsoon” rains toward the south and east, there are no significant forecasted trends in precipitation for any other months in either the near term (2020s) or midcentury (2050s) time slices. The Central Basin report projected changes to temperature by 2060 by showing areas where the count of the monthly maximum and minimum temperatures deviate by two standard deviations or more from the baseline 20th century mean temperature. From this, areas can be identified where concentrated climate change or lack of climate change is projected to occur. In general, temperatures are projected to increase, with mountainous areas expected to see the most change. Potential impacts to individual resources from projected climate change are further described in the Central Basin and Range Rapid Ecoregional (Cromer 2013).

The proposed action, in concert with other past, present, and reasonably foreseeable actions may contribute to incremental increases to GHG emissions through direct and indirect impacts. There are currently no established significance thresholds for GHG emissions that BLM can reference in NEPA analyses, but all GHGs contribute incrementally to the climate change phenomenon. When determining NEPA significance for an action, BLM is constrained to the extent that cumulative effects (such as climate change) are only considered in the determination of significance when such effects can be prevented or modified by decision-making (refer to BLM NEPA Handbook, pg.72). While GHG emissions resulting from individual decisions can certainly be modified or potentially prevented by analyzing and selecting reasonable alternatives that appropriately respond to the action’s purpose and need, BLM has limited decision authority to meaningfully or measurably prevent the cumulative climate change impacts that would result from global emissions.

### 4.4.3 Central Pacific Railroad Grade

#### Area of Critical Environmental Concern

The CIAA for the Central Pacific Railroad Grade is the ACEC itself. Historic resources are the identified relevant and important value for the ACEC, which includes all or portions of parcel 018. Impacts to historic resources are discussed in the “Cultural Resources and Historic Context” section below.

#### Cultural Resources and Historic Context

The CIAA for cultural resources is the APE for the project area, which includes the parcels and 0.5 mile buffer around each parcels. However, the CIAA for the CPRR is larger and includes a 5-mile buffer, due to the size and placement of the CPRR on the landscape. Past, present, and reasonably foreseeable activities within the parcels that could have potential cumulative impacts on cultural resources include increased visitation and motorized access into previously inaccessible areas, oil and gas development on other federal or on non-federal land, and livestock grazing. Cumulative impacts include dust accumulation, changes in visitation, inadvertent or advertent (i.e., vandalism and looting) damage to cultural resources, impacts to unidentified Traditional Cultural Properties, increased recreational use, impacts to visual, auditory, or atmospheric cultural aspects, and surface disturbance resulting in various impacts.

Surface disturbance resulting from potential future oil and gas development on other federal or non-federal lands, including road, pipeline and utility line construction, could potentially cause cumulative impacts to cultural resources in the parcels. However, due to the low development potential in Box Elder County, if nearby areas were developed, negligible to minor cumulative impacts to cultural resources that are consistent with those described in Section 4.3.1.3, would be expected to occur.

Additionally, if adjacent SITLA leases were developed, there would be a responsibility to comply with Utah Code Annotated Section 9-8-404, which includes the identification, evaluation, and management of cultural resources within any future development. Therefore, potential cumulative impacts to cultural resources would be minimized. Finally, as the BLM manages the CPRR, any proposed industrial use of the CPRR (e.g., drill rigs accessing the grade) would continue to be subject to the discretion of the BLM and the agency would manage such use to avoid substantial impacts and protect the Historic District’s integrity. Adverse effects would not be expected.

The proposed action, in concert with other past, present and reasonably foreseeable actions may contribute to incremental impacts to cultural and historic resources through direct and indirect impacts, but these would not be expected to increase cumulative effects to levels that would result in a determination of an adverse effect to historic properties within the CIAA.

#### Recreation & Travel and Transportation

The CIAA for recreation resources is the viewshed of the entire Transcontinental Backcountry byway.

May 10, 2019 is the 150<sup>th</sup> anniversary of the completion ceremony of the 1869 Transcontinental Railroad, when the Union Pacific and Central Pacific railroad companies linked tracks at Promontory, Utah with the ceremonial driving of a final golden spike. The State of Utah Governor’s Office has formed a Golden Spike 150<sup>th</sup> planning committee to commemorate the

driving of the golden spike with public events and activities around the May 10<sup>th</sup> anniversary. Public awareness and interest in the Transcontinental Railroad Backcountry Byway will most likely substantially increase in 2019.

An increase in both recreational and industrial traffic as a result of development of federal and/or non-federal leases would likely increase user conflicts along the Transcontinental Railroad grade. Surface-disturbing activities, including development of other federal or non-federal leases, pipeline or rights-of-way construction and maintenance could also contribute to cumulative impacts to the recreational experience. Some recreationists may appreciate the resultant increased access while others may report reduced satisfaction with the visitor experience as a result of the associated visual impacts and industrial traffic.

The proposed action, in concert with other past, present and reasonably foreseeable actions may contribute to incremental impacts to visual resources through direct and indirect impacts, but these would not be expected to increase cumulative effects to levels that would compromise the provision of quality interpretive recreation opportunities within the CIAA.

#### Visual Resources

The CIAA for visual resources is the parcel boundary plus a 5-mile buffer around each parcel to encompass the fore-ground/middle-ground area visible from the parcel.

Past, present, and reasonably foreseeable actions that could impact visual resources in the CIAA may include federal and non-federal oil and gas development, wildland fire scars, fire breaks created with bulldozers, roads, jeep trails, gravel pits, well sites, range troughs and tanks, corral locations, sheep grazing camps, water catchments, and other drainage control structures. While many visual disturbances will remain on the landscape for long periods of time - based on evidence from old CPRR disturbances (e.g., evidence of towns, sidings, equipment, work camps, and materials were once stockpiled) and more recent projects (e.g., abandoned wells, pipelines) – the low density of actions contribute to relatively minor cumulative visual impacts. For example, due to the low development potential in Box Elder County, if adjacent SITLA leases were developed, negligible to minor cumulative impacts to visual resources that are consistent with those described in Section 4.3.1.3 would be expected to occur.

The proposed action, in concert with other past, present and reasonably foreseeable actions may contribute to incremental impacts to visual resources through direct and indirect impacts, but these would not be expected to increase cumulative effects to levels that would compromise the realization of VRM management class objectives within the CIAA.

#### **4.4.4 Geology/Mineral Resources/Energy Production**

The CIAA for geology/mineral resources/energy production is the SLFO planning area.

The past, present, and foreseeable future actions that could impact this resource include development of new and existing mineral, rights-of-way, saleable contracts or permits, and mining claims, non-energy leases, and future federal and non-federal oil and gas leases.

These actions include a September 2018 lease sale in Rich, Summit, and Utah counties, and a March 2019 lease sale in Rich, Morgan and Box Elder counties. Prior to the September 2018 lease sale, the SLFO has 100 authorized leases (183,699 acres)<sup>8</sup>, of which 20 are active leases (24,175 acres), 1 is pending (699 acres), and 79 are in suspension (158,866 acres). No authorized, pending, or suspended BLM leases are located in Box Elder County. Further, six parcels totaling 3,676.83 acres within Box Elder County were recently leased by SITLA, which BLM reasonably assumes have similar RFDs and development potential to the adjacent BLM mineral estate. Any existing or future leases in the CIAA can be reasonably expected to have exploration and potential development.

Additionally, 22 leases were acquired during the March 2019 competitive lease sale that totaled 13,545.18 acres in the SLFO. Twenty leases encompassing 11,907.37 acres are located in Box Elder County. Two leases encompassing 1,637.81 acres are located in Summit County. As of the publication of the Notice of Competitive Lease Sale for June 2019, these 22 leases have not been issued, and are awaiting resolution of the protest comments, and signature of the DR, FONSI to issue the leases. If those leases are issued, the number of authorized leases within the CIAA would increase by 13,545.18 acres totaling (197,244.18 acres). Seven parcels encompassing 6,515.09 acres (located in Rich, and Morgan counties) were postponed from the December and March 2019 lease sale (DOI-BLM-UT-W010-2018-0026-EA). These parcels are currently proposed to be re-analyzed for the September 2019 lease sale.

These cumulative actions may have some negligible to minor cumulative effects on mineral resources due to general extraction of resources and therefore the loss of those minerals, in addition to the potential that some mineral extraction types could conflict with access to other mineral extraction types.

The proposed action, in concert with other past, present and reasonably foreseeable actions may contribute to incremental impacts to mineral resources through direct and indirect impacts, but these would not be expected to increase cumulative effects to levels that would compromise the overall viability of mineral resources within the CIAA.

#### **4.4.5 Wildlife**

##### Big Game

The CIAA for big game species is the UDWR Big Game Management Unit 1, Box Elder. Cumulative impacts may be positive or negative. Past, present and future uses and impacts in the cumulative impact area may include federal and non-federal 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 could 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 may contribute to a reduction in the local abundance of big game species.

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<sup>8</sup> Analysis BLM GIS layers: BLM Utah Oil and Gas Lease, Lands Available Non-Competitively Oil and Gas and Suspended Oil and Gas Leases.

Big game populations are affected by many factors, with habitat one of the main influences, so small isolated disturbances within non-limiting habitats may be of minor consequence. However, larger-scale developments within habitats can limit the abundance and productivity of ungulate populations and are an important concern, especially when impacts are concentrated on winter ranges, migration corridors and stopover points and transitional habitat (Lutz 2011).

The proposed action, in concert with other past, present and reasonably foreseeable actions may contribute to incremental impacts to big game abundance and/or habitat through direct and indirect impacts, but these would not be expected to increase cumulative effects to levels that would compromise the viability of any species/population within the CIAA.

Migratory Birds

The cumulative impact area for migratory birds includes parcels and the Great Salt Lake (GSL) ecosystem. The parcels are between approximately 8 to 15 miles west of the GSL shoreline. The GSL shoreline is included in the CIAA since it is important migratory habitat for numerous species of shore and water birds. The habitat surrounding the southern portion of GSL has been developed, while the northwest portion of the shoreline remains largely undeveloped.

Past, present and future uses and impacts in the cumulative impact area may include federal and non-federal 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.

The proposed action, in concert with other past, present and reasonably foreseeable actions may contribute to incremental impacts to migratory bird abundance and/or habitat through direct and indirect impacts, but these would not be expected to increase cumulative effects to levels that would compromise the viability of any species/populations within the CIAA or the use of broader intact landscapes within or near the CIAA. BLM Sensitive Species

The CIAA was defined for each BLM sensitive species as described in Table 8.

**Table 8. CIAA for BLM Sensitive Species**

Common Name	Scientific Name	CIAA	CIAA Rationale
<b>Birds</b>			
American white pelican	<i>Pelecanus erythrorhynchus</i>	GSL ecosystem	The American white pelican nests at Gunnison Island on the Great Salt Lake and forages up to 100-km from nesting sites. The parcels fall within this foraging buffer, therefore the CIAA is the GSL ecosystem to include a 100-km buffer from the species nesting locations at Gunnison Island.
Burrowing owl	<i>Athene cunicularia</i>	10 km buffer surrounding parcels	Burrowing owls are known to occur within and near parcels. Limited information is available regarding home ranges. Male burrowing owls in Canada were documented foraging up to 6 km from burrow sites. A CIAA of 10 km was used to account for any burrow sites that are on the edge of the 6 km range and for daily movements of individuals.



Common Name	Scientific Name	CIAA	CIAA Rationale
Ferruginous hawk	<i>Buteo regalis</i>	5 mile buffer surrounding parcels	Ferruginous hawks are less likely to flush due to human-related disturbance if disturbances are limited within 648 m of rural nests (Keeley 2011). The CIAA was defined as 5 mile buffer from all parcels to account for the flushing distance and foraging behavior of ferruginous hawks.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Suitable habitat within Box Elder County	Grasshopper sparrows defend breeding territories and are mostly solitary, they may flock while migrating. Their range in northern Utah is limited by available habitat. Therefore the CIAA for grasshopper sparrow includes suitable habitat within Box Elder County.
Long-billed curlew	<i>Numenius americana</i>	GSL ecosystem	Long-billed curlews have been documented moving between 1,737 m ± 591 SD (range 1,172–2,838, n = 8) at non-breeding sites over 2-hr intervals (Mathis 2000). Long-billed curlews may breed in or near the parcels, and utilize habitat near the GSL. Therefore the CIAA is the GSL ecosystem to include a 5-mile buffer surrounding the parcels in addition to the GSL shoreline.
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	7.5 buffer surrounding parcels	No known leks exist within the project area, however suitable habitat may be present. Annual home ranges for the species are small ranging from 15 to 406 ha in Colorado, while observed winter ranges in Wyoming were up to 752 ha (Giesen 1987). A CIAA of 7.5 km buffer surrounding the parcels was applied to account for potential home ranges and the subsequent movement between seasonal habitats, if present.
Snowy plover	<i>Charadrius alexandrinus</i>	GSL ecosystem	Snowy plovers nest at Farmington Bay on the GSL and are a common migrant around the GSL and open habitats. Therefore the CIAA is the GSL ecosystem to include a 5-mile buffer surrounding the parcels in addition to the GSL shoreline.
<b>Mammals</b>			
Kit fox	<i>Vulpes macrotis</i>	10 mile buffer surrounding parcels	Home ranges of kit fox are relatively small (up to 1.2 km) and often overlap. Population level data for this species are unavailable within or near the project area. Therefore a conservative CIAA of a 10 mile buffer surrounding all parcels was selected.
Spotted bat	<i>Euderma maculatum</i>	10 km buffer surrounding parcels	These bats may seasonally roost in rocky desert areas, juniper or sagebrush sites within the lease sale area, and forage up to 10 km from day roost sites. Therefore, a CIAA of 10 km buffer surrounding all parcels was selected.

Past, present and future uses and impacts in the cumulative impact area may include federal and non-federal 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.

The proposed action, in concert with other past, present and reasonably foreseeable actions may contribute to incremental impacts to BLM sensitive species abundance and/or habitat through direct and indirect impacts, but these would not be expected to increase cumulative effects to levels that would compromise the viability of any species/population within the CIAA or the use of broader intact landscapes within or near the CIAA.

## Chapter 5 Consultation and Coordination

### 5.1 Introduction

The issues included in Section 1.6 identifies those that are analyzed in detail in Chapter 4. The IDPRT 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 Contacted/Consulted

Persons, agencies, and organizations that were contacted or consulted during the preparation this EA are identified in Table 9.

**Table 9. List of Contacts and Findings.**

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
National Park Service	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on February 13, 2019. A map and GIS shapefiles were sent to the NPS on February 13, 2019 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 February 13, 2019. An early email was sent February 13, 2019 transmitting the corresponding shapefiles. The location of the June 2019 lease sale does not contain critical yellow-billed cuckoo habitat (refer to Section 3.3.4).
United States Forest Service	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on February 13, 2019. 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 February 13, 2019. An e-mail with GIS shape-files was sent to UDWR to satisfy the requirements of IM-2012-43 on February 13, 2019. Comments or concerns were not expressed.
Utah Division of Wildlife Resources	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on February 13, 2019. An early email was sent on February 13, 2019 transmitting the corresponding shapefiles. Telephone call record for initial coordination on the location of an unofficial greater sage-grouse lek near the Hogup Mountains relative to proposed June Lease Sale and verified that the lek is more than 4 miles from the proposed parcels, therefore there are no applicable greater sage-grouse restrictions (Phone Communication with Utah Division of Wildlife Resources Biologist February 4, 2019). Additional comments were received on March 11, 2019. Concerns were not expressed.
State Institutional Trust Lands Administration	Coordinated with as leasing program partner.	Letter transmitting the preliminary list was sent on February 13, 2019. Comments or concerns were not expressed.
State Historic Preservation Office	Consultation as required by NHPA (16 USC 470)	On 04/05/2019 a determination of No Adverse Effect for the June 2019 Lease Sale Cultural Resources Report was mailed to the UT-SHPO. On 04/08/2019 SHPO concurrence was received.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Pueblo of Jemez, Hopi Tribe, Skull Valley Band of Goshutes, Confederated Tribes of the Goshute Reservation, 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)	On February 11, 2019, SLFO sent an invitation to consult letter to each tribe. Coordination and consultation will continue up until the lease auction, at the request of any tribe. Comments or concerns were not expressed.
Box Elder County	Coordinated with as a leasing program partner.	On February 11, 2019, SLFO sent a letter to the commission, notifying them of the pending lease sale and requesting their comments. Comments or concerns were not expressed.
DOD – Utah Test and Training Range (UTTR)	Coordinated with as leasing program partner.	On February 12, 2019, SLFO emailed the UTTR Commander to discuss a lease notice to help avoid/minimize future conflicts between oil and gas development and UTTR operations in the Military Operating Area and airspace. Additional comments or concerns were not expressed.

### 5.3 Public Participation

#### Scoping Period

The UTSO sent letters/memorandum to the following stakeholders: the National Park Service (NPS), the United States Fish and Wildlife Service (USFWS), the 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. The BLM also provided GIS shapefiles depicting the proposed sale parcels to contact points within the NPS and UDWR. Consultation and coordination efforts are summarized in Table 9.

#### Comment Period

As introduced in Section 1.2, the preliminary EA and the unsigned FONSI were posted and made available for a 15-day public review and comment period (2/15/2019 – 3/4/2019). This effort announced the comment period for this lease sale. The documents were 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 Utah State Office.

Comment letters (4) were received from Southern Utah Wilderness Alliance (SUWA) (Newell and Bloch),<sup>9</sup> Great Salt Lake Audubon (GSLA) (Dove), Utah Rock Art Research Association (URARA) (Acerson), and Hawk Watch International (HWI) (Chabot and Slater). Copies of these letters will be placed on the Utah State Office’s Oil and Gas Leasing NEPA Register. The comment letter topics included concerns over the BLM’s oil and gas leasing policies, oil and gas stipulations for historic properties, raptors (including the golden eagle), NEPA adequacy

<sup>9</sup> SUWA also submitted its comments on behalf of Center for Biological Diversity, National Parks Conservation Association, and Western Watersheds Project.

(cumulative impacts, deferring analysis to APD stage and range of alternatives), and compliance with existing laws.

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.

The letters received were considered substantive. Some content from these letters were not specific enough to meet the criteria in Section 6.9.2.1 of the NEPA Handbook. As defined in the NEPA Handbook (page 40), “an ‘issue’ is a point of disagreement, debate, or dispute with a proposed action based on some anticipated environmental effect. An issue is more than just a position statement, such as disagreement with grazing on public lands. An issue:

- Has a cause and effect relationship with the proposed action or alternatives;
- Is within the scope of the analysis;
- Has not been decided by law, regulation, or previous decision; and
- Is amenable to scientific analysis rather than conjecture.”

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 I.

#### Protest Period

As introduced in Section 1.2, the revised EA and the unsigned FONSI will be posted and made available for a 10-day public protest period. Similar to the comment period, documents will be posted and maintained on webpage and the NEPA Register.

#### 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.

Tribal and SHPO consultation efforts are summarized in Section 5.2 and Appendix D.

On February 25, 2019 BLM Utah State Office posted on ePlanning a notice that any parties with a demonstrated interest could submit their interest to the Utah State Office in written form. The BLM UTSO received a request to consult from the Southern Utah Wilderness Alliance (SUWA) on March 4<sup>th</sup>, 2019, however, the BLM denied this request with the support of the Utah State Historic Preservation Office, on the basis that SUWA has repeatedly failed to offer constructive

information during oil and gas lease sale consultations. The Utah Rock Art Research Association requested consulting party status informally, and was provided time to comment on the draft report but did not provide any input. No other consulting parties requested consulting party status. On April 5<sup>th</sup> 2019, a copy of the final version of the June 2019 Lease Salt Cultural Resources Report was emailed to Box Elder and Sevier County Commissioners.

### **5.3.1 Modifications Based on 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 deleting redundancies. The current month/year was replaced on the title page and the page headers to distinguish from the comment period version of the EA.
2. Sections 2.1 and 2.5 were edited to include additional discussion regarding alternatives identified during the comment period.
3. Section 2.2.3 was edited to include a new discussion at the Oil and Gas Fields subheading.
4. Section 3.2 was edited at Table 1 to include a footnote.
5. Sections 3.3.3 and 4.3.1.3 were edited to included additional information at the Cultural Resources and Historic Context subheading.
6. Section 4.3.1.2 was edited to correct and update calculations in the Downstream Greenhouse Gas Emissions subheading.
7. Section 4.3.1.5 was edited to clarify impacts in the BLM Sensitive Species subheading.
8. Section 4.4 was edited to include a discussion of SITLA lease sales, the March 2019 lease sale and potential future lease sales.
9. Section 4.4.5 was edited to refine the CIAA and impact analysis for the Migratory Birds subheading.
10. Section 5.2 was reviewed and edited to include Table 9 updates.
11. Section 5.3 was edited to include a summary of the public comments in the Comment Period subheading. Additional information was included in the NHPA subheading.
12. Section 5.3.1 was included to summarize changes to the EA based on the comment period.
13. Section 5.4 was edited to include specialists who worked on this EA in Table 10.
14. Chapter 6, Appendix A and B were reviewed and updated to include only those stipulations and notices applicable to these parcels.
15. Chapter 6, Appendix D was reviewed and updated by the specialists when warranted.
16. Chapter 6, Appendix E was reviewed and updated to include only those references utilized in preparing this EA. Redundant citations were eliminated and improperly cited references were corrected.
17. Chapter 6, Appendix I was edited to include public comments and BLM's responses.

## 5.4 Preparers

An IDPRT prepared the document and analyzed the impact of the proposed action upon the various resources (Table 10). They considered the affected environment and documented their determination in the IDPRT Checklist (Appendix D). Only those resources that would likely be impacted were carried forward into the body of the EA for further analysis.

**Table 10. Preparers of This EA.**

<b>Name</b>	<b>Title</b>	<b>Responsible for the Following Section(s) of this Document</b>
Todd Marks	Geologist	Project Co-Lead
Michael Terlep	Archaeologist	NHPA Compliance
Ray Kelsey	Outdoor Recreation Planner	Recreation, Travel & Transportation, Visual Resources
Emily Jencso	Wildlife Biologist	Threatened, Endangered, Candidate and Sensitive Species (Terrestrial Fauna); Migratory Birds, and general wildlife.
Renee Chi	Wildlife Biologist	Greater Sage-Grouse
Pamela Schuller	Environmental Coordinator	NEPA Compliance; Air Quality; Greenhouse Gases, Native American Consultation
Allison Ginn	Assistant Field Manager	Project Lead, Review and Oversight
Matt Preston	Field Manager	Review and Oversight
Marcia Wineteer	Botanist	Oil and Gas Leasing Program, USFWS Consultation
Erik Vernon	Air Quality Specialist	Oil and Gas Leasing Program, Air Quality; Greenhouse Gases.
Robin Naeve	Fluid Minerals Branch Chief	Oil and Gas Leasing Program Review and Oversight
Leslie Wilken	Land Law Examiner	Oil and Gas Leasing Program, Parceling
Sheri Wysong	Natural Resource Specialist	Oil and Gas Leasing Program, Leasing Coordinator and Special Designations
Glenn Stelter	Archaeologist	Oil and Gas Leasing Program, NHPA Compliance
Angela Wadman	Natural Resource Specialist	Project Co-Lead, Oil and Gas Leasing Program
Leah Waldner	Natural Resource Specialist	Oil and Gas Leasing Program, Leasing Coordinator
Travis Kern	Acting Fluid Minerals Branch Chief	Oil and Gas Leasing Program Review and Oversight
Karen Cathey	Natural Resource Specialist t	Oil and Gas Leasing Program, USFWS Consultation

Refer also to the specialists as identified in Appendix D (IDTPR Checklist).

## **Chapter 6 Appendices**

- A. Parcel List with Stipulations and Notices
- B. Stipulations and Notices
- C. Figures (Maps)
- D. Interdisciplinary Parcel Review Team Checklist
- E. References
- F. Acronyms/Abbreviations
- G. Statutes, Regulations, or Other Plans
- H. Background Air Quality and Climate Change/Greenhouse Gases Information
- I. 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:

<b>Stipulations</b>	<b>Notices</b>
Cultural Resources Protection (Handbook H-3120-1)	UT-LN-37: Bald Eagle Habitat
Threatened & Endangered Species Act (Handbook H-3120-1)	UT-LN-39: Golden Eagle Nest Sites and Territories
UT-S-423: CSU/TL-Bald Eagle Roost Sites	UT-LN-40: Golden Eagle Habitat
UT-S-424CSU/TL-Raptor Nesting Sites	UT-LN-44: Raptors
UT-S-427: TL-Waterfowl Habitat	UT-LN-45: Migratory Birds
UT-S-133A: CSU-Live Water	UT-LN-49: Utah Sensitive Species
	UT-LN-52: Noxious Weeds
	UT-LN-53: Riparian Areas
	UT-LN-68: Notification and Consultation Regarding Cultural Resources
	UT-LN-69: High Potential For Cultural Resources
	UT-LN-70: High Potential For Cultural Resource Occurrence
	UT-LN-84: Utah Test And Training Range Military Operations Area (MOA)
	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-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-143: Raptor
	UT-LN-158: Waterfowl and Shorebirds
	UT-LN-159: Central Pacific Railroad Grade Access

**UT0619 – 014**

T. 7 N., R. 11 W., SLM

Sec. 18: All.

640.00 Acres

Box Elder County, Utah

Salt Lake Field Office

**Stipulations**

UT-S-425 CSU-Slopes in Excess of 30 Percent

**Notices**

As identified above.

**UT0619 – 015**

T. 7 N., R. 12 W., SLM

Secs. 10 and 12: All.

1,280.00 Acres

Box Elder County, Utah

Salt Lake Field Office

Stipulations

UT-S-133: CSU-Riparian/Aquatic Habitats

UT-S-425: CSU-Slopes in Excess of 30 Percent

Notices

As identified above.

**UT0619 – 016**

T. 8 N., R. 13 W., SLM

Secs. 4, 6 and 8: All.

2,157.41 Acres

Box Elder County, Utah

Salt Lake Field Office

Stipulations

UT-S-133: CSU-Riparian/Aquatic Habitats

UT-S-425: CSU-Slopes in Excess of 30 Percent

Notices

UT-LN-14: Pronghorn Fawning Habitat

**UT0619 – 017**

T. 8 N., R. 13 W., SLM

Secs. 10 and 12: All.

1,267.90 Acres

Box Elder County, Utah

Salt Lake Field Office

Stipulations

UT-S-133: CSU-Riparian/Aquatic Habitats

UT-S-425: CSU-Slopes in Excess of 30 Percent

Notices

UT-LN-14: Pronghorn Fawning Habitat

**UT0619 – 018**

T. 9 N., R. 13 W., SLM

Secs. 4 and 8: All.

1,274.82 Acres

Box Elder County, Utah

Salt Lake Field Office

Stipulations

As identified above.

Notices

UT-LN-14: Pronghorn Fawning Habitat

UT-LN-160: Central Pacific Railroad Grade Historic District

**UT0619 – 019**

T. 9 N., R. 13 W., SLM

Secs. 24, 26, 28 and 34: All.

2,560.00 Acres

Box Elder County, Utah

Salt Lake Field Office

Stipulations

UT-S-133: CSU-Riparian/Aquatic Habitats

UT-S-425: CSU-Slopes in Excess of 30 Percent

Notices

UT-LN-14: Pronghorn Fawning Habitat

**UT0619 – 020**

T. 9 N., R. 13 W., SLM

Sec. 30: All.

642.39 Acres

Box Elder County, Utah

Salt Lake Field Office

Stipulations

UT-S-133: CSU-Riparian/Aquatic Habitats

Notices

As identified above.

**Appendix B – Stipulations and Notices**

**Stipulation Summary Table**

NUMBER	UTAH STIPULATIONS
<p><b>Cultural Resources (Handbook H-3120-1)</b></p>	<p style="text-align: center;"><b>CULTURAL RESOURCE PROTECTION</b></p> <p>This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.</p>
<p><b>Endangered Species Act (Handbook H-3120-1)</b></p>	<p style="text-align: center;"><b>THREATENED AND ENDANGERED SPECIES ACT</b></p> <p>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.</p>
<p><b>UT-S-133A</b></p>	<p style="text-align: center;"><b>CONTROLLED SURFACE USE – LIVE WATER</b></p> <p>No occupancy will be allowed within 1,200 feet of live water.  <b>Exception:</b> None  <b>Modification:</b> This distance may be modified when specifically approved in writing by the authorize officer of the BLM.  <b>Waiver:</b> None</p>
<p><b>UT-S-133</b></p>	<p style="text-align: center;"><b>CONTROLLED SURFACE USE – RIPARIAN/AQUATIC HABITATS</b></p> <p>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 within 1,200 feet of riparian/aquatic habitat yearlong, if the proposed activity could significantly impact water quality or productivity of the riparian/wetland zone.  <b>Exception:</b> 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.  <b>Modification:</b> None.  <b>Waiver:</b> None</p>
<p><b>UT-S-423</b></p>	<p style="text-align: center;"><b>CONTROLLED SURFACE USE/TIMING LIMITATION – BALD EAGLE ROOST SITES</b></p> <p>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 within 0.5 miles of bald eagle roost sites between November 15 and March April 15.  <b>Exception:</b> 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.  <b>Modification:</b> None  <b>Waiver:</b> None</p>

NUMBER	UTAH STIPULATIONS
<p><b>UT-S-424</b></p>	<p align="center"><b>CONTROLLED SURFACE USE/TIMING LIMITATION –RAPTOR NESTING SITES</b></p> <p>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 within 0.5 miles of active raptor nest sites between January 1 to August 31 of each year or year-long if the disturbance would negatively impact the suitability of the site for future nesting.</p> <p><b>Exception:</b> 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.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
<p><b>UT-S-425</b></p>	<p align="center"><b>CONTROLLED SURFACE USE – SLOPES IN EXCESS OF 30 PERCENT</b></p> <p>In order to protect crucial watershed areas, no occupancy or other surface disturbance will be allowed on slopes in excess of 30 percent. This limitation does not apply to maintenance and operation of producing wells.</p> <p><b>Exception:</b> Specific exceptions may be granted by BLM if it can be shown that the proposed activity will not seriously disturb the habitat values being protected.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
<p><b>UT-S-427</b></p>	<p align="center"><b>TIMING LIMITATION – WATERFOWL HABITAT</b></p> <p>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 within waterfowl habitat (marsh and wetland areas).</p> <p><b>Exception:</b> 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.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>

**Notice Summary Table**

NUMBER	UTAH LEASE NOTICES
<b>UT-LN-14</b>	<p style="text-align: center;"><b>PRONGHORN FAWNING HABITAT</b></p> <p>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.</p>
<b>UT-LN-37</b>	<p style="text-align: center;"><b>BALD EAGLE HABITAT</b></p> <p>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.</p>
<b>UT-LN-39</b>	<p style="text-align: center;"><b>GOLDEN EAGLE NESTING SITES AND TERRITORIES</b></p> <p>The lessee/operator is given notice that this lease has been identified as containing golden eagle nest sites. No surface use or otherwise disruptive activity allowed which would disrupt golden eagle breeding activities within 0.5 mile of an occupied nest from January 1 through August 31 or until fledgling and dispersal of young. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms, the Bald and Golden Eagle Protection Act and 43CFR3101.1-2.</p>
<b>UT-LN-40</b>	<p style="text-align: center;"><b>GOLDEN EAGLE HABITAT</b></p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing Golden Eagle Habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect the Golden Eagle and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.</p>
<b>UT-LN-44</b>	<p style="text-align: center;"><b>RAPTORS</b></p> <p>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 3-5 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.</p>
<b>UT-LN-45</b>	<p style="text-align: center;"><b>MIGRATORY BIRD</b></p> <p>The lessee/operator is given notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within priority habitats. Surveys should focus on identified priority bird species in Utah. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations.</p>

NUMBER	UTAH LEASE NOTICES
UT-LN-49	<p style="text-align: center;"><b>UTAH SENSITIVE SPECIES</b></p> <p>The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, Migratory Bird Treaty Act and 43 CFR 3101.1-2.</p>
UT-LN-52	<p style="text-align: center;"><b>NOXIOUS WEEDS</b></p> <p>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. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
UT-LN-53	<p style="text-align: center;"><b>RIPARIAN AREAS</b></p> <p>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.</p>
UT-LN-68	<p style="text-align: center;"><b>NOTIFICATION &amp; CONSULTATION REGARDING CULTURAL RESOURCES</b></p> <p>The lease area may now or hereafter be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), the Archaeological Resources Protections Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), other statues and Executive Order 13007, and which may be of concern to Native American tribes, interested parties, and the State Historic Preservation Officer (SHPO). BLM will not approve any ground disturbing activities as part of future lease operations until it completes applicable requirements of the National Historic Preservation Act (NHPA), including the completion of any required procedure for notification and consultation with appropriate tribe(s) and/or the SHPO. BLM may require modifications to exploration and development proposals to further its conservation and management objectives on BLM-approved activities that are determine to affect or impact historic or cultural properties and/or resources.</p>
UT-LN-69	<p style="text-align: center;"><b>HIGH POTENTIAL FOR CULTURAL RESOURCES</b></p> <p>This parcel is located in an area of high concentrations of cultural resources. Known cultural sites are fragile and many are buried under sandy deposits which migrate due to their susceptibility to wind. These sites, or large portions, are not visible from the surface. Therefore, the following mitigation measures may be applied to any surface disturbance of this parcel: 1) pre-surface disturbance cultural resource inventories; 2) pre-surface disturbance subsurface testing; 3) monitoring of ground disturbance; and 4) post-disturbance monitoring identifying resources as the soils stabilize around a project.</p>
UT-LN-70	<p style="text-align: center;"><b>HIGH POTENTIAL FOR CULTURAL RESOURCE OCCURRENCE</b></p> <p>The lessee/operator is given notice that lands in this lease contain significant Cultural Resources. Modifications to the Surface Use Plan of Operations may be required for the protection of these resources. Class III level block inventories may be required to determine resource location and possible impact to the resource.</p>
UT-LN-84	<p style="text-align: center;"><b>UTAH TEST AND TRAINING RANGE MILITARY OPERATIONS AREA (MOA)</b></p>

NUMBER	UTAH LEASE NOTICES
	<p>All or portions of this parcel are located underneath Utah Test and Training Range (UTTR) Airspace. The airspace is comprised of Military Operations Areas and Restricted Airspace. Due to potential interference with military operations, operations on the lease may be subject to special conditions such as:</p> <ol style="list-style-type: none"> <li>1. The MOA air space starts at 100 ft. above ground surface. No towers or rigs may be installed in excess of 99 ft. above ground level (AGL) without UTTR coordination.</li> <li>2. Remote sensing, lights, heat producing engines, reflective surfaces such as fluid pits, or other contrivances used in fluid minerals operation could cause interference with military operations, and their use may be restricted.</li> </ol> <p>Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
<p><b>UT-LN-96</b></p>	<p style="text-align: center;"><b>AIR QUALITY MITIGATION MEASURES</b></p> <p>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.</p> <ul style="list-style-type: none"> <li>• All internal combustion equipment would be kept in good working order.</li> <li>• Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer.</li> <li>• Open burning of garbage or refuse would not occur at well sites or other facilities.</li> <li>• Drill rigs would be equipped with Tier II or better diesel engines.</li> <li>• 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.</li> <li>• Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers.</li> <li>• During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible.</li> <li>• Well site telemetry would be utilized as feasible for production operations.</li> <li>• Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr for engines &lt;300HP; and 1g NOx/bhp-hr for engines &gt;300HP.</li> </ul> <p>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.</p>
<p><b>UT-LN-99</b></p>	<p style="text-align: center;"><b>REGIONAL OZONE FORMATION CONTROLS</b></p> <p>To mitigate any potential impact oil and gas development emissions may have on regional ozone formation, the following Best Management Practices (BMPs) would be required for any development projects:</p> <ul style="list-style-type: none"> <li>• Tier II or better drilling rig engines</li> <li>• Stationary internal combustion engine standard of 2g NOx/bhp-hr for engines &lt;300HP and 1g NOx/bhp-hr for engines &gt;300HP</li> <li>• Low bleed or no bleed pneumatic pump valves</li> <li>• Dehydrator VOC emission controls to +95% efficiency</li> <li>• Tank VOC emission controls to +95% efficiency</li> </ul>



NUMBER	UTAH LEASE NOTICES
<p><b>UT-LN-101</b></p>	<p style="text-align: center;"><b>AIR QUALITY</b></p> <p>All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 grams of NO<sub>x</sub> 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 NO<sub>x</sub> 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.</p>
<p><b>UT-LN-102</b></p>	<p style="text-align: center;"><b>AIR QUALITY ANALYSIS</b></p> <p>The lessee/operator is given notice that prior to project-specific approval, additional air quality analyses may be required to comply with the National Environmental Policy Act, Federal Land Policy Management Act, and/or other applicable laws and regulations. Analyses may include dispersion modeling and/or photochemical modeling for deposition and visibility impacts analysis, control equipment determinations, and/or emission inventory development. These analyses may result in the imposition of additional project-specific air quality control measures.</p>
<p><b>UT-LN-107</b></p>	<p style="text-align: center;"><b>BALD EAGLE</b></p> <p>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 <u>temporary</u> action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> 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 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.</p> <p>Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> <li>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.</li> <li>2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated.</li> <li>3. Water production will be managed to ensure maintenance or enhancement of riparian habitat.</li> <li>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.</li> <li>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.</li> <li>6. No permanent infrastructure will be placed within 1.0 mile of nest sites.</li> <li>7. No permanent infrastructure will be placed within 0.5 miles of winter roost areas.</li> <li>8. Remove big game carrion from within 100 feet of lease roadways occurring within bald eagle foraging range.</li> <li>9. Avoid loss or disturbance to large cottonwood gallery riparian habitats.</li> <li>10. Where technically and economically feasible, use directional drilling or multiple wells</li> </ol>

NUMBER	UTAH LEASE NOTICES
	<p>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.</p> <p>11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species.</p> <p>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.</p>
<p><b>UT-LN-128</b></p>	<p style="text-align: center;"><b>FLOODPLAIN MANAGEMENT</b></p> <p>The lessee/operator is given notice that, in accordance with Executive Order 11988, to avoid adverse impact to floodplains 1) facilities should be located outside the 100 year floodplain, or 2) would be minimized or mitigated by modification of surface use plans within floodplains present within the lease.</p>
<p><b>UT-LN-143</b></p>	<p style="text-align: center;"><b>RAPTOR</b></p> <p>The lessee/operator is given notice that 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 BMPs 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(survey) 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 to 5 days of notification. Any construction activities authorized within a protective (spatial and seasonal) buffer for raptors will require an onsite monitor. Any indication that activities are adversely affecting the raptor and/or its young the onsite 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.</p>
<p><b>UT-LN-158</b></p>	<p style="text-align: center;"><b>WATERFOWL AND SHOREBIRDS</b></p> <p>The lessee/operator is given notice that this lease has been identified as containing waterfowl and shorebird habitat. The area of this parcel is within the vicinity of the Great Salt Lake and migratory bird flyways. Produced water and pits may require netting or other devices that deter use by these species and prevent access and mortality of birds and other animals. In addition, the operator is required to monitor open pits, produced water, and other BMPS listed in “The Gold Book.” Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
<p><b>UT-LN-159</b></p>	<p style="text-align: center;"><b>CENTRAL PACIFIC RAILROAD GRADE ACCESS</b></p> <p>The lessee/operator is given notice that accessing lease parcels from, on or across the Central Pacific Railroad Grade for exploration, drilling, construction, or other activities may be limited or prohibited to protect the Historic District’s integrity. Based on the result of the field survey associated with the review of the Surface Use Plan of Operations, the authorized officer will determine appropriate buffers, road designs and road crossings, if applicable. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
<p><b>UT-LN-160</b></p>	<p style="text-align: center;"><b>CENTRAL PACIFIC RAILROAD GRADE HISTORIC DISTRICT</b></p> <p>The lessee/operator is given notice that lands in this lease are near the East and West Central Pacific and Union Pacific Railroad Grades [The Pacific Railroad Act of 1862](Central Pacific</p>

NUMBER	UTAH LEASE NOTICES
	<p>Railroad Grade), a Historic District listed on the National Register of Historic Places (NRHP). This resource is protected by the Cultural Resources stipulation, as established in Handbook H-3120-1. To avoid adverse effects to the Historic District (36CFR800.5.a.1), appropriate avoidance, minimization, or mitigation may be required to protect the integrity of the Historic District (e.g., the grade, town sites, sidings, trestles and culverts, as well as the associated setting)(36CFR800.6). The use of heavy equipment/haul trucks on the grade, or crossing the grade, may not be permitted, as the grade is not engineered for such frequent heavy loads. Additionally, to protect the Historic District’s integrity (36CFR60.4), some or all aboveground operational structures and roads that are visible from the grade may need to be appropriately mitigated. Coordination with the National Park Service by the BLM may be necessary. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>

**Appendix C – Figures/Maps**

1. Lease Sale Parcel Overview
2. Central Pacific Railroad Grade
3. Visual Resource Management Class
4. Pronghorn Habitat

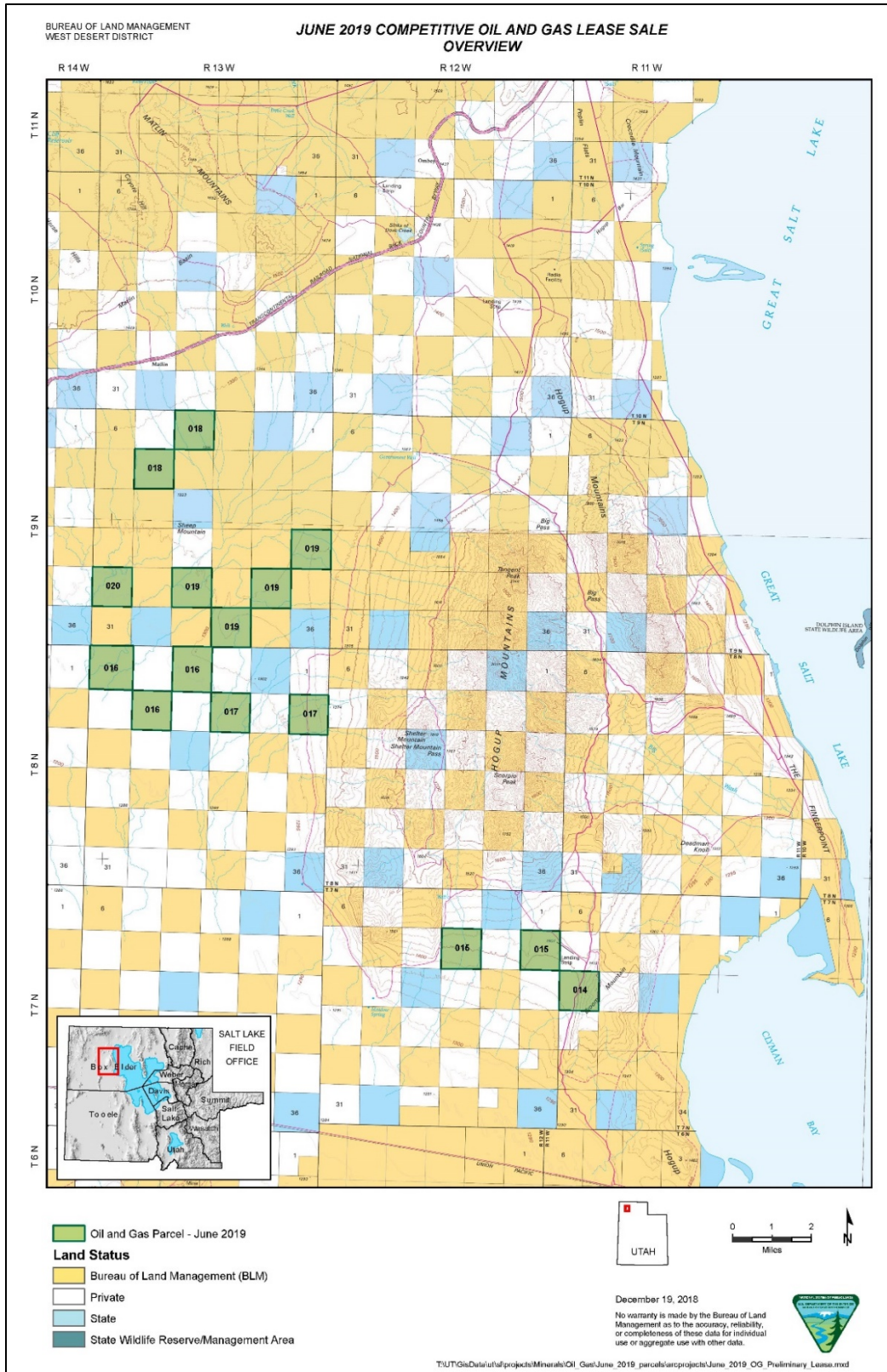


Figure 1. Lease Sale Parcel Overview.

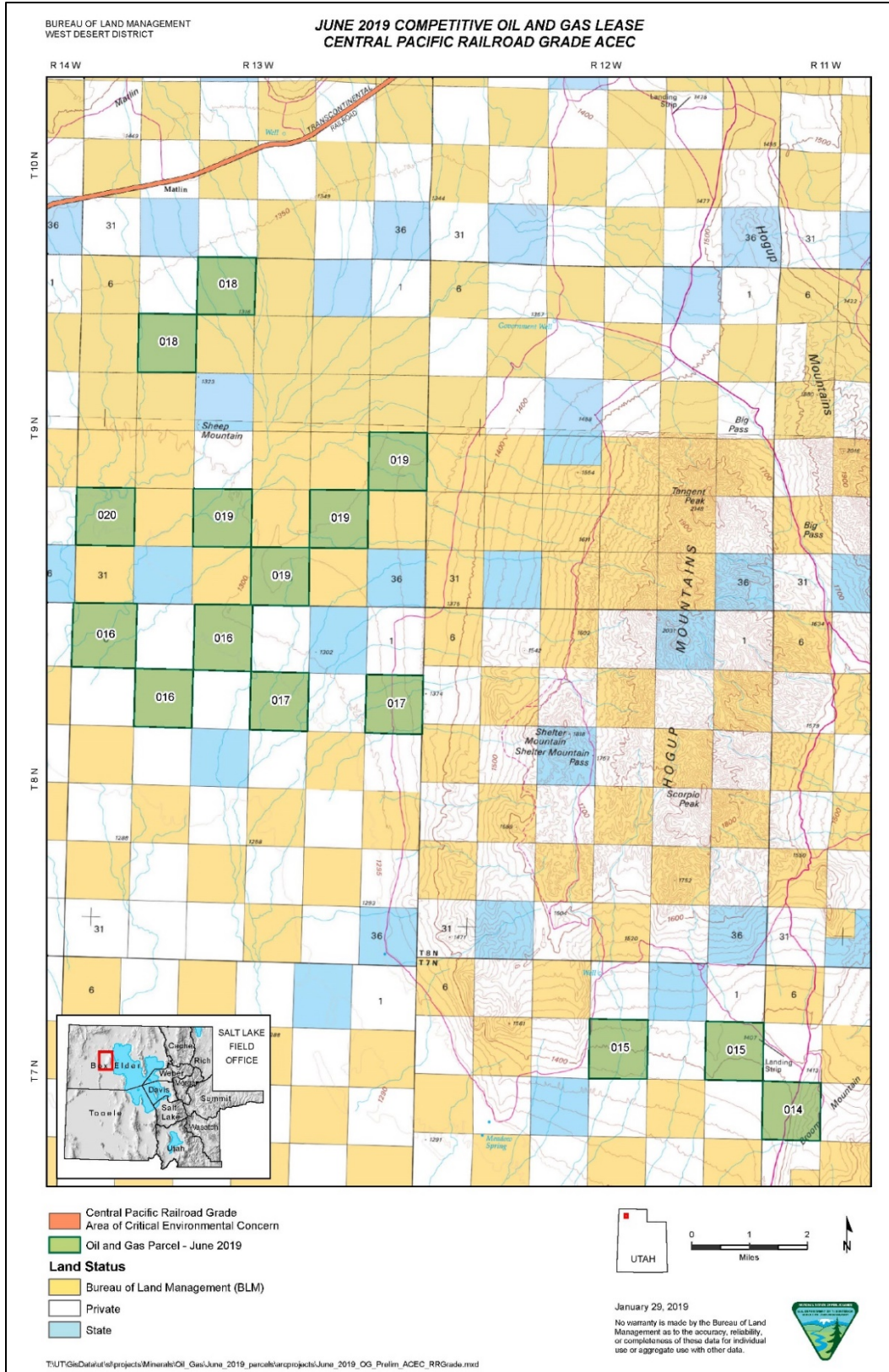


Figure 2. Central Pacific Railroad Grade.

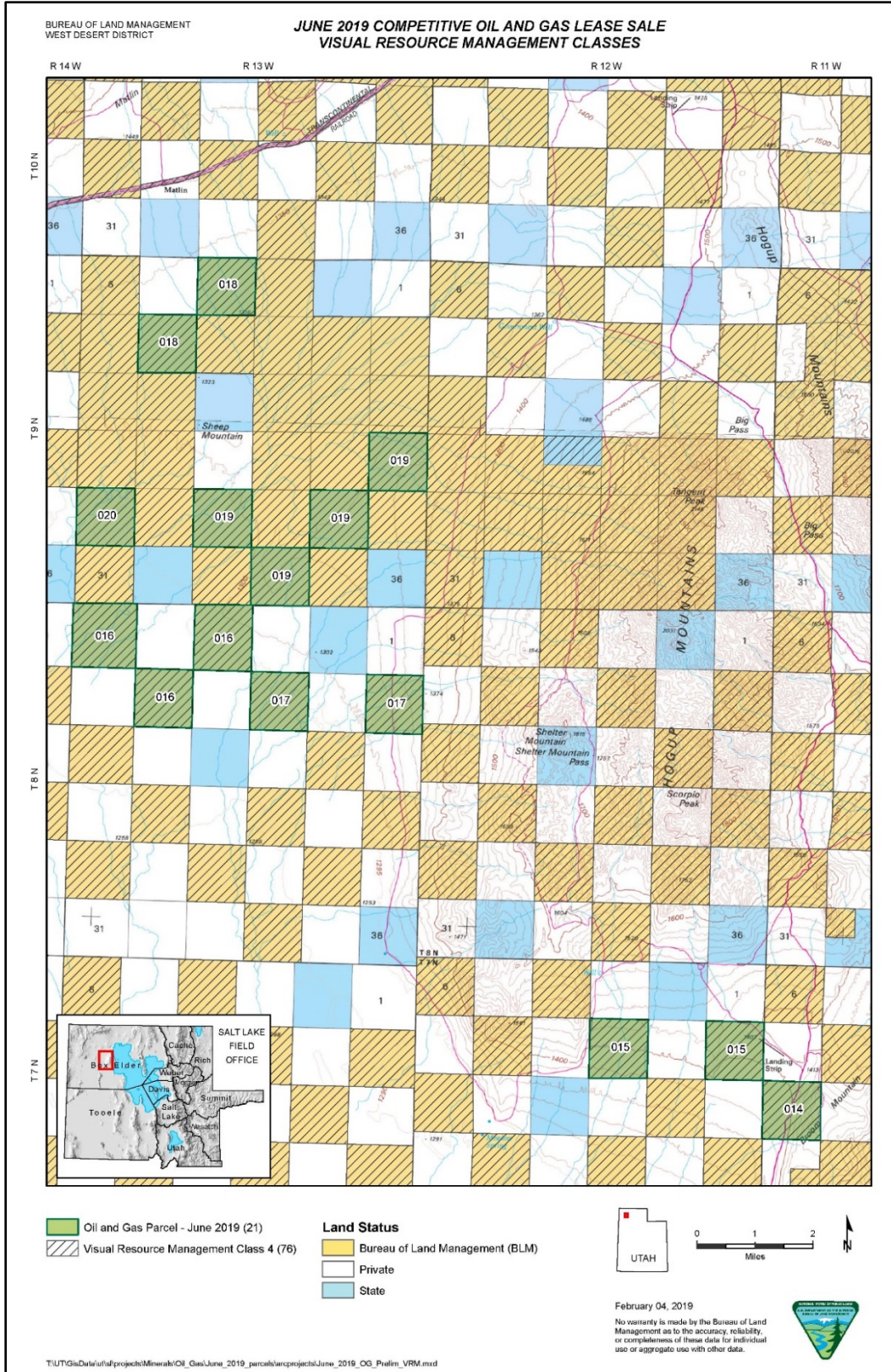
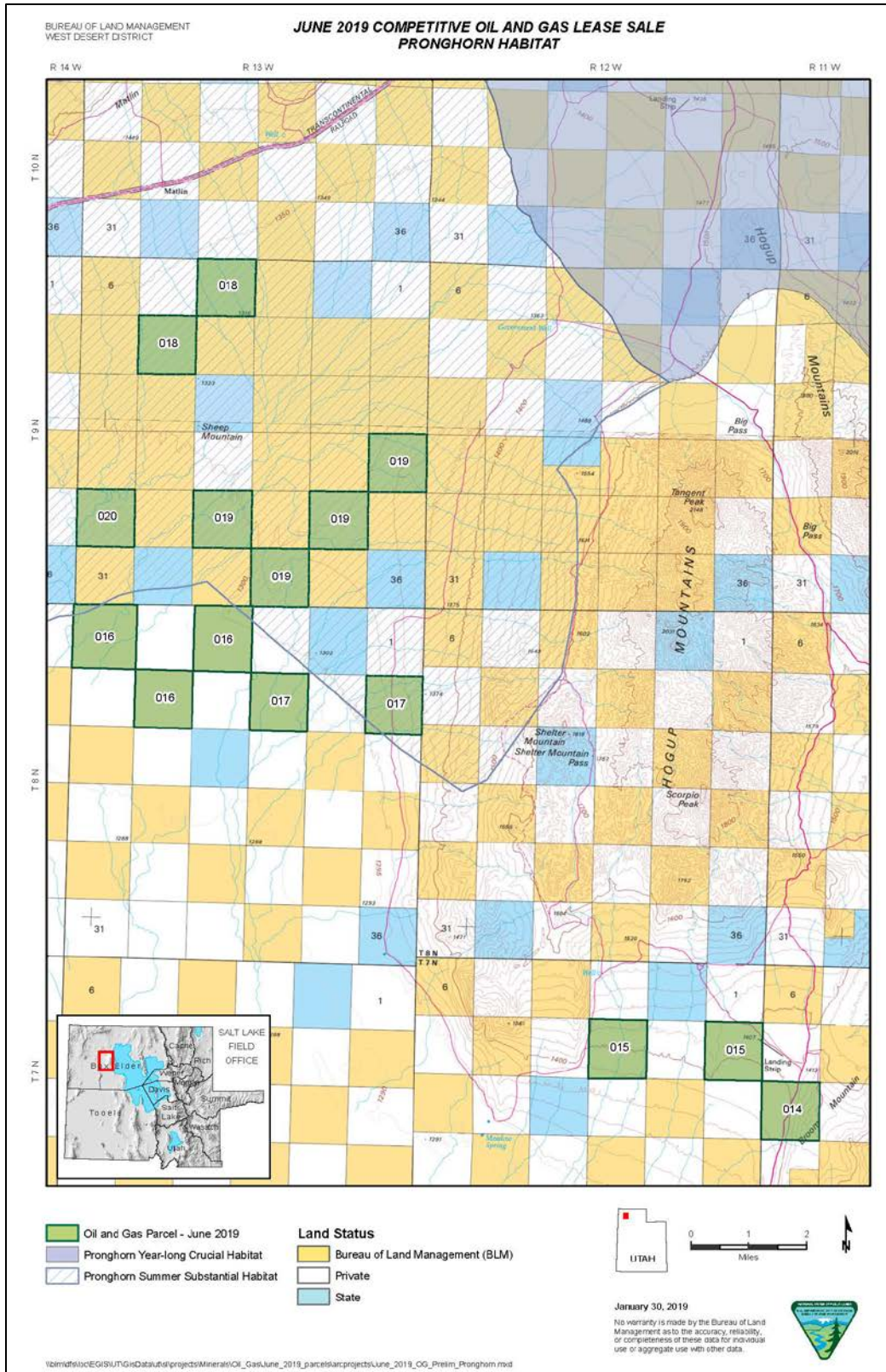


Figure 3. Visual Resource Management Class.



**Figure 4. Pronghorn Habitat.**



**Appendix D – Interdisciplinary Parcel Review 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

Determination	Resource	Rationale for Determination	Assigned & Date
Resources And Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
PI	Air Quality	<p>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. All parcels are within an attainment area. Background information is contained in Appendix H.</p> <p>Application of 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.</p>	<p>Pamela Schuller 1/29/19 Erik Vernon 4/22/19</p>
PI	Climate Change / Greenhouse Gases	<p>Greenhouse Gases are composed mostly of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, &amp; SF<sub>6</sub>. Primary sources of GHG emissions include fossil fuel combustion, fugitive CH<sub>4</sub>, and combustion of produced oil and gas. GHG emissions could occur from construction, drilling, and production equipment and end use of the product(s). Background information is contained in Appendix H. Refer to the notices applied for Air Quality.</p>	<p>Pamela Schuller 1/29/19 Erik Vernon 4/22/19</p>
PI	Areas of Critical Environmental Concern	<p>The parcels do not overlap any designated ACECs. However, convenient access to these parcels would likely require travel/crossing the Central Pacific Railroad Grade ACEC. UT-LN-159 (Central Pacific Railroad Grade Access) would be applied to all parcels to prevent degradation of the grade, which would mitigate potential negative impacts to the ACEC. UT-LN-160 (Central Pacific Railroad Grade Cultural Historic District) would be applied to parcels within five miles of the railroad grade (Parcel 018). Historic and cultural resources are the identified relevant and important value for the ACEC; impacts to historic and cultural resources are discussed in the CPRR section of Chapters 3 and 4.</p>	<p>Ray Kelsey 2/7/19</p>
PI	Cultural Resources	<p>To comply with Section 106 of the NHPA, a cultural resources literature review has been undertaken and a report is currently in progress. Upon completion, the 2019 June Lease Sale Cultural Resources Report will be sent to consulting parties for review.</p> <p>With the exception of access on/around the CPRR, known cultural resources (e.g., prehistoric and historic resources) may be impacted, but are located in such a fashion (size, density, and placement) that avoidance is feasible during exploration for oil/gas resources. No impact is expected to these cultural resources (NI) for all parcels except Parcel 018. There is potential for impact (PI) to the CPRR itself and to parcels within five miles of the grade (Parcel 018) from the proposed action.</p> <p>The Cultural Resources Protection Stipulation would be applied to all parcels and access to those parcels. The Cultural Resource Stipulation (H 3120-1) states: This lease, or access to, 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.</p>	<p>Michael Terlep 4/1/19</p>

Determination	Resource	Rationale for Determination	Assigned & Date
		<p>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. Therefore, direct and indirect effects to the CPRR will be avoided, minimized or mitigated through secondary 106 consultation at APD and the judicious use of the cultural stipulation. UT-LN-68 (Notification &amp; Consultation Regarding Cultural Resources), UT-LN-69 (High Potential for Cultural Resources), UT-LN-70 (High Potential for Cultural Resource Occurrence) and UT-LN-159 (Central Railroad Pacific Grade Access) would be applied to all parcels. UT-LN-160 (Central Pacific Railroad Grade Cultural Historic District) would be applied to parcels within five miles of the railroad grade (Parcel 018). Notice UT-LN-159 (Central Railroad Pacific Grade Access) would be applied to all parcels. BLM Handbook 8400 (BLM 1984) directs that the agency must ensure that visual impacts are minimized in all resource development activities. Should oil and gas development occur on lands managed by the BLM, the facilities associated with the development would be painted a Standard Environmental Color to better blend in with the background to limit visual impacts to the CPRR. Likewise, implementing additional design features, such as strategic well placement, can avoid visual, auditory, and atmospheric impacts to historic properties.</p> <p>At the APD stage, Class III surveys would be completed and any appropriate mitigation (avoidance, minimization, or mitigation) would be applied through a COA. Avoidance of historic properties generally would not preclude surface development within the parcel and extraction of the leased minerals. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.</p> <p>SHPO consultation is ongoing.</p>	
NI	Environmental Justice	<p>As defined in EO 12898, minority and low income populations do occur within or use areas within Box Elder County. 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 parcels would not cause any disproportionately 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.</p>	<p>Pamela Schuller 1/30/19</p>
NI	Farmlands (Prime or Unique)	<p>Soil map units that are classified by the NRCS as farmland may intersect these parcels. 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.</p>	<p>Brett Burgess 1/30/19</p>
NP	Fish Habitat	<p>There are no current or historic fish habitat present in these parcels. Any intermittent drainages are also part of the Great Salt Lake Basin and do not flow downstream into any fish bearing water bodies.</p>	<p>Cassie Mellon 2/1/19</p>
NI	Fuels/Fire Management	<p>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</p>	<p>Randy Kyes 1/30/19</p>

Determination	Resource	Rationale for Determination	Assigned & Date
		increase of hazardous fuels. Fuels and fire management would not be impacted by the lease process. BMPs, SOPs, and site specific mitigation may be applied at the APD stage as COAs.	
PI	Geology / Mineral Resources/ Energy Production	<p>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. 6) where siting and design of facilities may be modified to protect other resources.</p> <p>Depending on the success of oil and gas drilling, non-renewable natural gas and/or oil would be extracted and delivered to market. Production would result in the irretrievable loss of these resources. The RFDS is documented at section 2.2.1. The proposed action would not exceed the level of activity predicted in the RFDS.</p> <p>Any oil and gas development can be managed to avoid or work within other mineral resources. Mining claims and mineral materials were reviewed on 1/30/2019. No active placer claims or mineral material sites were found to be associated within any parcel.</p> <p>If the parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information is provided in Sections 2.2.2 through 2.2.6 “FracFocus,” is a database available to the public online at <a href="http://fracfocus.org/">http://fracfocus.org/</a>. The public have expressed concerns that:</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• Injection of hydraulic fracturing fluids into wells with inadequate mechanical integrity, allowing gases or liquids to move to groundwater resources; and,</li> <li>• Discharge of inadequately treated hydraulic fracturing wastewater to surface water resources.</li> </ul> <p>The parcels in Box Elder County are located in a piedmont basin and ground water is recharged at the basin margin (mountain-front recharge). The groundwater for these parcels would be brackish and could contain a high salinity and calcium bicarbonate content and the potential for potable water sources would be from springs and if any, shallow aquifers. Before operators or service companies preform hydraulic fracturing treatment, a series of tests are preformed to ensure well, casing, and well equipment are in proper order and will safely withstand the application of the fracture treatment pressures and flow rates. Operators must comply with O.O. #2 and O.O. # 7. 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 for the Box Elder County Parcels (EPA 2016 p. 27).</p> <p>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</p>	Angela Wadman 1/30/19

Determination	Resource	Rationale for Determination	Assigned & Date
		<p>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).</p> <p>Negative affects to mineral resources would not be expected. Lease stipulations and notices are created to mitigate impacts of oil and gas development on other resources. Stipulation UT-S-425 (CSU-Slopes in Excess of 30 Percent) would be applied to parcels 014, 015, 016, 017, and 019. Notices UT-LN-84 (UTTR MOA) and UT-LN-159 (Central Railroad Pacific Grade Access) would be applied to all parcels.</p>	
NI	Invasive Species/Noxious Weeds (EO 13112)	<p>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 at the APD stage as COAs. Negligible impacts would be expected as a result of leasing and exploration.</p> <p>Application of notice UT-LN-52 (noxious weed) is warranted on all parcels.</p>	Mark Williams 1/29/19
NI	Lands/Access & Property Boundary Evaluation	<p>None of the parcels have valid existing rights present. Coordination with private surface estate owners will occur at the APD stage. Decisions regarding physical and/or legal access, as well as the need for a right-of-way grant from the BLM will be made at the APD stage. There are no withdrawals or Recreation and Public Purposes Act leases present on the parcels. Notice UT-LN-84 would apply to all parcels as each exists, in their entirety, within the boundaries of the Utah Test and Training Range Military Operations Area (MOA).</p> <p>Leasing parcels would have no effect on property boundaries. In accordance with WO IM 2011-122, Land Status Surveyor Reviews (LSSRs) and verification of the legal land descriptions will be required prior to lease issuance. Stone monuments may be present and would need to be avoided the same as metal cap monuments. Detailed land</p>	Shawn Storbo 2/4/19

Determination	Resource	Rationale for Determination	Assigned & Date
		surveys may be warranted at the APD stage. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	
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.	Brett Burgess 1/30/19
PI	Migratory Birds	<p>The following documents are incorporated: Utah Wildlife Action Plan (2015), Utah Partners in Flight Avian Conservation Strategy Version 2.0. (Parrish et al. 2002), Birds of Conservation Concern (USFWS 2008), Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds, MOU between the USDI BLM and USFWS to Promote the Conservation and Management of Migratory Birds (4/2010), and Utah Supplemental Planning Guidance: Raptor Best Management Practices (BLM UTSO IM 2006-096).</p> <p>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.</p> <p>Bald and golden eagles receive additional protections under the Bald and Golden Eagle Protection Act of 1962. Known golden eagle nests are near parcels 015; and 017. Additionally all parcels are within golden eagle breeding and foraging areas and subject to stipulation, UT-S-424 (Controlled Surface Use/Timing Limitation – Raptor Nesting Sites), UT-S-423 (Controlled Surface Use/Timing Limitation - Bald Eagle Roost Sites), UT-LN-40 (Golden Eagle Habitat), UT-LN-39 (Golden Eagle Nest Sites) UT-LN-107 Statewide (Bald Eagle).</p> <p>A list of other migratory birds, waterfowl and their habitat that could possibly be affected can be found in Section 3.3.5. All of the parcels are within the Great Basin North America Bird Conservation Area. UT-S-427 (TL-Waterfowl Habitat) would apply to all parcels. A list of migratory birds known to occur within the project area was obtained from the USFWS Information, Planning, and Conservation (IPaC) System on January 30, 2019 (Consultation Code: 06E23000-2019-SLI-0135). According to the IPaC Migratory Bird List, Birds of Conservation Concern Brewer’s sparrow and sage thrasher have been surveyed and identified in the project area. This is not a comprehensive list of migratory birds expected to use the project area.</p>	Emily Jencso 1/30/19

Determination	Resource	Rationale for Determination	Assigned & Date
		<p>Future oil and gas exploration may impact migratory birds, waterfowl 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 and waterfowl could be fully analyzed in additional environmental documents through the NEPA process.</p> <p>Stipulation UT-S-427 (TL-Waterfowl Habitat) and Notices UT-LN-37 (Bald Eagle Habitat), UT-LN-39 (Golden Eagle Nest Sites), UT-LN-40 (Golden Eagle Habitat), UT-LN-44 (Raptors), UT-LN-45 (Migratory Birds), UT-LN-107 (Bald Eagle), UT-LN-143 (Raptor), and UT-LN-158 (Waterfowl and Shorebirds) would be applied to all parcels.</p> <p>BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.</p>	
NP	National Historic Trails	<p>There are no Congressionally designated National Historic Trails within the project area. Additionally, there are no segments of trails under the National Trail Feasibility Study nor trails recommended as suitable for Congressional designation, but not yet designated.</p>	Ray Kelsey 2/7/19
NI	Native American Religious Concerns	<p>The following Tribes were invited to consult on this project via certified letter on February 11, 2019: Pueblo of Jemez, Hopi Tribe, Skull Valley Band of Goshutes, Confederated Tribes of the Goshute Reservation, and Northwestern Band of Shoshone Nation. At this time, Tribal consultation is ongoing. The BLM will consult with Indian tribes on a government-to-government basis, if requested by any Tribe.</p> <p>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.</p>	Pamela Schuller 1/30/19
NI	Paleontology	<p>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 be contacted. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.</p>	Todd Marks 2/8/19
PI	Recreation	<p>With the exception of the parcels within the viewshed of the Transcontinental Backcountry Byway, recreation resources are dispersed in nature and no/negligible impact is expected to recreation resources (NI).</p> <p>However, there is potential for impact (PI) to recreationists visiting the byway from the proposed action related to access to the parcels. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs. Refer to the Central Pacific Railroad Grade – Recreation/Travel Management sections for the analysis of recreational resources associated with the railroad grade.</p>	Ray Kelsey 2/7/19
NP	Greater Sage-Grouse Habitat	<p>None of the parcels intersect Greater Sage Grouse Priority Habitat Management Areas or General Habitat Management Areas. The Hogup lek is more than 4 miles from nearest parcel. Protective measures would not be warranted (Utah Division of Wildlife Resources Biologist Phone Conversation 2019).</p>	Renee Chi 2/4/19
NI	Socio-Economics	<p>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</p>	Pamela Schuller 1/30/19

Determination	Resource	Rationale for Determination	Assigned & Date
		<p>residents and other visitors including recreationists regardless of alternative selected.</p> <p>Refer to the Economic Profile System Reports prepared on 1/30/2019 (EPS 2019) (A Demographic Profile, A Profile of Agriculture, A Profile of Development and the Wildland-Urban Interface, A Profile of Federal Land Payments, A Profile of Government Employment, A Profile of Service Industries that Include Travel &amp; Tourism, A Profile of Land Use, A Profile of Mining, Including Oil &amp; Gas, A Profile of Non-Labor Income, A Profile of Public Land Amenities, A Profile of Service Sectors, A Profile of Socioeconomic Measures, A Profile of Timber and Wood Products, and A Summary Profile). Additional information is contained in the county general plan and its corresponding resource management plan. Land uses in county 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.</p>	
NP	Threatened, Endangered, Candidate or Special Status Plant Species	<p>The standard endangered species stipulation as per Handbook H-3120-1 is attached to all parcels. None of the parcels contain BLM identified sensitive or T&amp;E plant species.</p> <p>BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.</p>	<p>Mark Williams 1/30/19</p>
PI	Threatened, Endangered, Candidate or Special Status Animal Species	<p>The standard endangered species stipulation as per Handbook H-3120-1 is attached to all parcels.</p> <p>An official endangered species act (ESA) species list was obtained from the USFWS Information, Planning, and Conservation (IPaC) System for the lease sale area on January 30, 2019 (Consultation Code: 06E23000-2019-SLI-0135). According to the IPaC Species List, there are no listed species or associated habitat within the lease sale area.</p> <p>Aquatic special status species and their critical habitats are not present within the parcels. (NP for aquatic species).</p> <p>Terrestrial sensitive species, such as kit fox, burrowing owl, grasshopper sparrow, short-eared owl, ferruginous hawk, long-billed curlew, kit fox, or snowy plover, may be found on all leases; therefore, notice UT-LN-49 (Utah Sensitive Species) has been attached to all parcels. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.</p>	<p>Cassie Mellon 2/1/19 Emily Jencso 1/30/19</p>
PI	Travel/ Transportation	<p>Exploratory access to all parcels may necessitate the use of the Transcontinental Railroad Backcountry Byway. Improvements and regular maintenance may be necessary to public access roads throughout the project area. UT-LN-159 (Central Pacific Railroad Grade Access) would apply to all parcels. Refer to the CPRR discussions section. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.</p>	<p>Ray Kelsey 2/7/19</p>
NI	Soil and Vegetation Excluding Special Status Species	<p>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</p>	<p>Mark Williams 1/30/19 Brett Burgess 1/30/19</p>

Determination	Resource	Rationale for Determination	Assigned & Date
		<p>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.</p>	
PI	Visual Resources	<p>There is potential for impact (PI) to visual resources along the CPRR from the proposed action.</p> <p>Parcels 016-020 lie within the viewshed of the Central Pacific Railroad Grade, including the National Historic District, designated ACEC and BLM Backcountry Byway. Development of these parcels has the potential to impact the visual resources and associated recreational and cultural setting of the Transcontinental Railroad Grade. A visual contrast rating was prepared (BLM 2019). All parcels occur within Scenic Quality Class C areas. All parcels are located in VRM Class IV areas. The proposed action would not conflict with standard management goals for VRM Class IV areas; however, impacts to visual resources are disclosed. Refer also to the CPRR section in the EA. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.</p>	Ray Kelsey 2/7/19
NI	Wastes (hazardous or solid)	<p>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 2.2.1 through 2.2.6. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.</p>	Alan Jones 2/5/19
NI	Water Resources/ Quality (drinking/ surface/ ground)	<p>There are no identified ground or surface drinking water protection zones in the area of the parcels.</p> <p>Multiple water rights held by both BLM and individuals are located in or near the parcels. These water rights have beneficial uses of stockwater, irrigation, and domestic. Water quality must continue to be acceptable to meet the beneficial uses of the water right. Exploration and development could cause impacts. To ensure water quality is maintained, BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.</p> <p>The following notice would be added to all parcels to inform potential lessees of the requirements of EO 11988: UT-LN-128: Floodplain Management.</p> <p>If an APD is filed, 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.</p> <p>Potential impacts would be addressed and a design feature would be included utilizing UT IM 2010-055 (Protection of Ground Water</p>	Cassie Mellon 3/11/19



Determination	Resource	Rationale for Determination	Assigned & Date
		Associated with Oil and Gas Leasing, Exploration and Development) prior to APD approval. Standard protocols and best management practices would minimize possibility of releases. BMPs, SOPs and site specific mitigation may be applied at the APD stage as COAs.	
NI	Wetlands/ Riparian Zones / Floodplains	Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, parcels 015, 016, 017, 019, and 020 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 these parcels would have the following stipulations attached, impacts from exploration/development to those resources would be prevented. UT-S-425 (CSU-Slopes in Excess of 30%) on parcels 014, 015, 016, 017, and 019. UT-S-133A (CSU-Live Water). UT-S-133 (CSU-Riparian/Aquatic Habitats) on parcels 015, 016, 017, 019, and 020. UT-LN-128 (Floodplains) also applies to all parcels. 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 3/11/19
NP	Wild and Scenic Rivers	The parcels do not overlap any suitable WSR segments.	Ray Kelsey 2/7/19
NP	Wilderness/WSA	None of the parcels intersect wilderness areas or wilderness study areas.	Ray Kelsey 2/7/19
NP	Lands with Wilderness Characteristics	The parcels do not intersect any BLM-identified lands with wilderness characteristics.	Ray Kelsey 2/7/19
NP	Wild Horses and Burros	The parcels do not intersect herd areas or herd management areas.	Tami Howell 1/29/19
PI	Wildlife Excluding Special Status Species	Parcels 016, 017, 018, and 019 are in substantial summer pronghorn habitat. UT-LN-14 (Pronghorn Fawning Habitat) applies to these parcels.	Emily Jencso 1/30/19
NI	Woodland / Forestry	Scattered woodlands do exist in the adjacent areas but not in quantities sufficient to establish public harvest areas. 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 1/30/19

## Appendix E – References

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**Appendix F – Acronyms/Abbreviations**

AO	Authorized Officer	NESHAP	National Emission Standards For Hazardous Air Pollutants
APD	Application for Permit to Drill		
ARMPA	Approved Resource Management Plan Amendment	NHPA	National Historic Preservation Act
BCR	Bird Conservation Region	NRHP	National Register of Historic Places
BLM	Bureau of Land Management	NSO	No Surface Occupancy
BMP	Best Management Practice	O.O.	Onshore Oil and Gas Order
CAA	Clean Air Act	PLPCO	Public Lands Policy Coordinating Office
CFR	Code of Federal Regulations	RFDS	Reasonably Foreseeable Development Scenario
CIAA	Cumulative Impact Analysis Area	RMP	Resource Management Plan
COA	Condition of Approval	ROD	Record of Decision
CPRR	Central Pacific Railroad Grade	ROW	Right of Way
CWCS	Comprehensive Wildlife Conservation Strategy	S	Stipulation
DR	Decision Record	SHPO	State Historic Preservation Office
EA	Environmental Assessment	SITLA	State Institutional Trust Lands Administration
EAR	Environmental Analysis Record	SLFO	Salt Lake Field Office
EIS	Environmental Impact Statement	UDAQ	Utah Division of Air Quality
EOI	Expression of Interest	UDWR	Utah Division of Wildlife Resources
EPA	Environmental Protection Agency	USFS	United States Forest Service
ESA	Endangered Species Act	USFWS	United States Fish & Wildlife Service
FLPMA	Federal Land Policy and Management Act	UT	Utah
FONSI	Finding of No Significant Impact	UTSO	Utah State Office
GIS	Geographical information System	WDD	West Desert District
GWP	Global Warming Potential	WO	Washington Office
H	Handbook		
IDPRT	Interdisciplinary Parcel Review Team		
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		



## Appendix G – Statutes, Regulations, or Other Plans

The statutes, regulations, policies, and plans utilized in preparing this EA include, but are not limited to the following:

### Statutes (As Amended)

- 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
- 36CFR 60.4

### Manuals<sup>10</sup>

- BLM Manual 6840 – Special Status Species
- BLM Manual 3120 – Competitive Leasing

### Handbooks<sup>11</sup>

- Competitive Leasing Handbook (H-3120-1)

### Policies/Instruction Memoranda (IM)<sup>12</sup>

- Updating Oil and Gas Leasing Reform – Land Use Planning and Lease Parcel Reviews (WO IM 2018-034)
- Directional Drilling into Federal Mineral Estate from Well Pads on Non-Federal Locations (WO IM 2018-014)
- Oil and Gas Leasing Program NEPA Procedures Pursuant to Leasing Reform (UT IM 2014-006)
- Utah Riparian Management Policy (2006)
- Utah’s Standards for Rangeland Health (1997)
- Utah BLM Drinking Water Source Protection Zone (2010)

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<sup>10</sup> BLM manuals can be accessed online at: <https://www.blm.gov/media/blm-policy/manuals>.

<sup>11</sup> BLM handbooks can be accessed online at: <https://www.blm.gov/media/blm-policy/handbooks>.

<sup>12</sup> 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)
- 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 (UDWR 2015)
- The Utah Oil and Gas Conservation Act
- The Utah Oil and Gas Conservation General Rules
- The State of Utah Resource Management Plan (State of Utah 2018)

### County Plans

- Box Elder County General Plan (Box Elder County 1998), as revised by the Box Elder County Resource Management Plan (Box Elder County 2017).

### BLM Activity Plans/Strategies/Practices

- T&E Habitat Management Plan (BLM 1990)
- Utah Air Resource Management Strategy (BLM 2018)
- Air Resource Management Program Strategy 2015-2020 (BLM 2015)
- Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, The Gold Book (USDI and USDA 2007)

## Appendix H – Air Quality and Climate Change/Greenhouse Gases Background

### Air Quality<sup>13</sup>

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 2018). Table 11 shows NAAQS for the EPA designated criteria pollutants (EPA 2018). The Utah Division of Air Quality (UDAQ) is responsible to ensure compliance with the NAAQS within the state of Utah.

**Table 11. 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 µg/m <sup>3</sup> <sup>(1)</sup>	Not to be exceeded
Nitrogen Dioxide (NO <sub>2</sub> )	primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	primary and secondary	1 year	53 ppb <sup>(2)</sup>	Annual Mean
Ozone (O <sub>3</sub> )	primary and secondary	8 hours	0.070 ppm <sup>(3)</sup>	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Fine Particulate Matter (PM <sub>2.5</sub> )	primary	1 year	12.0 µg/m <sup>3</sup>	Annual mean, averaged over 3 years
	secondary	1 year	15.0 µg/m <sup>3</sup>	Annual mean, averaged over 3 years
	primary and secondary	24 hours	35 µg/m <sup>3</sup>	98th percentile, averaged over 3 years
Respirable Particulate Matter	primary and secondary	24 hours	150 µg/m <sup>3</sup>	Not to be exceeded more than once per year on average over 3 years

<sup>13</sup> This discussion is based on the information contained in Utah BLM's Air Resource Management Strategy 2018 Air Monitoring Report (BLM 2019).

Pollutant	Primary/ Secondary	Averaging Time	Level*	Form
(PM <sub>10</sub> )				
Sulfur Dioxide (SO <sub>2</sub> )	primary	1 hour	75 ppb <sup>(4)</sup>	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
<p>* 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 (µg/m<sup>3</sup>).</p> <p>(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/m<sup>3</sup> as a calendar quarter average) also remain in effect.</p> <p>(2) The level of the annual NO<sub>2</sub> 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.</p> <p>(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O<sub>3</sub> standards additionally remain in effect in some areas. Revocation of the previous (2008) O<sub>3</sub> standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.</p> <p>(4) The previous SO<sub>2</sub> 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<sub>2</sub> standards or is not meeting the requirements of a SIP call under the previous SO<sub>2</sub> 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.</p>				

The UDAQ issued its 2017 Annual Report (UDAQ 2018)<sup>14</sup> which includes information on areas of the state where monitoring data shows that levels of criteria pollutants exceed NAAQS. In accordance with this annual report, nonattainment/maintenance areas occur within [Figures 1 & 2, pages 7-8 of UDAQ (2018)]:

- Ogden City, Salt Lake County and Utah County are entirely within a PM<sub>10</sub> nonattainment area;
- Salt Lake/Davis/western Weber/eastern Box Elder/northeastern Tooele (Salt Lake Area) and Utah (Provo Area) counties are partially or entirely within in a PM<sub>2.5</sub> nonattainment areas;
- Salt Lake and the very northeastern edge of Tooele counties are entirely or partially within a SO<sub>2</sub> nonattainment area; and
- Ogden City, Salt Lake City, and Provo City are located entirely within CO maintenance areas.

All other areas of Cache, Weber, Box Elder, Tooele, and Utah, plus the entirety of Wasatch, Rich, Morgan, and Summit counties occur within attainment areas.<sup>15</sup>

<sup>14</sup> UDAQ also hosts its “Am I in a Non-Attainment Area?” interactive tool/map located online at: <https://utahdeq.maps.arcgis.com/apps/webappviewer/index.html?id=dcc4eacb53a942f2a4b74a36ae5ea118>

<sup>15</sup> UDAQ’s State Implementation Plan (SIP) (January 1972, as updated/amended and approved by the EPA) can be accessed online at: <https://deq.utah.gov/legacy/laws-and-rules/air-quality/sip/index.htm>

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 (State of Utah 2016). UDAQ shows the analysis it prepared to support that recommendation (UDAQ 2016). The Governor recommended that Box Elder and Cache counties be designated as an attainment areas and that Salt Lake and Davis, plus portions of Weber, Tooele and Utah counties be designated as nonattainment. Other areas of the SLFO are designated as attainment/unclassifiable. The EPA received Utah's recommendation and per its December 2017 letter to the Governor (EPA 2017) and its final technical support document (EPA Undated), it has designated the areas as recommended by the Governor (except areas under EPA or Tribal jurisdiction).

Table 12 summarizes the UDAQ's 2014 emissions inventory (EI) by county (UDAQ 2018). This EI includes point, area, and mobile sources that represent the most recent statewide inventory available.

**Table 12. Triennial Inventory of Criteria Pollutants (2014).**

County	CO	NO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	VOC
Box Elder	23,813.57	4,982.91	11,500.01	1,986.74	169.25	36,510.08
Cache	15,274.33	2,373.03	11,538.42	1,716.78	24.94	12,322.28
Davis	31,525.82	6,907.03	5,166.61	1,320.31	264.87	10,600.91
Morgan	4,121.79	2,204.29	2,487.04	425.18	138.11	7,069.54
Rich	3,889.54	344.53	2,417.86	476.83	3.07	7,742.26
Salt Lake	112,156.06	25,770.14	18,965.36	5,315.25	3,269.64	30,023.49
Summit	11,492.91	4,235.71	7,758.22	1,089.37	113.35	18,666.37
Tooele	23,035.94	6,166.33	8,496.25	2,220.78	80.63	44,551.98
Utah	52,088.92	12,687.43	15,374.78	3,039.53	228.00	28,840.45
Wasatch	6,214.88	1,177.55	4,150.50	622.87	6.62	12,455.42
Weber	26,731.20	4,605.81	7,481.73	1,414.32	50.19	11,658.57
Measured in tons/year. Portable point sources are not included.						

Although not listed as a NAAQS criteria pollutant, volatile organic compounds (VOC) along with NO<sub>x</sub>, 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 2018).

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<sub>10</sub>), from heavy construction operations. PM<sub>10</sub> emissions are converted from total suspended particulates by applying a conversion factor of 25%. PM<sub>2.5</sub> is not specifically addressed as it is included as a component of PM<sub>10</sub>. PM<sub>2.5</sub> is converted from PM<sub>10</sub> 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 2018). The PSD program protects air quality within Class I areas by allowing only slight incremental increases in pollutant concentrations. 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. Class III areas allow for major industrial development.

As required by the CAA, in 1977 there were five national parks (all outside of the SLFO boundary/all within Utah) that are mandatory Class 1 areas (Arches, Bryce Canyon, Canyonlands, Capitol Reef and Zion National Parks). All other areas in the SLFO are currently classified as Class II areas. Industrial growth is allowed, but air quality is not allowed to degrade to the level of the NAAQS. There are currently no areas in the SLFO (or Utah) that have been designated Class III. None of the following areas within the SLFO boundary or within a 50-mile buffer area of the SLFO are Class I areas.

Within the SLFO boundary, there are:

One BLM wilderness area [Cedar Mountain (Tooele County)];

Eight USFS wilderness areas [High Uintas (Summit County), Mount Olympus & Twin Peaks (Salt Lake County), Lone Peak (Salt Lake & Utah Counties), Mount Naomi (Cache County), Wellsville Mountain (Cache & Box Elder Counties), Desert Peak (Tooele County), and Mount Nebo (Utah & Juab Counties); &

One NPS unit (Golden Spike National Historic Site and no National Parks).

Within 50 miles of the SLFO boundary, there are:

Four BLM wilderness areas [Becky Peak, Goshute Canyon, Government Peak, and Mount Moriah (White Pine County, Nevada)

Two USFS wilderness units [Mt. Moriah and High Schells (White Pine County, Nevada)]; &

Four NPS units [City of Rocks National Reserve (Cassia County, Idaho), Craters of the Moon National Monument (Blaine, Power, Minidoka, and Butte Counties, Idaho), Fossil Butte National Monument (Lincoln County, Wyoming), and Dinosaur National Monument (Uintah County, Utah and Moffat County, Colorado). There are no National Parks.

SLFO occurs within a PSD Class II area and does 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 2018). 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 2018) 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 2018).

### 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.

Prior to authorizing specific proposed projects on the 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 (EPA 2011) and the Federal Land Managers' Air Quality Related Values Work Group (FLAG) 2010 air quality guidance document (NPS 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.

### **Climate Change/Greenhouse Gases<sup>16</sup>**

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 may be due to natural internal processes or external forces. Earth's atmosphere has a natural greenhouse effect wherein naturally occurring gases such as water vapor, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and fluorinated gases absorb and retain heat (EPA 2018). A number of activities contribute to the phenomenon of climate change, including emissions of GHGs (especially CO<sub>2</sub> and CH<sub>4</sub>) from fossil fuel development, large wildfires, activities using combustion engines, changes to the natural carbon cycle, and changes to radiative forces and reflectivity (albedo). 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.

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<sup>16</sup> This discussion is based on the information contained in Utah BLM's Air Resource Management Strategy 2018 Air Monitoring Report (BLM 2019).

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 2014).

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 2014). The global average surface temperature has increased approximately 1.5°F from 1880 to 2012 (IPCC 2014). 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<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and fluorinated gases absorb and retain heat (EPA 2018, EPA 2018). 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. 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 2018).

The buildup of GHGs such as CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, 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<sub>2</sub> and CH<sub>4</sub>) 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<sub>2</sub> may last 50 to 200 years in the atmosphere while CH<sub>4</sub> has an average atmospheric lifetime of 12 years (BLM 2010).

The IPCC (2014) 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.” 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<sub>2</sub> 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 2014, WRI 2018).



Continuing the planet’s long-term warming trend, globally averaged temperatures in 2017 were the second hottest year on record and 0.90 degrees Celsius (1.62 degrees Fahrenheit) warmer than the long-term mean (NASA 2018). The IPCC (2014) indicates that, “warming will continue beyond 2100 under all [RPC] scenarios except one [RPC2.6]. Surface temperatures will remain approximately constant at elevated levels for many centuries after a complete cessation of net anthropogenic CO<sub>2</sub> emissions. A large fraction of anthropogenic climate change resulting from CO<sub>2</sub> emissions is irreversible on a multi-century to millennial timescale, except in the case of a large net removal of CO<sub>2</sub> from the atmosphere over a sustained period.”

Similarly, 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 (EPA 2018), 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<sub>2</sub>. Shown in Table 13, the GHGs are presented using the unit of Metric Tons of CO<sub>2</sub> equivalent (MT CO<sub>2</sub>e),<sup>17</sup> a metric to express the impact of each different GHG in terms of the amount of CO<sub>2</sub> making it possible to express GHGs as a single number. For example, 1 ton of CH<sub>4</sub> would be equal to 28 tons of CO<sub>2</sub> equivalent, because it has a GWP over 28 times that of CO<sub>2</sub>. 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<sub>2</sub> equivalent for the GHGs.

**Table 13. Greenhouse Gases and Their Global Warming Potentials.**

Pollutant	Carbon Dioxide (CO <sub>2</sub> )	Methane (CH <sub>4</sub> )	Nitrous Oxide (N <sub>2</sub> O)	Hydrofluorocarbons (HFCs)	Perfluorocarbons (PFCs)	Sulfur Hexafluoride (SF <sub>6</sub> )
GWP	1	28	265	Up to 12,400	6,630-11,100	23,500
Source: <a href="https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf">https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29_1.pdf</a>						

Because GHGs circulate freely throughout Earth’s atmosphere, climate change is a global issue. The largest component of global anthropogenic GHG emissions is CO<sub>2recen</sub>. 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, Marland and Andres, Global, regional, and national fossil-fuel CO<sub>2</sub> emissions. 2013). Oil and gas production contributes to GHGs such as CO<sub>2</sub> and CH<sub>4</sub>.

<sup>17</sup> GHGs can also be measured as Million Metric Tons (MMT CO<sub>2</sub>e).

“In 2016, total gross U.S. greenhouse gas emissions were 6,511.3 MMT of CO<sub>2</sub>e. Total U.S. emissions increased by 2.4 percent from 1990 to 2016, and emissions decreased from 2015 to 2016 by 1.9 percent (126.8 MMT CO<sub>2</sub>e.). The decrease in total greenhouse gas emissions between 2015 and 2016 was driven in large part by a decrease in CO<sub>2</sub> emissions from fossil fuel combustion. The decrease in CO<sub>2</sub> emissions from fossil fuel combustion was a result of multiple factors, including:

- 1) substitution from coal to natural gas and other non-fossil energy sources in the electric power sector; and
- 2) warmer winter conditions in 2016 resulting in a decreased demand for heating fuel in the residential and commercial sectors.

Relative to 1990, the baseline for this Inventory, gross emissions in 2016 are higher by 2.4 percent, down from a high of 15.7 percent above 1990 levels in 2007. Overall, net emissions in 2016 were 11.1 percent below 2005 levels” (EPA 2018).

GHG reported emissions from major sources in Utah in 2016 totaled 36.0 million Metric Tons of CO<sub>2</sub>e as reported for the EPA GHG Reporting Program. A total of 66 facilities reported GHG emissions in 19 of Utah’s 29 counties (BLM 2019).

#### 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.

In recent years, many states, tribes, and other organizations have initiated GHG inventories, tallying GHG emissions by economic sector. 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 1995)] to equate potential activities to GHG emissions in the form of carbon dioxide equivalent (CO<sub>2</sub>e). 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) 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. Therefore, it is 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.”

#### 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 CO<sub>2</sub> 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.

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, as the BLM is not doing a cost-benefit analysis in this NEPA document, monetizing only SC GHG would not be instructive.

In addition, the BLM and the EPA, encourage 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 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).

#### Cumulative Greenhouse Gas Emissions

Existing GHG emissions from the operation of all (federal and non-federal) producing oil and gas wells within the Salt Lake Field Office boundaries are presented in Table 14. Emissions are calculated by multiplying the number of producing wells reported by the Utah Division of Oil Gas and Mining

(UDOGM 2018) at the end of 2018 by the estimated annual emissions for an operational well. Several counties within the Salt Lake Field Office do not have active wells, and no emissions are presented for these counties. Total existing well operational emissions in the Salt Lake Field Office are estimated to be 83,800 metric ton CO<sub>2</sub>e/yr.

**Table 14. Operational GHG emissions from producing oil and gas wells.**

Metric Tons CO <sub>2</sub> e/Year					
Field Office	County	CO <sub>2</sub> e/Year per Well	Number of Wells	County Total	Field Office Total
Salt Lake	Box Elder	1676	1	1,676	83,800
	Cache	1676	0	-	
	Davis	1676	0	-	
	Morgan	1676	0	-	
	Rich	1676	0	-	
	Salt Lake	1676	0	-	
	Summit	1676	48	80,448	
	Tooele	1676	0	-	
	Utah	1676	1	1,676	
	Wasatch	1676	0	-	
	Weber	1676	0	-	

Emissions of GHGs from downstream combustion for all oil and gas produced within the Salt Lake Field Office boundaries is presented in Table 15. Production data reported by the Utah Division of Oil Gas and Mining database (UDOGM 2018) for each county was obtained for all (federal and non-federal) producing wells in 2018. Downstream emissions are calculated by multiplying the production amounts by emission factors from the EPA Greenhouse Gases Equivalencies Calculator – Calculations and References website (EPA 2019). These emission factors are used because they provide an easy calculation of the amount of GHGs produced from a barrel of oil (bbl) or thousand cubic feet (mcf) of gas. The emission factors follow IPCC guidance by accounting for 100% oxidation of carbon in the fossil fuel to CO<sub>2</sub>, regardless if the carbon atom is part of a CO<sub>2</sub>, CH<sub>4</sub>, or other hydrocarbon molecule. Total downstream emissions from produced oil and gas in the field office is 183,626 metric tons CO<sub>2</sub>e/yr based on 2018 production data.

**Table 15. Existing GHG emissions from downstream combustion of produced oil and gas.**

Field Office	County	2018 Total Production		GHG Gas Emissions metric tons CO <sub>2</sub> e/Year		Total metric tons CO <sub>2</sub> e/Year
		Oil (bbl)	Gas (mcf)	Oil	Gas	
Salt Lake	Box Elder	-	-	-	-	-
	Cache	-	-	-	-	-
	Davis	-	-	-	-	-
	Morgan	-	-	-	-	-
	Rich	-	-	-	-	-
	Salt Lake	-	-	-	-	-
	Summit	173,320	1,980,016	74,528	109,099	183,626
	Tooele	-	-	-	-	-
	Utah	-	-	-	-	-
	Wasatch	-	-	-	-	-

Field Office	County	2018 Total Production		GHG Gas Emissions metric tons CO <sub>2</sub> e/Year		Total metric tons CO <sub>2</sub> e/Year
		Oil (bbl)	Gas (mcf)	Oil	Gas	
<b>FO Total</b>						183,626
Emission factors: 0.0551 metric tons CO <sub>2</sub> e/mcf, 0.43metric tons CO <sub>2</sub> e/bbl						

*Foreseeable GHG Emissions*

Reasonably foreseeable federal GHG emissions from drilling and operation of a well are made based other lease sales and on the number APDs submitted to the BLM where drilling is not yet complete. Between 2015 and 2018 only 58% of APD were drilled and completed (UDOGM 2018), and it is assumed that existing APD’s will yield a similar completion rate. Lease sales included in the estimate occur between December 2018 and December 2019. Foreseeable GHG emissions are presented in Table 16. Construction and drilling emissions from projected new wells is 10,408 metric tons CO<sub>2</sub>e. If all wells go into production an additional 6,704 metric tons CO<sub>2</sub>e/yr would be emitted from well operations.

**Table 16. Foreseeable construction, drilling and operation GHG emissions.**

Field Office	County	Emissions CO <sub>2</sub> e/Well		Existing APDs	Estimated Drilled Wells	Metric Tons CO <sub>2</sub> e	
		Drilling	Operation			Drilling Total	Operations per Year
Salt Lake	Box Elder	2,602	1,676	-	-	-	-
	Cache	2,602	1,676	-	-	-	-
	Davis	2,602	1,676	-	-	-	-
	Morgan	2,602	1,676	-	-	-	-
	Rich	2,602	1,676	-	-	-	-
	Salt Lake	2,602	1,676	-	-	-	-
	Summit	2,602	1,676	1	1	2,602	1,676
	Tooele	2,602	1,676	-	-	-	-
	Utah	2,602	1,676	1	1	2,602	1,676
	Wasatch	2,602	1,676	-	-	-	-
	Weber	2,602	1,676	-	-	-	-
	Proposed Action	2,602	1,676	-	1	2,602	1,676
Lease Sales	2,602	1,676	-	1	2,602	1,676	
<b>FO Total</b>						10,408	6,704

Downstream combustion emissions from foreseeable wells is difficult to quantify since the amount of produced oil and gas is unknown until after a well is drilled. As mentioned above approximately 42% of APDs are not drilled and production amounts will vary between wells. As a result, a range of downstream emissions is presented based on annual production data for each country between 2008 and 2018 (UDOGM 2018). Low and high estimates per well are presented in Table 17. Low estimates are based on two standard deviations below the average annual production. High estimates are similarly

made by adding two standard deviations to the average annual production. The use of two standard deviations accounts for 95% of producing wells, assuming that well production is a Gaussian distribution. Downstream emissions per well in the Salt Lake Field office are estimated to range between 0 and 11,714 metric tons CO<sub>2</sub>e/yr. Total high emissions for three foreseeable wells is 35,142 metric tons CO<sub>2</sub>e/yr.

**Table 17. Range of foreseeable downstream GHG emissions**

Field Office	County	Average Oil (bbl/well)	Oil Emissions metric tons CO <sub>2</sub> e/yr per well		Average Gas (mcf/well)	Gas Emissions metric tons CO <sub>2</sub> e/yr per well		Total Emission metric tons CO <sub>2</sub> e/yr per well	
			Low	High		Low	High	Low	High
Salt Lake	Box Elder	0	0	0	0	0	0	0	0
	Cache	0	0	0	0	0	0	0	0
	Davis	0	0	0	0	0	0	0	0
	Morgan	0	0	0	0	0	0	0	0
	Rich	0	0	0	0	0	0	0	0
	Salt Lake	0	0	0	0	0	0	0	0
	Summitt	3,641 ±1,512	916	2,216	83,306 ±89,072	0	9,498	916	11,714
	Tooele	0	0	0	0	0	0	0	0
	Utah	0	0	0	0	0	0	0	0
	Wasatch	0	0	0	0	0	0	0	0
<b>Field Office Total</b>								0	11,714

Appendix I – Comments and Responses

Commenter	Comment	BLM’s Response
<p>Southern Utah Wilderness Alliance (SUWA) (Newell and Bloch)</p>	<p>[1] The Southern Utah Wilderness Alliance, Center for Biological Diversity, National Parks Conservation Association, and Western Watersheds Project (collectively, “SUWA”) respectfully submit the following comments on the Bureau of Land Management, Salt Lake field office’s (BLM) environmental assessment prepared for the Utah-BLM June 2019 competitive oil and gas lease sale. See generally Environmental Assessment, DOI-BLM-UT-0000-2019-0002-EA-SLFO, June 2019 Competitive Oil and Gas Lease Sale Salt Lake Field Office Area Parcels (Feb. 2019) [hereinafter, “June 2019 Lease Sale EA” or “EA”].<sup>1</sup></p> <p>[2] In short, BLM has violated the public participation requirements under the Federal Land Policy and Management Act (FLPMA), 43 U.S.C. §§ 1701 et seq., and National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq., by unlawfully attempting to exclude the public from involvement in BLM’s leasing decision. BLM also violated the Antideficiency Act, 31 U.S.C. §§ 1341 et seq., when the agency worked on this lease sale during the thirty-five day federal government shutdown by preparing NEPA analysis, among other actions, for the June 2019 lease sale. Finally, the June 2019 Lease Sale EA violates NEPA by failing to properly analyze cumulative impacts, alternatives, among other resource issues, as set-forth below.</p> <p><b>[3] I. BLM Failed to Provide Meaningful Opportunity for Public Participation Under NEPA and FLPMA.</b></p> <p>[4] Public participation in review of agency actions is foundational to NEPA, FLPMA and BLM’s oil and gas leasing policy, assisting the agency with conducting more thorough, efficient and effective environmental review. A key, overarching purpose of NEPA is to increase public knowledge and participation in agency decision-making. NEPA requires that agencies make “diligent efforts to involve the public in preparing and implementing their NEPA procedures.” 40 C.F.R. § 1506.6(a) (emphasis added); see also id. § 1500.1(b) (“NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken.”). FLPMA similarly requires public involvement in public land management decisions. See e.g., 43 U.S.C. § 1739(e) (“In exercising his authorities under this Act, the Secretary, by regulation, shall establish procedures . . . to give the . . . public adequate notice and an opportunity to comment upon the formulation of standards and criteria for, and to participate in, the preparation and execution of plans and programs for, and the management of, public lands.”); id. § 1712(a) &amp; (h).</p> <p>[5] This lease sale is being conducted pursuant to BLM Instruction Memorandum (IM) 2018-034, Updating Oil and Gas Leasing Reform – Land Use Planning and Lease Parcel Reviews (Jan 31, 2018) (attached). IM 2018-034 replaced IM 2010-117, Oil and Gas Leasing Reform, Land Use Planning and Lease Parcel Reviews (May 17, 2010) (attached). IM 2018-034 purports to “streamline the leasing process” by severely limiting opportunities for public involvement. In this lease sale, BLM’s comment period ran from February 15, 2019 to March 4, 2019 – a period of approximately seventeen days. See BLM, DOI-BLM-UT-0000-2019-0002-OTHER_NEPA (June 2019 Oil and Gas Lease Sale), <a href="https://eplanning.blm.gov/epl-frontoffice/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&amp;currentPageId=178499">https://eplanning.blm.gov/epl-frontoffice/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&amp;currentPageId=178499</a> (last updated Feb. 19, 2019). Likewise, BLM intends to hold a ten day protest period beginning approximately April 25, 2019. Id. This truncated opportunity for public participation is illegal.</p> <p>[6] On September 21, 2018, the Chief U.S. Magistrate Judge Bush of the District of Idaho issued a Memorandum Decision and Preliminary Injunction in <i>Western Watersheds Project v. Zinke</i>, 336 F. Supp. 3d 1204 (D. Idaho 2018). That decision enjoins and restrains BLM from implementing certain specified provisions of IM 2018-034 for future lease sales “contained in whole or in part within the Sage-Grouse Plan Amendments’ recognized ‘Planning Area Boundaries.’” Id. at 1244.</p> <p>[7] Although the June 2019 lease sale parcels may fall outside designated greater sage-grouse habitat, the court’s reasoning applies with equal force to all oil and gas lease sales conducted under the unlawful requirements of IM 2018-034.</p> <p>[8] In his Memorandum Decision and Order, Judge Bush held that the plaintiffs are likely to succeed on the merits of both their substantive and procedural challenges to IM 2018-034 under FLPMA, 43 U.S.C. §§ 1712(a) &amp; (h), 1739(e), NEPA 43 U.S.C. § 4332(C), 40 C.F.R. § 1506.6, and the APA, 5 U.S.C. § 706(2). The court reviewed BLM’s IM 2018-034 and concluded it constitutes final agency action with respect to several critical elements of the BLM’s oil and gas leasing process, including (a) BLM decisions whether or not to permit public involvement, (b) length of public review and comment, and (c) length of public protests of oil and gas lease sales. <i>W. Watersheds Project</i>, 336 F. Supp. 3d at 1226-27. As the court noted, “the burden of such constraints upon public participation and compressed protest periods falls most heavily upon members of the public, as those who have nominated potential lease parcels and BLM have had far more time to evaluate and consider the details of such parcels.” Id. at 1228.</p> <p>[9] In reviewing the plaintiff’s claims, and BLM’s defenses, the court determined that the plaintiffs are likely to succeed on the merits of the claim that IM 2018-034’s constraints on public participation are (1) procedurally invalid, because BLM imposed binding requirements for oil and gas leasing on BLM-administered lands and minerals without required public notice and comment, id. at 1233-34, and (2) that IM 2018-034 “improperly constrains public participation in BLM oil and gas leasing decisions,” id. at 1235. The Salt Lake field office’s procedures for the June 2019 oil and gas lease sale have followed the very same provisions of IM 2018-034 that the court held to be unlawful.</p> <p>[10] Judge Bush concluded that the plaintiffs are likely to succeed on the fundamental question of whether BLM’s statutory obligations require a minimum level of public involvement in leasing decisions with irrevocable, long-lasting consequences for the lands and minerals BLM manages on behalf of the public, and that the IM 2018-034 procedures fall short of those obligations. The court found:</p> <p>[11] It is well-settled that public involvement in oil and gas leasing is required under FLPMA and NEPA. On a very fundamental level, it strains common sense to see how these requirements are fulfilled when just comparing IM 2018-034 to IM 2010-117. That is, how can it be said that IM 2018-034 provides the required public participation ‘to the fullest extent possible’ and ‘to the extent practicable,’ when it is dramatically more restrictive (at least on the issue of public participation) than the previously-established IM (IM 2010-117) it only recently replaced?</p>	<p>[1 and 2] Background information provided. A response is not warranted.</p> <p>[3 through 18] BLM confirms that the process of identifying, reviewing, and offering oil and gas lease sales for BLM’s June 2019 leasing process complies with the provisions of IM 2018-034. BLM has complied with laws and policies as listed in Section 1.4 and 1.5, in addition to those noted in Appendix G.</p> <p>[19 through 27] The Antideficiency Act is not applicable to the June 2019 lease sale EA and is considered outside the scope of this analysis.</p> <p>[28 and 29] SUWA does not specify how its protest points for the March 2019 Competitive Oil and Gas Lease Sale apply to the parcels contained in the June 2019 Competitive Oil and Gas Lease Sale.</p> <p>[30 through 37] BLM addresses cumulative impacts in Sections 4.4 through 4.4.5. Additional language was added to clarify the originally broad description of mineral activities. BLM also discusses the SITLA leases in Section 4.4.4. BLM has reviewed the CIAA for each resource:</p> <p><u>Air Quality/Climate Change/Greenhouse Gases</u> – changes to Sections 4.4.1 and 4.4.2 are not warranted. The air quality CIAA is defined and includes areas that may share regional air quality issues with Box Elder County. Discussions include regional haze during inversions, visibility from and into NPS units/wilderness, surface disturbances from activities, NAAQS exceedances, and exceptional events. Appendix H was updated.</p> <p>The GHG CIAA is acknowledged as difficult to define, but the proposed action could contribute to incremental emissions increases in Northern Utah. Carbon storage and emission and temperature increases are discussed due to extraction and end-use of fossil fuels.</p> <p><u>Central Pacific Railroad Grade</u> - changes to Section 4.4.3 are not warranted. The selected CIAA is appropriate as it is the farthest extent of the foreground-middleground distance zone defined in BLM H-8410-1. The Handbook states, “[The foreground-middleground distance zone] is the area that can be seen from each travel route for a distance of 3 to 5 miles where management activities might be viewed in detail. The outer boundary of this distance zone is defined as the point where the texture and form of individual plants are no longer apparent in the landscape. In some areas, atmospheric conditions can reduce visibility and shorten the distance normally covered by each zone.”</p> <p><u>Geology/Mineral Resources</u> – Changes are not required. Although solid mineral resources (sand &amp; gravel, metals, etc.) would potentially be affected locally at the parcel level, fluid mineral reservoirs can potentially be very vast (&gt; 100 kilometers).</p> <p><u>Wildlife</u> – Changes were incorporated into Section 4.4.5.</p> <p>[38 through 40] As suggested by SUWA, BLM has prepared a pre-leasing NEPA document and that document is this EA. BLM includes a No Action alternative (Alternative B) that specifically does not offer any of the nominated parcels in the lease sale. Refer to the EA at Section 2.4. The EAR is included among a host of applicable documents that the SLFO reviewed in preparing its EA for this lease sale. SUWA incorrectly implies that the SLFO has used the EAR as its No Action alternative. Clearly, this is incorrect because the SLFO has prepared this EA. The EAR does include an alternative that discontinues the oil and gas leasing program (EAR at page 33). The 1989 supplemental was focused on updating the RFDS because seismic activities were not included in the EIS prepared for the RMP. SUWA does not specifically state which discussions in the EA regarding the No-Action alternative are inadequate.</p> <p>[41 through 50] Background information provided. A response is not warranted.</p>

Commenter	Comment	BLM's Response
	<p>[12] W. Watersheds Project, 336 F. Supp. 3d at 1235-36. The court went on to state:</p> <p>[13] IM 2018-034 jettisoned prior processes, practices, and norms in favor of changes that emphasized economic maximization to the detriment if not outright exclusion of pre-decisional opportunities for the public to contribute to the decisionmaking process affecting the management of public lands. That choice was problematic when considering the Congressional directives for public involvement contained in FLPMA and NEPA and the apparent shortcomings of IM 2018-034 in allowing for public participation in BLM oil and gas leasing decisions</p> <p>[14] Id. at 1237-38. Reviewing the record, the court further concluded that:</p> <p>[15] in this case, the record contains significant evidence indicating that BLM made an intentional decision to limit the opportunity for (and even in some circumstances to preclude entirely) any contemporaneous public involvement in decisions concerning whether to grant oil and gas leases on federal lands. . . . The evidence illustrates that the intended result of the at-issue decisions was to dramatically reduce and even eliminate public participation in the future decision-making process. Doing so certainly serves to meet the stated "purpose" of IM 2018-034 – that is, reducing or precluding public participation will "streamline the leasing process to alleviate unnecessary impediments and burdens, to expedite the offering of lands for lease . . . ." Yet, the route chosen by BLM to reach that destination is problematic because the public involvement requirements of FLPMA and NEPA cannot be set aside in the name of expediting oil and gas lease sales. The benefits of public involvement and the mechanism by which public involvement is obtained are not 'unnecessary impediments and burdens.'</p> <p>[16] Id. at 1238-39 (emphasis added). Because of the court's clear legal conclusion that BLM, through IM 2018-034's procedures, unlawfully eliminated required minimum levels of public involvement in mineral leasing decisions, any subsequent leasing decisions carried out under the procedures of IM 2018-034 are unlawful and any leases issued subject to cancellation. As the court noted, "[i]n not being allowed to participate at the leasing decision stage, or in having to hurriedly clamber to do so because of IM 2018-034's changes because of the limited time frame and other constraints upon public participation, oil and gas leases have been (and will be) issued without the full benefit of public input." Id. at 1239 (emphasis added). Although the court, in the balancing the hardships at issue in that case declined to vacate third-quarter oil and gas lease sales that have already taken place, id. at 1241-43, BLM is now fully on notice of the serious legal deficiencies inherent in the restricted public involvement procedures of IM 2018-034.</p> <p>[17] In BLM's haste to implement "energy dominance" policies and to curtail or eliminate public involvement in lease sale decisions, the BLM and Department of Interior ran afoul of NEPA, FLPMA, and the APA in both its promulgation of IM 2018-034, and by unlawfully employing its procedures for this lease sale. Past participation in landscape-scale planning decisions, or the possibility of subsequent participation in permitting decision once irrevocable commitments of development rights have already been conveyed, are no substitute for the legally-required duty on BLM to provide meaningful public participation in leasing decisions. Likewise, BLM's arbitrarily narrow interpretation of Judge Bush's order as applying only to parcels in greater sage-grouse habitat is entirely unfounded and ignores the writing on the wall (i.e., that this, as well as all other lease sales conducted pursuant to IM 2018-34, is unlawful).</p> <p>[18] Because the entire process of identifying, reviewing, and offering oil and gas lease sales for BLM's June 2019 leasing process is fundamentally compromised by the unlawful provisions of IM 2018-034, BLM must defer all parcels in the June 2019 lease sale. SUWA expressly reserves the right to supplement these comments after further review of BLM's June 2019 5 leasing proposal and accompanying documents, including those which were not made available for review online.<sup>2</sup></p> <p><b>[19] II. This Lease Sale Is Void Because It Violates the Antideficiency Act.</b></p> <p>[20] The Antideficiency Act prohibits officers or employees of the United States from making or authorizing "an expenditure or obligation exceeding an amount available in an appropriation or fund for the expenditure or obligation." 31 U.S.C. § 1341(a)(1)(A). Additionally, the United States government may not "employ personal services exceeding that authorized by law except for emergencies involving the safety of human life or the protection of property." Id. § 1342. This term "does not include ongoing, regular functions of government the suspension of which would not imminently threaten the safety of human life or the protection of property." Id. An officer or employee of the United States who violates sections 1341(a) or 1342 "shall be subject to appropriate administrative discipline including, when circumstances warrant, suspension from duty without pay or removal from office." Id. § 1349(a).</p> <p>[21] In 1981 the Attorney General determined that this statutory language requires there to be "some reasonable and articulable connection between the function to be performed and the safety of human life or the protection of property." U.S. Dep't of Justice, Authority for the Continuance of Government Functions During a Temporary Lapse in Appropriations at 1 (Jan. 16, 1981) (attached). Also, "there must be some reasonable likelihood that the safety of human life or the protection of property would be compromised, in some degree, by delay in the performance of the function in question." Id.</p> <p>[22] Congress amended the Antideficiency Act in 1990 to provide explicitly that "[a]s used in this section, the term 'emergencies involving the safety of human life or the protection of property' does not include ongoing, regular functions of government the suspension of which would not imminently threaten the safety of human life or the protection of property." 31 U.S.C. § 1342. This was apparently "to guard against what the conferees believe might be an overly broad interpretation" of the statute. See U.S. Dep't of Justice, Government Operations in the Event of a Lapse in Appropriations at 6 (Aug. 16, 1995) (attached). Accordingly, the standard of a "reasonable likelihood" of danger to human life or property serves as the outer limit of excepted government service under the Antideficiency Act.<sup>3</sup></p> <p>[23] The federal government was shut down from December 22, 2018 until January 25, 2019. However, during the shutdown BLM-Utah worked on this and other lease sales including, but not limited to, preparing and reviewing lease sale documents. See, e.g., Letter from Reps. Grijalva, McCollum, and Lowenthal, to Acting Interior Secretary Bernhardt (Jan. 16, 2019) (criticizing BLM for working on oil and gas leasing during the shutdown) (attached).</p>	<p>[51 through 57] BLM has edited Section 2.5 to include a discussion of the SUWA's non-waivable NSO alternative. However, the SUWA does not offer any data or text or context of the exact wording for its suggested stipulation to be considered or where it will be applied. The necessary information was not provided to which BLM could adequately consult or coordinate with NPS, FWS, State of Utah, Tribes or other entities as shown in Section 5.2. The intent that the SUWA would like to accomplish – providing "heightened resource protection" – is already afforded and included within the purview of each alternative (Proposed Action and No Action). Resource protections are already included in the standard Cultural Resources stipulation from Handbook H-3120-1. These parcels already include, where appropriate for resource protections as stipulations identified in the RMP (as amended) and do include provisions for NSO, CSU/TL and standard stipulations from the Lease Form. These are clearly applied as shown in Appendix A and B. The preparation of oil and gas leasing stipulations are a land use planning level decision; which is outside the scope of this analysis. Information was not provided to which the BLM could consider the preparation of a plan amendment.</p> <p>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.</p> <p>BLM has also edited Section 2.5 to include a discussion of the SUWA's alternative in which BLM would analyze – in a single environmental analysis – the seven parcels included in this sale along with the twenty lease parcels considered by the BLM Salt Lake field office for its March 2019 lease sale is not warranted. The NEPA for the June 2019 lease sale was triggered by the EOIs submitted by the required due date. This alternative is eliminated from further analysis because it is redundant to the EAs already prepared for the two separate lease sales. It is substantially similar in design to alternatives (proposed and no action) already analyzed in these EAs and an entirely new EA would have would have substantially similar effects to an alternative that is analyzed in the 2 separate EAs. The preparation of a new EA at this time that combines 2 EAs is not efficient.</p> <p>[58 through 63] BLM has refined Section 4.3.1.5 Sensitive Species.</p> <p>If these parcels were to advance to the APD stage, effects of development would be assessed for each species occurring or potentially occurring with the project area. For instance, the effects to pronghorn would not be negligible, they could be measured through habitat loss, increased vigilance due to increased noise and activities around a well pad or access road. It is at the APD stage that this effect analysis will occur for each species. However, the lease notices and stipulations applied at this stage can be modified with COAs at the APD.</p> <p>[63] Northern goshawk is the only terrestrial species in the SLFO that is under a Conservation Agreement. Northern goshawk and associated habitat are not present within the project area. If there is a specific Conservation Agreement SUWA is referring to, it has not been provided. Relevant state and federal management plans are referenced in Appendix G.</p> <p>[64 through 66] Changes were incorporated into Section 4.4.5.</p> <p>[67 through 68] Background information provided. A response is not warranted.</p> <p>[69] BLM addresses direct impacts in Section 4.2. Indirect and cumulative impacts are addressed in Sections 4.2 through 4.3.2.5 and Sections 4.4 through 4.4.5, respectively. Refer also to BLM's response to paragraphs 30 through 37, above.</p> <p>[70 through 74] BLM has updated language in Sections 2.2.2 and 4.3.1.3. BLM confirms that the process of identifying, reviewing, and offering oil and gas lease sales</p>



Commenter	Comment	BLM's Response
	<p>[24] This work violated the Antideficiency Act, because oil and gas leasing is not an essential government activity under the terms of the statute, even under the broad “reasonable likelihood” standard set forth in the 1981 Attorney General’s opinion. There is no reasonable likelihood that BLM’s work during the shutdown to finalize leasing documents on a proposed lease sale was an emergency “involving the safety of human life or the protection of property.” 31 U.S.C. § 1342.</p> <p>[25] Oil and gas leasing is not essential to the safety of human life, because human life and public safety are not threatened in its absence. Moreover, oil and gas leasing is unnecessary for the protection of property. First, there are no private interests in the unleased federal mineral estate. Second, federal property to be leased was not threatened by a delay in leasing due to a shutdown. In fact, the lack of any threat to federal property from delaying work on a proposed lease sale starkly contrasts with the situation in many national parks, which suffered significant damage during the shutdown. Cf. M. Cuniff, J. Waters, &amp; J. Achenbach, In shutdown, national parks transform into Wild West – heavily populated and barely supervised, Washington Post (Jan. 1, 2019), <a href="https://goo.gl/B6LFVM">https://goo.gl/B6LFVM</a>. The Interior Department’s decision to press ahead with oil and gas leasing in violation of the Antideficiency Act, while turning a blind eye to vandalism and other impacts to the parks, provides yet another example of the Department’s misplaced priorities.</p> <p>[26] Any work on quarterly oil and gas lease sales during the shutdown violated 31 U.S.C. § 1342 because it was not an emergency involving the protection of human life or property. Instead, it was an “ongoing, regular function[] of government the suspension of which would not imminently threaten the safety of human life or the protection of property”—precisely the type of activity the Antideficiency Act prohibits during a lapse in appropriations. See 31 U.S.C. § 1342. Further, it appears that some of the actions taken by the Interior Department during the shutdown were illegally funded with appropriations intended for another purpose. To the extent preparations for the June lease sale were funded by a misdirection of appropriations, those actions violated federal law. BLM’s attempt to move ahead with leasing based on work that violates the Antideficiency Act or other federal appropriations laws also puts agency employees in legal jeopardy. See 31 U.S.C. § 1349(a).</p> <p>[27] Because it violates federal law, BLM’s planned June 2019 oil and gas lease sale is void. BLM must postpone the lease sale until it can complete an environmental analysis and other necessary preparations in compliance with all federal statutes, including the Antideficiency Act.</p> <p><b>[28] III. SUWA’s March 2019 Lease Sale Comments and Protest.</b></p> <p>[29] The environmental analyses in BLM’s EAs prepared to support the March 2019 and June 2019 lease sales are nearly identical in substance and wording. SUWA therefore incorporates in their entirety its SUWA’s comments on and protest of BLM’s March 2019 lease sale. See SUWA et al., March 2019 Competitive Oil and Gas Lease Sale, Salt Lake Field Office Area Parcels, Environmental Assessment DOI-BLM-UT-W010-2019-0001-EA (Dec. 17, 2019) (comments and exhibits thereto attached) [hereinafter, “SUWA Comments”]; SUWA et al., Protest of the Bureau of Land Management, Salt Lake Field Office’s Notice of Competitive Oil and Gas Lease Sale to be Held on or around March 25, 26, 2019 (March 1, 2019) [hereinafter, “SUWA Protest”] (protest and exhibits thereto attached). The legal flaws and arbitrary analysis identified 7 by SUWA in its comments and protest for the March 2019 lease sale apply equally to BLM’s June 2019 Lease Sale EA and must be addressed and remedied by the agency before it proceeds with this sale.</p> <p><b>[30] IV. BLM Failed to Analyze Cumulative Impacts of Oil and Gas Leasing and Development.</b></p> <p>[31] The June 2019 Lease Sale EA failed to analyze cumulative impacts, as required by NEPA. NEPA’s implementing regulations define “cumulative impact” as “the impact on the environment which 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.” 40 C.F.R. § 1508.7. “Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” Id.</p> <p>[32] Here, BLM’s cumulative impacts analysis is unlawful for the reasons discussed in SUWA’s protest of the March 2019 lease sale. See generally SUWA Protest at 3-5.<sup>4</sup> BLM’s analysis in the June 2019 Lease Sale EA also is unlawful for several additional reasons:</p> <p>[33] • The EA arbitrarily defines the Cumulative Impact Analysis Area (CIAA) for the majority, if not all, of the analyzed resources. For example:</p> <p>[34] The CIAA for visual resources “is the parcel boundary plus a 5-mile buffer around each parcel.” June 2019 Lease Sale EA at 40. BLM provides no rationale for this small visual buffer. In fact, the EA states that “[t]he general openness of the terrain in the project area lends itself to wide panoramic views that can allow visitors to see for very long distances.” Id. at 17 (emphasis added); see also SUWA Map – Cumulative Visual Resource Impacts (confirming that visitors to the area, based on the basin and range topography in the area, can see for significant distances) (attached)</p> <p>[35] The CIAA for wildlife, including big game species, migratory birds, and BLM sensitive species is “the SLFO planning area” i.e., the entire 1 million acre plus field office boundary. EA at 41-42. BLM provides no explanation for why such an enormous CIAA is justified or why the agency has underemphasized potential cumulative impacts by defining such a large CIAA. But see BLM, National Environmental Policy Act, Handbook H-1790- 1 § 6.8.3.2 (Jan. 2008) (“The geographic scope is generally based on the natural boundaries of the resource affected, rather than jurisdictional boundaries.”) [hereinafter, “BLM NEPA Handbook.”] (attached).</p> <p>[36] • The EA failed to analyze all past, present, and reasonably foreseeable oil and gas leasing and development including, but not limited to, Utah School and Institutional Trust Lands (SITLA) lease sales, BLM’s March 2019 lease sale, and upcoming 2019 lease sales in this same region of the Salt Lake field office. See EA at 35-43 (cumulative impacts analysis section does not fully address these actions). See also SUWA Map – Cumulative Visual Resource Impacts; see also SUWA Map – Cumulative Impacts (attached). This includes, but is not limited to, impacts to air quality, water quality, greenhouse gas and climate change, greater sage-grouse, and visual resources.</p> <p>[37] The June 2019 Lease Sale EA failed to analyze cumulative impacts, as required by NEPA, and therefore BLM must update defer leasing until such time as the necessary analysis has been prepared.</p>	<p>for BLM’s June 2019 leasing process complies with the provisions of the Cultural Resources Protection Stipulation (H 3120-1), which is applied to all parcels. The provisions within Cultural Resources Stipulation and NHPA provide protection for historic properties or direct BLM disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated. Additionally, BLM has clarified that the lessee may not be guaranteed access to existing routes (i.e., the TCRR) and that they may have to build new routes.</p> <p>An adverse effect under NHPA is any alteration to the characteristics of a historic property that qualifies it for inclusion in the National Register of Historic places in a manner that would diminish its integrity [36 C.F.R. § 800.5(a)(1)]. A significant impact under NEPA is used to describe the level of impact a proposed action may have. Context and intensity have to be evaluated when assessing significance. Intensity of an impact refers to the severity of such in impact.</p> <p>[75 through 77] BLM has updated language in the riparian and water resources section of the IDT checklist (Appendix D) to clarify that additional protective measures may be implemented at the APD stage. BLM added an additional stipulation of no occupancy or disturbance within 400 feet of live water.</p> <p>[78 through 80] BLM has updated language in Sections 4.3.1.3 and Appendix D. Further, the provisions within Cultural Resources Stipulation and NHPA provide protection for historic properties or direct BLM disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated. The BLM has been affirmed that a Class I literature review is appropriate at the leasing stage and that impacts of leasing and development to cultural and historic resources will be addressed within the NHPA process. For example, the Interior Board of Land Appeal’s decision in 2005 regarding the Mandan, Hidatsa, and Arikara Nation Appeal [IBLA 2005-47 (IBLA 2005)] determined that “In issuing Federal oil and gas leases, BLM may adopt a phased approach to compliance with section 106 of the National Historic Preservation Act, as amended, 16 U.S.C. § 470f (2000), when no surface-disturbing activity is to occur until the section 106 process is completed.”</p> <p>[81-82] Background information provided. A response is not warranted.</p>

Commenter	Comment	BLM's Response
	<p><b>[38] V. Inadequate Pre-Leasing NEPA Analysis: Failure to Adequately Consider the No-Leasing Alternative.</b></p> <p>[39] NEPA requires that the BLM prepare a pre-leasing NEPA document that fully considers and analyzes the no-leasing alternative before the agency engages in an irretrievable commitment of resources, i.e., the sale of non-no surface occupancy oil and gas leases. See <i>S. Utah Wilderness Alliance v. Norton</i>, 457 F. Supp. 2d 1253, 1262-1264 (D. Utah 2006); <i>Bob Marshall Alliance v. Hodel</i>, 852 F.2d 1223, 1228-30 (9th Cir. 1988) (requiring full analysis of no-leasing alternative even if an EIS not required); <i>Mont. Wilderness Ass'n. v. Fry</i>, 310 F. Supp. 2d 1127, 1145-46 (D. Mont. 2004); <i>S. Utah Wilderness Alliance</i>, 164 IBLA 118, 124 (2004) (quoting <i>Pennaco Energy, Inc. v. U.S. Dep't of the Interior</i>, 377 F.3d 1147, 1162 (10th Cir. 2004)).</p> <p>[40] The Salt Lake Environmental Analysis Record, which is the only document relied upon by the Salt Lake field office for analysis of the no-leasing alternative, failed to analyze, consider, and evaluate this alternative as required by NEPA. See June 2019 Lease Sale EA at 4 (citing 1975 Salt Lake District Oil &amp; Gas EAR); <i>Id.</i>, App. G (citing no pre-leasing NEPA analysis); <i>S. Utah Wilderness Alliance</i>, 457 F. Supp. 2d at 1262-1264. Neither the draft nor final Box Elder RMP and EIS considered a no-leasing alternative. See Box Elder DEIS/DRMP at 1-3 (summarizing alternatives, including Alternative 3 which was described as “provid[ing] protection or enhancement of environmental values;” 0 acres would have been closed to leasing); see also <i>id.</i> at 17 (Alternatives Eliminated from Detailed Study: “No extreme or unreasonable options were considered for any resource, and no proposals were made for alternatives that could not be realistically implemented.”); Box Elder FEIS/PRMP at 15-19 (describing minerals program, proposed decision 3: fluid mineral leasing categories). The 1989 Oil and Gas Supplemental EA, cited in the June 2019 leasing EA, likewise did not consider or analyze the no-leasing alternative. Rather, it cited to and relied on the 1975 Salt Lake EAR which, in fact did not consider a no-leasing alternative. Finally, BLM’s perfunctory discussion of the no action alternative in the Salt Lake EA is likewise inadequate. See 42 U.S.C. §4332E; 40 C.F.R. §1508.9. Moreover, consideration of a site-specific “no action” alternative is not the same as consideration of a no-leasing alternative. Thus, BLM must defer leasing the seven parcels that are the subject of these comments until the agency prepares an adequate pre-leasing NEPA analysis.</p> <p><b>[41] VI. NEPA Alternatives, Including SUWA’s Proposed Alternatives.</b></p> <p>[42] A. Legal Background.</p> <p>[43] NEPA requires agencies to study, develop, and describe appropriate alternatives and their comparative effects in every proposal involving unresolved resource conflicts, regardless of whether it prepares an EA or an EIS. 42 U.S.C. § 4332(2)(E); 40 C.F.R. § 1508.9(b). While an agency need not select a particular alternative, <i>Robertson v. Methow Valley Citizens Council</i>, 490 U.S. 332, 350 (1989), the alternatives requirement ensures that an agency fully consider—and show the public that it considered—less environmentally harmful means to its proposed action that would accomplish the same goal. 40 C.F.R. §§ 1500.1(b); 1500.2(d), (e); see <i>Bob Marshall Alliance v. Hodel</i>, 852 F.2d 1223, 1228 (9th Cir. 1988), cert. denied sub nom., 489 U.S. 1066 (1989) (“NEPA’s requirement that alternatives be studied, developed and described both guides the substance of environmental decisionmaking and provides evidence that the mandated decisionmaking process has actually taken place.”).</p> <p>[44] In an EA, the agency must include a brief discussion of both alternatives and the environmental impacts of those alternatives. 40 C.F.R. § 1508.9(b). An EA’s alternatives analysis must present “information sufficient to permit a reasoned choice of alternatives as far as environmental aspects are concerned.” <i>Greater Yellowstone Coal. v. Flowers</i>, 359 F.3d 1257, 1277 (10th Cir. 2004). Moreover, agencies cannot dismiss alternatives “in a conclusory and perfunctory manner that do[es] not support a conclusion that it was unreasonable to consider them as viable alternatives in an EA.” <i>Davis v. Mineta</i>, 302 F.3d 1104, 1122 (10th Cir. 2002).</p> <p>[45] The range of alternatives an agency must analyze is dictated by a “rule of reason and practicality” based on the agency’s stated purpose and need for the project. <i>Davis</i>, 302 F.3d at 1120 (citation omitted). The reasonableness of an alternative is measured in two ways. First, it must accomplish the purpose and need of the proposed action. <i>N.M. ex rel. Richardson v. Bureau of Land Mgmt.</i>, 565 F.3d 683, 709 (10th Cir. 2009). Second, it must fall within the agency’s statutory mandate. <i>Id.</i> An alternative that is reasonable on its face must also be practical—“nonspeculative ... and bounded by some notion of feasibility.” <i>Utahns for Better Transp. v. U.S. Dept. of Transp.</i>, 305 F.3d 1152, 1172 (10th Cir. 2002).</p> <p>[46] An agency has broad discretion to define its objectives for a project proposal. However, after “defining the objectives of an action,” the agency must “provide legitimate consideration to alternatives that fall between the obvious extremes.” <i>Colo. Envtl. Coal. v. Dombeck</i>, 185 F.3d 1162, 1175 (10th Cir. 1999). Stated differently, a broadly defined objective demands that a broader range of alternatives be analyzed by the agency:</p> <p>[47] It is the BLM purpose and need for action that will dictate the range of alternatives and provide a basis for the rationale for eventual selection of an alternative in a decision. . . .</p> <p>[48] ... The broader the purpose and need statement, the broader the range of alternatives that must be analyzed.</p> <p>[49] BLM NEPA Handbook §§ 6.2, 6.2.1, pgs. 35-36 (emphasis added).</p> <p>[50] At all times, the analyzed range of alternatives must be “sufficient to permit a reasoned choice of alternatives as far as environmental aspects are concerned.” <i>N.M. ex rel. Richardson</i>, 565 F.3d at 708 (citation omitted). An EA must demonstrate that the agency took a “hard look” at alternatives – a “thoughtful and probing reflection of the possible impacts associated with the proposed project” so as to “provide a reviewing court with the necessary factual specificity to conduct its review.” <i>Silverton Snowmobile Club v. U.S. Forest Serv.</i>, 433 F.3d 772, 781 (10th Cir. 2006); see also 40 C.F.R. § 1508.9(a)(1). Courts will not defer to a void and thus the administrative record must contain evidence – not merely conclusory statements by the agency – that the agency did in fact take a hard look at a broad range of NEPA alternatives. See <i>High Country Conservation Advocates v. U.S. Forest Serv.</i>, 52 F. Supp. 3d 1174, 1186 (D. Colo. 2014).</p> <p>[51] B. SUWA’s Proposed Alternatives.</p>	

Commenter	Comment	BLM's Response
	<p>[52] SUWA proposes the following alternatives for BLM's consideration, each of which satisfies the rule of reason in light of BLM's exceedingly broad objective for this lease sale. See June 2019 Lease Sale EA at 3 (describing BLM's purpose and need).</p> <p>[53] • An alternative in which BLM would attach non-waivable no-surface occupancy (NSO) stipulations to each of the seven parcels at issue here; and</p> <p>[54] • An alternative in which BLM would analyze – in a single environmental analysis – the seven parcels included in this sale along with the twenty lease parcels considered by the BLM Salt Lake field office for its March 2019 lease sale.</p> <p>[55] These alternatives are technically and economically feasible, would have a lesser impact to the environment, and would accomplish the BLM's broad objectives. First, the alternatives are technically and economically feasible. See June 2019 Lease Sale EA at 8 (recognizing that directional and horizontal drilling is possible). Second, SUWA's proposed alternatives will clearly have less or no impact on the environment by opening less sensitive public lands to oil and gas development. Finally, SUWA's alternatives would satisfy BLM's broad objectives for the lease sale by allowing the agency to "respond" to the nominated parcels while including heightened resource protection measures to safeguard important resource values.</p> <p>[56] It is legally irrelevant that the NSO stipulations may be inconsistent with BLM's land use plan. Rather, because such stipulations are consistent with and fall within BLM's authority under FLPMA they are reasonable. See N.M. ex rel. Richardson, 565 F.3d at 709. In addition, BLM can – and does – add stipulations to leases that provide additional protections including NSO stipulations not envisioned in the applicable land use plan. For example, in <i>Center for Biological Diversity v. U.S. Bureau of Land Management</i>, BLM did exactly what SUWA's recommended alternative asks for in the present case: the agency added a stipulation – not found in the applicable land use plan – to its leasing decision to protect important resource values and the agency analyzed a separate alternative which included that resource protection measure. 2019 WL 236727 at *9 (D. Nev. Jan. 15, 2019) (adding a NSO water resource stipulation to 58,000 acres and a NSO slope stipulation to 72,000 acres of public lands to protect resource values).</p> <p>[57] Further, the March 2019 and June 2019 lease sales share many commonalities such as geographic location, timing, and scope and thus, pursuant to NEPA, BLM should consider the two projects including alternatives thereto in a single NEPA analysis. See, e.g., 40 C.F.R. § 1508.25 ("Scope consists of the range of actions, alternatives, and impacts to be considered in an environmental impact statement."); id. § 1508.25(a)(3) (stating that BLM should analyze "similar actions" in the same NEPA document when it is "the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions") (emphasis added). Utah-BLM's March and June 2019 lease sales are "similar actions" and "cumulative actions" for the reasons set-forth in SUWA's comments and protest of the March 2019 lease sale. See SUWA Comments at 10-11; SUWA Protest 12-13. It also is all the more critical that BLM analyze these projects in the same NEPA document, including alternatives, because the agency has to date – objectively – failed to analyze their cumulative impacts in either leasing EA, as described supra and in SUWA's comments and protest of the March 2019 lease sale. See SUWA Comments at 7-9; SUWA Protest at 3-5.</p> <p><b>[58] VII. BLM Must Ensure That Its Leasing Proposal Is Consistent with Manual 6840.</b></p> <p>[59] BLM's unsupported claim that lease stipulations and notices with regard to BLM sensitive species will "effectively minimize the effects of lease development to a negligible level" is insufficient. EA at 33. This claim is unsupported by any analysis or record evidence. It also is inconsistent with BLM's relevant manual, which requires the agency to:</p> <p>[60] Ensur[e] that BLM activities affecting Bureau sensitive species are carried out in a way that is consistent with its objectives for managing those species and their habitats at the appropriate spatial scale.</p> <p>[61] BLM, 6840 – Special Status Species Management § 06.2.C. (Dec. 12, 2008) (attached). That same manual also explains BLM must manage sensitive species in a manner that will "conserve these species and their habitats . . . [and] to promote their conservation and reduce the likelihood and need for such species to be listed pursuant to the ESA." Id. § 06.2.</p> <p>[62] There are several BLM sensitive species occurring in or near the seven lease parcels including, but not limited to, American white pelican, burrowing owl, ferruginous hawk, grasshopper sparrow, kit fox, and spotted bat. See June 2019 Lease Sale EA at 22, tbl. 3. However, BLM has neither provided record evidence to "ensure" that the sell-off of public lands for oil and gas leasing and development "is consistent with its objectives for managing those species" nor provided evidence that that leasing will "reduce the likelihood and need for such species to be listed pursuant to the ESA." Manual 6840 §§ 6.2.C, 6.2. For example, BLM failed to:</p> <p>[63] • Explain whether there are conservation plans or agreements for these species and, if so, how its proposed leasing decision is consistent with those plans;</p> <p>[64] • Analyze cumulative impacts to these species from past, present, and reasonably foreseeable oil and gas leasing and development; and</p> <p>[65] • Properly define the CIAA for sensitive species but instead defined that area to encompass the entire field office thereby underemphasizing the significance of potential impacts to sensitive species encompassed by the proposed parcels.</p> <p>[66] See generally June 2019 Lease Sale EA at 22-23 (failing to disclose whether there are conservation agreements in place); id. at 35-42 (no cumulative impact analysis of past, present, or reasonably foreseeable oil and gas leasing and development activities); id. at 42 ("The CIAA for BLM sensitive species is the SLFO planning area."). Without this basic information and accompanying analysis BLM's claim that lease stipulations and notices are sufficient in the present case, lacks merit. See <i>Agri Properties LLP &amp; Bakken Production Inc.</i>, 193 IBLA at 404 ("the Board will not uphold a BLM decision that is inconsistent with its guidance."); see also <i>Tillett v. Bureau of Land Mgmt.</i>, 2015 WL 5098438 at *5-6 (D. Mont. Aug. 28, 2015) (holding that BLM failed to analyze how the proposed action would impact Clark's Nutcracker, a sensitive species).</p> <p><b>[67] VIII. BLM Failed to Take a Hard Look at Direct, Indirect, and Cumulative Impacts of Oil and Gas Leasing and Development.</b></p> <p>[68] NEPA and federal caselaw require that agencies take a "hard look" at the direct, indirect and cumulative impacts of proposed activities and alternatives thereto. An EA must demonstrate that the agency took a "hard look" at alternatives – a "thoughtful and probing reflection of the possible impacts associated</p>	

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	<p>with the proposed project” so as to “provide a reviewing court with the necessary factual specificity to conduct its review.” <i>Silverton Snowmobile Club v. U.S. Forest Serv.</i>, 433 F.3d 772, 781 (10th Cir. 2006); see also 40 C.F.R. § 1508.9(a)(1). Courts will not defer to a void and thus the administrative record must contain evidence – not merely conclusory statements by the agency – that the agency did in fact take a hard look at a broad range of NEPA alternatives. See <i>High Country Conservation Advocates v. U.S. Forest Serv.</i>, 52 F. Supp. 3d 1174, 1186 (D. Colo. 2014).</p> <p>[69] In the present case, BLM failed to take a hard look at the impacts of leasing oil and gas leasing and development to the Central Pacific Railroad Grade Area of Critical Environmental Concern (ACEC), water and riparian resources, and cultural resources, among other resource values.</p> <p>[70] Central Pacific Railroad Grade ACEC</p> <p>[71] • The ID Team Checklist (EA at 63) relies on and cites to lease notices to “mitigate potential negative impacts.” As BLM knows, these lease notices are not enforceable. 43 CFR 3101.1-3. As such, BLM has failed to take a hard look at the full scope and range of impacts that it acknowledges are foreseeable and indeed to be expected from development, in particular to the Central Pacific Railroad Grade ACEC. See also EA at 3 (wrongly conflating lease stipulations and notices and describing them as “restriction”).</p> <p>[72] • BLM’s discussion of “reasonably foreseeable development scenario – well pad and road construction” fails to acknowledge that development of any of the leases would involve heavy truck traffic along the Central Pacific Railroad Grade ACEC that threatens the integrity of that resource. See <i>Civil Engineering Review of the Central Pacific Railroad Grade for the March 2019 Salt Lake Office Oil and Gas Lease Sale</i> (Nov. 2018) (“Due to the nature of vehicles used in the oil and gas industry, the structure of the railroad grade could be significantly impaired in a short time. Any construction traffic will cause serious damage to the grade that would require the addition of new base material, watering, compaction, and blading, which in turn will compromise the historic significance of this structure.”).</p> <p>[73] • SUWA expressly reserves the right to supplement these comments to reflect information that will only be available once the June 2019 Lease Sale Cultural Report is finalized.</p> <p>[74] • BLM’s acknowledgment that “[i]ndustrial traffic from, on, or across the CPRR could impact the CPRR’s grade and associated setting, town sites, siding, and architectural features” cannot be reconciled with its assertion that leasing and development will not result in an adverse effect to historic properties. EA at 29; see also <i>id.</i> (acknowledging that there may be impacts from leasing and development but describing them as not substantial); <i>id.</i> at 30 (“Over the long-term, the persistence of visual impacts from upgraded or new roads and a drill pad of several acres within the viewshed of the railroad grade could have a localized negative impact on the scenery and associated historical setting.”); <i>id.</i> at 31 (indirect impacts from leasing may occur if the leases are developed.”); <i>id.</i> at 39 (“Surface disturbance resulting from potential future oil and gas development on other federal or non-federal lands, including road, pipeline and utility line construction, could potentially cause cumulative impacts to cultural resources in the parcels.”) To the extent that BLM is relying on lease notices to eliminate effects that rationale is undercut by the fact that the notices cannot be enforced. 43 CFR 3101.1-3 (“An information notice has no legal consequences, except to give notice of existing requirements.”). As SUWA explained in its comments and protest over the March 2019 lease sale, BLM’s cultural resource stipulation – which gives BLM the discretion to allow surface activities even if they may result in an adverse effect – is also insufficient.</p> <p>[75] Water Resources, Including Riparian Areas</p> <p>[76] • BLM has failed to take a hard look at the impacts of leasing and development to water resources. The EA’s ID Team Checklist acknowledges that there are “[m]ultiple water rights held by both BLM and individuals are located in or near the parcels. These water rights have beneficial uses of stockwater, irrigation, and domestic. Water quality must continue to be acceptable to meet the beneficial uses of the water right. Exploration and development could cause impacts.” EA at 70 (emphasis added). BLM does not identify the location of the water rights, does not discuss water quality, nor consider, analyze and disclose what impacts it anticipates could occur from leasing and development. BLM’s citation to and reliance on an unenforceable lease notice (UT-LN-128: Floodplain Management) does not satisfy its hard look obligation regarding NEPA analysis of impacts to water resources.</p> <p>[77] • BLM has also failed to take a hard look at the impacts of leasing and development to wetlands/riparian zones/floodplains. The EA’s ID Team Checklist asserts that “[l]easing of the parcels would not directly affect these resources,” EA at 70 (emphasis added), but is silent as to indirect or cumulative effects. BLM does not identify the location of riparian areas and/or wetland systems in parcels 015, 016, 017, 019, and 020, though it acknowledges that these resources exist, and does not consider, analyze and disclose what the indirect or cumulative effects of leasing and development may be to these resources.</p> <p>[78] Cultural Resources</p> <p>[79] • BLM has failed to take a hard look at the impacts of leasing and development to cultural and historic resources. While the EA repeatedly acknowledges in generalized, qualitative terms that effects to these resources from leasing and development are possible (and indeed likely), there is no serious explication or disclosure of their scope or extent. See generally EA at 39 (noting that past, present and reasonably foreseeable impacts on cultural impacts are expected, but not making an effort to quantify or explain these impacts); <i>id.</i> at 63 (noting that “known cultural resources (e.g., prehistoric and historic resources) may be impacted” but then asserting that direct effects can be eliminated) (emphasis added); see also <i>id.</i> at 29 (same, acknowledging impacts).</p> <p>[80] • Importantly, BLM acknowledges that “[t]here is potential for impacts to the CPRR itself and to parcels within five miles of the grade ... from the proposed action.” EA at 63 (emphasis added); see also <i>id.</i> at 39. This candid and correct assessment severely undermines BLM’s assertion that the sale of leases at the March 2019 and June 2019 lease sales will not adversely affect the CPRR. See <i>id.</i> at 29. SUWA appreciates your prompt attention to and consideration of these concerns and comments.</p> <p>[81] SUWA appreciates your prompt attention to and consideration of these concerns and comments.</p> <p>[82] Footnotes:</p>	

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	<p>1. Available at <a href="https://eplanning.blm.gov/epl-frontoffice/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&amp;currentPageId=178500">https://eplanning.blm.gov/epl-frontoffice/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&amp;currentPageId=178500</a> (last updated Feb. 19, 2019).</p> <p>2. It must be noted that BLM's comment period for the June 2019 lease sale closed one business day after the close of BLM's protest deadline for the March 2019 lease sale. This is another example of BLM's unlawful attempt to eliminate the public from the management of public lands.</p> <p>3. For example, employees required to work during past shutdowns have "necessarily included prison guards, Federal air marshals, [and] border patrols"—that is, employees actually necessary for the express purpose of the statute—the "safety of human life or the protection of property." See <i>Martin v. United States</i>, 117 Fed. Cl. 611, 627 (2014) (quoting 31 U.S.C. § 1342).</p> <p>4. SUWA's protest arguments apply to the present case because, as noted supra, BLM's analysis – throughout both the March and June 2019 leasing EAs – is nearly word-for-word the same, with only minor modifications to reflect the June 2019 lease parcels.</p> <p>[Note: Paragraph numbering was added. Exhibits/attachments were not included here.]</p>	
<p>Great Salt Lake Audubon (GSLA) (Dove)</p>	<p>[1] Great Salt Lake Audubon (GSLA) welcomes this opportunity to comment on the BLM June 2019 Competitive Oil and Gas Lease Sale, Environmental Assessment DOI-BLM-UT-2019-0002-EA-SFLO. GSLA comments are general and focus on the overall inadequacy of the referenced document.</p> <p>[2] As stated in the press release the BLM's mission "is to sustain the health, diversity, and productivity of America's public lands for the use and enjoyment of present and future generations." These proposed oil and gas leases do not support the BLM's mission of sustaining the health and diversity of American public lands. If this mission was truly supported, these parcels would not be released for bid. Neither do they support the Trump Administration's goal of furthering American energy dominance." Based on oil/gas potential these leases will have little to no impact on American energy dominance. It's unconscionable in the face of the significant impacts to our planet from climate change, that the BLM would further champion oil/gas production, one of the largest contributors to climate change, in ecologically sensitive areas like the GSL landscape. Oil and gas exploration of parcels UT0612-015- UT0612- 020 will do nothing but promote further degradation of an ecosystem of hemispheric importance that is already under significant stress and the most endangered ecosystem in the western United States.</p> <p>[3] The Box Elder County parcels are located in an area that has had relatively little development and are within the foot print of the modern extent of the GSL, and 15 miles west of the current lake boundary and the most important wetland complex in the western United States. The GSL ecosystem, which includes the area west of the GSL into eastern NV, is the most important ecosystem in the Western United States and is a site of global importance for migrating birds as part of the Western Hemispheric Shorebird Network. The GSL ecosystem supports 10 million birds including approximately 300 species, several of which are highly dependent upon this ecosystem.</p> <p>[4] As stated in the Environmental Assessment (EA) the parcel terrain is open flat or gently rolling valleys and includes playas and ephemeral washes and steep sided mountainous terrain. The habitat in this terrain is primarily intact and includes shrub land and grassland, with inclusions of Utah Juniper. This intact habitat is not only critical for Pronghorn Antelope and Mule Deer, but along with playas are critical for many species of birds, including the listed sensitive species WHICH ARE HIGHLY LIKELY to occur in these parcels as they occur in the surrounding areas, Burrowing Owl, Ferruginous Hawk, Grasshopper Sparrow, Long-billed Curlew, Sharp-tailed Grouse, and Snowy Plover. Additionally, Short-eared Owls (currently experiencing significant population decline) use this habitat for nesting. Many raptors also use this area for winter range, including Ferruginous and Rough-legged Hawks. One of the highest concentrations of over-wintering Rough-legged Hawks occurs in this general area.</p> <p>[5] The EA does not present any data or information that suggests that the impacts of fluid mineral extraction on the referenced parcels have been adequately assessed. The document repeatedly indicates that no data are available to perform an assessment in relation to wildlife, and "soft" terminology is used repeatedly, i.e., may be present, may disrupt nesting, may cause habitat fragmentation, etc. There are plenty of available specific to the Great Basin regarding the impact of oil/gas exploration on habitat fragmentation, wildlife disturbance, impacts to breeding, etc. There are also data available about the species that routinely use this area. The EA is incomplete and should not have been released in a preliminary iteration. It has insufficient information to even qualify as a draft.</p> <p>[6] Contrary to what is indicated in the EA, development will result in negative effects to wildlife, including "loss, degradation, and fragmentation of habitat; altered reproduction, 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". Wildlife and habitat health surveys should have been performed prior to the lease process for a complete understanding of what is truly at risk. Based on actual data from this area or at the minimum using data from similar areas in the Great Basin, the EA should have clearly presented the true impacts of oil/gas exploration to habitat and the species that use this area. Additionally, the EA should have assessed the impacts of this lease in relation to the GSL ecosystem as a whole and also evaluated it against the significant habitat fragmentation that is occurring across the intermountain west. Do we really need to destroy more habitat? A true cost-benefit analysis in relation to energy yields in relation to impacts to the overall health of the ecosystem, climate change, and human health should have also been performed. The BLM failed to analyze all reasonable, foreseeable potential impacts of oil and gas development from the above-listed leases and instead has delayed analysis to a later date, after leases have been released. All one has to do is look at the Unita Basin to determine how ineffective and destructive this approach is to human health and wildlife.</p> <p>[7] It is critically important that no industrial activities that have the potential to significantly impact the already compromised GSL ecosystem, such as oil and gas exploration, be allowed within this area. The resulting noise, light, air, and industrial waste pollution along with the fragmentation and destruction of fragile</p>	<p>[1 and 3] Background information provided. A response is not warranted.</p> <p>[2] Specific information or data regarding climate change was not provided.</p> <p>[4 through 7] BLM discusses the presence of habitat for a variety of species including migratory birds and BLM sensitive species in Section 3.3.5 and analyzes impacts in Sections 4.3.1.5, 4.3.2.5, and 4.4.5. BLM continues to coordinate and consult with UDWR and USFWS (refer to Section 5.2).</p> <p>The BLM's oil and gas program includes 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 &amp; 4 would be initiated including the corresponding NEPA &amp; 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 &amp; 4), the BLM (and interested public) will have more information and can determine impacts to various resources or land uses from the specific/proposed APD.</p> <p>The impact analysis suggested by GSLA regarding exploration and development is not warranted at the leasing stage. Specific information would be available/addressed at the APD stage. The GSLA does not provide data or references related to oil/gas leasing activities to which the BLM could consider in this EA.</p> <p>GSLA does not define which attributes it suggest to be included in a cost-benefit analysis in relation to energy yields in relation to impacts to the overall health of the ecosystem, climate change, and human health.</p> <p>GSLA does not provide information or reasoning as to why the stipulations and notices applied to these parcels do not resolve its concerns. 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."</p>

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	<p>habitat that accompany road, pad, and pipeline construction will deleteriously impact the wildlife that use this area. Wildlife that are already under stress due to significant loss of habitat across the intermountain west and the impacts of global climate change.</p> <p>[Note: Paragraph numbering was added.]</p>	
<p>Utah Rock Art Research Association (URARA) (Acerson)</p>	<p>[1] Utah Rock Art Research Association (URARA) requests and appreciates the opportunity to participate as a consulting party and to comment on Oil and Gas Lease Sales. We have a long history of working with the state BLM office and each field office, and would like to continue this partnership. In particular oil and gas lease sales, as well as other activities which effect cultural resources within the field office jurisdictions. Thank you for accepting us as a consulting party in the development of these activities.</p> <p>[2] URARA is the largest organization actively engaged in the conservation and preservation of petroglyphs and pictographs (rock art) in the state of Utah.</p> <p>[3] Our mission is:</p> <ul style="list-style-type: none"> <li>• To lead in the preservation and understanding of the importance of rock art</li> <li>• To encourage the appreciation and enjoyment of rock art sites</li> <li>• To assist in the study, presentation, and publication of rock art research</li> </ul> <p>[4] We are engaged with land managers on federal, state, county, and city lands, assisting with and consulting on land use activities that may impact rock art. We are a resource for government agencies, municipalities, communities, and private land owners, to aide them in identifying, preserving, and protecting these cultural resources within their boundaries and/or jurisdictions.</p> <p>[5] Our concerns for lease sales are these:</p> <p>[6] Less than 15% of BLM lands within the State of Utah have been surveyed for cultural resources. Lease sales have the potential to threaten cultural resources that are unknown at this time. However, it is also our understanding that all undertakings associated with oil and gas development on these leases will be handled through site specific NEPA and NHPA – Section 106 processes, if and when lease development proceeds. However, these processes typically focus only on the actual well pads associated with development and often ignore the cumulative impact of roads, pipelines, storage facilities, and other requirements of resource development companies which may occur within or outside of the lease parcel. These impacts also have to be given weight in the leasing and development decisions.</p> <p>[7] We would like to be invited as consulting parties for NEPA, NHPA, and Section 106 reviews. At that time, we would expect thorough reviews, surveys, documentation, mitigation, and compliance with all notifications, stipulations, federal regulations, and Section 106 requirements should any cultural resources, including petroglyphs or pictographs be discovered.</p> <p>[8] Thank you for including our comments and accepting us as a consulting party in these processes. Ultimately our goal is to preserve any cultural resources yet undiscovered or presently known, for future generations to enjoy, to learn, and appreciate.</p> <p>[Note: Paragraph numbering was added.]</p>	<p>[1 through 5 and 8] Background information provided. A response is not warranted.</p> <p>[6] BLM continues to work through the NHPA process. A Cultural Resources Review was prepared to document the BLM's reasonable and good faith effort to identify effects this undertaking may have on historic properties (BLM 2019).</p> <p>To comply with NEPA, the BLM describes affected cultural resources and potential impacts of the proposed action first in the IDPRT checklist (cultural resources generally) and then in Sections 3.3.3, 4.3.1.3, 4.3.2.3, and 4.4.3 (specifically for the CRRR Grade).</p> <p>URARA does not provide information or reasoning as to why the stipulations and notices applied to these parcels do not resolve its concerns. For example, BLM specifically applies the Cultural Resources Protection Stipulation (Handbook H-3120-1) to each parcel (Refer to Appendix A and B). When and if an APD is filed, a cultural resources inventory would then be conducted based on the information contained in the APD. Additional consultation would occur with affected Tribes, SHPO, and any consulting parties identified for a specific APD.</p> <p>Additional information regarding NHPA compliance is included in the EA at Section 5.3. BLM continues to work with the current Consulting Parties on this lease sale.</p> <p>[7] As of 3/5/2019 (via telephone confirmation), URARA is a Consulting Party for this lease sale.</p> <p>URARA does not qualify as a Cooperating Agency under NEPA, as it does not have jurisdiction by law or is an agency with expertise. Utah Rock Art Research Association is participating in the NEPA process by reviewing and commenting on this EA.</p>
<p>Hawk Watch International (HWI) (Chabot and Slater)</p>	<p>[1] We would like to thank the BLM for the opportunity to provide our comments on the proposed Salt Lake Field Office Area parcels for oil and gas leasing. HawkWatch International, Inc. (HWI) is a science-based, non-advocacy raptor organization with decades of experience monitoring and conducting research directed toward Golden Eagles and other raptors. As such, we provide comments here on potential raptor issues associated with the proposed leases.</p> <p>[2] Although numerous raptor species may nest or forage in or near the proposed parcels, as recognized in the BLM's Environmental Assessment (EA), we are particularly concerned about potential impacts of development to Golden Eagle habitat. Golden Eagles were added to Utah's list of Species of Greatest Conservation Need (SGCN) in 2017, largely due to data collected by HWI and other partners on declines in West Desert territory occupancy and nest productivity (Slater et al. 2013). Across western North America, various recent data analyses suggest Golden Eagle populations are at worst declining and at best stable to declining (Farmer et al. 2008, Millsap et al. 2013, USFWS 2016).</p> <p>[3] Eagle nesting habitat in the West Desert of Utah is under threat from increased fire frequency, shrub loss, and prey declines (Slater et al. 2013). Within the West Desert, loss of shrub habitat that impacts the abundance of jackrabbits, is seen as the most pressing threat to Golden Eagles (Slater et al. 2012). Oil and gas leasing that results in shrub loss near nesting territories should be avoided to the extent possible. Generally, fire risk is greatest where human activities and access are greatest, and opening these leases will increase the risk to eagle habitat in the Hogup Mountains. The BLM EA references Raptor Inventory Nest Survey data from the propose lease areas, but HWI also has a long history of monitoring raptor and eagle nests here. Below, we show eagle nests that we have identified near the project (Fig. 1), but the increased traffic along access roads would also have the potential to disturb eagle nesting outside the areas shown here. Disturbance of nesting eagles is prohibited under the Bald and Golden Eagle Protection Act.</p> <p>[4] FIGURE 1. Raptor nests documented by HWI near BLM proposed leases. Data is biased to visible nests near roads and a lack of known nests in a particular area should not be construed as evidence of absence. (Map not reproduced here).</p> <p>[5] In addition, HWI, in partnership with Department of Defense (DoD), has placed tracking devices on approximately 50 West Desert Golden Eagle nestlings between 2013–2018, and post-fledging data points suggests multiple Golden Eagle individuals are making use of the habitat within and near the proposed parcels (Fig. 2; HWI and DoD, unpublished data). The Hogups sit at the north end of the Airforce's North Utah Test and Training Range (NUTTR) and the NUTTR supports some of the most productive eagle nests in the West Desert. The proximity of the Hogups to the highly valuable eagle nesting habitat on the NUTTR suggests caution when considering the suitability of nearby BLM lands for development.</p>	<p>[1] Background information provided. A response is not warranted.</p> <p>[2 through 7] Refer also to BLM's responses to Great Salt Lake Audubon.</p> <p>BLM has reviewed the new data provided by HWI. Section 3.3.5 addressed raptors, including golden eagles, noting that habitat and nests are present in or near all parcels. Nest data was not provided by species for this EA, however lease notices and stipulations were applied to ALL parcels, refer to Tables 6 and 7.</p>

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	<p>[6] FIGURE 2. Golden Eagle area use based on number of individuals (different eagles) documented in an area by hourly location fixes obtained by GPS backpacks. (Map not reproduced here).</p> <p>[7] We also call the BLM's attention to HWI's peer-reviewed science on Golden Eagle nest protection in central Utah (Slater et al. 2017) and to BLM Tech Notes 432–435 (completed with funding from BLM Utah State Office) on raptor response to oil and gas development.</p> <p>[Note: Letters received from Eric Chabot and Steven Slater were identical and are addressed once here. Figures and literature cited are not reproduced here. Paragraph numbering was added.]</p>	