

**U.S. Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment**

**November 2016 Competitive Oil and Gas Lease Sale  
DOI-BLM-UT-G010-2016-033-EA**

**June 2016**

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**Environmental Assessment**  
**November 2016 Competitive Oil and Gas Lease**  
**Sale**  
**DOI-BLM-UT-G010-2016-033-EA**

Prepared by  
**U.S. Department of the Interior**  
**Bureau of Land Management**

**June 2016**

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# **Chapter 1. Introduction**

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## **1.1. Identifying Information:**

### **1.1.1. Title, EA number, and type of project:**

November 2016 Competitive Oil and Gas Lease Sale

DOI-BLM-UT-G010-2016-0033-EA

### **1.1.2. Location of Proposed Action:**

See Appendix A for legal descriptions of Lease Parcels and Appendix B for a Map of the Lease Parcels

## **1.2. Introduction:**

The Bureau of Land Management (BLM) has prepared this environmental assessment (EA) to disclose and analyze the environmental consequences of the sale of 28 proposed parcels during the November 2016 oil and gas lease sale and subsequent potential development. The EA is an analysis of potential impacts that could result from the implementation of a proposed action or alternatives to the proposed action. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant impacts could result from the analyzed actions. *Significance* is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of Finding of No Significant Impact (FONSI). A FONSI statement documents the reasons why implementation of the selected alternative would not result in significant environmental impacts (effects) beyond those already addressed in the Vernal Field Office Resource Management Plan (VFO RMP) [BLM 2008b] EIS's listed in Section 1.7.1, "FEISs." If the decision maker determines that this project has significant impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record may be signed for the EA approving the selected alternative, whether the proposed action or another alternative.

## **1.3. Background**

In general, the BLM Utah State Office (USO) conducts a quarterly competitive lease sale to sell available oil and gas lease parcels in the state. In the process of preparing a lease sale the BLM USO compiles a list of lands nominated and legally available for leasing, and sends a parcel list to the appropriate Field Office where the parcels are located, in this case the Vernal Field Office (VFO). VFO staff then:

- review and verify that the parcels are; in conformance with the VFO RMP [BLM 2008b] as being available for leasing;
- review any new information that has become available;
- assess any circumstances that have changed to determine what level of analysis is required;

- attach appropriate stipulations and notices;
- conduct appropriate consultations;
- complete site visits;
- and identify any special resource conditions for potential bidders.

The Field Office then either determines that existing analyses provide an adequate basis for making a decision or that additional analysis is needed before making a leasing recommendation.

Initially 102 Parcels were sent to the VFO for consideration for the 2016 lease sale. (Additional information is available on the oil and gas leasing webpage.)<sup>1</sup> The VFO reviewed those 102 preliminary parcels, and deferred 74 full parcels and 5 partial parcels from consideration for the November 2016 lease sale on account of issues related to; white-tailed prairie dog habitat, Sage Grouse habitat, Yellow-billed Cuckoo habitat, pending wilderness inventories and recreation concerns.

The surface rights for most of the 28 parcels considered in the EA are owned by the federal government and administered by the VFO with smaller portions owned by other Federal, State and private entities. (see Appendix A, November 2016 Preliminary Oil and Gas Lease Sale List; and Appendix B, Maps). Appendix A provides the surface ownership, legal descriptions and acreages by the parcel identification number. The 28 parcels encompass a total of 12,344.48 acres.

An EA is being used to determine whether leasing the remaining parcels would result in significant impacts beyond those disclosed in the EISs listed in Section 1.7.1. Section 1.7.1, “FEISs ” The EA and unsigned FONSI are made available to the public for a 30-day public comment period on the BLM ePlanning Website.<sup>2</sup> After analyzing and incorporating all substantive comments received during the public comment period, changes to the document and/or lease parcels list are made if necessary. The EA and unsigned FONSI are released again with an updated parcel list including applicable lease stipulations and notices through a Notice of Competitive Lease Sale which initiates a 30-day protest period.

## 1.4. Purpose and Need

The need for the sale is to respond to the public’s lease nomination requests. Offering parcels for competitive oil and gas leasing provides for the orderly development of fluid mineral resources under BLM’s jurisdiction in a manner consistent with multiple use management and environmental consideration for the resources that may be present. The purpose of the lease sale review process is to ensure that adequate provisions are included in the lease terms, notices and stipulations to protect public health and safety, ensure the project conforms with the land use plan, and ensure full compliance with the objectives of NEPA and other federal environmental laws and regulations designed to protect the environment, and comply with the BLM’s multiple use management for public lands. The sale and development of oil and gas leases is needed to meet the energy needs of the United States public. The BLM is required by law to review areas that have been nominated for oil and gas leasing. Oil and gas leasing is a principal use of the public

<sup>1</sup>[http://www.blm.gov/ut/st/en/prog/energy/oil\\_and\\_gas/oil\\_and\\_gas\\_lease.html](http://www.blm.gov/ut/st/en/prog/energy/oil_and_gas/oil_and_gas_lease.html)

<sup>2</sup>[http://www.blm.gov/pgdata/content/wo/en/prog/planning/planning\\_overview/eplanning2.html](http://www.blm.gov/pgdata/content/wo/en/prog/planning/planning_overview/eplanning2.html)

lands as identified in Section 102(a)(12), 103(1) of the Federal Land Policy and Management Act of 1976 (FLPMA), and it is conducted to meet requirements of the Mineral Leasing Act of 1920, as amended, the Mining and Minerals Policy Act of 1970, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act). Leases would be issued pursuant to 43 CFR subpart 3100.

## 1.5. Conformance with BLM Land Use Plan

The Proposed Action described below is in conformance with VFO RMP, and the Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region, Including the Greater Sage-grouse Sub-Regions of Idaho and Southwestern Montana, Nevada and Northeastern California, Oregon and Utah [BLM 2015], as amended in 2015, because they are specifically provided for in the planning decision(s). More specifically, the proposed Action is in conformance with the following decisions from the VFO RMP

- The Record of Decision for the VFO RMP decisions MIN 6 – MIN 14 (pages 98-99) identifies those specific lands within the Vernal Field Office that are available for leasing as illustrated on its corresponding Oil and Gas Leasing map (Figure 8a in VFO RMP).
- Appendices; K (Surface Stipulations to all Surface Disturbing Activities), L (Utah's T&E and Special Status Species Lease Notices for Oil and Gas and BLM Committed Measures) and R (Fluid Mineral Best Management Practices) of the Vernal RMP Record of Decision contain pertinent stipulations, lease notices and committed measures.

It is also consistent with VFO RMP decisions and their corresponding goals and objectives related to the management of (including but not limited to) air quality, cultural resources, recreation, riparian, soils, water, vegetation, fish & wildlife and Areas of Critical Environmental Concern (ACEC).

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 Management Act, which are applicable to all actions on federal lands.

Once the lease has been issued, the lessee has the right to use as much of the leased land as necessary to explore for, drill for, extract, remove, and dispose of oil and gas deposits located under the leased lands, subject to the standard lease terms and additional restrictions attached to the lease in the form of lease stipulations. Even if no restrictions are attached to the lease, the operations must be conducted in a manner that prevents unnecessary or undue degradation of the public lands 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. Also included in all leases are two mandatory stipulations for the statutory protection of cultural resources (BLM Washington Office Instruction Memorandum No. 2005-03, Cultural Resources and Tribal Consultation for Fluid Minerals Leasing) and threatened or endangered species mandatory stipulation (BLM Washington Office Instruction Memorandum No. 2002-174, Endangered Species Act Section 7 Consultation), which are described in Sections 4.1.1.5 and 4.1.1.11, respectively. BLM would also encourage

industry to consider participating in EPA's Natural Gas STAR program under all alternatives. The program is a flexible, voluntary partnership wherein EPA works with companies that produce, process, transmit and distribute natural gas to identify and promote the implementation of cost-effective technologies and practices to reduce emissions of methane, a greenhouse gas.

## 1.6. Relationship to Statutes, Regulations, or Other Plans

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

- Title V of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776, 43 U.S.C. 1761) and the regulations issued there under at 43 Code of Federal Regulations, part 2800.
- Taylor Grazing Act (1934), as amended.
- Utah Standards and Guidelines for Rangeland Health. (1997)
- BLM Utah Riparian Management Policy. (2005)
- Section 106 of the National Historic Preservation Act of 1966, as amended and associated regulations at 36 CFR Part 800.
- Bald and Golden Eagle Protection Act of 1962.
- Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), as amended.
- BLM Manual 6840- Special Status Species Management.
- Migratory Bird Treaty Act. (1918)
- Utah Partners in Flight Avian Conservation Strategy Version 2.0.
- Birds of Conservation Concern 2002.
- Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds.
- MOU between the USDI BLM and USFWS to Promote the Conservation and Management of Migratory Birds. (4/2010)
- Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development. (BLM UT IM 2010-055)
- Oil and Gas Leasing Reform —Land Use Planning and Lease Parcel Reviews. (BLM WO IM 2010-117)
- Guidance for Management of Oil and Gas Exploration and Production Pits. (BLM UT IB 2013-038)
- MOU Among the USDA, USDI and EPA Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions Through the NEPA Process. (2011)

- BLM Manual 6310 - Conducting Wilderness Characteristics Inventory of BLM Lands.
- BLM Manual 6320 - Considering Lands with Wilderness Characteristics in the BLM Land Use Planning Process.
- BLM Manual 8100 - The Foundations for Managing Cultural Resources.
- Green River District Reclamation Guidelines IM-UT-G000–0002.
- Vernal Field Office Surface Disturbance Weed Policy IM-UT-G010-10-001.
- Utah Greater Sage-Grouse Proposed Land Use Management Plan Amendment and Final Environmental Impact Statement (FEIS)[BLM 2015]
- The Utah Greater Sage-Grouse Approved Resource Management Plan Amendment (GRSG ARMPA)
- Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region, Including the Greater Sage-grouse Sub-Regions of Idaho and Southwestern Montana, Nevada and Northeastern California, Oregon and Utah (GRSG ROD)

The attached Interdisciplinary Team Checklist, Appendix C, was developed after consideration of these laws, ordinances, policies and plans.

## **1.7. Documents Incorporated by Reference:**

In order to reduce redundant paperwork and analysis in the NEPA process (*See* 40 CFR §§ 1502.20 and 1502.21) the following documents and their associated information or analysis are hereby incorporated by reference.

### **1.7.1. FEISs**

- Vernal Field Office Final Environmental Impact Statement (FEIS) and Resource Management Plan (RMP) [BLM 2008a] and Record of Decision
- Utah Greater Sage-Grouse Proposed Land Use Management Plan Amendment and Final Environmental Impact Statement (FEIS)[BLM 2015]
- Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement [BLM 2007] and Record of Decision.

### **1.7.2. Other Documents**

- Greater Uinta Basin Oil and Gas Cumulative Impacts Technical Support Document [BLM 2012b]

## **1.8. Identification of Issues:**

The proposed action was reviewed by an interdisciplinary team composed of resource specialists from the Vernal Field Office. The interdisciplinary team conducted Literature review, GIS review and site visits to validate existing data and gather new information in order to make an informed

leasing recommendation from March to May 2016. The results of the interdisciplinary team review are contained in the Interdisciplinary Team Checklist, Appendix C. February 2016 letters or memorandum were sent, to the National Park Service, United States Fish and Wildlife Service, United States Forest Service, and State of Utah's Public Lands Policy Coordination Office, Division of Wildlife Resources (DWR) and School and Institutional Trust Lands Administration to provide notice of the lease sale. The letters included parcel location descriptions and an invitation to attend the interdisciplinary team parcel site visits. .

Public notification was initiated by entering the project information on the BLM ePlanning NEPA Register (<https://www.blm.gov/epl-front-office/eplanning>) on March 23, 2016. Additional information for the public is maintained on the Utah BLM Oil and Gas Leasing Webpage ([http://www.blm.gov/ut/st/en/prog/energy/oil\\_and\\_gas/oil\\_and\\_gas](http://www.blm.gov/ut/st/en/prog/energy/oil_and_gas/oil_and_gas)

Letters were sent to the surface owners of the split estate parcels to solicit their comments and concerns about the pending lease sale.

As a result of this coordination and scoping to solicit issues and concerns, comments were received from agencies, groups, and individuals. The commenters raised the resource issues of concern, which are listed in Chapter 5 and in Appendix E.

The Utah Division of Wildlife Resources (UDWR) provided recommendations regarding wildlife species and habitat and resulted in the addition of lease notices to multiple parcels. Scoping comments were considered by resource specialists when making their impact determination for the ID team checklist. No comments identified an alternative other than the Proposed Action or no action.

All of the issues raised were considered during the internal Interdisciplinary Team review.

## **1.9. Summary**

This chapter has presented the purpose and need of the proposed project. In order to meet the purpose and need of the proposed project in a way that resolves potential issues, the BLM has considered and/or developed two alternatives. These alternatives are presented in Chapter 2. The potential environmental impacts or consequences resulting from the implementation of each alternative considered in detail are analyzed in Chapter 4 for each of the identified issues.

# **Chapter 2. Proposed Action and Alternatives**

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## 2.1. Description of Alternatives Analyzed in Detail

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

## 2.2. Alternative A-Proposed Action

Under Alternative A, 28 of the 102 parcels (12,334.48 total acres) would be offered for lease at the November 2016 competitive Oil and Gas Lease Sale, to be held by the Utah BLM State Office at a location designated by the Utah State Office before the Lease Sale. These parcels would be offered for lease subject to the applicable laws and regulations, the standard lease terms contained in BLM Form 3100-11 (Offer to Lease and Lease for Oil and Gas, October 2008), and the additional resource protection measures attached consistent with the VFO RMP [BLM 2008b]. Legal descriptions of and stipulations and notices attached to each parcel can be found in Appendix A, and a map of the parcels can be found in Appendix B.

Leasing is an administrative action that affects economic conditions but does not directly cause environmental consequences. However, leasing is considered to be an irretrievable commitment of resources because the BLM generally cannot deny all surface use of a lease unless the lease is issued with a No Surface Occupancy stipulation. Potential oil and gas exploration and production activities, committed to in a lease sale, could impact resources and uses in the planning area. Direct, indirect or cumulative effects to resources and uses could result from as yet undetermined and uncertain future levels of lease exploration or development.

Although at this time it is unknown when, where, or if future well sites or roads might be proposed on any leased parcel, should a lease be issued site specific analysis of individual wells or roads would occur when a lease holder submits an APD (Application for Permit to Drill). The Reasonably Foreseeable Development (RFD) scenario serves as an analytical baseline for identifying and quantifying direct, indirect, and cumulative effects of oil and gas activity and forms the foundation for the analysis of the effects of oil and gas management decisions in planning and environmental documents. It is assumed that each lease sold would have at least one well pad developed and that those well pads, including associated infrastructure, would disturb an estimated 4 acres. With 28 proposed leases the estimated surface disturbance would be 116 acres.

Parcels 032, 067, 151, and 152 are within existing Oil and Gas Units, and surrounded by existing Oil and Gas leases. Proposals to develop these leases would be done in accordance with Unit Agreement Terms. (See Appendix A for Unit stipulations and Appendix G for Oil and Gas Unit maps)

### 2.2.1. Well Pad and Road Construction

Equipment for well pad construction would consist of dozers, scrapers, and graders. Topsoil from each well pad would be stripped to a maximum depth of six inches and stockpiled for future reclamation. Disturbance for each well pad would be estimated at an area of approximately 350 feet by 250 feet (~2 acres of land), including topsoil piles. For this analysis, it was assumed that

disturbance for well pads could be as high as 4 acres per well to account for any infrastructure (e.g., roads) that would be required if the wells were to go into production (see below).

It is anticipated that new or upgraded access roads would be required to access well pads and maintain production facilities. Construction of new roads or upgrades to existing roads would require a 30-foot construction width and would be constructed of native material. 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. The type of equipment required for these activities would be the same as that needed for well pad construction. It is not possible to determine the distance of road that would be required because the location of the wells would not be known until the APD stage. However, for purposes of analysis it is assumed that disturbance from access roads would be approximately 1.8 acres of disturbance for each well pad (0.5 mile of road/well pad).

### **2.2.2. Drilling and Completion Operations**

Once construction or expansion of an individual well pad is completed, drilling equipment would be moved onto the new well pad. It is assumed that wells would be drilled utilizing a conventional, mechanically-powered mobile drilling rig. The exact type and size of drilling rig would be dependent upon rig availability at the time of project implementation. Drilling operations would consist of drilling the hole, running and cementing intermediate casing, drilling the production hole, and running and cementing production casing. Water required for the drilling and completion of the proposed gas wells would be hauled by truck from a combination of the permitted water sources. It is estimated that approximately 3 acre-feet of water would be needed for the drilling and completion of one well. For the purposes of this document it is assumed that the water would be obtained from a fresh water source that would be depleting to the Colorado River System.

The casing and cementing program would be designed to isolate and protect the shallower formations, especially usable ground water, encountered in the well bore as directed by BLM Utah Instruction Memorandum 2010-055 and to prohibit pressure communication or fluid migration between zones. The cement would protect the well by preventing formation pressure from damaging the casing, and by retarding corrosion by minimizing contact between the casing and formation fluids. The type of casing used and the depth to which it is set would depend upon the physical characteristics of the formations that are drilled. Site-specific descriptions of drilling procedures would be included in the APD and the COAs for each well.

If testing indicates economic potential, completion operations would set production casing to the total drilled depth, perforate the casing in target production zones, and hydraulically fracture (fracking) the productive formation under high pressure. The fracking material would likely contain sand or other proppant material to keep the fractures open, thereby allowing hydrocarbons to flow more freely into the casing. The next phase would be to flow and test the well to determine rates of production.

### **2.2.3. Hydraulic Fracturing**

Hydraulic fracturing (HF) is a well stimulation technique used to increase oil and gas production from underground rock formations. As summarized below, HF technology is not used on all wells drilled. As a result, HF would be evaluated at the APD stage should the lease parcel be

sold/issued, and a development proposal submitted. The following paragraphs provide a general discussion of the HF process that could potentially be implemented if development were to occur, including well construction information and general conditions encountered within the FFO.

HF 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.

HF 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. HF is still used in these settings, but the process has evolved. Technological developments (including horizontal drilling) have led to the use of HF 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 HF 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.

## **2.2.4. Production Operations**

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

All permanent surface structures would be painted a flat, non-reflective color (e.g., juniper green, Carlsbad Canyon, Shadow Gray) 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, however, it is estimated oil would be transported to a Salt Lake City refinery at least once a week, using 280-barrel tanker trucks.

If natural gas is produced, construction of a gas 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 across public lands if not included in the original APD. BLM Best Management Practices (BMPs), such as burying the pipeline or installing the pipeline within the road, would be considered at the time of the proposal. For the purpose of this EA, it is assumed that 0.5 mile of pipeline would be installed within the 30-foot road width per well pad.

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

Periodically, a workover or recompletion on a well may be required to ensure that efficient production is maintained. Workovers can include repairs to the well bore equipment (casing, tubing, rods, or pump), the wellhead, or the production facilities. These repairs would usually be completed in 7 days per well, during daylight hours. The frequency for this type of work cannot be accurately projected because workovers vary by well; however, an average work time may be one workover per well per year after about 5 years of production. In the case of a recompletion, where the wellbore casing is worked on or valves and fittings are replaced to stimulate production, all byproducts would be stored in tanks and hauled from the location. For workover operations, it may be necessary to rework the surface location to accommodate equipment. At the completion of the work, the surface location would be re-graded and reclaimed to pre-existing conditions.

Exploration and development on split-estate lands is 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 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. Interim Reclamation**

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 Utah Guidance for Management of Oil and Gas Exploration and Production Pits (IB No. UT 2013–038). Portions of the well pad not needed for production of the proposed well, including the reserve pit, would be recontoured, and topsoil would be replaced, scarified, and seeded. The 30-foot road construction width would be reclaimed to an 18-foot wide crowned running surface plus drainage ditches. The topsoil would be spread over the interim reclamation area, seeded, left in place for the life of the well, and then used during the final reclamation process. Reclaimed land would be seeded with a mixture (certified weed free) and rate as recommended or required by the BLM.

## **2.2.6. 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.

### **2.2.7. 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 and/or water 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.

### **2.2.8. Plugging and Abandonment**

If the well does not produce economic quantities of oil or gas, or when it is no longer commercially productive, the well would be plugged and abandoned. The well would be plugged and abandoned following procedures contained in Onshore Order No. 2 and approved by a BLM Authorized Officer after review by a Petroleum Engineer and Geologist, which would include requiring cement plugs at strategic positions in the well bore. All well pads would be reclaimed according to the standards established in the Green River District Reclamation Guidelines.

## **2.3. Alternative B – No Action**

Under the No Action alternative none of the nominated parcels would be offered for sale. No oil and gas exploration and development activity associated with this lease sale would occur.

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## **Chapter 3. Affected Environment:**

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This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area as identified in the Interdisciplinary Team Checklist found in Appendix C. This chapter provides the baseline for comparison of impacts/consequences described in Chapter 4. Only those aspects of the affected environment that are potentially impacted are described in detail (see Appendix C).

## 3.1. Resources/Issues Brought Forward for Analysis

### 3.1.1. Air Quality

The Project Area is located in the Uinta Basin, a semiarid, mid-continental climate regime typified by dry, windy conditions, limited precipitation and wide seasonal temperature variations subject to abundant sunshine and rapid nighttime cooling. The Uinta Basin is designated as unclassified/attainment by the EPA under the Clean Air Act. This classification indicates that the concentration of criteria pollutants in the ambient air is below National Ambient Air Quality Standards (NAAQS), or that adequate air monitoring is not available to determine attainment.

NAAQS are standards that have been set for the purpose of protecting human health and welfare with an adequate margin of safety. Pollutants for which standards have been set include ground level ozone, (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM<sub>10</sub>) or 2.5 microns in diameter (PM<sub>2.5</sub>). Airborne particulate matter consists of tiny coarse-mode (PM<sub>10</sub>) or fine-mode (PM<sub>2.5</sub>) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. PM<sub>2.5</sub> is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM<sub>10</sub> is primarily from crushing, grinding, or abrasion of surfaces. Table 3.1, “Air Quality Regulatory Backgrounds for the Uinta Basin” lists ambient air quality background values for the Uinta Basin and NAAQS standards.

**Table 3.1. Air Quality Regulatory Backgrounds for the Uinta Basin**

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (µg/m <sup>3</sup> )	NAAQS (µg/m <sup>3</sup> )
SO <sub>2</sub>	Annual	0.8 <sup>2</sup>	-- <sup>1</sup>
	24-hour	3.9 <sup>2</sup>	-- <sup>1</sup>
	3-hour	10.1 <sup>2</sup>	1,300
	1-hour	19.0 <sup>2</sup>	197
NO <sub>2</sub>	Annual	17	100
	1-hour	8.1 <sup>3</sup>	188
		60.2 <sup>3</sup>	
PM <sub>10</sub>	Annual	7.0 <sup>4</sup>	-- <sup>6</sup>
	24-hour	16.0 <sup>4</sup>	150
PM <sub>2.5</sub>	Annual	9.4 <sup>3</sup>	15
	24-hour	17.8 <sup>3</sup>	35
CO	8-hour	3,450 <sup>4</sup>	10,000
	1-hour	6,325 <sup>4</sup>	40,000

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )
O <sub>3</sub>	8-hour	100.0 <sup>3,5</sup>	70
1 – The 24-hour and annual SO <sub>2</sub> NAAQS have been revoked by USEPA. 2 – Based on 2009 data from Wamsutter Monitoring Station Data (USEPA AQS Database). 3 – Based on 2010/2011 data from Redwash Monitoring Station (USEPA AQS Database). 4 – Based on 2006 data disclosed in the Greater Natural Buttes FEIS. [BLM 2012a]. 5 – Ozone is measured in parts per billion (ppb) 6 – The annual PM <sub>10</sub> NAAQS has been revoked by USEPA.			

Existing point and area sources of air pollution within the Uinta Basin include the following:

- Exhaust emissions (primarily CO, NO<sub>x</sub>, PM<sub>2.5</sub>, and HAPs) from existing natural gas fired compressor engines used in transportation of natural gas in pipelines;
- Natural gas dehydrator still-vent emissions of CO, NO<sub>x</sub>, PM<sub>2.5</sub>, and HAPs;
- Gasoline and diesel-fueled vehicle tailpipe emissions of VOCs, NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>;
- Oxides of sulfur (SO<sub>x</sub>), NO<sub>x</sub>, fugitive dust emissions from coal-fired power plants, and coal mining/ processing;
- Fugitive dust (in the form of PM<sub>10</sub> and PM<sub>2.5</sub>) from vehicle traffic on unpaved roads, wind erosion in areas of soil disturbance, and road sanding during winter months; and,
- Long-range transport of pollutants from distant sources.

Two year-round air quality monitoring sites were established in summer 2009 near Red Wash (southeast of Vernal, Utah) and Ouray (southwest of Vernal). These monitors were certified as Federal Reference Monitors in fall of 2011, which means they can be used to make a NAAQS compliance determination. The complete EPA Ouray and Redwash monitoring data can be found at: <http://www.epa.gov/airexplorer/index.htm>

Both monitoring sites have recorded numerous exceedances of the 8-hour ozone standard during the winter months (January through March 2010, 2011, 2013, and 2014). It is thought that high concentrations of ozone are being formed under a “cold pool” process. This process occurs when stagnate air conditions form with very low mixing heights under clear skies, with snow-covered ground, and abundant sunlight. These conditions, combined with area precursor emissions (NO<sub>x</sub> and VOCs), can create intense episodes of ozone. The high numbers did not occur in January through March 2012 due to a lack of snow cover. This phenomenon has also been observed in similar locations in Wyoming. Winter ozone formation is a newly recognized issue, and the methods of analyzing and managing this problem are still being developed. Existing photochemical models are currently unable to reliably replicate winter ozone formation. This is due to the very low mixing heights associated with unique meteorology of the ambient conditions. Further research is needed to definitively identify ozone precursor sources that contribute to observed ozone concentrations.

The UDAQ conducted limited monitoring of PM<sub>2.5</sub> in Vernal, Utah in December 2006. During the 2006-2007 winter seasons, PM<sub>2.5</sub> levels were higher than the PM<sub>2.5</sub> health standards that became effective in December 2006. The PM<sub>2.5</sub> levels recorded in Vernal were similar to other areas in northern Utah that experience wintertime inversions. The most likely causes of elevated PM<sub>2.5</sub> at the Vernal monitoring station are those common to other areas of the western U.S. (combustion

and dust) plus nitrates and organics from oil and gas activities in the Basin. PM<sub>2.5</sub> monitoring that has been conducted in the vicinity of oil and gas operations in the Uinta Basin by the Red Wash and Ouray monitors beginning in summer 2009 have not recorded any exceedances of either the 24 hour or annual NAAQS.

HAPs are pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental impacts. The EPA has classified 187 air pollutants as HAPs. Examples of listed HAPs associated with the oil and gas industry include formaldehyde, benzene, toluene, ethyl benzene, isomers of xylene (BTEX) compounds, and normal-hexane (n-hexane). There are no applicable Federal or State of Utah ambient air quality standards for assessing potential HAP impacts to human health.

### **3.1.1.1. Greenhouse Gases and Climate Change**

According to National Oceanic and Atmospheric Administration (NOAA) and National Aeronautic and Space Administration (NASA) data, Earth's average surface temperature has increased by approximately 1.2 to 1.4 °F in the last 100 years. The 8 warmest years on record (since 1850) have all occurred since 1998, with the warmest year being 2005. Most of the warming in recent decades is very likely the result of human activities. The past 18 years have had negligible increase in maximum temperature even though they have been some of the hottest in the continental US. Equilibrium climate sensitivity quantifies the response of the climate system to constant radiative forcing on multicentury time scales. It is defined as the change in global mean surface temperature at equilibrium that is caused by a doubling of the atmospheric CO<sub>2</sub> concentration. Equilibrium climate sensitivity is likely in the range 1.5°C to 4.5°C (high confidence), extremely unlikely less than 1°C (high confidence), and very unlikely greater than 6°C (medium confidence). The lower temperature limit of the assessed likely range is thus less than the 2°C in the AR4, but the upper limit is the same. This assessment reflects improved understanding, the extended temperature record in the atmosphere and ocean, and new estimates of radiative forcing. No best estimate for equilibrium climate sensitivity can now be given because of a lack of agreement on values across assessed lines of evidence and studies [IPCC, 2013].

#### Regional Effects

The IPCC and U. S. Global Change Research Program (USGCRP) [USGCRP 2009] include the planning area in the “southwest” region. Recent warming in the southwest region has been among the most rapid in the Nation, with the average temperature increasing approximately 1.5 °F compared to a 1960 through 1979 baseline period. Temperature increases are driving declines in spring snowpack in the region and flows in the Colorado River, combining with other factors to affect water supply. Projections suggest continued strong warming, with much larger increases under higher emissions scenarios. By the end of the century (year 2100) average annual temperature is projected to rise approximately 4° F to 10° F above the historical baseline, averaged over the southwest region.

#### Current Conditions

The BLM recognizes the importance of climate change and the potential effects it could have on natural and socioeconomic environments. Throughout the planning area, the BLM authorizes numerous types of activities and actions that result in GHG emissions, with the largest contributor being the combustion of fossil fuels for on-road and off-road vehicles, engines, and construction equipment. Additional activities that result in GHG emissions include prescribed burns and other

fire management activities; authorization of ROWs for energy development and transmission, roads, pipelines, and other uses; grazing permits; and oil and gas and other mineral exploration and development. Although individually these activities result in small amounts of GHG emissions, they do contribute to the regional, national, and global pool of GHG emissions.

In addition to direct GHG emissions, indirect GHG emissions and other factors potentially contributing to climate change include fires; land use changes (e.g., converting rangelands to urban use); and wind erosion, fugitive dust from roads, and entrained atmospheric dust that darkens glacial surfaces and snow packs and results in faster snowmelt. Other activities could help sequester carbon, such as managing vegetation to favor perennial grasses and increase vegetation cover, which could help build organic carbon in soils and function a “carbon sinks.”

Additionally, significant research and development efforts are underway in the field of carbon capture and sequestration (CCS) technology. This technology is expected to become available in the next two decades and would allow the power generation industry to capture carbon dioxide and store it underground, drastically reducing emissions to the atmosphere. There is also an increased emphasis on the development of renewable energy projects. Policy developments worldwide will likely accelerate the process of emissions reduction. In the near future, the US is expected to join the European Union and other nations in placing mandatory caps on carbon dioxide emissions (there is also a possibility of a carbon tax). Such mandatory caps would be even more effective in reducing global carbon dioxide emissions with the participation of developing nations such as China and India. Vehicle fuel economy standards will further serve to reduce carbon dioxide emissions worldwide. Ultimately, the levels of global dioxide emissions in the future will be determined by a mix of these technological, economic, and policy developments; thus, future increases and decreases in carbon dioxide emission rates remain uncertain at present.

### **3.1.2. Cultural**

The National Historic Preservation Act (NHPA) (54 USC § 300101 et. seq.), requires government agencies to take into account the effects of their actions on properties listed or eligible for listing on the National Register of Historic Places (NRHP). These effects may include direct impacts to resources or indirect impacts that may NRHP criteria such as: location, design, setting, materials, workmanship, feeling, and association. Cultural resources are defined as any evidence of past human activities and can include structures such as historic or prehistoric buildings, canals and rock art.

Cultural resources are sensitive, irreplaceable resources with potential public and scientific uses and an important and integral part of our national heritage. Cultural resources constitute “a definite location of human activity, occupation, or use identifiable through field inventories (i.e., surveys), historical documentation, or oral evidence” (BLM-M-8100). The term cultural resource also includes “archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (i.e., sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. Cultural resources are concrete, material places and things that are located, classified, ranked, and managed through the system of identifying, protecting, and utilizing for public benefit. They may be but are not necessarily eligible for the National Register” (BLM-8100).

#### General Cultural Overview

The cultural-chronological sequence represented in the area includes the Paleoindian, Archaic, Fremont, Protohistoric, and Historic. The earliest inhabitants of the region are representative of the Paleoindian stage (ca. 12,000 - 8000 B.P.), characterized by the adaptation to terminal Pleistocene environments and by the exploitation of big game fauna. The Archaic stage (ca. 8000 B.P.-1500 B.P.) is characterized by the dependence on a foraging subsistence, with people seasonally exploiting a wide spectrum of plant and animal species in different eco-zones. Early Archaic (ca. 6000-3000 B.C.) sites in the Basin include sand dune sites and rockshelters primarily clustered in the lower White River drainage. The Middle Archaic era (ca. 3000-500 B.C.) is characterized by improved climatic conditions and an increase in human population on the northern Colorado Plateau. The Late Archaic period (ca. 500 B.C. - A.D. 550) in the Uinta Basin is distinguished by the continuation of Elko Series projectile points with the addition of semi-subterranean residential structures at base camps. By about A.D. 100, maize horticulture and Rose Springs arrow points had been added to the Archaic life way. The Fremont stage (A.D. 500-1300) is characterized by reliance upon domesticated corn and squash, increasing sedentism, and, in later periods, substantial habitation structures, pottery, and “bow and arrow” technology. Proto historic groups including the Utes appeared at approximately A.D. 1100. Historic (~ A.D. 1800 to Present) life ways in the area are marked by livestock grazing, agriculture, timber, mining, bee keeping, and freighting.

All available cultural resource information was reviewed and analyzed for the Area of Potential Effect (APE), which is defined as the entire parcel being offered for the November 2016 Oil and Gas lease sale. Twenty-eight parcels were analyzed for this undertaking. Each parcel has potential for cultural resources. Several parcels are adjacent to or on land where cultural resources may be impacted. These areas include Nine Mile Canyon, and Steinaker Reservoir. These areas have higher potential for cultural resources due to findings from previous surveys conducted in those areas, the number of known sites in or within one mile of the parcels, and their distance from permanent water. For the current analysis, portions of many of the parcels have been inventoried previously, and parcels not inventoried were compared to those where inventories had been conducted.

Of the twenty-eight parcels for lease there are six that are in areas with potential for adverse impacts. These parcels include four near or adjacent to Steinaker Reservoir: 069, 070, 071, and 142. Several of these parcels have been surveyed from 14%-100%. Those surveys have documented over 40 sites in the area including, villages, canal systems and numerous human remains. Those parcels are listed under leasing stipulation categories that include No Surface Occupancy (NSO), however, there is potential that development on nonfederal lands next to or near these parcels could directly or indirectly affect those cultural resources.

Two proposed parcels are within the Nine Mile Canyon corridor. Nine Mile Canyon is significant for the numerous cultural resources and the archaeological information that has been acquired from that area. These parcels, 009 and 010 are surrounded by over 100 cultural resources within one mile of the parcel boundaries with hundreds of more sites throughout the canyon. Many of these resources have been or are being listed on the National Registry of Historic Places because of their significance as part of the archaeological record. Both parcels are listed under the NSO lease category, but like the Steinaker parcels, there is potential that development on nonfederal lands next to or near these parcels could cause direct or indirect impacts to those resources.

Indirect impacts to eligible resources in all six parcels may include loss of integrity which may affect NRHP criteria including impacts to setting, feeling, and association of these resources.

It has been determined that reasonable development (one 5 acre well pad) could likely occur on the other twenty-two parcels proposed for the 2016 lease sale without adverse impacts to cultural properties. In addition, the BLM will not approve any ground disturbing activities that may affect 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 properties, or disapprove any activity that is likely to result in adverse impacts that cannot be successfully avoided, minimized or mitigated (WO IM 2005-003).

Appendix H shows a summary of cultural resource inventories and data gathered for each parcel. There are a total of twenty-eight parcels analyzed for this inventory and each is identified using the BLM Sale ID number as the parcel number.

In addition to analysis of cultural resources the BLM is required to consult with Native American Tribes concerning the identification of cultural values, religious beliefs, and traditional practices of Native American people that may be affected by actions on BLM-administered lands. Consultation includes the identification of places of traditional cultural importance to Native American Tribes or that may be considered sacred to particular Native American Tribes or individuals. The NHPA was amended in 1992 to explicitly allow that "...properties of traditional religious and cultural importance to an Indian Tribe...may be determined to be eligible for inclusion on the NRHP." Per existing laws, as amended, and subsequent regulations and agency direction BLM initiated government-to-government consultation for the Proposed Action by sending letters to the following Tribal groups: the Ute Indian Tribe, the Ute Mountain Ute, the Navajo Nation, the Hopi, the Zia Pueblo, the Laguna Pueblo, the Pueblo of Jemez, the Santa Clara Pueblo, the Goshute, the White Mesa Ute, the Northwest Band of Shoshone, the Southern Ute, and the Eastern Shoshone. A letter describing the proposed undertaking was sent to each tribe on May 24, 2016. The BLM has not received a response at this time. Consultation with the tribes will be ongoing throughout the NEPA process.

### **3.1.3. Areas of Critical Environmental Concern**

Areas of Critical Environmental Concern (ACECs) are special management areas designated by BLM to protect significant historic, cultural, or scenic values; fish and wildlife resources; natural process or systems; and/or natural hazards that have more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource. ACECs have qualities or circumstances that make them fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change. They have been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of Federal Lands Policy and Management Act (FLMPA) and have qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare.

Potential ACECs must meet the following criteria:

Relevance: presence of a significant historic, cultural, or scenic value; fish or wildlife resource or other natural process or system; or natural hazard; and

Importance: the above described value, resource, process, system, or hazard shall have substantial significance and values. This generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern.

The following lease parcels occur partially or fully within areas designated as ACECs.

**Table 3.2. Parcels within ACECs**

ACEC	Lease Parcels	Relevance and Importance Values
Nine Mile Canyon (44,168 acres)	009, 010	High value scenery, cultural resources, and special status species.

### 3.1.4. Lands with Wilderness Characteristics

Lands with wilderness characteristics are areas having at least 5,000 acres in a natural or undisturbed condition, and provide outstanding opportunities for solitude and/or primitive forms of recreation. This information is documented in the administrative record of the wilderness characteristics reviews completed by the VFO.

The following proposed lease parcels are located in lands found to possess wilderness characteristics. Parcel (ID#) 009, and 010 are located within the Currant Canyon wilderness characteristics unit. The Currant Canyon lands with wilderness characteristics unit was inventoried after the completion of the 2008 VFO RMP [BLM 2008b]. Therefore, the unit has not been analyzed through a land use planning process. Approximately 20,075 acres of the Currant Canyon unit possess wilderness characteristics.

Parcels (ID#) 032, 038, 039 and 049 occur within the Desolation Canyon wilderness characteristics unit. These parcels occur within sections of the Desolation Canyon unit which have been analyzed through a land use planning process. Decisions regarding the management of wilderness characteristics in this unit are reflected in the VFO RMP (RMP 2008b). The Desolation Canyon unit was inventoried during revision of the VFO RMP and found to have wilderness characteristics. Protection of lands wilderness characteristics for the unit was analyzed in at least one alternative. However, the VFO record of decision selected an alternative that emphasizes other multiple uses as a priority over protecting wilderness characteristics because “the area is considered high potential for O&G development”. [BLM 2008b] Approximately 65,403 acres of the Desolation Canyon inventory unit possess wilderness characteristics.

**Table 3.3. Parcels within Wilderness Inventory Units**

Wilderness Inventory Unit	Parcels
Currant Canyon (20,075 acres)	009, 010
Desolation Canyon (65, 403 acres)	032, 038, 039, 049

### 3.1.5. Plants: Special Status Species

#### 3.1.5.1. Plants: BLM-Sensitive Plants

The BLM-Sensitive plant species presented in Table 3.4, “BLM-Sensitive Plants” occur within the Project Area or have the potential to be affected by the Proposed Action.

**Table 3.4. BLM-Sensitive Plants**

<b>Species</b>	<b>Status</b>	<b>Potential Occurrence and Habitat Type</b>	<b>Parcels</b>
<i>Aquilegia scopulorum</i> var. <i>goodrichii</i> (rock columbine)	BLM-Sensitive	Habitat includes semi-barren, white shale layers of the Green River Formation in pinyon-juniper plant communities on the West Tavaputs Plateau from 7,400 to 9,420 feet elevation.	004, 005, 007, 009, 010
<i>Astragalus hamiltonii</i> (Hamilton milkvetch)	BLM-Sensitive	Habitat includes eroding slopes of the Duchesne River Formation in desert shrub and pinyon-juniper plant communities from 5,500 to 6,740 feet elevation.	069, 070, 071, 142
<i>Cryptantha grahamii</i> (Graham catseye )	BLM-Sensitive	Habitat includes sparsely vegetated shale slopes, benches, and terraces of the Green River Formation in salt desert shrub and pinyon-juniper communities from 4,750 to 6,750 feet elevation.	049
<i>Erigeron untermanii</i> (Untermann fleabane )	BLM-Sensitive	Habitat includes open, wind-swept, marly ridges and slopes in Salina wildrye, pinyon-juniper, limber pine, and Douglas-fir plant communities on the West Tavaputs Plateau from 7,000 to 9,300 feet elevation.	004, 005, 009, 010
<i>Mentzelia goodrichii</i> (Goodrich blazingstar )	BLM-Sensitive	Habitat includes eroding slopes of the Green River and Uinta Formations in desert shrub, pinyon-juniper, mountain-mahogany, limber pine, and Douglas-fir plant communities on the West Tavaputs Plateau from 6,440 to 8,800 feet elevation	004, 005, 009, 010
<i>Penstemon goodrichii</i> (Goodrich beardtongue)	BLM-Sensitive	Habitat includes red and grey clays of the Duchesne River Formation in shadscale, sagebrush, and pinyon-juniper plant communities from 5,600 to 6,200 feet elevation.	093, 094, 103
<i>Penstemon grahamii</i> (Graham beardtongue)	BLM-Sensitive	Habitat includes semi-barren, white to tan shale and oil shale slopes, hills, and ridges of the Green River Formation in shadscale, Salina wildrye, and pinyon-juniper plant communities from 5,000 to 6,300 feet elevation.	032, *121, *122
<i>Penstemon scariosus</i> var. <i>albifluvis</i> (White River beardtongue)	BLM-Sensitive	Habitat includes semi-barren, white to tan shale and oil shale slopes, hills, and ridges of the Green River Formation in shadscale, Salina wildrye, and pinyon-juniper plant communities from 5,000 to 6,800 feet elevation.	*121, *122
<i>Phacelia argylensis</i> (Argyle Canyon phacelia)	BLM-Sensitive	Known only from Argyle Canyon in Duchesne County, Utah. Habitat includes wash bottoms in shale of the Green River Formation in pinyon-juniper-serviceberry-Douglas-fir plant communities at 7,595 feet elevation.	004, 005, 009, 010
<i>Thelesperma subnudum</i> var. <i>caespitosum</i> (Green River greenthread )	BLM-Sensitive	Habitat includes semi-barren, eroding slopes and ridges of the Green River Formation in desert shrub and pinyon-juniper plant communities on the West Tavaputs Plateau from 6,000 to 8,800 feet elevation.	004, 005, 009, 010
<i>Yucca sterilis</i> (sterile yucca)	BLM-Sensitive	Known occurrences of the species are found growing in sandy soils. However, this species is new to the Utah BLM-Sensitive plant species list and, as such, has not been extensively surveyed for nor is the range and exact habitat requirements fully understood. Therefore, at this time, any sandy soils within the proposed lease parcels have to be assumed to be potential habitat for the species.	all parcels
*Parcel contains habitat designated as Conservation Agreement Areas for the species that will require additional mitigation measures if developed (see SWCA 2014).			

### 3.1.5.2. Plants: Threatened, Endangered, Proposed, and Candidate

During GIS review of the parcels, the federally listed plant species presented in Table 3.5, “Threatened, Endangered, Proposed, and Candidate Plants” occur within the Project Area or have the potential to be affected by the Proposed Action.

**Table 3.5. Threatened, Endangered, Proposed, and Candidate Plants**

Species	Status	Potential Occurrence and Habitat Type	Parcels
<i>Hesperidanthus argillaceus</i> (clay reed-mustard)	Threatened	Habitat includes steep slopes in soils between the Uinta and Green River Formations in shadscale, sagebrush, and mixed-desert shrub plant communities at 4,900 to 5,600 feet elevation.	032, 038, 049, 067
<i>Hesperidanthus suffrutescens</i> (shrubby reed-mustard)	Endangered	Habitat includes semi-barren slopes and hill tops of white shale from the Green River Formation. Soils and habitat may often include clast stones on the surface. Typical plant communities include: black sagebrush, shadscale, mixed-desert shrub, mountain-mahogany, and pinyon-juniper. From 5,100 to 7,000 feet elevation.	049, 067
<i>Sclerocactus brevispinus</i> (Pariette cactus)	Threatened	Habitat includes clay badlands of cobbles and gravel pavements from the Uinta Formation in mixed-desert shrub (saltbush) plant communities from 4,800 to 5,200 feet elevation.	*038, 049, 067, 105
<i>Sclerocactus wetlandicus</i> (Uinta Basin hookless cactus)	Threatened	Habitat includes river benches, slopes, and hills of fine textured xeric soils from the Duchesne River, Green River, Mancos, and Uinta Formations, generally overlain with large, round cobble. Associated plant communities include mixed-desert shrub and pinyon-juniper plant communities from 4,700 to 5,800 feet elevation.	*038, 049, 067, 105
<i>Spiranthes diluvialis</i> (Ute ladies’-tresses)	Threatened	Habitat includes gravelly sand and sandy loam soils within wet places including wet meadows, margins of rivers, lakes, and streams, riparian sandbars, sub-irrigated springs and seeps, and irrigated fields. Typical plant communities include sedges, grasses, and forbs with little to no woody plant canopy. From 4,400 to 7,100 feet elevation.	All parcels that contain wetlands, riparian areas, or seasonably wet areas.
*Parcels contain habitat designated as Core Conservation Areas for the species that will require additional mitigation measures if developed (see USFWS 2014).			

### 3.1.6. Livestock Grazing & Rangeland Health Standards

The following specific parcels were determined to have possible effects to Livestock Grazing and Rangeland Health Standards due to the current amount of existing Oil and Gas development.

Parcel Number	Livestock Grazing Allotment
103	Split Mountain Allotment

The allotment this parcel is within ranges from desert salt shrub to sage steppe. Numerous areas consist of small to large ephemeral drainages, and some border the Green River. Elevation ranges from around 4,000 to 5,000 feet in elevation. The area is located within the 5–8 inch annual precipitation zone. Soils are sandy to desert clay loam. The Sand Wash allotment Rangeland Health Assessments was last conducted in 2014.

### 3.1.7. Recreation

The BLM’s basic units of recreation management are the Special Recreation Management Area (SRMA) and the Extensive Recreation Management Area (ERMA). A SRMA is an area where recreation is emphasized. Within an ERMA, recreation is generally unstructured and dispersed, minimal recreation-related investments are required, and there are minimal regulatory constraints. ERMAs generally cover all areas that are not designated as SRMAs. Popular recreational destinations in the project area include the Nine Mile SRMA.

**Table 3.6. Recreation SRMA and Sites**

Recreation Areas/Sites	Parcels	Recreation features
Nine Mile SRMA	009, 010	Recreation opportunities available to visitors within the Nine Mile SRMA include but are not limited to backpacking, camping, dirt biking, enjoying natural and cultural features, four wheel driving, hiking, horseback riding, hunting, falconry, mountain biking, operating off highway vehicles (OHV), rock climbing, and scenic driving. The Nine Mile SRMA is managed to protect high-value cultural values and scenic quality

### 3.1.8. Visual Resource Management

The BLM uses a Visual Resource Management (VRM) system to inventory and manage visual resources on public lands. The primary objective of VRM is to manage visual resources so that the quality of scenic (visual) values is protected. The VRM system uses four classes (and their associated visual resource objectives) to describe the different degrees of surface disturbance or modification allowed on the landscape (see VRM table below Table 3.8, “BLM Visual Resource Management (VRM) Class Objectives”).

#### Visual Resource Inventory

As part of the VRM program, the BLM is to prepare and maintain — on a continual basis — an inventory of visual values of all its public lands. The inventory stage identifies the visual resources of an area and assigns them to an inventory class using the BLM’s VRI process, which is described in BLM Manual H-8410-1. The VRI process consists of the following:

1. A scenic quality evaluation to rate the visual appeal of an area
2. A sensitivity level analysis to assess public concern of an area’s scenic quality and their sensitivity to potential changes in the visual setting.
3. A delineation of distance zones to indicate the relative visibility of the landscape from primary travel routes or observation points.

Based on these three factors, BLM-administered lands are placed into one of four VRI classes — Class I, Class II, Class III, and Class IV — that represent the relative value of the visual resources and provide the basis for considering visual values in the resource management planning process. VRI Classes II, III, and IV are determined based on a combination of scenic quality, sensitivity level, and distance-zone overlays to assign the proper class. In the relative scale of visual values, Class II has a higher level of value than Class III, which is moderately valued. Class IV is least valued. VRI class—Class I—is assigned to special management areas where a management

decision has previously been made to maintain a natural landscape. These areas are the most valued landscapes. This includes areas such as Wilderness Areas or Wilderness Study Areas, the wild section of national Wild and Scenic rivers, and other congressionally and administratively designated areas where decisions have been made to preserve a natural landscape. Since these areas are assigned the highest value, the inventory process does not provide a scoring method to assign VRI Class I. However, in the inventory process Class I areas are evaluated for their existing scenic quality, sensitivity level and distance from observation areas.

The Vernal Field Office completed a Visual Resource inventory in 2011. VFO inventory classes reflect the findings in regards to scenic quality, sensitivity level, and view shed. These findings are referenced in table 3.7 and reflect each proposed lease's visual inventory class. Note: some parcels may occur in multiple VRI classes and may appear to be duplicated in the VRI Class table.

**Table 3.7. Visual Resource Class Objectives of Lease Parcels**

VRI Class	Parcels
Class I	None
Class II	004, 005, 009, 010, 090, 103, 151
Class III	032, 038, 039, 049, 067, 070, 071, 093, 094, 103, 121, 122, 152
Class IV	006, 012, 013, 014, 015, 016, 039, 049, 067, 121, 122, 152

**Table 3.8. BLM Visual Resource Management (VRM) Class Objectives**

VRM Class	VRM Objective
Class I	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and should not attract attention.
Class II	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Class III	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Class IV	The objective of this class is to provide for management activities, which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements of the landscape.

The proposed lease parcels would encompass several different VRM management classes as listed in Table 3.9, "Lease Parcels ID and associated VRM Classes". Note: some parcels may occur in multiple VRM Classes and may appear to be duplicated in the VRM Class Table below. The remaining parcels are located entirely on private land and do not have an associated VRM Class.

**Table 3.9. Lease Parcels ID and associated VRM Classes**

VRM Class	Parcel ID
Class I	None
Class II	038

VRM Class	Parcel ID
Class III	004, 005, 009, 010, 012, 013, 014, 015, 032, 038, 067, 070, 094, 103, 121, 122, 151, 152
Class IV	006, 009, 010, 012, 013, 014, 015, 016, 032, 039, 049, 070, 071

### 3.1.9. Wildlife: Migratory Birds including Raptors

All of the lease parcels contain nesting and foraging habitat for migratory birds. The Migratory Bird Treaty Act of 1918 protects migratory birds and their parts. Executive Order 13186, signed on January 10, 2001, directs federal agencies to evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern. The MOU between the US Department of Interior BLM and United States Fish and Wildlife Service (USFWS) to promote the Conservation and Management of Migratory Birds (extended 5/2015) also strives to increase the conservation of migratory birds and avoid and minimize adverse impacts on these species through collaboration with USFWS. The BLM and USFWS have decided to focus on the Birds of Conservation Concern (BCC). [USFWS 2008USFWS 2008U.S. Fish and Wildlife Service. 2008. *Birds of Conservation Concern 2008*. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. ]identified each of the Bird Conservation Regions (BCRs) in the United States for the review and analysis of projects. The parcels are within BCR 16 (Southern Rockies/Colorado Plateau). Species lists for BCR16 have been reviewed and the potential exists for several migratory bird species, currently designated as species of concern, to nest within the parcels, primarily between April and September. Additional discussion is contained in Table 3.10, “Wildlife: Special Status Species Potential Occurrence”.

#### 3.1.9.1. Raptors

Raptors, including the red-tailed hawk, Cooper’s hawk, sharp-shinned hawk, American kestrel, northern harrier, great horned owl, and other less common species utilize each of the habitat types within the lease parcels and may be present year round or seasonally. Nesting tends to be concentrated around cliffs, large trees, embankments, and other habitat features. Raptor management is guided by Appendix A in the 2008 RMP.[BLM 2008c] These are best management practices which are BLM-specific recommendations for implementation of the U.S. Fish and Wildlife Service, Utah Field Office’s “Guidelines for Raptor Protection from Human and Land Use Disturbances”. The Guidelines were originally developed by the Fish and Wildlife Service in 1999, and were updated in 2002 based on recent court rulings, policy decisions, and Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. The Guidelines were provided to BLM and other land-managing agencies to provide raptor management consistency while ensuring project compatibility with the ecological requirements of raptors. The best management practices include timing limitations and controlled surface measures to protect raptor species. Table 3.10, “Wildlife: Special Status Species Potential Occurrence” identifies sensitive raptor species potential occurrence and habitat within the parcels.

### 3.1.10. Wildlife: Non-USFWS Designated

#### 3.1.10.1. Elk

Elk occur year-round in the project area in low numbers. Resident elk use the low-elevation water resources, such as the Green River. Parcels 005, 009, 070, and 152 are in crucial elk wintering

habitat and parcels 006, 012, 013, 014, 015, and 016 are in calving habitat. Crucial habitat provides shelter and forage for elk during critical times of the year.

### 3.1.10.2. Mule Deer

Parcels 009, 070, 152, 121, and 122 are within crucial winter and parcels 004, 070, 094, and 103 are within fawning range for mule deer. Crucial range provides unique habitat for deer. The function of crucial winter range is to provide shelter and forage to big game, ensuring their survival during periods of significant winter and fawning stress. Mule deer populations in the western U.S. have historically fluctuated due to environmental factors (e.g., drought, severe winters). Deer populations in eastern Utah have declined in recent years. Unusually high deer mortalities in the 1980s and 1990s are primarily attributed to the severe, 1983-1984 and 1992-1993 winters, and to a prolonged, seven-year drought between 1986 and 1992. These conditions decimated the fawn population as well as a large percentage of the adult deer population. A very slow recovery of the deer population has occurred since that time. Fawn production and survival, which continued to be low through 1996, began to improve after 1996 with good forage and winter conditions. The current drought is causing severe stress to mule deer, once again reducing their populations and limiting the forage on which they depend. However, these are environmental factors that are beyond human control. Factors within human control that affect the population of mule deer in the area include hunting, grazing, energy development, increased recreation, and predation.

### 3.1.11. Wildlife: Special Status Species

BLM manages sensitive species in accordance with BLM Manual 6840 with the objective to initiate proactive conservation measures that reduce or eliminate threats to these species to minimize the likelihood of and need for listing of these species under the ESA. Special status species are, collectively, the federally listed or proposed and Bureau sensitive species, which include both Federal candidate species and delisted species within 5 years of delisting. There are 57 BLM Utah sensitive species, including 12 species under conservation agreement and 4 candidate species. Of these, 52 species occur or potentially occur within the VFO. The Utah sensitive species lists also includes federally listed species. VFO has used available data sources to determine if the parcels fall within known habitat for BLM or UDWR sensitive species. After site-specific review, it has been determined that the Special Status Species listed in Table 3.10, "Wildlife: Special Status Species Potential Occurrence" may occur within the project area or be affected by the proposed action.

**Table 3.10. Wildlife: Special Status Species Potential Occurrence**

Species	Status	Potential Occurrence and Habitat Type	Parcels
<b>Fish</b>			
Bonytail Chub, Colorado Pikeminnow, Humpback Chub, Razorback Sucker	Endangered	These species occur in the Green River. Habitat is not present within the proposed project area; however, water depletion is anticipated to occur.	All parcels
Bluehead Sucker, Flannelmouth Sucker, Roundtail Chub	Conservation Agreement Species	These species occur in the Green River. Habitat is not present within the proposed project area; however, water depletion is anticipated to occur.	All parcels

Species	Status	Potential Occurrence and Habitat Type	Parcels
<b>Mammals</b>			
Townsend's Big-Eared Bat, Big Free-Tailed Bat, Spotted Bat, Fringed Myotis, Allens Big Eared Bat, Western Red Bat	BLM Sensitive	These species potentially occur throughout Utah; however, no occurrence records exist for the extreme northern or western parts of the state. Known occurrences have been reported in northeastern Uintah County. Habitat is present within the proposed project area.	All parcels
Black-Footed Ferret	Endangered	Utilizes prairie dog burrows for shelter and feed on the prairie dogs. Populations of Black-footed ferrets have been introduced into the wild in Coyote Basin, in Uintah County area ferrets are characterized as "non-essential experimental" populations (UDWR 2007).	094, 103
<b>Raptors</b>			
Golden Eagle	BLM Sensitive, Bird of Conservation Concern	Throughout the summer, golden eagles are found in mountainous areas, canyons, shrub-land and grassland. During the winter they inhabit shrub-steppe vegetation, as well as wetlands, river systems and estuaries. Golden eagles are quite common to Uintah County. All parcels contain foraging habitat however no known nests exist within them.	All parcels
Bald Eagle	BLM Sensitive, Bird of Conservation Concern	Throughout the winter, bald eagles are typically found near rivers, lakes, and marshes where unfrozen, open waters offer the opportunity to prey on fish and waterfowl. The Colorado and Green River corridors are well used by Utah's wintering bald eagles. The eagles begin to arrive in November.	038, 069, 071, 094, 103, 142
Mexican Spotted Owl	Threatened	In Utah, found primarily in rocky canyons. Nests in caves or crevices. Roosts on ledges or in trees in canyons. The species prefers mesic (moister/cooler) canyons with mixed conifer or riparian components.	004, 005, 009, 010
Ferruginous Hawk	BLM Sensitive, Bird of Conservation Concern	This species is known to occur in the West Desert and the Uinta Basin as a summer resident and a common migrant. Within the Uinta Basin, the species is more associated with prairie dog colonies as the main prey base. These parcels contain foraging habitat; however no known or documented ferruginous hawk nests are within ½ mile of the proposed project.	All parcels
Short-eared Owl	Wildlife Species of Concern	Inhabits arid grasslands, agricultural areas, marshes, and occasionally open woodlands. In Utah, cold desert shrub and sagebrush-rabbit brush habitats also are utilized.	All parcels
<b>Birds</b>			
Gray Vireo	Bird of Conservation Concern	Dry shrubby areas, chaparral, and sparse woodlands. Habitat is present within the proposed project area.	All parcels

Species	Status	Potential Occurrence and Habitat Type	Parcels
Grasshopper Sparrow	Bird of Conservation Concern	In Utah, the species is widespread and has been known to breed in Uintah, Duchesne, and Daggett counties. Habitat is present within the proposed project area.	All parcels
Bobolink	Wildlife Species of Concern	Short grass prairies, alpine meadows, riparian woodlands, and reservoir habitats.	All parcels
Brewer's Sparrow	Bird of Conservation Concern	Desert and shrubland/chaparral. Habitat is present within the proposed project area.	All parcels
Yellow-billed Cuckoo	Threatened	Wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes.	<u>Potential Habitat</u> 094, 103
Sage grouse	BLM Sensitive Species	Sage-grouse are emblematic of the sagebrush steppe of the intermountain West.	<u>General Habitat Management Areas</u> 032, 067, 152

Priority Habitat Management Areas (PHMA), General Management Habitat Management Area (GHMA) and Population Areas (PA) for Greater Sage-Grouse (GRSG) in Utah were identified in the 2015 *Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region, Including the Greater Sage-grouse Sub-Regions of Idaho and Southwestern Montana, Nevada and Northeastern California, Oregon and Utah* (GRSG ROD) and the *Utah Greater Sage-Grouse Approved Resource Management Plan Amendment* [BLM 2015]. PHMA is GRSG habitat on BLM-administered lands identified as having the highest value in order to maintain populations in UT. GHMA is GRSG habitat on BLM administered lands where some management will apply and there is some areas of occupied seasonal or year-round habitat outside of PHMA. The 15 GRSG PAs were mapped in the GRSG land use plan amendment process to improve the organization and structure of GRSG planning documents. Using the PA concept in those documents the BLM was able to discuss differences in habitat, threats, and impacts in different sections of the GRSG planning area by simply referencing a PA. Lands in the PA that do not include PHMA or GHMA may provide for connectivity or facilitate movement of birds between habitats. Although the boundaries of population areas were drawn using some biological considerations it is important to note that they are not intended to reflect distinct populations. More information about PHMA, GHMA and the individual PA's is available in Section 1.3.2 in the GRSG Proposed Land Use Plan Amendment and Final Environmental Impact Statement (GRSG FEIS).[BLM 2015]

For the November 2016 lease sale, 18 of the proposed lease parcels, comprising 8,577 acres, are outside of PHMA and GHMA, but within a PA. GRSG habitat has not been identified or mapped in these areas.

Three of the proposed lease parcels for the November 2016 lease sale are within GHMA. One parcel is in the Carbon PA and two are within the Uinta PA. Descriptions of conditions in these PAs are included in Section 3.3.5 of the GRSG FEIS. [BLM 2015].

Parcel 032 is in GHMA within Carbon PA. The Carbon PA is located in northcentral UT and contains several subpopulations (refer to Map 1-2 of the GRSG FEIS 2015). Parcel 32 is within the Anthro Mountain breeding complex and the birds use this area seasonally for brood-rearing and winter. Only the western portion of the parcel (approximately 80 acres of the 320 acres) is

mapped as GHMA, however, the entire parcel is within the PA. There are no occupied leks within 5 miles of parcel 032. The nearest occupied lek is approximately 21 miles to the west of the parcel. This parcel is surrounded by existing leases that have developed well-pads and is within the Deseret Oil and Gas Unit.

Parcels 067 and 152 are in GHMA within the Uintah PA. The Uintah PA is located in northeastern UT and is comprised of three different GRSG areas (refer to Map 1-2 of the GRSG FEIS [BLM 2015]). This PA also includes several subpopulations. Parcels 067 and 152 are within the Book Cliffs GRSG breeding complex and birds use this area when transitioning from nesting to brood-rearing areas along Willow Creek. Even though these parcels are near Hill Creek, GRSG are not known to use the area within these parcels for brood-rearing. There is a steep drop-off to the creek from the uplands separating the habitat types. The parcels are surrounded by existing leases and producing oil and gas wells. The nearest occupied lek is 5 miles to the east of parcel 067, and 4.6 miles northeast of parcel 152. Parcel 067 is within the Little Canyon Oil and Gas Unit. The area surrounding parcel 067 is highly developed. There are 8 producing oil and gas wells in the section where 067 is proposed to be leased. Parcel 152 is within the Flat Stone Oil and Gas Unit which is also surrounded by existing leases that are highly developed with several existing oil and gas wells in the area. Only 18 of the 58 acres for parcel 152 are within the mapped GHMA. However, the entire parcel is within the Uintah PA.

# **Chapter 4. Environmental Effects:**

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This chapter discusses the environmental consequences of implementing the alternatives described in Chapter 2 on the Resources identified in the ID team checklist and carried forward 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 but occur later or farther away from the resource. Beneficial effects are those that involve a positive change in the condition or appearance of a resource or a change that moves the resource toward a desired condition. Adverse effects involve a change that moves the resource away from a desired condition or detracts from its appearance or condition. Cumulative effects are the effects on the environment that result from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions.

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

## **4.1. Direct and Indirect Impacts**

### **4.1.1. Alternative A – Proposed Action**

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

#### **4.1.1.1. Air Quality**

The act of leasing would not result in changes to air quality. However, should the leases be issued, development of those leases could impact air quality conditions. It is not possible to accurately estimate potential air quality impacts by computer modeling from the project due to the variation in emission control technologies as well as construction, drilling, and production technologies applicable to oil versus gas production and utilized by various operators, so this discussion will remain qualitative.

However, due to the deterioration of air quality in the region being primarily focused on the oil and gas community, reductions from PM and ozone precursor emissions would mean reductions in GHG's. Any oil and gas that is potentially leased, would be subject to strict mitigation practices and must conform to the lease notice for design types, and enhanced mitigation from BLM and UDAQ.

Should development on issued leases be proposed, and prior to authorizing specific proposed projects on the subject lease parcels, emission inventories would need to be developed, and possibly near field modeling would need to be conducted, to adequately analyze direct and indirect potential air quality impacts. Air quality dispersion modeling, which may also be required, includes cumulative 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 nearby Class 1 areas (National parks and Wilderness areas). Such proposed development would be a minor air pollution source under the Clean Air Act. At present, control

technology on some emissions sources (e.g. drill rigs) is not required by regulatory agencies. Possible future development would result in different emission sources associated with two project phases: well development and well production. Annual estimated emissions from development of a single well are summarized in Table 4.1, “Anticipated Emissions <sup>1</sup>(tons per year)”.

**Table 4.1. Anticipated Emissions <sup>1</sup>(tons per year)**

Pollutant	Development	Production	Total
NO <sub>x</sub>	14.2	2.2	16.4
CO	3.2	3.2	6.4
SO <sub>x</sub>	0.9	0	0.9
PM <sub>10</sub>	0.7	0.03	0.73
PM <sub>2.5</sub>	0.3	0.01	0.31
VOC	2.5	6.5	9.0
Benzene	0.03	0.13	0.16
Toluene	0.02	0.09	0.11
Ethylbenzene	0.02	0.22	0.24
Xylene	0	0.07	0.07
n-Hexane	0.05	0.08	0.13
Formaldehyde	0	0	0

<sup>1</sup> Emissions include one producing well and associated operations traffic during the year in which the project is developed

Well development includes NO<sub>x</sub>, SO<sub>2</sub>, and CO tailpipe emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. Fugitive dust concentrations would occur from vehicle traffic on unpaved roads and from wind erosion where soils are disturbed. Drill rig and fracturing engine operations would result mainly in NO<sub>x</sub> and CO emissions, with lesser amounts of SO<sub>2</sub>. These emissions would be short-term during the drilling and completion phases.

During well production, continuous NO<sub>x</sub>, CO, VOC, and HAP emissions would originate from well pad separators, condensate storage tank vents, and daily tailpipe and fugitive dust emissions from operations traffic. Road dust (PM<sub>10</sub> and PM<sub>2.5</sub>) would also be produced by vehicles servicing the wells.

Emissions of NO<sub>x</sub> and VOC, ozone precursors, for a single well are estimated to be 16.4 tons/yr for NO<sub>x</sub>, and 9.0 tons/yr of VOC (Table 4.1, “Anticipated Emissions <sup>1</sup>(tons per year)”) per well. Emissions would be dispersed and/ or diluted to the extent where any local ozone impacts from the Proposed Action would be indistinguishable from background conditions.

The primary sources of HAPs are from oil storage tanks and smaller amounts from other production equipment. Small amounts of HAPs are emitted by construction equipment. These emissions are estimated to be minor and less than one ton per year.

Application of Stipulations UT-S-01 and Notice UT-LN-96 to each of the parcels on federal surface would be adequate for the leasing stage to disclose potential future restrictions and to facilitate the reduction of potential impacts upon receipt of a site specific APD.

#### **4.1.1.1.1. Greenhouse Gases and Climate Change**

There are no direct impacts related to GHG emissions and climate change from leasing. Likely indirect impacts could potentially include GHG emissions from a well drilling for exploratory purposes. Estimated GHG emissions can be calculated

using a generic emissions calculator available on the BLM Utah Air Quality webpage ([http://www.blm.gov/ut/st/en/prog/more/air\\_quality/airprojs.html](http://www.blm.gov/ut/st/en/prog/more/air_quality/airprojs.html)) which shows emissions of 1,192 tons per year CO<sub>2</sub>-e for a single operational well, and 2,305 tons per year CO<sub>2</sub>-e for a single drill rig. Based on this analysis a single exploratory well is unlikely to exceed the 25,000 ton per year reference point recommended by Council on Environmental Quality (CEQ), and no further analysis is warranted at this stage.

#### **4.1.1.2. Cultural**

Cultural resources on the nominated parcels would not be directly impacted by the issuance of leases. However, the issuance of leases does convey an expectation that drilling and development could occur. Indirect impacts to cultural resources could result from future lease actions, such as exploration or operational activities. There are a total of 28 parcels reviewed for cultural resources within the November 2016 Oil and Gas Lease Sale; all have a potential to contain cultural resources.

Two parcels are within or adjacent to Nine Mile Canyon. This area has a high concentration of cultural resources and/or a propensity for cultural resources and is also considered culturally sensitive by Native Americans with ancestral ties to the area. Similarly, four parcels located adjacent to Steinaker Reservoir also have a high concentration of cultural resources as well as a propensity for significant cultural resources. All or portions of these parcels have a leasing stipulation of No Surface Occupancy. However, the privately held lands near these parcels will only have the standard stipulations attached. If development occurred on those lands it could impact sites within or adjacent to the parcels.

Each issued parcel would contain a mandatory stipulation for the statutory protection of cultural resources (BLM Washington Office Instruction Memorandum No. 2005-03), which would be enforced through any future authorization to conduct exploration or operational activities under the lease. Potential impacts relating to future authorizations would be mitigated through avoidance whenever possible. Reasonable development could occur within the proposed parcels without effect to historic properties. To ensure appropriate consideration of future impacts to cultural resources from the leasing of the parcels, the BLM would add the following Cultural Resource Protection lease stipulation (WO-IM-2005-003), as well as lease notices UT-LN-67, UT-LN-68, UT-LN-69 and UT-LN-70, to all BLM surface-administered parcels offered for lease.

#### **4.1.1.3. Areas of Critical Environmental Concern**

The issuance of leases would not directly impact the ACEC's relevance and importance values. However, as the BLM generally cannot deny all surface use of a lease unless the lease is issued as a No Surface Occupancy stipulation, the issuance of leases does convey an expectation that drilling and development would occur. No surface occupancy, controlled surface use, and timing limitation stipulation UT-S-23 would be applied within the ACEC and mitigate impacts of oil and gas development on ACEC values.

The Nine Mile Canyon ACEC (44,168 acres) was designated in the Vernal RMP to "be managed to enhance cultural and special status plant species while enhancing scenic vistas, recreation, and wildlife resource values" (BLM 2008b). The relevance and importance values are cultural resources, special status species, and high quality scenery. For a detailed explanation of impacts to the specific related resources, please refer to the Cultural, Visual Resources and Plants: Special Status sections in Chapter 4 of this document.

The relevant and important value of scenery only applies within the Nine Mile Canyon itself and is protected by VRM Class II objectives from canyon rim to canyon rim within the river corridor. Because scenic relevant and important values are not attributed to areas above the rim, the Approved VFO RMP (RMP 2008b) states on page 41 that, “there is no need to restrict oil and gas leasing for visual purpose” above the canyon rim. Parcels 009 and 010 are located below the canyon rim. BLM would add the lease stipulation UT-S-23 - No Surface Occupancy to parcels 009 and 010. Leasing the parcels under a No Surface Occupancy stipulation would prevent any future associated development from occurring within these parcels. Thus, no direct impacts to relevant and important values within the Nine Mile Canyon ACEC are anticipated as a result of the proposed action.

**Table 4.2. Nine Mile Canyon ACEC**

ACEC	Lease Notice or Stipulation	Parcel
Nine Mile Canyon	UT-S-23 – No Surface Occupancy/Controlled Surface Use/Timing Limitations	009, 010

#### 4.1.1.4. Lands with Wilderness Characteristics

Although the issuance of the lease would not directly impact the wilderness characteristics (naturalness, solitude, and primitive unconfined recreation) of the area, the issuance of leases does convey an expectation that drilling and development would occur. The potential development of the lease would likely cause indirect impacts to wilderness characteristics (see Table 4.3 below). A number of variables would influence the degree of impact to lands with wilderness characteristics, including where surface-disturbing activities occur, land form or topography, vegetation type, sequence of development, and reclamation time. If drilling and development were to occur in lands with wilderness characteristics, the wilderness characteristics in that area would likely be reduced. Impacts could include loss of naturalness and loss of opportunities for solitude or primitive unconfined recreation. Additional impacts from development could include a reduction in the size of the unit. Development associated with oil and gas leasing (e.g., well pads, access roads) could bisect or fragment a portion of the wilderness characteristics unit so that all or part of the unit no longer meets the size criteria.

Potential impacts to wilderness characteristics as a result of oil and gas development were anticipated in the Vernal FEIS and Proposed RMP, which states, “Construction of roads, well pads, compressors, pipelines, and power lines would disturb vegetation and soil and the natural characteristics of the non-WSA lands with wilderness characteristics. The presence of people, vehicles, and equipment, and the physical disturbance to the landscape would diminish opportunities for solitude and conflict with primitive forms of recreation”.

For Desolation Canyon, the VFO FEIS and Proposed RMP states that, “Given the resource potential, level of past production, existing leases, and ongoing exploration and development, it is anticipated [that the Desolation Canyon Unit and others] would lose all or most of their wilderness characteristics”. The ROD qualifies on page 33 and 34 that some areas were not selected to be managed for the purpose of preserving wilderness characteristics because they possess “high potential for oil and gas resources and currently have a large portions of the lands leased” (BLM 2008b). A portion of parcel 038 would be leased under Lease stipulation UT-S-157 – No Surface Occupancy/Controlled Surface Use/Timing Limitations. Parcels 032, a portion of 038, 039 and 049 would be leased under standard oil and gas leasing stipulations. Where development occurs, wilderness characteristics would potentially be negatively affected;

however, mitigation and project design features identified during future site-specific analysis could reduce the potential impacts to wilderness characteristics.

Impacts to wilderness characteristics for the Currant Canyon area have not been analyzed within a land use plan. Generally, impacts from the development of a lease would be similar to those described above. Parcels 009 and 010 are within an area subject to No Surface Occupancy stipulations to protect fragile soils, slopes and visual resources. BLM would add the lease stipulation UT-S-23 - No Surface Occupancy to parcels 009 and 010. Leasing the parcels under a No Surface Occupancy stipulation will prevent any future associated development from occurring within these parcels. Thus, no direct impacts to wilderness characteristics within lease parcels 009 and 010 that are within the Currant Canyon unit are anticipated as a result of the proposed action. However, depending upon the location of the well pad outside of the area that is NSO, there is potential for impacts to wilderness characteristics in the portion of Currant Canyon that is not subject to leasing restrictions.

**Table 4.3. Acres of Inventory Units within Lease Parcels**

Inventory Unit Name	Total IU Acres	IU Acres overlaying parcels	Parcel #
Desolation Canyon	65,403	959	032, 038, 039, 049
Currant Canyon	20,075	1,561	009, 010
<i>Total:</i>	<i>85,487</i>	<i>2,520</i>	

#### 4.1.1.5. Plants: Special Status

##### 4.1.1.5.1. Plants: BLM-Sensitive Species

The issuance of leases would not directly impact BLM-Sensitive plant species on the nominated parcels. However, as the BLM generally cannot deny all surface use of a lease unless the lease is issued as a No Surface Occupancy stipulation, the issuance of leases does convey an expectation that drilling and development would occur. Chapter 3 identifies species that could be impacted through future actions on leased parcels. Beyond the potential loss or damage to individuals these impacts include direct dispersed and indirect impacts including: the loss of suitable habitat for the species and its pollinators; increased competition for space, light, and nutrients with invasive and noxious weed species introduced and spread due to the Proposed Action; accidental spray or drift of herbicides used during invasive plant control; altered physiology (*i.e.*, photosynthesis, respiration, and transpiration) and reproductive success due to increased fugitive dust resulting from the surface disturbance and project related traffic. For the parcels on federally managed surface, application of the appropriate species-specific lease notices and application of lease notices UT-LN-49 (Utah Sensitive Species), UT-LN-51 (Special Status Plants: Not Federally Listed), UT-LN-89 (Horseshoe milkvetch [*Astragalus equisolensis*]), and UT-LN-90 (Graham beardtongue [*Penstemon grahamii*]) would be adequate for the leasing stage to disclose potential restrictions against future authorizations. Lease notices UT-LN-49 and UT-LN-51 may require modifications to the Surface Use Plan of Operations. Lease notices UT-LN-89 and UT-LN-90 outline specific mitigation measures and survey requirements for each specific BLM-Sensitive plant species they include. Additionally, parcels identified as containing designated Conservation Agreement Areas (Table 3.4) will require additional mitigation and conservation measures if developed (see Conservation Agreement and Strategy for Graham's Beardtongue [*Penstemon grahamii*] and White River Beardtongue [*P. scariosus* var. *albifluvis*] SWCA 2014).

For a detailed descriptions of the Stipulation and Notices and how they are implemented see Appendix A.

Endangered Species Act (ESA) related stipulation (in accordance with BLM Handbook 3120–1 Competitive Leases (P) (H3120)) would be applied to all parcels: See Appendix A.

#### **4.1.1.5.2. Plants: Threatened, Endangered, Proposed, and Candidate**

The issuance of leases would not directly impact threatened, endangered, proposed, and candidate plant species on the nominated parcels. However, as the BLM generally cannot deny all surface use of a lease unless the lease is issued as a No Surface Occupancy stipulation, the issuance of leases does convey an expectation that drilling and development would occur. Chapter 3 identifies species that could be impacted through future actions on leased parcels. Beyond the potential loss or damage to individuals these impacts include direct dispersed and indirect impacts including: the loss of suitable habitat for the species and it's pollinators; increased competition for space, light, and nutrients with invasive and noxious weed species introduced and spread due to the Proposed Action; accidental spray or drift of herbicides used during invasive plant control; altered physiology (*i.e.*, photosynthesis, respiration, and transpiration) and reproductive success due to increased fugitive dust resulting from the surface disturbance and project related traffic. For the parcels on federally managed surface, application of the appropriate species-specific lease notices and application of lease notices UT-LN-49 (Utah Sensitive Species), T&E-05 (Listed Plant Species), T&E-12 (Pariette cactus [*Sclerocactus brevispinus*] and Uinta Basin hookless cactus [*Sclerocactus wetlandicus*]), T&E-20 (Clay reed-mustard [*Hesperidanthus suffrutescens*]), T&E-21 (Shrubby reed-mustard [*Hesperidanthus suffrutescens*]), and T&E-22 (Ute ladies'-tresses [*Spiranthes diluvialis*]) would be adequate for the leasing stage to disclose potential restrictions against future authorizations. Additionally, the parcels identified as containing Core Conservation Areas (Table 3.5) will require additional mitigation and conservation measures if developed (see Ecological Restoration Mitigation Calculation Guidelines for impacts to *Sclerocactus wetlandicus* and *Sclerocactus brevispinus* Habitat, USFWS 2014).

#### **4.1.1.6. Livestock Grazing and Rangeland Health**

Livestock grazing would continue; however, should development occur on the lease, loss of forage and possible reductions of AUMs would occur in the allotment due to disturbance and activity. Livestock movement patterns would be hindered by new roads and oil well pads. Increased traffic may lead to an increase in vehicle livestock collisions, and increasing mortality rates. Invasive weeds would be expected to increase along new roads and throughout well pads; past reclamation efforts have not been successful in eradication of invasive species or in obtaining the seral state of ecological site descriptions for those areas before disturbance occurred. Topsoil erosion would occur which would increase sediment loading within riparian areas and decrease viable soils for plant communities. Channelization would occur along roads.

Rangeland Health Assessments have been taken on these allotments in key areas for years. Some of these key areas could be lost due to disturbance from oil and gas development activity. Data would be and has been lost due to surface disturbance. New areas would have to be targeted as key areas for these allotments. Mitigation may need to take place on a site specific basis where Range Improvement Projects (RIPs) exist. This should include a 200 meter buffer from all RIPs. Depending on amount of disturbance, compensatory adjustments may be needed if AUMs are

reduced on livestock operations. Compensatory adjustments would be looked at on a case by case basis at the Environmental Assessment level for the allotments' permit renewal process.

#### 4.1.1.7. Recreation

The issuance of lease parcels 009 and 010 would not directly impact the Nine Mile SRMA. However, as the BLM generally cannot deny all surface use of a lease unless the lease is issued with a No Surface Occupancy stipulation, the issuance of leases does convey an expectation that drilling and development would occur.

Should construction and drilling occur, the sights and sounds associated with the development of the oil and gas related activities would be apparent to visitors participating in recreation related activities. The noise of construction and operation of producing wells, including the presence of work crews, vehicles, and equipment, would reduce primitive recreational opportunities in proximity to development. Impacts from light and sound would be minimized by implementing the VFO RMP management decisions (MIN-5) that state, "The BLM would seek to minimize light and sound pollution within the Vernal Planning Area by using the best available technology such as installation of multi-cylinder pumps, hospital sound-reducing mufflers, and placement of exhaust systems to direct noise away from noise sensitive areas." The noise sensitive area would be the Nine Mile Canyon itself. The following lease stipulations and notices would be adequate for the leasing stage to disclose potential restrictions against future development of parcels 009, and 010: UT-S-23 - No Surface Occupancy/Controlled Surface Use and UT-LN-106 (Special Recreation Management Area).

**Table 4.4. ACEC**

ACEC	Lease Notice or Stipulation	Parcels
Nine Mile Canyon ACEC	UT-S-23 – No Surface Occupancy/Controlled Surface Use	009, 010

#### 4.1.1.8. Visual Resources

The issuance of leases would not directly impact Visual Resources. However, as the BLM generally cannot deny all surface use of a lease unless the lease is issued as a No Surface Occupancy stipulation, the issuance of leases does convey an expectation that drilling and development would occur.

For the purposes of this analysis, there could be potential effects to visual resources found in the existing inventory classification identified in VRI Section 3.1.8. These impacts would include future development in the form oil wells/pads, pipelines, compressors, power lines, constructed roads and other linear features. These impacts (form, line, color and texture) to the existing landscape found in the current VRI Classes would be allowable under the visual resource management decision which was established in the VFO RMP (RMP 2008b). Further detailed analysis of these potential impacts to the VRI would be analyzed in the future as oil and gas development plans and permits to drill are submitted. Mitigations and design features in order to reduce the potential impacts to the VRI would be addressed at that time. Management decisions made in order to manage visual resources are reflected in the visual resource management classification (VRM), These classes would be utilized to address potential effects to the visual resource for the remainder of the document. Impact to visual resources would be considered relevant if the impacts of the proposed project do not conform to an area's designated visual resource management (VRM) class objectives which for this proposed action include VRM

Class II, III, and IV. Short-term impacts are those that would affect visual resources for fewer than five years; long-term impacts would affect visual resources for more than five years. The potential direct adverse impacts to visual resources would include the visual contrasts created by construction equipment, pipelines, well pads, temporary and permanent access roads, and other forms of infrastructure associated with oil and gas exploration and development. In general, drilling rigs and equipment, construction and maintenance vehicles, development infrastructure, and surface disturbance, including roads, would impact an area's scenic quality and appearance of naturalness with human-made form, color, and linear contrasts. A visual contrast rating process would be used for the VRM analysis, which involves comparing the project features with the major features in the existing landscape to determine whether the scenic values of the BLM managed lands within each parcel have been maintained. The following lease stipulations would be adequate for the leasing stage to disclose potential restrictions against future development of parcel 038: UT-S-157 (NSO/CSU/TL Visual Resources) and UT-S-159 (VRM I/II).

**Table 4.5. VRM**

VRM Class	Lease Notice or Stipulation	Parcels
All	UT-S-157 – No Surface Occupancy/Controlled Surface Use/timing Limitations — Visual Resources	All Parcels
Class /II	Controlled Surface Use – Visual Resources – VRM II	038

#### **4.1.1.9. Wildlife: Migratory Birds including Raptors**

The issuance of leases would not directly impact migratory birds and raptors on the nominated parcels. However, the issuance of leases does convey an expectation that construction and drilling could occur. Chapter 3 identifies that migratory birds and raptors occur on all parcels and could be potentially impacted through future actions on leased parcels. In addition to the direct loss and fragmentation of habitat, noise disturbances from increased traffic levels could displace migratory birds and raptors. However, the Lease Stipulation UT-S-261 (Buffers and timing limitations for raptor nests) and Lease Notice UT-LN-45 (notice for Migratory bird nesting surveys) would be applied to all parcels to mitigate/minimize these impacts. Modifications to a surface plan of operation would be addressed at the APD stage. Bird and raptor surveys would be conducted and utilized prior to any surface disturbing activity.

Application of the migratory bird and raptor lease notices would be adequate for the leasing stage to disclose potential restrictions to reduce potential impacts. Appropriate lease stipulations and notices have been included within the Proposed Action to protect habitat values (see Appendix A). Project-specific impacts relating to future authorizations cannot be analyzed until an exploration or development application is received.

#### **4.1.1.10. Wildlife: Non-USFWS Designated**

The issuance of leases would not directly impact fish and wildlife resources on the nominated parcels. Chapter 3 identifies species and habitats which could be potentially impacted through future actions on leased parcels. Project-specific impacts relating to future authorizations cannot be analyzed until an exploration or development application is received, however for both general fish and wildlife, impacts are assumed to include the direct loss and fragmentation of habitat upon construction of a well pad with its associated road and pipeline. In addition, noise disturbances from increased traffic levels could displace wildlife species.

Appropriate lease stipulations and notices have been included to protect big game habitat values (see Table 4.6, “General Wildlife Stipulations”).

**Table 4.6. General Wildlife Stipulations**

Species	Stipulations	Parcels
Crucial elk calving	UT-S-247 TL-Crucial Deer Fawning & Elk Calving Habitat	006, 012, 013,014, 015, 016
Crucial elk winter	UT-S-230 TL-Crucial Deer and Elk Winter Range	005, 009, 070, 152
Crucial deer fawning	UT-S-247 TL-Crucial Deer Fawning & Elk Calving Habitat	004, 038, 070, 094, 103
Crucial deer wintering	UT-S-230 TL-Crucial Deer and Elk Winter Range	009, 070, 121, 122, 152

#### 4.1.1.11. Wildlife: Special Status Species

The issuance of leases would not directly impact special status species or habitat. However, the issuance of a lease does convey an expectation that oil and gas development could occur. Chapter 3 identifies species and habitats which could be potentially impacted through future actions on leased parcels. Project-specific impacts relating to future authorizations cannot be analyzed until an application for development is received, however it is assumed to include the direct loss and fragmentation of habitat upon construction of a well pad with its associated road and pipeline. In addition to the direct loss and fragmentation of habitat associated with the Proposed Action, noise disturbances from increased traffic levels, or water depletion (for fish) could temporarily displace wildlife species. Refer to Table 4.7, “Special Status Species” for a brief summary of anticipated impacts should development occur and refer to Table 4.8, “Special Status Species Stipulations/Notices”. for a description of the lease stipulations and notices.

**Table 4.7. Special Status Species**

Species	Potential Impacts
Bonytail Chub, Colorado Pikeminnow, Humpback Chub, Razorback Sucker, Bluehead Sucker, Flannelmouth Sucker, Roundtail Chub	All parcels have potential for drilling activities to use water from the Green River system. Water depletions reduce the ability of the river to create and maintain the primary constituent elements that define critical habitats. Food supply, predation, and competition are important elements of the biological environment. Food supply is a function of nutrient supply and productivity, which could be limited by reduction of high spring flows brought about by water depletions. Predation and competition from nonnative fish species have been identified as factors in the decline of the endangered fishes.
Townsend's Big-Eared Bat, Big Free-Tailed Bat, Spotted Bat, Fringed Myotis, Allens Big Eared Bat, Western Red Bat	Construction of roads and well pads could result in the loss of foraging habitat, making it less suitable for bats. As traffic volumes and/or project-related activities increase, adjacent habitats may be avoided due to human presence, noise, and the potential influx of invasive weeds.
Golden Eagle, Bald Eagle, Burrowing Owl, Ferruginous Hawk, Short-eared Owl	Potential effects of the Proposed Action on raptor species include: 1) increased indirect impacts (including poaching and collisions with vehicles), 2) direct loss or degradation of potential nesting and foraging habitats from construction and drilling, and 3) indirect disturbance from human activity (including harassment, displacement, and noise).

Species	Potential Impacts
Gray Vireo, Grasshopper Sparrow, Brewer's Sparrow, Bobolink	The proposed action would result in a loss of habitat for migratory birds. Direct impacts to nesting and breeding migratory birds may occur, depending upon the time of construction and drilling. If development occurs in the spring, during the nesting season for most migratory birds, impacts would be greater than if development occurred between late summer and late winter. Impacts to birds during the spring could include nest abandonment, reproductive failure, displacement, and destruction of nests.
Mexican Spotted Owl	Potential impacts include increased human presence; equipment and vehicle use; and surface disturbance in owl habitat. Associated visual and noise disturbance may adversely affect the behavior of owl during breeding, nesting, roosting, or foraging efforts.
Sage Grouse	Some potential impacts of oil and gas development to sage-grouse include: (1) direct loss and fragmentation of habitat from well, road, and pipeline construction, (2) increased human activity causing avoidance and displacement, and (3) increased predation from installation of infrastructure (i.e., storage tanks, power lines, etc.).
Yellow-billed Cuckoo	The impacts could include loss of suitable habitat from construction and drilling. Disturbance due to noise from construction and human activities could cause birds to abandon nests or deter them from nesting in those areas.

The following Endangered Species Act (ESA) related stipulation (in accordance with BLM Handbook 3120-1-competitive Leases (P) (H-3120) p. 35) would be applied to all parcels:

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

Parcels 032, 067 and 152 are within GHMA for GRSG, within oil and gas developed areas and within an oil and gas unit, therefore they are being considered for leasing for the November 2016 Lease Sale. It is assumed, at the leasing stage, that at least one well would be drilled on each of these leases. Therefore, each parcel could have approximately 4 acres of disturbance if development were to occur (refer to Proposed Action in Ch. 2). The GRSG habitat on these parcels is marginal, and the areas adjacent to these parcels have already had substantial impacts from existing development. In complying with RMP management, the BLM would be able to work with the operator at the time of the development to avoid that habitat

All of these three leases also include lease notices that alert the lessee that there is GRSG habitat on the parcel. Lease notices for Required Design Features (RDF), buffers and net conservation gain have been placed on these parcels. These inform the lessee that there are additional resources that are going to have to be considered at the time of development and some of the possible restrictions that may be associated with those resources. The lease notices listed here are to ensure management activities for GRSG at the development stage will be completed according to management action MA-SSS-5 in the GRSG ARMPA. This decision includes required mitigation for any action in GRSG habitat (GHMA or PHMA) in order to provide a net conservation gain to the species. This can be achieved through avoiding, minimizing or providing compensatory mitigation for those habitats impacted by the development. The buffer notice will be applied by

ensuring that leks within GHMA are still protected to the extent needed in each situation to sustain that population. That would be decided on a case-by-case basis at the time of proposed development. See the table below for GHMA lease notices.

Impacts on GRSG in these populations would be minimal based on the incidental or low use of this habitat. However, the impacts could include but are not limited to degradation of overall habitat displacement and fragmentation of habitat (see GRSG FEIS section 4.3.7 for a detailed description of potential impacts on GRGS in GHMA from oil and gas activity).

Table 4.8, “Special Status Species Stipulations/Notices” lists all additional lease notices and stipulations that would also be applied to the indicated parcels.

**Table 4.8. Special Status Species Stipulations/Notices**

Species	Lease Notice or Stipulations	Parcels
Bonytail Chub, Colorado Pikeminnow, Humpback Chub, Razorback Sucker	T&E-03 Endangered Fish of the Upper Colorado River Drainage Basin UT-LN-49 Utah Sensitive Species	All
Bluehead Sucker, Flannelmouth Sucker, Roundtail Chub	UT-LN-49 Utah Sensitive Species	All
Townsend’s Big-Eared Bat, Big Free-Tailed Bat, Spotted Bat, Fringed Myotis, Allens Big Eared Bat, Western Red Bat	UT-LN-49 Utah Sensitive Species	All
Mexican Spotted Owl	T&E-06 NSO/CSU/TL Mexican Spotted Owl	004, 005, 009, 010
Bald Eagle	UT-S-278 CSU-Bald Eagle Winter Roost UT-LN-107 Bald Eagle Nesting and Winter Roost Habitat	038, 069, 071, 094, 103, 142,
Golden Eagle and Bald Eagle	UT-S-261 NSO/CSU/TL-Raptor Buffer UT-LN-49 Utah Sensitive Species UT-LN-40 Golden Eagle Habitat UT-LN-49 Bald Eagle Habitat	All
Ferruginous Hawk	UT-S-261 NSO/CSU/TL-Raptor Buffer UT-LN-49 Utah Sensitive Species	All
Short-eared owl	UT-S-261 NSO/CSU/TL-Raptor Buffer UT-LN-49 Utah Sensitive Species	All
Gray Vireo, Grasshopper Sparrow, Brewer’s Sparrow, Bobolink	UT-LN-45 Migratory Birds UT-LN-49 Utah Sensitive Species	All
Sage Grouse GHMA	UT-LN-49 Ut. Sens. Species UT-LN-131 SG/Net Gain UT-LN-132 SG/RDF's UT-LN-133 SG/Buffer UT-S-195 NSO - SG/Leks UT-S-205 TL - SG/Brood Rearing UT-S-206 CSU - SG/Noise Reduction UT-S-207 CSU - SG/Structures	032, 067, 152
Yellow-billed Cuckoo	UT-LN-49 Utah Sens. Species UT-LN-113 Western YBC UT-LN-115 Light and Sound	038, 094, 103

Application of these stipulations and notices to each of the parcels on federal surface would be adequate for the leasing stage to disclose potential future restrictions and to facilitate the reduction of potential impacts upon receipt of a site specific APD.

## **4.1.2. Alternative B – No Action**

### **4.1.2.1. Air Quality**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

### **4.1.2.2. Cultural**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

### **4.1.2.3. Areas of Critical Environmental Concern**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed

### **4.1.2.4. Lands with Wilderness Characteristics**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

### **4.1.2.5. Plants: Special Status**

#### **4.1.2.5.1. Plants: BLM-sensitive Species**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

#### **4.1.2.5.2. Plants: Threatened, Endangered, Proposed, and Candidate.**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

### **4.1.2.6. Livestock Grazing & Rangeland Health**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

### **4.1.2.7. Recreation**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

#### **4.1.2.8. Visual Recourses**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

#### **4.1.2.9. Wildlife: Migratory Birds including Raptors**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

#### **4.1.2.10. Wildlife: Non-USFWS Designated**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

#### **4.1.2.11. Wildlife :Special Status Species**

The No Action alternative would not result in potential impacts because the parcels would not be leased or developed.

### **4.2. Cumulative Impacts Analysis**

A cumulative impact is defined in 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. The cumulative impact area varies by resource.

Past, present, and reasonably foreseeable impacts may occur from a variety of activities. Dispersed recreation activities, such as sightseeing, biking, camping, and hunting, have occurred and are likely to continue to occur within the nominated parcels; these activities likely result in negligible impacts to resources because of their dispersed nature. Other land use activities, such as livestock grazing, vegetation projects, oil and gas development, and wildland fire, have also occurred within the nominated parcels and are likely to occur in the future. These types of activities are likely to have a greater impact on resources in the project area because of their more concentrated nature.

#### **4.2.1. Air Quality**

The cumulative impact area for air quality is the Uinta Basin, plus all regional Class I areas and other environmentally sensitive areas (e.g., national parks and monuments, wilderness areas, etc.) near the Uinta Basin. The Air Resource Management Strategy (ARMS) Modeling Project [BLM 2011] is a cumulative assessment of potential future air quality impacts associated with predicted oil and gas activity in the Uinta Basin. Consequently, past, present and reasonably foreseeable wells in the Uinta Basin are a part of the cumulative actions considered in this analysis. The ARMS is incorporated by reference and summarized below.

The ARMS Modeling Project predicted the following impacts to air quality and air quality related values for the 2010 typical year and four 2021 future year scenarios: 2021 on-the-books (OTB); 2021 Scenario 1 (NO<sub>x</sub> controls); 2021 Scenario 2 (VOC controls); and 2021 Scenario 3 (NO<sub>x</sub> and VOC controls).

- Ozone

- The highest modeled ozone occurs in the Uinta Basin study area regardless of model scenario, and all scenarios predict exceedances of the ozone NAAQS and state AAQS in the Uinta Basin.
- In the Uinta Basin, the ozone concentrations are highest during the winter period. In Class I and Class II areas outside the Uinta Basin study area, ozone concentrations are highest during the summer period.
- During non-winter months in the Uinta Basin the model predicts that ozone may exceed the NAAQS and state AAQS (Ambient Air Quality Standards); however, model-adjusted results from the MATS tool (which accounts for model performance biases) indicate that non-winter ozone concentrations are below the NAAQS and state AAQS for all monitors and areas analyzed. Also, the 2021 scenarios have minimal effect on model-predicted ozone concentrations during non-winter months.
- 2021 Scenario 2 tends to have the lowest 8-hour ozone concentration relative to all other 2021 scenarios (4th highest daily maximum is 3 ppb lower compared to the 2021 OTB Scenario). When comparing Scenario 2 to the OTB Scenario, a potential reduction in ozone concentrations occurs in the vicinity of the Ouray site (where the concentrations are already largest). There is no predicted ozone disbenefit associated with Scenario 2 mitigation measures (i.e., there is no area with predicted ozone increases relative to the OTB Scenario). This supports the assessment that peak ozone impacts are in VOC-limited areas.
- 2021 Scenarios 1 and 3 are predicted to have higher ozone impacts than either the 2010 Typical year and the 2021 OTB Scenario. Both scenarios predict a relatively large increase in ozone concentrations within the vicinity of Ouray indicating potential ozone disbenefits associated with NO<sub>x</sub> control mitigation measures.

- NO<sub>2</sub>, CO, SO<sub>2</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub>

- There are seven monitoring stations within the 4- km domain with daily PM<sub>2.5</sub> concentrations that exceed the NAAQS and state AAQS in the baseline emissions inventory.
- All modeled NO<sub>2</sub>, CO, SO<sub>2</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub> values are well below the NAAQS and state AAQS in the Uinta Basin.
- The model-predicted PM<sub>2.5</sub> and PM<sub>10</sub> concentrations may underestimate future impacts due to a negative model bias throughout the year in the 4-km domain with the largest bias occurring in summer [AECOM and STL].
- Results from the MATS tool (which accounts for model performance biases) indicate that PM<sub>2.5</sub> concentrations may exceed the NAAQS and state AAQS for select monitors and assessment areas in the 2010 Typical year. All 2021 scenarios predict that only one of these monitoring station would continue to exceed the NAAQS and state AAQS.

- No monitoring stations within the 4-km domain exceed the annual PM<sub>2.5</sub> NAAQS and state AAQS during the 2010 typical or 2021 Scenarios.
- Two unmonitored areas within the Uinta Basin exceed the annual PM<sub>2.5</sub> NAAQS and state AAQS during the 2010 typical year, and impacts in these areas tend to increase under 2021 Scenarios 1 and 2. Under 2021 Scenario 3, the annual PM<sub>2</sub> impacts decrease in the Uinta Basin due to combustion control measures.
- The 2021 scenarios generally have lower NO<sub>2</sub>, CO, SO<sub>2</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub> concentrations than the 2010 Typical Year scenario, except for within the Uinta Basin.
- Under the 2021 scenarios, all assessment areas are within the PSD (Prevention of Significant Deterioration) increments for annual NO<sub>2</sub>, 3-hour SO<sub>2</sub>, annual SO<sub>2</sub>, and annual PM<sub>10</sub>.
- Under the 2021 scenarios, most assessment areas exceed the 24-hour PM<sub>2.5</sub> PSD increment.
- **Visibility**
  - Visibility conditions in Class I and sensitive Class II areas generally show improvement in the 2021 Scenarios relative to the 2010 Typical Year.
  - There also are no substantial differences in the 20th percentile best and worst visibility days between the 2021 Scenarios.
- **Deposition and Acid Neutralizing Capacity**
  - Results generally show a decrease in deposition for the 2021 Scenarios relative to the 2010 Typical Year.
  - The differences in estimated deposition between the 2021 Scenarios are generally very small.
  - Acid Neutralizing Capacity change at all seven sensitive lakes exceeds the 10 percent limit of acceptable change for all model scenarios.

It is anticipated that the impact to ambient air quality and air quality related values associated with the Proposed Action would be indistinguishable from and dwarfed by the model and emission inventory scope and margin of error. The No Action alternative would not contribute any cumulative impacts.

## **Greenhouse Gas**

The BLM follows draft guidance released in December 2014 from the CEQ to determine the extent and adequacy of NEPA analysis related to the emissions of greenhouse gas (GHG) emissions and climate change impacts that could result from these emissions. The presentation of GHG emissions and climate change analysis in this Lease EA is consistent with that guidance based on the following rationale:

### Rule of Reason

Agencies should be guided by a “rule of reason” in ensuring that the level of effort expended in analyzing GHG emissions or climate change effects is reasonably proportionate to the importance of climate change related considerations to the agency action being evaluated. This concept of proportionality is grounded in the fundamental purpose of NEPA to concentrate on matters that

are truly significant to the proposed action (40 CFR §§ 1500.4(b), 1500.4(g), 1501.7.). In a leasing EA there is no substantive difference between any possible alternative, including the no action alternative, when addressing GHG emissions and their potential to impact global climate. Project-specific impacts from GHG's are by definition not project-area specific, but global in nature. While CEQ guidance cautions against using a comparison of global GHG emissions to project-specific GHG emissions as a stand-alone reason for no detailed analysis, that comparison related to potential impacts is crucial to an understanding on why project-specific GHG emissions can't be reasonably analyzed in a leasing EA. Any potential estimation of GHG emissions in a leasing EA will only represent a minute fraction of global GHG emissions, and by extension only represent an even smaller fraction of any potential impacts. It is not possible, nor reasonable, to try to calculate an exceedingly small fraction of potential impacts to some specific defined impact (e.g. average global temperature at X time in the future) using these metrics. What this means in practice is that a predication of a specific global impact based on project-specific GHG emissions estimations will invariably be so small as to be indistinguishable from no project-specific impact(i.e. no action alternative).

CEQ recommends that when an agency determines that evaluating the effects of GHG emissions from a proposed Federal action would not be useful to the decision-making process and the public to distinguish between the no-action and proposed alternatives and mitigations, the agency should document the rationale. This Lease EA discloses why additional analysis on GHG emissions and their relation to climate change is not possible, and is based on the relationship between project-specific emissions to potential predicted project-specific impacts. This rationale is not a stand-alone reason for why no detailed analysis is possible, instead being part of a reasoned evaluation of the potential for the NEPA analysis to produce information useful to the decision-making process.

#### Availability of Input Data

In light of the difficulties in attributing specific climate impacts to individual projects, CEQ recommends agencies use the projected GHG emissions as a proxy for assessing a proposed action's potential climate change impacts. CEQ provides a reference point of 25,000 metric tons of CO<sub>2</sub>-e emissions on an annual basis below which a GHG emissions quantitative analysis is not warranted unless quantification below that reference point is easily accomplished. This is considered an appropriate reference point that would allow agencies to focus their attention on proposed projects with potentially large GHG emissions.

A leasing EA by its nature does not include input data necessary to develop a reasonably accurate estimate of potential GHG emissions. There are many factors that significantly impact the potential for GHG emissions estimates within specific lease sales: a lease could not be purchased so no GHG emissions likely; a lease could be purchased but never explored so again no GHG emissions; a lease could be purchased and an exploratory (or wildcat) well drilled that showed no development potential, so minimal GHG emissions; or a lease could be purchased, explored, and developed. If developed there are huge differences in the potential for emissions related to a wide variety of variables, including the production potential of the well, economic considerations, regulatory considerations, and company dynamics to name a few. Given the extremely wide variety of potential GHG emissions scenarios resulting from a lease sale it is not reasonable, nor good NEPA practice, to analyze all these outcomes. If a lease parcel is sold, explored, and developed a separate NEPA analysis will be required to implement a field development project. At that time more complete data will be available to analyze potential GHG emissions and their relationship to climate impacts.

### Appropriate Level of Action for NEPA Review

CEQ recommends that an agency select the appropriate level of action for NEPA review at which to assess the effects of GHG emissions and climate change, either at a broad programmatic or landscape-scale level or at a project-specific level, and that the agency set forth a reasoned explanation for its approach. A specific example CEQ cited of a project-specific action that can benefit from a programmatic NEPA review is authorizing leases for oil and gas drilling. Given the aggregate nature of GHG contributions to global climate change, and the aggregate nature of climate change impacts to area-specific impacts analyzed in a field office NEPA document, analysis at this scale is not appropriate and would not provide meaningful information to inform the decision.

### **4.2.2. Cultural**

The cumulative impact area for this resource is the parcel boundaries, and includes the entirety of Nine Mile Canyon, and Steinaker Reservoir. 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. Cumulative impacts include dust accumulation and its impact on rock art, changes in visitation, inadvertent or advertent (i.e., vandalism and looting) damage to cultural resources, impacts to unidentified Traditional Cultural Properties and increased recreational use.

Surface disturbance resulting from mineral exploration and development including road, pipeline and electric line construction could potentially cause the greatest amount of cumulative impacts to cultural resources in the parcels. These activities have the potential to increase visual, noise, atmospheric and other such intrusions that affect the cultural setting of historic properties, which may contribute to their National Register of Historic Places eligibility determinations. The proposed action adds the potential for development to occur in these areas. The No Action alternative would not contribute any cumulative impacts.

### **4.2.3. Areas of Critical Environmental Concern**

The cumulative impact boundary of analysis for the Nine Mile Canyon ACEC (44,168 Acres) is the boundary of the respective ACEC resource area. The rationale for this boundary is that special management considerations are placed on the ACECs to protect the relevant and important (R&I) values. The R&I values of these ACECs include, Nine Mile ACEC: cultural resources, high quality scenery, and special status species. 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, oil wells, pump jacks, pipeline, road rights of ways, etc...). The cumulative effects and the area of impact would be the same as outlined in section 4.16.1 and 4.23.15.1 of the VFO RMP [BLM 2008b]. The proposed action would contribute to these cumulative impacts by making parcels 009 and 010 available for lease and mineral development within the Nine Mile ACEC. For specific analysis of the cumulative impacts to the R&I values contained within the ACEC please refer to the applicable sections of this document. The No Action alternative would not contribute any cumulative impacts.

## 4.2.4. Lands with Wilderness Characteristics

The cumulative impact area for lands with wilderness characteristics is the area within the inventory unit that was found to possess wilderness characteristics. The cumulative effects and the area of impact would be similar as outlined in section 4.10.2 and 4.23.8 of the VFO RMP [BLM 2008b]. The past, present, and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights (leases) and/or realty actions (for example, pipeline or road rights of way). The proposed action could result in the loss wilderness characteristics within the units affected; however, this level of development was disclosed in the VFO FEIS and Proposed RMP and accepted by the decision in the RMP. The No Action alternative would not contribute any cumulative impacts.

**Table 4.9. Lands with Wilderness Characteristics Inventories**

Inventory Unit Name	Total IU Acres	IU Acres overlaying parcels	Parcel #
Desolation Canyon	65,403	959	032, 038, 039, 049
Currant Canyon	20,075	1,561	009, 010
<i>Total:</i>	<i>85,487</i>	<i>2,520</i>	

### **Desolation Canyon Wilderness Character Inventory Unit (65,403 acres)**

Leasing the parcels described in the proposed action (approximately 959 acres which represent approximately 1.4% of the Desolation Canyon Wilderness Character Inventory Unit), combined with all other active leases within this lands with wilderness characteristics unit (approximately 45,944 acres) would result in total leased area of approximately 46,903 acres. Cumulatively, 71% of this inventory unit would be leased for oil and gas development. If development were to occur, it can be expected that wilderness characteristics would be lost specifically in the areas where associated surface disturbance occurs. Regardless of the majority of the unit being leased there would continue to be areas greater than 5000 contiguous acres which would meet the minimum size criteria for wilderness characteristics. Reasonably foreseeable development scenarios indicate that the cumulative impacts of the proposed action could affect an additional 1.4% of the unit; however, this is subject to each individual lease's surface use stipulations and topography.

### **Currant Canyon Wilderness Character Inventory Unit ( 20,075 acres)**

Leasing the parcels described in the proposed action (approximately 1,561 acres which represent approximately 8% of the Currant Canyon Wilderness Characteristics Inventory Unit), combined with all other active leases within this lands with wilderness characteristics unit (approximately 13,154 acres) would result in the total leased area of approximately 14,715 acres. Cumulatively, 73% of this inventory unit would be leased for oil and gas development. If development were to occur, it can be expected that wilderness characteristics would be lost specifically in the areas where associated surface disturbance occurs. In addition, if development were to occur on every current lease, the layout of current leased and proposed parcels within the Currant Canyon Lands with wilderness characteristics unit, would result in the fragmentation of the unit as to eliminate any area that would meet the minimum size criteria of 5,000 contiguous acres within the unit; however, this is subject to each individual lease's surface use stipulations and topography. Leasing parcels 009, and 010 would not contribute any additional cumulative impacts to the inventory unit due to the NSO leasing stipulation which would apply to these parcels.

## **4.2.5. Plants: Special Status**

### **4.2.5.1. Plants: BLM-Sensitive Species**

The cumulative impact area for BLM-Sensitive plant species will be the Vernal Planning Area. Cumulative impacts are incorporated by reference to 4.17.2 4.23.16, and 4.23.14 in the VFO RMP. Cumulative impacts include reduction in loss of habitat, habitat fragmentation, increased road access for OHV use and illegal collection of individuals. The past, present, and foreseeable future actions include development of new and existing mineral rights, including road, pipeline, and well pad construction. The Proposed Action would contribute to these cumulative impacts by making the proposed parcels available for lease sale and mineral development. The No Action alternative would not contribute any cumulative impacts.

### **4.2.5.2. Plants: Threatened, Endangered, Proposed, and Candidate**

The cumulative impact area for threatened, endangered, proposed, and candidate plant species will be the Vernal Planning Area. Cumulative impacts are incorporated by reference to 4.17.2 4.23.16, and 4.23.14 in the VFO RMP. Cumulative impacts include reduction in loss of habitat, habitat fragmentation, increased road access for OHV use and illegal collection of individuals. The past, present, and foreseeable future actions include development of new and existing mineral rights, including road, pipeline, and well pad construction. The Proposed Action would contribute to these cumulative impacts by making the proposed parcels available for lease sale and mineral development. The No Action alternative would not contribute any cumulative impacts.

## **4.2.6. Livestock Grazing & Rangeland Health Standards**

The cumulative impact area for the lease sale is the boundary of the affected allotments. Ground disturbing activities associated with oil and gas development would include well pad construction, road upgrades and construction, compressor station and pipeline construction. This development results in a loss of AUMs and provides conditions for invasive plant species establishment and increase.

Natural resources affected within these allotments would include direct surface disturbing impacts to soil and vegetation from ground disturbing activities. Permitted livestock use on some of these allotments has already been reduced due to oil and gas development. Future reductions would be expected as a direct result of fragmentation and loss of forage. Surface impacts also directly (*alter water flow*) and indirectly (*noise and traffic offset animals loafing and watering at ponds*) affect the water improvements specifically managed for livestock. The analysis for any changes in AUM allocation and general grazing operations throughout these allotments would occur in separate permit renewal NEPA documents. The proposed action would contribute to these cumulative effects by making eleven parcels available for leased mineral development within active grazing allotments.

The No Action alternative would not result in cumulative impacts.

### **4.2.7. Recreation**

The cumulative impact area for the Nine Mile Canyon SRMA and respective SRMA boundary. The rationale for this boundary is the interconnected access of recreational resources (trailheads, campgrounds, etc.) within the SRMA. Cumulative impacts are incorporated by reference to 4.12.2. and 4.23.10 in the []. The past, present, and foreseeable future actions include development of new and existing mineral rights (including pump jacks, roads, pipelines, well pad construction, etc.). Cumulative impacts include noise, light and traffic from oil and gas drilling and production in the area which would change the recreational experience of the area. The proposed action would contribute to these cumulative impacts by leasing parcels 009 and 010 for mineral development. Cumulatively, this would reduce the availability and/or quality of outdoor recreation opportunities (both dispersed and developed) on public lands within the VFO planning area:

#### **Nine Mile Canyon SRMA (44,168 Acres)**

Currently approximately 23,903 acres are leased for oil and gas development within the Nine Mile Canyon SRMA. The proposed action would lease an additional two parcels within the Nine Mile SRMA, approximately 1,839 acres for a total of approximately 25,702 acres or 58% of the SRMA. The No Action alternative would not contribute any cumulative impacts.

### **4.2.8. Visual Resources**

The cumulative impact area considered for visual resources is the applicable inventory units of the Vernal Field Visual Resource Inventory (November 2011). The rationale for this boundary is that the visual resource inventory serves as the baseline information for assessing potential effects to visual resources within the proposed projects. Cumulative impacts are incorporated by reference to 4.12.2. and 4.23.10 of the VFO RMP (RMP 2008b). The past, current and future activities in the inventory unit would cumulatively increase the cultural modification done to the landscape. This is viewed as negative impact when assessing the scenic quality of an area. The proposed action would contribute to these cumulative impacts by making 28 parcels available for lease and mineral development Parcel 038 in VRM Class II areas; Parcels: 004, 005, 009, 010, 012, 013, 014, 015, 032, 038, 067, 070, 094, 103, 121, 122, 151, 152 in VRM Class III areas; and parcels: 006, 009, 010, 012, 013, 014, 015, 016, 032, 039, 049, 070, 071 in VRM Class IV. Visual contrast analysis would be conducted to determine if development is in compliance with VRM standards when the project proponents begin the work of developing the minerals within the parcels. When a plan of development is created, site specific VRM analysis would be conducted. The No Action alternative would not contribute any cumulative impacts.

### **4.2.9. Wildlife: Migratory Birds Including Raptors**

The cumulative impact area for Migratory Birds is the Vernal Planning Area. Cumulative impacts are incorporated by reference to 4.21.2 and 4.23.18 in the VFO RMP [BLM 2008b]. Cumulative impacts include loss of migratory bird habitat, habitat fragmentation, and disruption or alteration of seasonal migration routes. The past, present, and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights or realty actions (for example, pipeline or road rights of way) and the continuation of agricultural activities. The proposed action would contribute to these cumulative impacts by making the 28 proposed parcels available for lease sale and mineral development, with the potential for

future surface disturbance should the leases be developed. The No Action alternative would not contribute any cumulative impacts.

#### **4.2.10. Wildlife: Non-USFWS Designated**

The cumulative impact area for elk and mule deer will be the Vernal Planning Area. Cumulative impacts are incorporated by reference to 4.21.2 and 4.23.18 in the VFO RMP. Cumulative impacts to general wildlife and raptors include loss of habitat for wildlife and fisheries, habitat fragmentation, and disruption or alteration of seasonal migration routes. The past, present, and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights or realty actions (for example, pipeline or road rights of way) or the continuation of agricultural activities. The proposed action would contribute to these cumulative impacts by making parcels 004, 005, 006, 009, 012, 013, 014, 015, 016, 038, 070, 094, 103, 121, 122, and 152, available for mineral development, with the potential for future surface disturbance should the leases be developed. The No Action alternative would not contribute any cumulative impacts.

#### **4.2.11. Wildlife: Special Status Species**

The cumulative impact area for Special Status Animal Species is the Vernal Planning Area. Cumulative impacts are incorporated by reference to 4.17.2, 4.21.2, and 4.23.14 in the VFO RMP. Cumulative impacts to threatened, endangered, candidate, or sensitive animal species include loss of habitat for wildlife and fisheries (including water depletion), habitat fragmentation, and disruption or alteration of seasonal migration routes. The past, present, and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights or realty actions (for example, pipeline or road rights of way) or the continuation of agricultural activities. The proposed action would contribute to these cumulative impacts by making the 28 proposed parcels, as found in Appendix A, available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed. The No Action alternative would not contribute any cumulative impacts.

#### **Greater Sage-grouse**

The cumulative impact area for GRSG is the Vernal Planning Area. Cumulative impacts are incorporated by reference to 4.17.2, 4.21.2, and 4.23.14 in the Vernal RMP and from chapter 5 of the GRSG FEIS. The proposed action does have a potential to contribute to surface disturbance and habitat fragmentation from development of new and existing mineral rights or realty actions (for example, pipeline or road rights of way). The proposed action could contribute to these cumulative impacts by making the 32, 67, 152 proposed parcels, as found in Appendix A, available for lease sale and mineral development. However, when added to the past, present, and foreseeable future impacts associated with the GRSG habitats in these PAs, these new impacts are not anticipated to affect local populations given their small size relative to the landscape (Parcel 032 is 0.0003% of the total acres of the Carbon population and Parcels 067 and 152 combined is 0.00005% of the total acres of the Uintah population), existing habitat conditions, and the presence of impacts from existing developments surrounding these parcels. The No Action alternative would not contribute any cumulative impacts.

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# **Chapter 5. Consultation and Coordination:**

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The ID Team Checklist (Appendix C) provides the rationale for issues that were considered but not analyzed further. The issues were identified through the public and agency involvement process described below.

**Table 5.1. List of Persons, Agencies and Organizations Consulted**

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Utah State Historic Preservation Office (SHPO)	Consultation for undertakings, as required by the National Historic Preservation Act (NHPA) (16 USC 470)	The BLM is initiating consultation on the proposed lease sale with the Utah SHPO under Section 106, of the NHPA. Additional consultation will be ongoing until the BLM and SHPO concur on the proposed undertaking.
Ute Mountain Ute Tribe, Ute Indian Tribe, Goshute Indian Tribe, Zia Pueblo Tribe, White Mesa Ute Tribe, Navajo Nation, Laguna Pueblo Tribe, Northwest Band of Shoshone Tribe, Southern Ute Tribe, Eastern Shoshone Tribe, Santa Clara Pueblo Tribe, Hopi Tribe, Jemez Pueblo	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (16 USC 1531)	Letters containing notification of this lease sale, location maps, and legal descriptions of the proposed parcels were sent to the Tribes 5/24/2016 . The letters detail the leasing proposal and requested comments and concerns. Consultation with tribes is ongoing.
Private land owners	Coordinated with as a leasing program partner.	5/18/2016, letters were sent to all known private landowners potentially impacted by the proposed leasing. Phone responses have been received asking for more information.
Utah Public Lands Policy and Coordination Office	Coordinated with as a leasing program partner.	In February 2016 a letter providing notice of the lease sale, parcel locations and an invitation to attend parcel site-visits was transmitted to PLPCO. A response dated May 6th 2016 was received providing scoping comments. A summary of the review of these scoping comments is below.
National Park Service	Coordinated with as a leasing program partner.	In February 2016 a letter providing notice of the lease sale, parcel locations, and invitation to attend parcel site-visits was transmitted to NPS.
U.S. Fish and Wildlife Service	Informal Section 7 Consultation	Consultation is ongoing.

## 5.1. Field Visits

Field visits for all parcels were conducted throughout March, April , and May 2016. An interdisciplinary team visited each parcel. Pictures of the parcels are included in Appendix F.

## **5.2. Public comment period**

There will be a 30 day public comment period before the final EA is published.

The comments and responses from the comment period will be found in appendix E.

# **Chapter 6. List of Preparers**

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**Table 6.1. List of Preparers**

Name	Title	Responsible for the Following Section(s) of this Document
Melissa Wardle	Natural Resource Specialist	Team Lead, Chapters 1 and 2
Denise Ohler	Planning and Environmental Coordinator	Document Preparation and Review
Stephanie Howard	Planning and Environmental Coordinator	Air Quality
Rene Arce	Recreation Planner	ACECs, WSR, Wilderness Characteristics, Recreation, SRMA, Visual Resources
David Christensen	Archaeologist	Cultural Resources
Dan Emmett	Wildlife Biologist	Wildlife
Mathew Lewis	Botanist	Plants
Craig Newman, Dusty Carpenter	Range Conservationist	Livestock Grazing and Rangeland Health

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# Appendix A. Preliminary Oil and Gas Lease Sale List

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
UT-1116-004	T. 11 S., R. 13 E., Salt Lake Sec. 19: Lots 2, 3, W2NE, E2NW, S2SE. 320.72 Acres	<p><b>Stipulations</b></p> <p>UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b></p> <p>T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-06: Mexican Spotted Owl  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>
UT-1116-005	T. 11 S., R. 13 E., Salt Lake Sec. 35: S2. 320.00 Acres	<p><b>Stipulations</b></p> <p>UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-123: NSO - Riparian, Floodplain, and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-230: TL- Crucial Deer and Elk Winter Range  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b></p> <p>T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-06: Mexican Spotted Owl  T&amp;E-22: Ute Ladies'-Tresses (<i>spiranthes diluvialis</i>)  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-53: Riparian Areas  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>

UT-1116-006	T. 10 S., R. 14 E., Salt Lake Sec. 24: SE; Sec. 25: NE, E2NW. 400.00 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>
UT-1116-009	T. 11 S., R. 14 E., Salt Lake Sec. 25: W2NW, SENW, SW; Sec. 26: E2SW, SWSE; Sec. 35: Lots 1-4, N2N2, NESW, N2SE. 839.95 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-23: NSO/CSU/TL-Nine Mile Canyon ACEC  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-06: Mexican Spotted Owl  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-106: Special Recreation Management Area</p>

UT-1116-010	T. 11 S., R. 14 E., Salt Lake Sec. 27: E2NW, NESW, S2SW; Sec. 28: E2SE; Sec. 33: E2SE; Sec. 34: NE, E2NW, N2SW, NWSE. 720 Acres	<p><b>Stipulations</b></p> <p>UT-S-01: Air Quality  UT-S-23: NSO/CSU/TL-Nine Mile Canyon ACEC  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b></p> <p>T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-06: Mexican Spotted Owl  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-106: Special Recreation Management Area</p>
UT-1116-012	T. 10 S., R. 15 E., Salt Lake Sec. 11: N2. 320 Acres	<p><b>Stipulations</b></p> <p>UT-S-01: Air Quality  UT-S-96: NSO– Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b></p> <p>T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-22: Ute Ladies' Tresses (<i>spiranthes diluvialis</i>)  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-53: Riparian Areas  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-128: Federal Flood Risk Management Standard</p>

UT-1116-013	T. 10 S., R. 15 E., Salt Lake Sec. 3: Lots 1-4, S2NW, SW; Secs. 4 and 9: All; Sec. 10: W2; Sec. 15: W2; Sec. 22: W2NW. 1,244.14 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-22: Ute Ladies' Tresses (<i>spiranthes diluvialis</i>)  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-53: Riparian Areas  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-128: Federal Flood Risk Management Standard</p>
UT-1116-014	T. 10 S., R. 15 E., Salt Lake Sec. 17: All; Sec. 19: Lots 2-6, S2NE, SENW, E2SW, SE; Secs. 20, 29 and 30: All. 2540.78 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>

UT-1116-015	T. 10 S., R. 15 E., Salt Lake Sec. 28: NW. 160 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>
UT-1116-016	T. 10 S., R. 15 E., Salt Lake Sec. 31: Lot 7, NESE. 75.79 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-159: CSU - VISUAL RESOURCES - VRM II  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>

UT-1116-032	T. 11 S., R. 17 E., Salt Lake Sec. 10: E2. 320.00 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-195: NSO-Greater Sage-grouse Leks  UT-S-205: TL-Greater Sage-grouse Brood Rearing and Nesting  UT-S-206: CSU-Greater Sage-grouse (Noise Reduction)  UT-S-207: CSU-Greater Sage-grouse (Structures)  UT-S-261: TL-Raptor Buffers  UT-S-317: Unit Joinder - Deseret Unit UTU89823X  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-05: Listed Plant Species  T&amp;E-20: Clay Reed Mustard (<i>schoenocrambe argillacea</i>)  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-131: Greater Sage-grouse-net Conservation Gain  UT-LN-132: Greater Sage-grouse-Required Design Features  UT-LN-133: Greater Sage-grouse-Buffer</p>
UT-1116-038	T. 10 S., R. 18 E., Salt Lake Sec. 13: Lot 4. 40.04	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO– Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-123: NSO-Riparian, Floodplain, and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-159: CSU VRM II UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  UT-S-278: CSU-Bald Eagle Winter Roost  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-05: Listed Plant Species  T&amp;E-12: Pariette Cactus (<i>sclerocactus brevispinus</i>) and Uinta Basin Hookless Cactus (<i>[sclerocactus glaucus) brevispinus and wetlandicus]</i>)  T&amp;E-22: Ute Ladies' Tresses (<i>spiranthes diluvialis</i>)  UT-LN-37: Bald Eagle Habitat  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-53: Riparian Areas  UT-LN-67: Historical and Cultural Resource Values</p>

		<p>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-96: Air Quality Mitigation Measures                  UT-LN-113: Western Yellow-billed Cuckoo</p> <p>UT-LN-128: Federal Flood Risk Management Standard                  UT-LN-107: Bald Eagle Nesting/Winter Roost Habitat</p>
UT-1116-039	T. 11 S., R. 18 E., Salt Lake Sec. 6: Lots 2-4, SWNE, S2NW, SW, NWSE; Sec. 7: NW, NWSW. 639.29 Acres	<p><b>Stipulations</b>                  UT-S-01: Air Quality                  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%                  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)                  UT-S-157: NSO/CSU/TL – Visual Resources                  UT-S-261: TL-Raptor Buffers                  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>                  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin                  UT-LN-40: Golden Eagle Habitat                  UT-LN-45: Migratory Birds                  UT-LN-49: Utah Sensitive Species                  UT-LN-51: Special Status Plants: Not Federally Listed                  UT-LN-67: Historical and Cultural Resource Values                  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-96: Air Quality Mitigation Measures</p>
UT-1116-049	T. 11 S., R. 19 E., Salt Lake Sec. 28: SWSW; Sec. 33: W2NW, NWSW. 160.00 Acres	<p><b>Stipulations</b>                  UT-S-01: Air Quality                  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%                  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)                  UT-S-157: NSO/CSU/TL – Visual Resources                  UT-S-261: TL-Raptor Buffers                  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>                  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin                  T&amp;E-05: Listed Plant Species                  T&amp;E-12: Pariette Cactus (<i>sclerocactus brevispinus</i>) and Uinta Basin Hookless Cactus [<i>sclerocactus glaucus</i> (<i>brevispinus</i> and <i>wetlandicus</i>)]                  T&amp;E-20: Clay Reed-Mustard (<i>schoenocrambe argillacea</i>)                  T&amp;E-21: Shrubby Reed-Mustard (<i>schoenocrambe suffrutescens</i>)                  UT-LN-40: Golden Eagle Habitat                  UT-LN-45: Migratory Birds                  UT-LN-49: Utah Sensitive Species                  UT-LN-51: Special Status Plants: Not Federally Listed                  UT-LN-67: Historical and Cultural Resource Values                  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-96: Air Quality Mitigation Measures</p>

UT-1116-067	T. 11 S., R. 20 E., Salt Lake Sec. 11: NENE. 40.00 Acres	<p><b>Stipulations</b></p> <p>UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-261: TL-Raptor Buffers  UT-S-317: Unit Joinder - Little Canyon Unit UTU81878X  UT-S-195: NSO-Greater Sage-grouse Leaks  UT-S-205: TL-Greater Sage-grouse Brood Rearing and Nesting  UT-S-206: CSU-Greater Sage-grouse (Noise Reduction)  UT-S-207: CSU-Greater Sage-grouse (Structures)  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b></p> <p>T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-05: Listed Plant Species  T&amp;E-12: Pariette Cactus (<i>sclerocactus brevispinus</i>) and Uinta Basin Hookless Cactus [<i>sclerocactus glaucus (brevispinus and wetlandicus)</i>]  T&amp;E-20: Clay Reed-Mustard (<i>schoenocrambe argillacea</i>)  T&amp;E-21: Shrubby Reed-Mustard (<i>schoenocrambe suffrutescens</i>)  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-107: Bald Eagle Nesting/Winter Roost Habitat  UT-LN-131: Greater Sage-grouse-net Conservation Gain  UT-LN-132: Greater Sage-grouse-Required Design Features  UT-LN-133: Greater Sage-grouse-Buffer</p>
UT-1116-069	T. 3 S., R. 21 E., Salt Lake Sec. 35: Lot 1, E2NE, N2SE. 201.89 Acres	<p><b>Stipulations</b></p> <p>UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-123: NSO- Riparian, Floodplains and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-261: TL-Raptor Buffers  UT-S-278: CSU-Bald Eagle Winter Roost  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b></p> <p>T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-05: Listed Plant Species  T&amp;E-22: Ute Ladies'-Tresses (<i>spiranthes diluvialis</i>)  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-53: Riparian Areas  UT-LN-67: Historical and Cultural Resource Values  UT-LN-68: Notification and Consultation Regarding Cultural Resources</p>

		<p>UT-LN-69: High Potential for Cultural Resources  UT-LN-70: High Potential for Cultural Resource Occurrence  UT-LN-96: Air Quality Mitigation Measures  UT-LN-128: Federal Flood Risk Management Standard</p>
UT-1116-070	T. 4 S., R. 21 E., Salt Lake Sec. 1: Lots 1, 2, S2NE, NESE; Sec. 3: SWNE, SENW, N2NWSW, SWNWSW, N2SENWSW. 315.10 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-230: TL-Crucial Deer and Elk Winter Habitat  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>
UT-1116-071	T. 4 S., R. 21 E., Salt Lake Sec. 1: Lots 3 and 4; Sec. 3: Lot 1. 121.28 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-123: NSO- Riparian, Floodplains and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-261: TL-Raptor Buffers  UT-S-278: CSU-Bald Eagle Winter Roost  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-22: Ute Ladies'-Tresses (<i>spiranthes diluvialis</i>)  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-53: Riparian Areas  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-128: Federal Flood Risk Management Standard  UT-LN-107: Bald Eagle Nesting/Winter Roost Habitat</p>

UT-1116-093	T. 5 S., R. 22 E., Salt Lake Sec. 29: SENE, NWNW, SWSW, SWSE. 160.00 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>
UT-1116-094	T. 6 S., R. 22 E., Salt Lake Sec. 12: Lots 2, 3, 11, SWNE, NWSE. 114.12 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-123: NSO- Riparian, Floodplains and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  UT-S-278: CSU-Bald Eagle Winter Roost  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-02: Black-Footed Ferret  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-22: Ute Ladies'-Tresses (spiranthes diluvialis)  UT-LN-37: Bald Eagle Habitat  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-53: Riparian Areas  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-113: Western Yellow-billed Cuckoo  UT-LN-128: Federal Flood Risk Management Standard  UT-LN-107: Bald Eagle Nesting/Winter Roost Habitat</p>

UT-1116-103	T. 5 S., R. 23 E., Salt Lake Sec. 29: SESE; Sec. 32: SWSE. 80.00 Acres	<p><b>Stipulations</b></p> <p>UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-123: NSO- Riparian, Floodplains and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  UT-S-278: CSU-Bald Eagle Winter Roost  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b></p> <p>T&amp;E-02: Black-Footed Ferret  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  T&amp;E-22: Ute Ladies'-Tresses (spiranthes diluvialis)  UT-LN-37: Bald Eagle Habitat  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-53: Riparian Areas  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-113: Western Yellow-billed Cuckoo  UT-LN-128: Federal Flood Risk Management Standard  UT-LN-107: Bald Eagle Nesting/Winter Roost Habitat</p>
UT-1116-105	T. 8 S., R. 23 E., Salt Lake Sec. 26: NENE 40	<p><b>Stipulations</b></p> <p>UT-S-01: Air Quality  UT-S-123: NSO- Riparian, Floodplains and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b></p> <p>T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-53: Riparian Areas  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-128: Federal Flood Risk Management Standard</p>

UT-1116-121	T. 9 S., R. 25 E., Salt Lake Sec. 35: S2. 320.00 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-230: TL-Crucial Deer and Elk Winter Habitat  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>
UT-1116-122	T. 10 S., R. 25 E., Salt Lake Sec. 1: All; Sec. 10: NWNWSE, S2N2SE, S2SE; Sec. 11: W2; Sec. 14: W2; Sec. 15: All; Sec. 21: E2SW, SE; Sec. 28: E2. 2257.65	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-123: NSO- Riparian, Floodplains and Public Water Reserves  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-230: TL-Crucial Deer and Elk Winter Habitat  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>

UT-1116-123	T. 2 S., R. 2 W., Uintah Special Sec. 30: SENE. 40.00 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-261: TL-Raptor Buffers  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>
UT-1116-142	T. 3 S., R. 21 E., Salt Lake Sec. 35: Lot 3, W2NE, NW, E2NESW. 302.73 Acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat  UT-S-261: TL-Raptor Buffers  UT-S-278: CSU-Bald Eagle Winter Roost  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  TUT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p> <p>UT-LN-107: Bald Eagle Nesting/Winter Roost Habitat</p>

UT-1116-151	T. 11S., R. 15E., Salt Lake Sec 9: SESE 40.00acres	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-261: TL-Raptor Buffers  UT-S-317: Unit Joinder - Gate Canyon II Unit UTU90523X  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures</p>
UT-1116-152	T. 12 S., R. 21 E., Salt Lake Sec. 8: NENE, SWNW. . 80	<p><b>Stipulations</b>  UT-S-01: Air Quality  UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%  UT-S-100: CSU – Fragile Soils/Slopes (21%- 40%)  UT-S-157: NSO/CSU/TL – Visual Resources  UT-S-317: Unit Joinder - Flat Stone Unit UTU90379X  UT-S-195: NSO-Greater Sage-grouse Leks  UT-S-205: TL-Greater Sage-grouse Brood Rearing and Nesting  UT-S-206:CSU-Greater Sage-grouse (Noise Reduction)  UT-S-207: CSU-Greater Sage-grouse (Structures)  WO IM 2002-174: Endangered Species Act Stipulation</p> <p><b>Notices</b>  T&amp;E-03: Endangered Fish of the Upper Colorado River Drainage Basin  UT-LN-40: Golden Eagle Habitat  UT-LN-45: Migratory Birds  UT-LN-49: Utah Sensitive Species  UT-LN-51: Special Status Plants: Not Federally Listed  UT-LN-67: Historical and Cultural Resource Values  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-96: Air Quality Mitigation Measures  UT-LN-131: Greater Sage-grouse-net Conservation Gain  UT-LN-132: Greater Sage-grouse-Required Design Features  UT-LN-133: Greater Sage-grouse-Buffer</p>

**Table A.1. Utah Stipulations**

<b>Stipulation Number</b>	<b>Utah Stipulations</b>
<b>UT-S-01</b>	<p><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 shall not emit more than 2 grams of NOx per horsepower-hour.</p> <p><b>Exception:</b> This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p> <p>AND</p> <p>All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NOx per horsepower-hour.</p> <p><b>Exception:</b> None</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
<b>UT-S-23</b>	<p><b>NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATIONS – NINE MILE CANYON ACEC</b></p> <p>No surface occupancy for oil and gas leasing within approximately 17,162 acres, and approximately 209 acres will be open to leasing subject to moderate constraints such as timing limitations and controlled surface use.</p> <p><b>Exception:</b> None</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
<b>UT-S-96</b>	<p><b>NO SURFACE OCCUPANCY – FRAGILE SOILS/SLOPES GREATER THAN 40%</b></p> <p>No surface occupancy for slopes greater than 40 percent.</p> <p><b>Exception:</b> If after an environment analysis the authorized officer determines that it would cause undue or unnecessary degradation to pursue other placement alternatives; surface occupancy in the NSO area may be authorized. Additionally a plan shall be submitted by the operator and approved by BLM prior to construction and maintenance and include:</p> <ul style="list-style-type: none"> <li>● An erosion control strategy,</li> <li>● GIS modeling, and</li> <li>● Proper survey and design by a certified engineer.</li> </ul> <p><b>Modification:</b> Modifications also may be granted if a more detailed analysis, i.e. Order I, soil survey conducted by a qualified soil scientist finds that surface disturbance activities could occur on slopes greater than 40% while adequately protecting the area from accelerated erosion. <b>Waiver:</b> None</p>

<p><b>UT-S-100</b></p>	<p><b>CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES (21%-40%)</b></p> <p>If surface-disturbing activities cannot be avoided on slopes from 21-40% a plan will be required. The plan will approved by BLM prior to construction and maintenance and include:</p> <ul style="list-style-type: none"> <li>● An erosion control strategy,</li> <li>● GIS modeling,</li> <li>● Proper survey and design by a certified engineer.</li> </ul> <p><b>Exception:</b> None  <b>Modification:</b> None  <b>Waiver:</b> None</p>
<p><b>UT-S-123</b></p>	<p><b>NO SURFACE OCCUPANCY – RIPARIAN, FLOODPLAINS, AND PUBLIC WATER RESERVES</b></p> <p>No new surface-disturbing activities are allowed within active flood plains, wetlands, public water reserves, or 100 meters of riparian areas. Keep construction of new stream crossings to a minimum.</p> <p><b>Exception:</b> An exception could be authorized if: (a) there are no practical alternatives (b) impacts could be fully mitigated, or (c) the action is designed to enhance the riparian resources.</p> <p><b>Modification:</b> None  <b>Waiver:</b> None</p>
<p><b>UT-S-157</b></p>	<p><b>NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE TIMING LIMITATION – VISUAL RESOURCES</b></p> <p>Visual resource management activities will comply with BLM Handbook 8410-1. Within VRM Class I areas, very limited management activity will be allowed, with the objective of preserving the existing character of the landscape, allowing for natural ecological changes. The level of change to the landscape should be very low and shall not attract attention. Within VRM Class II areas, surface-disturbing activities will retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any change to the landscape shall repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape. Within VRM Class III areas, surface disturbing activities will partially retain the existing character of the landscape. The allowable level of change will be moderate, may attract attention, but should not dominate the view of the casual observer. Landscape changes should repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape. Within VRM Class IV areas, surface disturbing activities are allowed to dominate the view and the major focus of viewer attention. Major modifications to the existing character of the landscape are allowed. But every attempt should be made to minimize and mitigate the impacts.</p> <p><b>Exception:</b> Exempted are recognized utility corridors.  <b>Modification:</b> None  <b>Waiver:</b> None</p>

UT-S-159	<p><b>CONTROLLED SURFACE USE – VISUAL RESOURCES - VRM II</b></p> <p>Within VRM II areas, surface-disturbing activities will retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Any change to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.</p> <p><b>Exception:</b> Exempted are recognized utility corridors.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
UT-S-230	<p><b>TIMING LIMITATION – CRUCIAL DEER AND ELK WINTER RANGE</b></p> <p>No surface disturbing activities in deer and elk crucial winter range from <b>December 1 - April 30.</b></p> <p><b>Exception:</b> This restriction would not apply if and/or elk are not present, or if it is determined through analysis and coordination with UDWR that impacts could be mitigated. Factors to be considered would include snow depth, temperature, snow crusting, location of disturbance, forage quantity and quality, animal condition, and expected duration of disturbance.</p> <p><b>Modification:</b> The stipulation could be modified based on findings of collaborative monitoring and analysis. For example, the winter range configuration and time frames could be changed if current animal use patterns are determined to be inconsistent with the dates and boundaries established.</p> <p><b>Waiver:</b> This stipulation could be waived if it is determined through collaborative monitoring and analysis that the area is not crucial winter range or that timing restrictions are unnecessary.</p>
UT-S-247	<p><b>TIMING LIMITATION – CRUCIAL ELK CALVING AND DEER FAWNING HABITAT</b></p> <p>In order to protect crucial elk calving and deer fawning habitat exploration, drilling, and other development activity will not be allowed from <b>May 15 - June 30.</b></p> <p><b>Exception:</b> This restriction would not apply to maintenance and operation of existing facilities. This stipulation may be excepted if either the resource values change or the lessee/operator demonstrates to BLMs satisfaction that adverse impact can be mitigated.</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
UT-S-261	<p><b>TIMING LIMITATION – RAPTOR BUFFERS</b></p> <p>Raptor management will be guided by the use of "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A), utilizing seasonal and spatial buffers, as well as mitigation, to maintain and enhance raptor nesting and foraging habitat, while allowing other resource uses.</p> <p><b>Exception:</b> None</p> <p><b>Modification:</b> Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the "Raptor BMPs", would include the following:</p> <ol style="list-style-type: none"> <li>1. Completion of a site-specific assessment by a wildlife biologist or other qualified individual. See example (Attachment 1 of the Raptor BMPs in Appendix A)</li> <li>2. Written documentation by the BLM Field Office Wildlife Biologist, identifying the proposed modification and affirming that implementation of the proposed modification(s) would not affect nest success or the suitability of the site for future nesting. Modification of the "BMPs" would not be recommended if it is determined that adverse impacts to nesting raptors would occur or that the suitability of the site for future nesting would be compromised.</li> <li>3. Development of a monitoring and mitigation strategy by a BLM biologist, or other raptor biologist. Impacts of authorized activities would be documented to determine if the modifications were implemented as described in the environmental</li> </ol>

	<p>documentation or Conditions of Approval, and were adequate to protect the nest site. Should adverse impacts be identified during monitoring of an activity, BLM would follow an appropriate course of action, which may include cessation or modification of activities that would avoid, minimize or mitigate the impact, or, with the approval of UDWR and the USFWS, BLM could allow the activity to continue while requiring monitoring to determine the full impact of the activity on the affected raptor nest. A monitoring report would be completed and forwarded to UDWR for incorporation into the Natural Heritage Program (NHP) raptor database.</p> <p><b>Waiver:</b> None</p>
<b>UT-S-278</b>	<p><b>CONTROLLED SURFACE USE – BALD EAGLE WINTER ROOST</b></p> <p>Protect and restore cottonwood bottoms for bald eagle winter habitat along the Green and White Rivers, at Pelican Lake, and at the Cliff Creek Bald Eagle roost site, as well as any new roost sites discovered in the future.</p> <p><b>Exception:</b> None <b>Modification:</b> None <b>Waiver:</b> None</p>
<b>UT-S-317</b>	<p><b>UNIT JOINDER</b></p> <p>The successful bidder will be required to join the _____ Unit Agreement or show reason why a joinder should not be required.</p>
<b>UT-S-195</b>	<p><b>NO SURFACE OCCUPANCY – GREATER SAGE-GROUSE LEKS</b></p> <p>No surface-disturbing activities within 1/4 mile of active Greater Sage-Grouse leks year-round found outside of Priority Habitat Management Areas (PHMA).</p> <p><b>Exception:</b> None <b>Modification:</b> None <b>Waiver:</b> None</p>
<b>UT-S-205</b>	<p><b>TIMING LIMITATION – GREATER SAGE-GROUSE BROOD REARING AND NESTING</b></p> <p>No surface-disturbing activities within 2 miles of active Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) within brood rearing and nesting habitat from <b>March 1 - June 15</b>.</p> <p><b>Exception:</b> None <b>Modification:</b> None <b>Waiver:</b> None</p>
<b>UT-S-206</b>	<p><b>CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (NOISE REDUCTION)</b></p> <p>Within ½ mile of known active Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) use the best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise.</p> <p><b>Exception:</b> None <b>Modification:</b> None <b>Waiver:</b> None</p>
<b>UT-S-207</b>	<p><b>CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (STRUCTURES)</b></p> <p>No permanent facilities or structures would be allowed within 2 miles Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) when possible.</p>

	<p><b>Exception:</b> None</p> <p><b>Modification:</b> None</p> <p><b>Waiver:</b> None</p>
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**Table A.2. Utah's Lease Notices**

<b>Number</b>	<b>Utah's Lease Notices</b>
<b>UT-LN-37</b>	<p><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-40</b>	<p><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-45</b>	<p><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>
<b>UT-LN-49</b>	<p><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>
<b>UT-LN-51</b>	<p><b>SPECIAL STATUS PLANTS: NOT FEDERALLY LISTED</b></p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing special status plants, not federally listed, and their habitats. Modifications to the Surface Use Plan of Operations may be required in order to protect the special status plants 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-53</b>	<p><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>

<b>UT-LN-67</b>	<p><b>HISTORICAL AND CULTURAL RESOURCE VALUES</b></p> <p>The lessee/operator is given notice that lands in this lease may contain significant Historical and Cultural Resources. Modifications to the Surface Use Plan of Operations may be required for the protection of these resources.</p>
<b>UT-LN-68</b>	<p><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>
<b>UT-LN-69</b>	<p><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>
<b>UT-LN-70</b>	<p><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>
<b>UT-LN-96</b>	<p><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> </ul>

	<ul style="list-style-type: none"> <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 NO<sub>x</sub>/bhp-hr for engines &lt;300HP; and 1g NO<sub>x</sub>/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-106</b></p>	<p><b>SPECIAL RECREATION MANAGEMENT AREA</b></p> <p>The lessee/operator is given notice that lands in this lease have been identified as being within a Special Recreation Management Area. Modifications to the Surface Use Plan of Operations may be required in order once an activity plan is prepared for the area to protect sensitive resources from surface disturbing activities in accordance with the Vernal RMP.</p>
<p><b>UT-LN-107</b></p>	<p><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</li> </ol>

	<p>31, unless the area has been surveyed according to protocol and determined to be unoccupied.</p> <ol style="list-style-type: none"> <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 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.</li> <li>11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species.</li> </ol> <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-113</b></p>	<p><b>WESTERN YELLOW-BILLED CUCKOO</b></p> <p>The Lessee/Operator is given notice that the lands in or adjacent to this parcel contain potentially suitable habitat that falls within the range for western yellow-billed cuckoo, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend upon whether the action is temporary or permanent, and whether it occurs within or outside the breeding and nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action could continue for more than one breeding season and/or cause a loss of habitat or displace western yellow-billed cuckoos through disturbances. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to, these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> <li>1. Habitat suitability within the parcel and/or within a 0.25 mile buffer of the parcel will be identified prior to lease development to identify potential survey needs.</li> <li>2. Protocol Breeding Season Surveys will be required in suitable habitats prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by permitted individual(s), and be conducted according to protocol.</li> <li>3. For all temporary actions that may impact cuckoo or suitable habitat: <ol style="list-style-type: none"> <li>a. If action occurs entirely outside of the cuckoo breeding season (June 1 – Aug 31), and leaves no structure or habitat disturbance, action can proceed without a presence/absence survey.</li> <li>b. If action is proposed between June 1 and August 31, presence/absence surveys for cuckoo will be conducted prior to commencing activity. If cuckoo are detected, activity should be delayed until September 1.</li> </ol> </li> </ol>

	<ul style="list-style-type: none"> <li>c. Eliminate access routes created by the project through such means as raking out scars, revegetation, gating access points, etc.</li> </ul> <p>4. For all permanent actions that may impact cuckoo or suitable habitat:</p> <ul style="list-style-type: none"> <li>a. Protocol level surveys by permitted individuals will be conducted prior to commencing activities.</li> <li>b. If cuckoos are detected, no activity will occur within 0.25 mile of occupied habitat.</li> <li>c. Avoid drilling and permanent structures within 0.25 mile of suitable habitat unless absence is determined according to protocol level surveys conducted by permitted individual(s).</li> <li>d. Ensure noise levels at 0.25 mile from suitable habitat do not exceed baseline conditions. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.25 mile buffer for suitable habitat.</li> </ul> <p>5. Temporary or permanent actions will require monitoring throughout the duration of the project to ensure that western yellow-billed cuckoo or its habitat is not affected in a manner or to an extent not previous considered. Avoidance and minimization measures will be evaluated throughout the duration of the project.</p> <p>6. Water produced as a by-product of drilling or pumping will be managed to ensure maintenance or enhancement of riparian habitat.</p> <p>7. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers.</p> <p>8. Ensure that water extraction or disposal practices do not result in change of hydrologic regime that would result in loss or degradation of riparian habitat.</p> <p>9. Re-vegetate with native species all areas of surface disturbance within riparian areas and/or adjacent uplands.</p> <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.</p>
<p><b>UT-LN-128</b></p>	<p><b>FEDERAL FLOOD RISK MANAGEMENT STANDARD</b></p> <p>To mitigate potential impacts to floodplains, activities would be limited or precluded within the 500 year base flood level (area subject to flooding by the 0.2 percent annual chance flood) or the 100 year base flood elevation plus 3 feet. (Executive Order 13690 amending Executive Order 11988).</p>
<p><b>UT-LN-131</b></p>	<p><b>GREATER SAGE-GROUSE – NET CONSERVATION GAIN</b></p> <p>In Priority and General Habitat Management Areas (PHMA and GHMA) all actions that result in habitat loss and degradation will require mitigation that provides a net conservation gain to the Greater Sage-Grouse (GRSG). Mitigation must account for any uncertainty associated with the effectiveness of the mitigation and will be achieved through avoiding, minimizing and compensating for impacts. Mitigation will be conducted according to the mitigation framework found in Appendix F in the Utah Approved Management Plan Amendment.</p>

<b>UT-LN-132</b>	<p><b>GREATER SAGE-GROUSE – REQUIRED DESIGN FEATURES</b></p> <p>Apply the Required Design Features (RDF)* in Appendix C of the Utah Approved Management Plan Amendment when leasing within Priority and General Habitat Management Areas (PHMA and GHMA).</p> <p>*RDFs may not be required if it is demonstrated through the NEPA analysis that the RDF associated project/activity is:</p> <ul style="list-style-type: none"> <li>● Documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable;</li> <li>● An alternative RDF, state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for GRSG or its habitat;</li> </ul> <p>Provide no additional protection to GRSG or its habitat.</p>
<b>UT-LN-133</b>	<p><b>GREATER SAGE-GROUSE - BUFFER</b></p> <p>In Priority and General Habitat Management Areas (PHMA and GHMA), the BLM will apply the lek buffer-distances identified in the USGS Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Open File Report 2014-1239) in accordance with Appendix B, Applying Lek-Buffer Distances, consistent with valid and existing rights and applicable law in authorizing management actions.</p>
<b>T&amp;E-02</b>	<p><b>BLACK-FOOTED FERRET</b></p> <p>The Lessee/Operator is given notice that the lands in this lease may contain occupied black-footed ferret habitat, an endangered species under the Endangered Species Act classified as an experimental, nonessential population in the state of Utah. Avoidance and minimization measures that should be followed are included within the <i>Cooperative Plan for the Reintroduction and Management of Black-Footed Ferrets in Coyote Basin, Uintah County, Utah</i> published by the Utah Division of Wildlife Resources in September, 1996. These measures may be updated based on the best available scientific data as it becomes available.</p>
<b>T&amp;E-03</b>	<p><b>ENDANGERED FISH OF THE UPPER COLORADO RIVER DRAINAGE BASIN</b></p> <p>The Lessee/Operator is given notice that the lands in this parcel contain Critical Habitat for the Colorado River fish (bonytail, humpback chub, Colorado pike minnow, and razorback sucker) listed as endangered under the Endangered Species Act, or these parcels have watersheds that are tributary to designated habitat. Critical habitat was designated for the four endangered Colorado River fishes on March 21, 1994(59 FR 13374-13400). Designated critical habitat for all the endangered fishes includes those portions of the 100-year floodplain that contain primary constituent elements necessary for survival of the species. Avoidance or use restrictions may be placed on portions of the lease. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following:</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).</li> </ol>

	<ol style="list-style-type: none"> <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 and, if necessary, Section 7 consultation reinitiated.</li> <li>3. Water production will be managed to ensure maintenance or enhancement of riparian habitat.</li> <li>4. Avoid loss or disturbance of riparian habitats.</li> <li>5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable riparian habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers.</li> <li>6. Conduct watershed analysis for leases in designated critical habitat and overlapping major tributaries in order to determine toxicity risk from permanent facilities.</li> <li>7. Implement Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, Technical Note 423).</li> <li>8. Drilling will not occur within 100 year floodplains of rivers or tributaries to rivers that contain listed fish species or critical habitat.</li> <li>9. In areas adjacent to 100-year flood plains, particularly in systems prone to flash floods, analyze the risk for flash floods to impact facilities, and use closed loop drilling, and pipeline burial or suspension according to Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, Technical Note 423, to minimize the potential for equipment damage and resulting leaks or spills.</li> </ol> <p>Water depletions from <i>any</i> portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect or adversely modify the critical habitat of the four resident endangered fish species, and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletion amounts must be reported to BLM.</p> <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA</p>
T&E-05	<p>LISTED PLANT SPECIES</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for federally listed plant species under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease</p> <ol style="list-style-type: none"> <li>1. Site inventories:             <ol style="list-style-type: none"> <li>a. Must be conducted to determine habitat suitability,</li> <li>b. Are required in known or potential habitat for all areas proposed for surface disturbance prior to initiation of project activities, at a time when the plant can be detected, and during appropriate flowering periods,</li> <li>c. Documentation should include, but not be limited to individual plant locations and suitable habitat distributions, and</li> <li>d. All surveys must be conducted by qualified individuals.</li> </ol> </li> </ol>

2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated.
3. Project activities must be designed to avoid direct disturbance to populations and to individual plants:
  - a. Designs will avoid concentrating water flows or sediments into plant occupied habitat.
  - b. Construction will occur down slope of plants and populations where feasible; if well pads and roads must be sited upslope, buffers of 300 feet minimum between surface disturbances and plants and populations will be incorporated.
  - c. Where populations occur within 300 ft. of well pads, establish a buffer or fence the individuals or groups of individuals during and post-construction.
  - d. Areas for avoidance will be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.
  - e. For surface pipelines, use a 10 foot buffer from any plant locations:
  - f. If on a slope, use stabilizing construction techniques to ensure the pipelines don't move towards the population.
4. For riparian/wetland-associated species, e.g. Ute ladies-tresses, avoid loss or disturbance of riparian habitats.
5. Ensure that water extraction or disposal practices do not result in change of hydrologic regime.
6. Limit disturbances to and within suitable habitat by staying on designated routes.
7. Limit new access routes created by the project.
8. Place signing to limit ATV travel in sensitive areas.
9. Implement dust abatement practices near occupied plant habitat.
10. All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area.
11. Post construction monitoring for invasive species will be required.
12. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in plant habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers.
13. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated.

Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.

T&E-06	<p><b>MEXICAN SPOTTED OWL</b></p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for Mexican spotted owl, a federally listed species. The Lessee/Operator is given notice that the lands in this lease contain Designated Critical Habitat for the Mexican spotted owl, a federally listed species. Critical habitat was designated for the Mexican spotted owl on August 31, 2004 (69 FR 53181-53298). Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs within or outside the owl nesting season.</p> <p>A <u>temporary</u> action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e. creation of a permanent structure.</p> <p>The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following:</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).</li> <li>2. Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the conservation measures below if project activities occur within 0.5 mile of suitable owl habitat. Determine potential effects of actions to owls and their habitat.       <ol style="list-style-type: none"> <li>a. Document type of activity, acreage and location of direct habitat impacts, type and extent of indirect impacts relative to location of suitable owl habitat.</li> <li>b. Document if action is temporary or permanent.</li> </ol> </li> <li>3. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated.</li> <li>4. Water production will be managed to ensure maintenance or enhancement of riparian habitat.</li> <li>5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in canyon habitat suitable for Mexican spotted owl nesting.</li> <li>6. For all temporary actions that may impact owls or suitable habitat:       <ol style="list-style-type: none"> <li>a. If the action occurs entirely outside of the owl breeding season (March 1 – August 31), and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey.</li> <li>b. If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity must be delayed until outside of the breeding season.</li> <li>c. Rehabilitate access routes created by the project through such means as raking out scars, re-vegetation, gating access points, etc.</li> </ol> </li> </ol>
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	<p>7. For all permanent actions that may impact owls or suitable habitat:</p> <ol style="list-style-type: none"> <li>a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities.</li> <li>b. If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC).</li> <li>c. Avoid drilling and permanent structures within 0.5 mi of suitable habitat unless surveyed and not occupied.</li> <li>d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims.</li> <li>e. Limit disturbances to and within suitable habitat by staying on approved routes.</li> <li>f. Limit new access routes created by the project.</li> </ol> <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.</p>
T&E-12	<p><b>PARIETTE CACTUS (<i>Pariette Cactus (sclerocactus brevispinus)</i>) and Uinta Basin Hookless Cactus [<i>sclerocactus glaucus (brevispinus and wetlandicus)</i>] <b>BREVISPINUS</b>) AND UINTA BASIN HOOKLESS CACTUS [<i>Pariette Cactus (sclerocactus brevispinus)</i> and <i>Uinta Basin Hookless Cactus (sclerocactus glaucus (brevispinus and wetlandicus))</i>] <b>GLAUCUS (BREVISPINUS AND WETLANDICUS)</b>]</b></p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for the Pariette cactus and Uinta Basin hookless cactus, under the Endangered Species Act (ESA). The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease.</p> <p>In order to minimize effects to the federally threatened Pariette cactus and Uinta Basin hookless cactus, the BLM in coordination with the USFWS, developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the ESA. For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Uinta Basin hookless cactus. Habitat descriptions can be found in the U.S. Fish and Wildlife Service's 1990 Recovery Plan and Federal Register Notices for the Uinta Basin hookless cactus (<a href="http://www.fws.gov/endangered/wildlife.html">http://www.fws.gov/endangered/wildlife.html</a>). Occupied habitat is defined as areas currently or historically known to support Uinta Basin hookless cactus; synonymous with "known habitat." The following avoidance and minimization measures should be included in the Plan of Development:</p> <ol style="list-style-type: none"> <li>1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable Pariette cactus and Uinta Basin hookless cactus habitat is present.</li> </ol>

2. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories:
  - a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols,
  - b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected, and during appropriate flowering periods:
    - i. *Pariette Cactus (sclerocactus brevispinus) and Uinta Basin Hookless Cactus [sclerocactus glaucus (brevispinus and wetlandicus)] brevispinus* surveys should be conducted March 15th to June 30th, unless extended by the BLM
    - ii. *Pariette Cactus (sclerocactus brevispinus) and Uinta Basin Hookless Cactus [sclerocactus glaucus (brevispinus and wetlandicus)] wetlandicus* surveys can be done any time of the year, provided there is no snow cover,
  - c. Will occur within 300' from the edge of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad,
  - d. Will include, but not be limited to, plant species lists and habitat characteristics, and
  - e. Will be valid until March 15th the following year for *Pariette Cactus (sclerocactus brevispinus) and Uinta Basin Hookless Cactus [sclerocactus glaucus (brevispinus and wetlandicus)] brevispinus* and one year from the survey date for *Pariette Cactus (sclerocactus brevispinus) and Uinta Basin Hookless Cactus [sclerocactus glaucus (brevispinus and wetlandicus)] wetlandicus*.
3. Design project infrastructure to minimize impacts within suitable habitat<sup>2</sup>:
  - a. Reduce well pad size to the minimum needed, without compromising safety,
  - b. Limit new access routes created by the project,
  - c. Roads and utilities should share common right-of-ways where possible,
  - d. Reduce width of right-of-ways and minimize the depth of excavation needed for the road bed; where feasible, use the natural ground surface for the road within habitat,
  - e. Place signing to limit off-road travel in sensitive areas,
  - f. Stay on designated routes and other cleared/approved areas, and
  - g. All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area and non-native species that are not likely to invade other areas.
4. Within occupied habitat<sup>3</sup>, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:

	<ul style="list-style-type: none"> <li>a. Follow the above (3.) recommendations for project design within suitable habitats,</li> <li>b. Buffers of 300 feet minimum between the edge of the right of way (roads and surface pipelines) or surface disturbance (well pads) and plants and populations will be incorporated,</li> <li>c. Surface pipelines will be laid such that a 300 foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline crosses the habitat to ensure the pipelines don't move towards the population,</li> <li>d. Before and during construction, areas for avoidance should be visually identifiable in the field (e.g., flagging, temporary fencing, rebar, etc.),</li> <li>e. Where technically and economically feasible, use directional drilling or multiple wells from the same pad,</li> <li>f. Designs will avoid concentrating water flows or sediments into occupied habitat,</li> <li>g. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and</li> <li>h. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible.</li> </ul> <p>5. Occupied Pariette cactus and Uinta Basin hookless cactus habitats within 300' of the edge of the surface pipelines' right-of-ways, 300' of the edge of the roads' right-of-ways, and 100' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the USFWS. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the USFWS.</p> <p>6. Re-initiation of Section 7 consultation with the USFWS will be sought immediately if any loss of plants or occupied habitat for the Pariette cactus and Uinta Basin hookless cactus is anticipated as a result of project activities.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.</p>
T&E-20	<p><b>CLAY REED - MUSTARD (<i>SCHOENCRAMBE ARGILLACEA</i>)</b></p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for clay reed-mustard under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease:</p> <p>In order to minimize effects to the federally threatened clay reed-mustard, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service) developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the Endangered Species Act (ESA). For the purposes of this document, the following terms are so defined: Potential habitat is</p>

defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain clay reed-mustard; habitat descriptions can be found in Federal Register Notice and species recovery plan links at <http://www.fws.gov/endangered/wildlife.html>. Occupied habitat is defined as areas currently or historically known to support clay reed-mustard; synonymous with “known habitat.” The following avoidance and minimization measures should be included in the Plan of Development:

1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable clay reed-mustard habitat is present.
2. Site inventories will be conducted within suitable habitat to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc., suitable habitat will be assessed and mapped for avoidance (hereafter, “avoidance areas”); in such cases, in general, 300-foot buffers will be maintained between surface disturbance and avoidance areas. However, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat. Where conditions allow, inventories:
  1. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols,
  2. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (usually May 1st to June 5th, in the Uinta Basin; however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower),
  3. Will occur within 300 feet from the edge of the proposed right-of-way for surface pipelines or roads; and within 300 feet from the perimeter of disturbance for the proposed well pad including the well pad,
  4. Will include, but not be limited to, plant species lists and habitat characteristics, and
  5. Will be valid until May 1st the following year.
1. Design project infrastructure to minimize impacts within suitable habitat:
  1. Where standard surveys are technically infeasible, infrastructure and activities will avoid all suitable habitat (avoidance areas) and incorporate 300-foot buffers, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,
  2. Reduce well pad size to the minimum needed, without compromising safety,
  3. Limit new access routes created by the project,
  4. Roads and utilities should share common right-of-ways where possible,
  5. Reduce the width of right-of-ways and minimize the depth of excavation needed for the road bed; where feasible, use the natural ground surface for the road within habitat,
  6. Place signing to limit off-road travel in sensitive areas, and

7. Stay on designated routes and other cleared/approved areas.
1. Within occupied habitat<sup>3</sup>, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:
  1. Where standard surveys are technically infeasible, infrastructure and activities will avoid all suitable habitat (avoidance areas) and incorporate 300-foot buffers, , in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,
  2. Follow the above recommendations (3.) for project design within suitable habitats,
  3. To avoid water flow and/or sedimentation into occupied habitat and avoidance areas, silt fences, hay bales, and similar structures or practices will be incorporated into the project design; appropriate placement of fill is encouraged,
  4. Construction of roads will occur such that the edge of the right of way is at least 300 feet from any plant and 300 feet from avoidance areas,
  5. Roads will be graveled within occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from May 1st to June 5th (flowering period); dust abatement applications will be comprised of water only,
  6. The edge of the well pad should be located at least 300 feet away from plants and avoidance areas, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,
  7. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and plants and 300 feet between the edge of right of way and avoidance areas; use stabilizing and anchoring techniques when the pipeline crosses suitable habitat to ensure pipelines don't move towards the population; site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,
  8. Construction activities will not occur from May 1st through June 5th within occupied habitat,
  9. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.,
  10. Where technically and economically feasible, use directional drilling or multiple wells from the same pad,
  11. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and
  12. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible.
1. Occupied clay reed-mustard habitats within 300 feet of the edge of the surface pipelines' right of ways, 300 feet of the edge of the roads' right of ways, and 300 feet from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.

	<p>2. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the clay reed-mustard is anticipated as a result of project activities.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p>
<p><b>T&amp;E-21</b></p>	<p><b>SHRUBBY REED - MUSTARD (SCHOENOCRAMBE SUFFRUTESCENS)</b></p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for shrubby reed-mustard under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease.</p> <p>In order to minimize effects to the federally endangered shrubby reed-mustard, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service) developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the Endangered Species Act (ESA). For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain shrubby reed-mustard; habitat descriptions can be found in the Federal Register 52(193):37416-37420 and in the U.S. Fish and Wildlife Service’s 1994 Utah Reed-Mustards Recovery Plan (<a href="http://www.fws.gov/endangered/wildlife.html">http://www.fws.gov/endangered/wildlife.html</a>). Occupied habitat is defined as areas currently or historically known to support shrubby reed-mustard; synonymous with “known habitat.” The following avoidance and minimization measures should be included in the Plan of Development:</p> <ol style="list-style-type: none"> <li>1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable shrubby reed-mustard habitat is present.</li> <li>2. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories:             <ol style="list-style-type: none"> <li>a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols,</li> <li>b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (April 15th to August 1st, unless extended by the BLM),</li> <li>c. Will occur within 300 feet from the edge of the proposed right-of-way for surface pipelines or roads; and within 300 feet from the perimeter of disturbance for the proposed well pad including the well pad,</li> <li>d. Will include, but not be limited to, plant species lists and habitat characteristics, and</li> <li>e. Will be valid until April 15th the following year.</li> </ol> </li> <li>3. Design project infrastructure to minimize impacts within suitable habitat:</li> </ol>

- a. Reduce well pad size to the minimum needed, without compromising safety,
  - b. Limit new access routes created by the project,
  - c. Roads and utilities should share common right-of-ways where possible,
  - d. Reduce the width of right-of-ways and minimize the depth of excavation needed for the road bed; where feasible, use the natural ground surface for the road within habitat,
  - e. Place signing to limit off-road travel in sensitive areas, and
  - f. Stay on designated routes and other cleared/approved areas.
4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:
- a. Follow the above (3.) recommendations for project design within suitable habitats,
  - b. Construction of roads will occur such that the edge of the right of way is at least 300' from any plant,
  - c. Roads will be graveled within occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from April 15th to May 30th (flowering period); dust abatement applications will be comprised of water only,
  - d. The edge of the well pad should be located at least 300 feet away from plants,
  - e. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline crosses the white shale strata to ensure the pipelines don't move towards the population,
  - f. Construction activities will not occur from April 15th through May 30th within occupied habitat,
  - g. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.,
  - h. Where technically and economically feasible, use directional drilling or multiple wells from the same pad,
  - i. Designs will avoid concentrating water flows or sediments into occupied habitat,
  - j. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and
  - k. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible.
5. Occupied shrubby reed-mustard habitats within 300 feet of the edge of the surface pipeline right of ways, 300 feet of the edge of the road right of ways, and 300 feet from the edge of well pads shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being

	<p>achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>6. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the shrubby reed-mustard is anticipated as a result of project activities.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p>
<p><b>T&amp;E-22</b></p>	<p><b>UTE LADIES'-TRESSES (<i>SPIRANTHES DILUVIALIS</i>)</b></p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for Ute ladies'-tresses under the Endangered Species Act (ESA). The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease. In order to minimize effects to the federally threatened Ute ladies'-tresses, the BLM in coordination with the USFWS, developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the ESA. Ute ladies'-tresses habitat is provided some protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Ute ladies'-tresses. Habitat descriptions can be found in Recovery Plans and Federal Register Notices for the species at &lt;<a href="http://www.fws.gov/endangered/wildlife.html">http://www.fws.gov/endangered/wildlife.html</a>&gt;. Occupied habitat is defined as areas currently or historically known to support Ute ladies'-tresses; synonymous with "known habitat. Although plants, habitat, or populations may be afforded some protection under these regulatory mechanisms, the following conservation measures should be included in the Plan of Development:</p> <ol style="list-style-type: none"> <li>1. Pre-project habitat assessments will be completed across 100% of the project disturbance area, including areas where hydrology might be affected by project activities, within potential habitat prior to any ground disturbing activities to determine if suitable Ute ladies'-tresses habitat is present.</li> <li>2. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories:             <ol style="list-style-type: none"> <li>1. Must be conducted by qualified individual(s) and according to BLM and USFWS accepted survey protocols,</li> <li>2. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance or areas that could experience direct or indirect changes in hydrology from project activities,</li> <li>3. Will be conducted prior to initiation of project activities and within the same growing season, at a time when the plant can be detected, and during appropriate flowering periods (usually August 1st and August 31st in the Uinta Basin; however, surveyors should verify that the plant is flowering by contacting a BLM or USFWS botanist or demonstrating that the nearest known population is in flower),</li> </ol> </li> </ol>

4. Will occur within 300' from the edge of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad,
5. Will include, but not be limited to, plant species lists, habitat characteristics, source of hydrology, and estimated hydroperiod, and
6. Will be valid until August 1st the following year.
1. Design project infrastructure to minimize direct or indirect impacts to suitable habitat both within and downstream of the project area:
  1. Alteration and disturbance of hydrology will not be permitted,
  2. Reduce well pad size to the minimum needed, without compromising safety,
  3. Limit new access routes created by the project,
  4. Roads and utilities should share common right-of-ways where possible,
  5. Reduce width of right-of-ways and minimize the depth of excavation needed for the road bed,
  6. Construction and right-of-way management measures should avoid soil compaction that would impact Ute ladies' tresses habitat,
  7. Off-site impacts or indirect impacts should be avoided or minimized (i.e. install berms or catchment ditches to prevent spilled materials from reaching occupied or suitable habitat through either surface or groundwater),
  8. Place signing to limit off-road travel in sensitive areas,
  9. Stay on designated routes and other cleared/approved areas, and
  10. All disturbed areas will be re-vegetated with species approved by USFWS and BLM botanists.
1. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:
  1. Follow the above (#3) recommendations for project design within suitable habitats,
  2. Buffers of 300 feet minimum between right of way (roads and surface pipelines) or surface disturbance (well pads) and plants and populations will be incorporated,
  3. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and the plants, using stabilizing and anchoring techniques when the pipeline crosses habitat to ensure the pipelines don't move towards the population,
  4. Before and during construction, areas for avoidance should be visually identifiable in the field (e.g., flagging, temporary fencing, rebar, etc.),
  5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad,
  6. Designs will avoid altering site hydrology and concentrating water flows or sediments into occupied habitat,

7. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, with berms and catchment ditches to avoid or minimize the potential for materials to reach occupied or suitable habitat, and
8. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible.
1. Occupied Ute ladies'-tresses habitats within 300' of the edge of the surface pipelines' right-of-ways, 300' of the edge of the roads' right-of-ways, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Habitat impacts include monitoring any changes in hydrology due to project related activities. Annual reports shall be provided to the BLM and the USFWS. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.
2. Re-initiation of section 7 consultation with the USFWS will be sought immediately if any loss of plants or occupied habitat for the Ute ladies'-tresses is anticipated as a result of project activities.

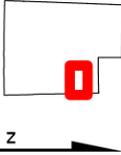
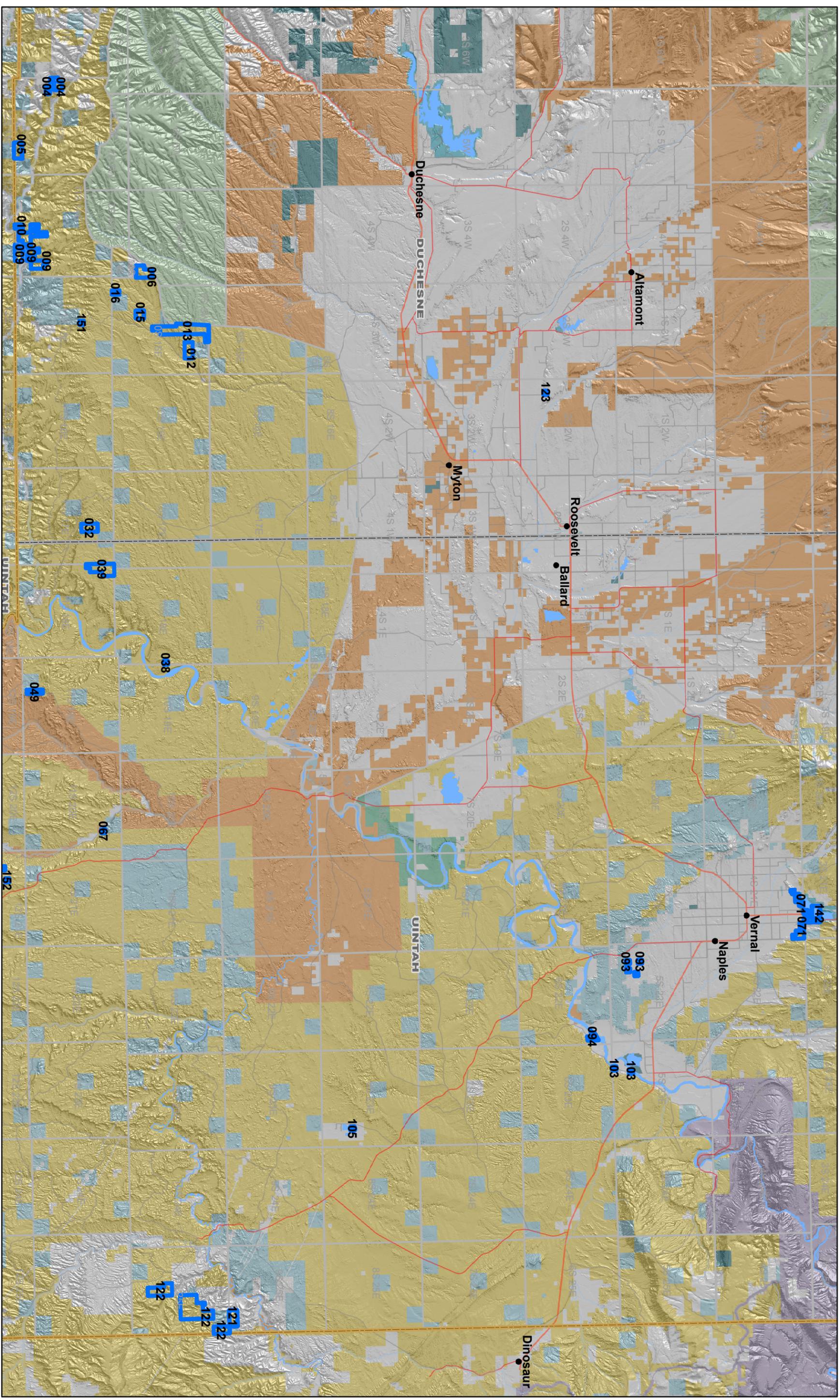
Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.

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# Appendix B. Maps

R 6W R 5W R 4W R 3W R 2W R 1W R 1E R 19E R 20E R 21E R 22E R 23E R 24E R 25E

T 12S T 11S T 6S T 5S T 4S T 3S T 2S T 1S T 1N T 2N



# Legend

 VFO Lease Parcels

No warranty is made by the BLM for use of the data for purposes not intended by the BLM.

This product may not meet BLM standards for accuracy and content. Different data sources and input scales may cause some misalignment of data layers.



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# Appendix C. Interdisciplinary Checklist

## INTERDISCIPLINARY TEAM CHECKLIST

**Project Title:** November 2016 Vernal Competitive Oil and Gas Lease Sale

**NEPA Log Number:** DOI-BLM-UT-G010-2016-033-EA

**Project Leader:** Melissa Wardle

**DETERMINATION OF STAFF:** (Choose one of the following abbreviated options for the left column)

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for relevant impact that need to be analyzed in detail in the EA

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

Determina- tion	Resource/Issue	Rationale for Determination	Signature	Date
<b>RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)</b>				
NI	Air Quality & Greenhouse Gas Emissions	Leasing itself would not have impacts to air quality. However, should development occur on issued leases, emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions could adversely affect air quality.  No standards have been set by EPA or other regulatory agencies for greenhouse gases. In addition, the assessment of greenhouse gas emissions and climate change is still in its earliest stages of formulation. Global scientific models are inconsistent, and regional or local scientific models are lacking so that it is not technically feasible to determine the net impacts to climate due to greenhouse gas emissions. It is anticipated that greenhouse gas emissions associated with this action and its alternative(s) would be negligible.	Melissa Wardle	4/4/2016
NP	BLM Natural Areas	None of the proposed lease parcels occur within any BLM Natural Areas as per GIS and VFO RMP[BLM2008bBLM 2008b] review.	Melissa Wardle	4/4/2016

Determination	Resource/Issue	Rationale for Determination	Signature	Date
PI	Cultural:  Archaeological Resources	<p>A complete inventory of the proposed lease parcels has not been completed; however cultural resources have been identified within and adjacent to the parcels.</p> <p>Cultural resource information and data has been considered including: the VFO Resource Management Plan, previous cultural reports and surveys, archaeological site forms, geography, vegetation, topography, site visits, and personal knowledge and experience of the proposed parcels; and it has been determined that reasonable development could occur without adverse impacts to cultural properties in most parcels. However, it is likely that additional cultural resources will be located within the proposed lease parcels. Six Parcels are proposed near Steinaker Reservoir or Nine Mile Canyon. Those areas are more sensitive because of their proximity to water sources and the high numbers of cultural sites already recorded in that area. Many of these parcels may also have indirect impacts to cultural site setting, and the development of parcels in those areas may increase the cumulative impacts of the area as well.</p> <p>The BLM will not approve any ground disturbing activities that may affect 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 properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.</p>	David Christensen	6/8/2016
PI	Cultural:  Native American  Religious Concerns	<p>Two parcels are on or near Nine Mile Canyon; an area that is considered sensitive to Native Americans. A letter was sent on May 24, 2016 to the following tribes regarding this proposed project and there concerns or comments will be added. Ute Mountain Ute Tribe, Ute Indian Tribe, Goshute Indian Tribe, Zia Pueblo, White Mesa Ute Tribe, Navajo Nation, Laguna Pueblo, Northwest Band of Shoshone, Southern Ute Tribe, Eastern Shoshone, Santa Clara Pueblo, Hopi Tribe, Jemez Pueblo.</p> <p>Maps of the parcels were provided to each of the tribes. they were asked to identify traditional cultural places or any other areas of traditional cultural importance that need to be considered within the APE. Tribal consultation is ongoing.</p>	David Christensen	6/8/2016

<b>Determination</b>	<b>Resource/Issue</b>	<b>Rationale for Determination</b>	<b>Signature</b>	<b>Date</b>
PI	Designated Areas: Areas of Critical Environmental Concern	Parcels 009, and 010 occur within the Nine Mile ACEC, relevance and importance values include high value scenery, cultural resources, and special status species.	Rene Arce	4/22/2016
NP	Designated Areas: Wild and Scenic Rivers	None present within the project area as per the VFO RMP [BLM2008bBLM 2008b] and GIS review.	Rene Arce	4/22/2016
NP	Designated Areas: Wilderness Study Areas	None present within the project area as per the VFO RMP [BLM2008bBLM 2008b]and GIS review.	Rene Arce	4/22/2016
NI	Environmental Justice	As defined in EO 12898, minority, low income populations and disadvantaged groups may be present within the counties involved in this lease sale. However, all citizens can file an expression of interest or participate in the bidding process (43 CFR §3120.3-2). The stipulations and notices applied to the subject parcels do not place an undue burden on these groups. Leasing the nominated parcels would not cause any disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Native American Tribes because the minerals are federal and or the surface is private or BLM.	Melissa Wardle	5/16/2016
NI	Farmlands (prime/unique)	None of the proposed Lease Parcels occur within prime or unique Farmlands as defined by the NRCS.	Melissa Wardle	4/4/2016
NI	Fuels/Fire Management	Fuels Management: Any new disturbance and additional traffic will increase the amount of <i>Bromus tectorum</i> . An increase in <i>Bromus tectorum</i> may lead to a changing fire regime and an increase in fire frequency. Implementing the Green River District reclamation standards and ensuring the standards are met will minimize any new populations of <i>Bromus tectorum</i> .	Blaine Tarbell	3/09/2016
PI	Geology/Minerals/Energy Production	All or portions of parcels 009, and 010 are spatially located within the Sunnyside Special Tar Sands Area (STSA) portions of parcel 052 within the Asphalt Ridge STSA. There is the potential for Gilsonite to be encountered within parcel 122. Leasing of parcels spatially located within STSA's would singly retain the right to develop oil and gas mineral resources as a separate entity from potential tar sand commodities, nor retain the rights on that commodity within parcels established as combined hydrocarbon leases. Leasing will also have no direct impact on geologic conditions or other mineral resources contained within those parcels. At the development stage, compliance with "Onshore Oil and Gas Order No. 2, Drilling Operations" would assure that the proposed development would not	Joseph Islas	6/10/2016

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		<p>adversely affect other mineral resources. The guidelines of this Order specifies the following: "...proposed casing and cementing programs should be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use." Prospectively valuable deposits of minerals would include Gilsonite, oil shale, and tar sands for example, in addition to the oil and gas resource.</p> <hr/> <p>The underground injection of 'fracking waste water' in Utah presents little potential for inducing seismic activity. The majority of fracking waste 'fluids' are recycled and reused for future frack jobs. There have been no reported earthquakes in Utah that were suspected of being produced (induced) from injecting fluids into oil and gas disposal wells. (Personal communication from Brad Rogers, Utah Division of Oil, Gas and Mining ("UDOGM"), August 10, 2015). This fluid is predominantly produced water with a high salt brine content. As stated above in order to analyze and predict the potential for earthquakes associated with oil and gas disposal wells three kinds of data will be necessary: (1) seismic data: high-quality, real-time earthquake locations, which require dense seismic instrumentation; (2) geologic data: hydrological parameters, orientation and magnitude of the stress field, and the location and orientation of known faults; and (3) industrial data: injection rates and downhole pressures sampled and reported frequently. This data is not currently available, with the exception of industrial injection data reported to UDOGM, with which to do the analysis.</p>	Mike McKinley	6/9/2016
NI	Invasive Plants/Noxious Weeds, Soils & Vegetation	<p>The lease sale alone would not affect Invasive Plants/Noxious Weeds. However, there is an expectation that development will occur in the future, at which time additional NEPA would be conducted. At the development stage, mitigation measures and best management practices will need to be incorporated to avoid the spread of undesirable non-native plant species. Required mitigation measures will need to at a minimum meet the standards set forward within the Vernal Field Office Surface Disturbance Weed Policy (IM-UTG010-10-001). Future site specific NEPA should discuss the</p>	Melissa Wardle	5/16/2016

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		<p>non-native species present, the likelihood they would spread, the developed mitigation measures, and information on chemical weed control and how it tiers to the National and local programmatic guidance.</p> <p>Soils: The Vernal VFO RMP [BLM2008bBLM 2008b] requires application of CSU and NSO stipulations on parcels with slopes greater than 21%. of the parcels contain slopes greater than 21%. Inclusion of the stipulations UT-S-96 NSO slopes &gt;40% and UT-S-100 CSU slopes 21–40% should be sufficient to notify the operator of any potential future development restrictions.</p>		
NI	Lands/Access	<p>The proposed area is located within the Vernal Field Office Resource Management Plan area, which allows for oil and gas development with associated road and pipeline right-of-ways. Current land uses, within the area identified in the proposed action and adjacent lands, consist of existing oil and gas development, wildlife habitat, recreational use, and sheep and cattle ranching. No existing land uses would be changed or modified by the implementation of the proposed action.</p> <p>Master Title Plats have been checked for conflicts with Public Water Reserves. No PWRs were identified.</p> <p>There are Uintah and Duchesne roads on the proposed parcels. They have been identified on the Counties Transportation Maps as Class B and D roads. I have attached the site specifics for each Lease Parcel. (See appendix</p>	Margo Roberts	5/18/2016
PI	Lands with Wilderness Characteristics (LWC)	<p>Several proposed lease parcels are located in lands found to possess wilderness characteristics. Parcels (ID#) 009, and 010 occur partially or fully within Currant Canyon wilderness character inventory unit. Parcels (ID#) 032, 038, 039, and 049 occur partially or fully within the Desolation Canyon wilderness inventory unit.</p>	Rene Arce	4/22/2016

Determination	Resource/Issue	Rationale for Determination	Signature	Date
PI	Livestock Grazing & Rangeland Health Standards	<p>Livestock Grazing:</p> <p>The current parcels available for leasing are located within numerous active grazing allotments. The use on these allotments vary seasonally and with livestock type (sheep/cows). Many of these allotments have been evaluated for grazing use through the NEPA process. The leasing process does not determine the actuality or amount of ground disturbance due to the nature of energy development. The site specific NEPA document for the exploration and/or development application is the process for further potential analysis regarding possible fragmentation, forage loss and/or other operational impacts. Assumptions are not valid due to the volatility of the energy market and other issue regarding full production of leases within the allotted time-frames</p> <p>Rangeland Health Standards: Rangeland health issues such as invasive weeds, soil loss, and lack of native species diversity do exist in areas within the Vernal Field Office associated grazing allotments. Leasing of the proposed parcels would not, by itself, authorize any ground disturbances. Site-specific effects of land health standards cannot be analyzed until an exploration or development application is received, after leasing has occurred. However, any development proposal on the lease parcels would be subject to analysis for impact on rangeland health standards. Site-specific analysis would be required prior to the approval of any ground disturbance proposal on the parcels.</p>	Dusty Carpenter	3/04/2016
NI	Paleontology	<p>There is a potential for the proposed lease locations to be spatially on or near areas designated as high PYFC zones for in-situ fossil localities. Evaluation of paleontological sensitivity of all geological formations along proposed access roads, pipeline right-of-ways and well sites is requested by the Department of the Interior and the Bureau of Land Management by the mandates outlined in NEPA (P.L. 91-190; 31 Stat. 852, 42 U.S.C. 4321-4327); FLPMA (P.L. 94-579; 90 Stat. 2743, U.S.C. 1701-1782; OPLM-Subtitle D, Paleontological Resources Protection, Sections 6301-6312, PL 111-11, Congressional Record-House, p. H3900-H3901; BLM Paleontology Resources Management Manual and Handbook H-8270-1, 1998, BLM IM 2008-09; BLM IM 2009-11.</p>	Joseph Islas	2/24/2015

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		<p>Paleontological surveys should be performed by licensed and permitted companies experienced in completing specialized surveys for exploration companies, with reports of research to accompany APD applications to the Vernal field office in Vernal, Utah.</p>		
PI	Plants:  BLM Sensitive	<p>The following BLM-Sensitive plant species and their habitat have been identified, or have the potential to occur, within one or more of the proposed lease parcels: rock columbine (<i>Aquilegia scopulorum</i> var. <i>goodrichii</i>), Horseshoe milkvetch (<i>Astragalus equisolensis</i>), Hamilton milkvetch (<i>Astragalus hamiltonii</i>), Graham catseye (<i>Cryptantha grahamii</i>), Untermann fleabane (<i>Erigeron untermannii</i>), Goodrich blazingstar (<i>Mentzelia goodrichii</i>), Goodrich beardtongue (<i>Penstemon goodrichii</i>), Graham beardtongue (<i>Penstemon grahamii</i>), White River beardtongue (<i>Penstemon scariosus</i> var. <i>albifluvis</i>), Argyle phacelia (<i>Phacelia argylensis</i>), Green River greenthread (<i>Thelesperma subnudum</i> var. <i>caespitosum</i>), and sterile yucca (<i>Yucca sterilis</i>).</p> <p>Application of lease notices UT-LN-49, UT-LN-51, UT-LN-89, and UT-LN-90 is required for these parcels. In addition, there are eight parcels that overlap with portions of the Penstemon Conservation Agreement areas. These parcels will be subject to the stipulations and conservation measures outlined in the Penstemon Conservation Agreement. In addition, stipulation UT-S-314 and the Endangered Species Act Section 7 Consultation Stipulation (WO IM 2002–174) would be attached to the parcels.</p>	Matt Lewis	2/23/2016
PI	Plants:  Threatened, Endangered, Proposed, or Candidate	<p>The following federally listed plant species and their habitat occur, or have the potential to occur, within one or more of the proposed lease parcels: clay reed-mustard (<i>Hesperidanthus argillaceus</i>), shrubby reed-mustard (<i>Hesperidanthus suffrutescens</i>), Pariette cactus (<i>Sclerocactus brevispinus</i>), Uinta Basin hookless cactus (<i>Sclerocactus wetlandicus</i>), and Ute ladies'-tresses (<i>Spiranthes diluvialis</i>).</p> <p>Application of lease notices T&amp;E-05, T&amp;E-12, T&amp;E-20, T&amp;E-21, and T&amp;E-22 is required for these parcels. In addition, stipulation UT-S-314 and the Endangered Species Act Section 7 Consultation Stipulation (WO IM 2002–174) would be attached to the parcels. During the development of the proposed lease parcels, and including proposed or required</p>	Matt Lewis	2/23/2016

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		conservation and mitigation measures, any impacts to these species will be analyzed during Section 7 consultation with the US Fish and Wildlife Service.		
NI	Plants:  Wetland/Riparian	Although leasing of the parcels will not directly affect wetlands or riparian zones, if oil and gas development occurs the small portions of the mapped 100 year floodplains and wetlands that are found in parcels (ID#s) 005, 012, 013, 038, 069, 071, 094, 103, 105, and 122 which tend to exhibit wetland and riparian type functions could be affected. Impacts to these areas will be mitigated by Lease Stipulation UT-S-123 and Lease Notice UT-LN-53.	Melissa Wardle	5/16/2016
PI	Recreation	Parcels (ID#) 009, and 010 occur partially or fully within the Nine Mile SRMA.	Rene Arce	4/22/2016
NI	Socio-Economics	No impact to the social or economic status of the counties or nearby communities would occur from the leasing of these parcels due to their small size of this project in relation to ongoing development throughout the Uinta Basin.	Melissa Wardle	5/18/2016
PI	Visual Resources	Parcel (ID#) 038, falls partially or fully within lands that are managed as VRM class II. The objective of this class is to retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. Parcels (ID#) 004, 009, 010, 012, 013, 014, 015, 032, 038, 067, 070, 094, 103, 121, 122, 151, and 152 fall partially or fully within lands that are managed as VRM class III. The objective of this class is to partially retain the existing character of the landscape. The level of change to the landscape should be moderate. Management activities may attract the attention of the casual observer, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. Parcels 006, 009, 010, 012, 013, 014, 015, 016, 032, 039, 049, 070, and 071 occur partially or fully within lands that are managed as VRM class IV. The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view	Rene Arce	4/22/2016

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		and be the major focus of attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements of the landscape.		
NI	Wastes  (hazardous/solid)	The analysis in the VFO RMP [BLM2008bBLM 2008b] is sufficient. No hazardous or solid waste sites are known to be present. No hazardous or solid waste sites are anticipated to occur as a result of leasing. No stipulations or lease notices apply.	Melissa Wardle	4/4/2016
NI	Water:  Floodplains	Floodplains are associated with Parcels 012, 013, 038, 069, 071, and 094. Leasing of the proposed parcels would not, by itself, authorize any ground disturbances. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. However, any development proposal on the lease parcels would be subject to the standard lease terms, the protective lease notices and stipulations identified in Appendix A, and all applicable laws, regulations and onshore orders in existence at the time of lease issuance. Site-specific analysis would be required prior to the approval of any ground disturbance proposal on the parcels.  In light of existing knowledge regarding resource values on the subject parcels, which is based upon the analysis in the VFO RMP [BLM2008bBLM 2008b], BLM VFO resource specialist knowledge and parcel site-visits, and the protective measure that would be applied to the parcels if leased, significant impacts beyond those already addressed in the VFO RMP [BLM2008bBLM 2008b] are not anticipated to occur as a result of leasing the proposed parcels. Application of UT-S-123 should be sufficient to notify the operator of any potential future development restrictions.	Melissa Wardle	4/4/2016
NI	Water:  Groundwater Quality	Spatial position of proposed leasing allotments will not affect groundwater resources, conditional to compliance with "Onshore Oil and Gas Order 1" and federal regulations outlined in 43 CFR, part 3160, to assure that downhole operations will protect and isolate all useable waters through the use of steel casing and hardened cement settings from the subsurface up onto surface operations. No EPA Sole Source Aquifers or State of Utah Drinking Water Source Protection Zones underlie the proposed parcels. The potential to encounter useable groundwater with <10,000 ppm Total Dissolved Solids during drilling operations	Joseph Islas	6/10/2016

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		<p>throughout the leasing area is a possibility and subject to mitigation procedures.</p> <hr/> <p>The underground injection of 'fracking waste water' in Utah presents little potential for inducing seismic activity. The majority of fracking waste 'fluids' are recycled and reused for future frack jobs. There have been no reported earthquakes in Utah that were suspected of being produced (induced) from injecting fluids into oil and gas disposal wells. (Personal communication from Brad Rogers, Utah Division of Oil, Gas and Mining ("UDOGM"), August 10, 2015). This fluid is predominantly produced water with a high salt brine content. As stated above in order to analyze and predict the potential for earthquakes associated with oil and gas disposal wells three kinds of data will be necessary: (1) seismic data: high-quality, real-time earthquake locations, which require dense seismic instrumentation; (2) geologic data: hydrological parameters, orientation and magnitude of the stress field, and the location and orientation of known faults; and (3) industrial data: injection rates and downhole pressures sampled and reported frequently. This data is not currently available, with the exception of industrial injection data reported to UDOGM, with which to do the analysis.</p>	Mike McKinley	6/9/2016
NI	Water: Hydrologic Conditions (stormwater)	<p>Hydrologic conditions do exist in the Vernal Field Office, Leasing of the proposed parcels would not, by itself, authorize any ground disturbances. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. However, any development proposal on the lease parcels would be subject to the standard lease terms, the protective lease notices and stipulations identified in Appendix A, and all applicable laws, regulations and onshore orders in existence at the time of lease issuance. Site-specific analysis would be required prior to the approval of any ground disturbance proposal on the parcels. In light of existing knowledge regarding resource values on the subject parcels, which is based upon the analysis in the VFO RMP [BLM2008bBLM 2008b]resource specialist knowledge and parcel site-visits, significant impacts beyond those already addressed in the Record of Decision VFO RMP [BLM2008bBLM 2008b]are not anticipated to occur as a result of leasing the proposed parcels.</p>	Melissa Wardle	4/4/2016

<b>Determination</b>	<b>Resource/Issue</b>	<b>Rationale for Determination</b>	<b>Signature</b>	<b>Date</b>
NI	Water: Surface Water Quality	Leasing of the proposed parcels would not, by itself, authorize any ground disturbances which could contribute runoff affecting surface water quality. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. However, any development proposal on the lease parcels would be subject to the standard lease terms, the protective lease notices and stipulations identified in Appendix A, and all applicable laws, regulations and onshore orders in existence at the time of lease issuance. Site-specific analysis would be required prior to the approval of any ground disturbance proposal on the parcels. In light of existing knowledge regarding resource values on the subject parcels, which is based upon the analysis in the VFO RMP [BLM2008bBLM 2008b], BLM VFO resource specialist knowledge and parcel site-visits, significant impacts beyond those already addressed in the VFO RMP [BLM2008bBLM 2008b] are not anticipated to occur as a result of leasing the proposed parcels.	Melissa Wardle	4/4/2016
NP	Water: Waters of the U.S.	No waters of the US are present in the project area per GIS information.	Melissa Wardle	4/4/2016
NP	Wild Horses	Approximately 12 parcels are within or adjacent to the historic Hill Creek Herd Area boundary. Although, appropriate management level targets were removed from the herd in 2008, the horses within the Hill Creek HA are still recognized as free-roaming wild horses protected under the FRWHB Act. These horses fall within the jurisdiction of the BLM for management until such time that each horse is removed from the herd area - effectively zeroing out the population. The document to analyze the leasing of the parcels will not create an impact to the existing horses in this HA. However, impacts will be determined to this resource through the site specific documents that may be subsequently developed.	Dusty Carpenter	5/17/2016
PI	Wildlife: Migratory Birds	Migratory bird foraging and nesting habitat is present in all parcels. Application of lease notice UT-LN-45 is required all parcels. There are known or documented raptor nests within ½ miles of several parcels. Application of lease notice and/or stipulation UT-LN-49, UT-LN-40, UT-S-261, UT-S-278 is required for all parcels.	Daniel Emmett	5/11/2016

Determination	Resource/Issue	Rationale for Determination	Signature	Date
PI (Aquatics NI)	Wildlife: Non-USFWS Designated	Designated elk crucial year long and winter habitat within several parcels. Designated deer crucial year long and winter habitat within several parcels. Application of lease notice and/or stipulation UT-S-247, UT-S-230, UT-S-247, UT-S-230 is required for parcels (ID#) 004, 005, 006, 009, 012, 013,014, 015, 016, 038, 070, 094, 103, 121, 122, 152. The following conservation agreement fish species and their habitat have been identified, or have the potential to occur, within one or more of the proposed lease parcels: Roundtail Chub ( <i>Gila robusta</i> ), Bluehead Sucker ( <i>Catostomus discobolus</i> ), and Flannelmouth Sucker ( <i>Catostomus Latipinnis</i> )Application of lease notice UT-LN-49 is required for parcels (ID#) 094, and 103.	Jerrad Goodell Daniel Emmett	5/11/2016 5/16/2016
PI (Aquatics NI)	Wildlife: Special Status Species	MSO habitat exists within some parcels. Application of lease notice and/or stipulation T&E-06 is required for parcels (ID#) 004, 005, 009, 010. Yellow-billed cuckoo potential habitat exists within parcels. Application of lease notice and/or stipulation UT-LN-49, UT-LN-113, UT-LN-115 is required for parcels (ID#) 038, 094, 103. No parcels are within or partially within Primary but 3 parcels are within General Greater Sage Habitat, as designated in the 2015 <i>Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region, Including the Greater Sage-grouse Sub-Regions of Idaho and Southwestern Montana, Nevada and Northeastern California, Oregon and Utah</i> (GRSG ROD) and the <i>Utah Greater Sage-Grouse Approved Resource Management Plan Amendment</i> (GRSG ARMPA).. Application of lease notice and/or stipulation UT-LN-49, UT-LN-132, UT-S-195, UT-S-205, UT-S-206, UT-S-207 is required for parcels (ID#) 032, 067, 152.[BLM 2015] Should analysis at the time of development indicate the need, Conditions of Approval to protect Sage Grouse can be added in accordance with the Sensitive Species lease notice.  The following federally listed fish species and their habitat occur, or have the potential to occur, within one or more of the proposed lease parcels: Razorback Sucker ( <i>Xryauchen texanus</i> ), Colorado pikeminnow ( <i>Ptycheilus lucius</i> ), Humpback Chub ( <i>Gila cypha</i> ), and Bonytail Chub ( <i>Gila elegans</i> )Application of lease notice T&E-03 is required for these parcels (ID#) 094, and 103. Per the	Jerrad Goodell Daniel Emmett	5/11/2016 5/16/2016

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		<p>notice T&amp;E-03: Water depletions from any portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect or adversely modify the critical habitat of the four resident endangered fish species and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletions amounts must be reported to BLM</p>		
NI	Woodlands/Forestry	<p>Woodlands are present in areas of the proposed lease parcels. Leasing of the proposed parcels would not, by itself, authorize any ground disturbing activities that could affect woodlands. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. However, any development proposal on the lease parcels would be subject to the standard lease terms, the protective lease notices and stipulations identified in Appendix A, and all applicable laws, regulations and onshore orders in existence at the time of lease issuance. Site-specific analysis would be required prior to the approval of any ground disturbance proposal on the parcels.</p> <p>In light of existing knowledge regarding resource values on the subject parcels, which is based upon the analysis in the VFO RMP [BLM2008bBLM 2008b], BLM VFO resource specialist knowledge and parcel site-visits, and the protective measure that would be applied to the parcels if leased, significant impacts beyond those already addressed in the VFO RMP[BLM2008bBLM 2008b] are not anticipated to occur as a result of leasing the proposed parcels.</p>	David Palmer	5/17/2016

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## Appendix D. Deferred Parcels

BLM_Sale ID	Legal Description of Deferred Parcel and deferred Sections	Reason for Deferral
UT1116 - 001	T. 10 S., R. 13 E., Salt Lake Sec. 31: Lot 1; Sec. 33: Lots 1-4, S2SW; Sec. 34: Lot 1. 246.85 Acres Duchesne County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 002	T. 11 S., R. 13 E., Salt Lake Sec. 1: All; Sec. 11: E2, NENW; Sec. 12: All. 980.79 Acres Duchesne County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 003	T. 11 S., R. 13 E., Salt Lake Secs. 3, 4 and 5: All. 1,878.18 Acres Duchesne County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 007	T. 11 S., R. 14 E., Salt Lake Sec. 8: All. 258.40 Acres Duchesne County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.

UT1116 - 008	T. 11 S., R. 14 E., Salt Lake Sec. 11: S2; Sec. 12: SW; Sec. 14: E2. 800.00 Acres Duchesne County, Utah Vernal Field Office	All in Currant Canyon Inventory
UT1116 - 010	<i>partial deferral deferred section:</i> T. 11 S., R. 14 E., Salt Lake Sec. 33: NW, N2SW, SESW, 280.00 Acres Duchesne County, Utah Vernal Field Office	Currant Canyon Inventory sections removed
UT1116 - 011	T. 11 S., R. 14 E., Salt Lake Sec. 30: Lots 3, 4, 7-9, 12; Sec. 31: Lot 6, NENE, NESE. 402.26 Acres Duchesne County, Utah Vernal Field Office	All in Currant Canyon Inventory
UT1116 - 012	<i>partial deferral — deferred section:</i> T. 10 S., R. 15 E., Salt Lake Sec. 1: All; 641.04 Acres Duchesne County, Utah Vernal Field Office	Unfinished Wilderness inventory
UT1116 - 013	<i>partial deferral — deferred section:</i> T. 10 S., R. 15 E., Salt Lake Sec. 22: NE; Sec. 23: W2E2, NW. 480.00 Acres Duchesne County, Utah Vernal Field Office	Unfinished Wilderness inventory
UT1116 - 015	<i>partial deferral — deferred section:</i> T. 10 S., R. 15 E., Salt Lake Sec. 28: SENE, NESE. 80.00 Acres Duchesne County, Utah Vernal Field Office	Portion in Unfinished Wilderness Inventory removed.
UT1116 - 017	T. 10 S., R. 15 E., Salt Lake Sec. 33: Lots 1-4; Sec. 34: Lots 1-4, NWNE, SENW; Sec. 35: All. 1,020.76 Acres Duchesne County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 018	T. 11 S., R. 15 E., Salt Lake Sec. 1: All; Sec. 11: NE, S2; Sec. 12: All; 1, 761.40 Acres Duchesne County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.

UT1116 - 019	T. 11 S., R. 15 E., Salt Lake Sec. 3: S2N2, S2; Sec. 4: All; 1,222.72 Acres Duchesne County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 020	T. 11 S., R. 15 E., Salt Lake Sec. 28: NESE, S2SE; Sec. 31: Lot 4; Sec. 33: Lots 1-3, SENE, NW, N2SE. 567.37 Acres Duchesne County, Utah Vernal Field Office	State Director Discretion
UT1116 - 021	T. 10 S., R. 16 E., Salt Lake Sec. 1: All; Sec. 10: SENE, E2SW, SE; Secs. 11 and 12: All. 2,199.60 Acres Duchesne County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 022	T. 10 S., R. 16 E., Salt Lake Secs. 13, 14 and 15: All; Sec. 23: E2E2. 2,080.00 Acres Duchesne County, Utah Vernal Field Office	Unfinished Wilderness inventory, and at her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 023	T. 10 S., R. 16 E., Salt Lake Sec. 25: N2, N2SW, SESW, SE. 600.00 Acres Duchesne County, Utah Vernal Field Office	Unfinished Wilderness inventory, and at her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order

		to protect important habitat and reduce development time and costs.
UT1116 - 024	T. 10 S., R. 16 E., Salt Lake Sec. 27: N2; Sec. 28: N2. 640.00 Acres Duchesne County, Utah Vernal Field Office	Unfinished Wilderness inventory, and at her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 025	T. 10 S., R. 16 E., Salt Lake Sec. 35: SENE, SESE. 80.00 Acres Duchesne County, Utah Vernal Field Office	Unfinished Wilderness inventory, and at her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 026	T. 11 S., R. 16 E., Salt Lake Sec. 1: All; Sec. 11: S2; Sec. 12: W2; Sec. 13: N2N2, SE; Sec. 14: N2; Sec. 15: N2. 2,234.48 Acres Duchesne County, Utah Vernal Field Office	Unfinished Wilderness inventory, and at her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 027	T. 11 S., R. 16 E., Salt Lake Sec. 6: Lots 1-7, S2NE, SENW; Sec. 7: All. 853.78 Acres Duchesne County, Utah Vernal Field Office	Unfinished Wilderness inventory, and at her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.

UT1116 - 028	T. 11 S., R. 16 E., Salt Lake Secs. 25 and 26: All. 1,280.00 Acres Duchesne County, Utah Vernal Field Office	State Director Discretion
UT1116 - 029	T. 11 S., R. 16 E., Salt Lake Secs. 33, 34 and 35: All. 1,920.00 Acres Duchesne County, Utah Vernal Field Office	State Director Discretion
UT1116 - 030	T. 9 S., R. 17 E., Salt Lake Sec. 35: All. 640.00 Acres Duchesne County, Utah (183.24 Acres) Uintah County, Utah (456.76 Acres) Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 031	T. 10 S., R. 17 E., Salt Lake Sec. 30: Lot 4; Sec. 31: Lots 1-4, E2W2. 359.20 Acres Duchesne County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 033	T. 11 S., R. 17 E., Salt Lake Sec. 19: Lots 2-4, S2NE, SENW, E2SW, SE; Sec. 20: All; Sec. 21: SWNW, S2. 1,464.42 Acres Duchesne County, Utah Vernal Field Office	State Director Discretion
UT1116 - 034	T. 11 S., R. 17 E., Salt Lake Sec. 23: S2S2; Sec. 24: S2S2; Secs. 25, 26 and 27: All. 2,240.00 Acres Duchesne County, Utah (1,104.10 Acres) Uintah County, Utah (1,135.90 Acres) Vernal Field Office	State Director Discretion
UT1116 - 035	T. 11 S., R. 17 E., Salt Lake Sec. 28: S2; Sec. 29: S2; Sec. 30: Lots 3, 4, E2SW, SE; Sec. 31: Lots 1, 2, 4, W2NE, E2NW, SESW, SWSE. 1,295.33 Acres Duchesne County, Utah Vernal Field Office	State Director Discretion
UT1116 - 036	T. 11 S., R. 17 E., Salt Lake Secs. 33, 34 and 35: All. 1,920.00 Acres Duchesne County, Utah (1,653.97 Acres) Uintah County, Utah (266.03 Acres) Vernal Field Office	State Director Discretion
UT1116 - 037	T. 9 S., R. 18 E., Salt Lake Sec. 33: S2. 320.00 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 040	T. 11 S., R. 18 E., Salt Lake Sec. 17: N2NE, SENE, NW; Sec. 18: N2NE, SWNE, NW, N2SW, NWSE. 680.00 Acres Uintah County, Utah Vernal Field Office	State Director Discretion

UT1116 - 041	T. 11 S., R. 18 E., Salt Lake Sec. 19: N2SW, N2SWSW, SESW, S2SE; Sec. 20: S2S2; Sec. 29: W2; Secs. 30 and 31: All. 1,980.00 Acres Uintah County, Utah Vernal Field Office	Recreation Concerns
UT1116 - 042	T. 11 S., R. 18 E., Salt Lake Sec. 25: SESW, S2SE; Secs. 26, 35 and 36: All. 1,442.00 Acres Uintah County, Utah Vernal Field Office	State Director Discretion
UT1116 - 043	T. 11 S., R. 18 E., Salt Lake Sec. 27: Lots 1-4, S2NW, W2SW; Sec. 28: S2NE, NWNW, SE; Sec. 33: N2NE. 649.49 Acres Uintah County, Utah Vernal Field Office	State Director Discretion
UT1116 - 044	T. 11 S., R. 18 E., Salt Lake Sec. 27: NESE, S2SE; Sec. 33: S2SW, NWSE; Sec. 34: N2NE, SWNE, S2NW, N2SW, SWSW. 560.00 Acres Uintah County, Utah Vernal Field Office	State Director Discretion
UT1116 - 045	T. 9 S., R. 19 E., Salt Lake Sec. 1: Lots 5-7; Sec. 13: Lot 5; Sec. 14: Lot 5. 59.78 Acres Uintah County, Utah Vernal Field Office	Yellow Billed Cuckoo Habitat
UT1116 - 046	T. 9 S., R. 19 E., Salt Lake Sec. 13: NENE, S2NE, E2SW, SE. 360.00 Acres Uintah County, Utah Vernal Field Office	State Director Discretion
UT1116 - 047	T. 9 S., R. 19 E., Salt Lake Sec. 14: Lots 1-3, NW, N2SW; Sec. 15: All. 952.05 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony, Recreation site protection
UT1116 - 048	TT. 11 S., R. 19 E., Salt Lake Sec. 6: Lots 3-7, SENW, E2SW; Sec. 7: Lots 1-4, E2W2; Sec. 18: Lot 1. 669.09 Acres Uintah County, Utah Vernal Field Office	State Director Discretion
UT1116 - 050	T. 4 S., R. 20 E., Salt Lake Secs. 4, 5 and 6: All. 2,030.42 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.

UT1116 - 051	T. 4 S., R. 20 E., Salt Lake Secs. 7, 8 and 9: All. 1,985.12 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 052	T. 4 S., R. 20 E., Salt Lake Sec. 10: All; Sec. 11: Lots 3-6, E2NE, SWNW, W2SW, SE; Sec. 13: Lots 2, 5-7, SWNE, SENW, E2SW, W2SE; Sec. 24: Lot 1. 1,483.10 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 053	T. 4 S., R. 20 E., Salt Lake Sec. 17: N2NE, SWNE, W2, W2SE, SESE; Secs. 18 and 19: All. 1,969.04 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 054	T. 4 S., R. 20 E., Salt Lake Secs. 20, 29 and 30: All. 1,982.80 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.

UT1116 - 055	T. 4 S., R. 20 E., Salt Lake Sec. 21: NE, W2NW, SENW, S2; Secs. 28 and 33: All. 1,880.00 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 056	T. 5 S., R. 20 E., Salt Lake Sec. 3: Lots 3, 4, S2NW, SW; Secs. 4 and 10: All. 1,575.70 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 057	T. 5 S., R. 20 E., Salt Lake Secs. 13, 14 and 24: All. 1,920.00 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 058	T. 6 S., R. 20 E., Salt Lake Sec. 30: Lots 1-4, E2W2; Sec. 31: All excluding ROW U16133 (77.06 ac.). 859.60 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony, Recreation Site Protection
UT1116 - 059	T. 6 S., R. 20 E., Salt Lake Secs. 33, 34 and 35: All. 1,920.00 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 063	T. 7 S., R. 20 E., Salt Lake Sec. 22: NWNW; Sec. 23: NENE, SWNE, E2NW, NESW, NWSE; Sec. 27: E2NW. 360.00 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony

UT1116 - 068	T. 3 S., R. 21 E., Salt Lake Sec. 13: NE, NENW, S2NW, S2; Sec. 24: All; Sec. 25: NE, W2NW, SENW, S2. 1,840.16 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 072	T. 4 S., R. 21 E., Salt Lake Sec. 18: Lots 2-4, E2NW, NESW; Sec. 19: E2SESE; Sec. 30: SWNE, NENENW; Sec. 31: SE. 465.50 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony, Mineral Lease Conflict
UT1116 - 073	T. 5 S., R. 21 E., Salt Lake Sec. 15: Lots 1-8; Sec. 19: All; Sec. 22: Lots 1, 2, S2NE; Sec. 23: Lots 4, 5, S2NW, SW; Sec. 24: NESE. 1,474.55 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 074	T. 6 S., R. 21 E., Salt Lake Secs. 3, 10 and 15: All. 1,794.16 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 075	T. 6 S., R. 21 E., Salt Lake Secs. 6 and 7: All. 1,155.38 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 076	T. 6 S., R. 21 E., Salt Lake Sec. 11: All; Sec. 12: Lots 1, 2, 7, 8, S2; Sec. 14: Lots 7, 8, NENW, W2W2. 1,401.43 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 077	T. 7 S., R. 21 E., Salt Lake Sec. 14: NWSW; Sec. 15: W2NE, SENE; Sec. 20: SE. 320.00 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 082	T. 12 S., R. 21 E., Salt Lake Sec. 7: Lot 1. 33.34 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.

UT1116 - 083	T. 12 S., R. 21 E., Salt Lake Sec. 17: W2; Sec. 18: E2; Sec. 28: All. 1,280.00 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 084	T. 3 S., R. 22 E., Salt Lake Secs. 17, 18 and 19: All. 1,986.84 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 085	T. 3 S., R. 22 E., Salt Lake Secs. 20 and 21: All; Sec. 22: W2W2NE, W2, W2SE. 1,728.41 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 086	T. 3 S., R. 22 E., Salt Lake Sec. 27: Lots 2-5, 8, 9, SWNE, SENW, E2SW, W2SE; Sec. 34: Lots 5-7, W2NE, NW, N2SW, NWSE. 973.00 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 087	T. 3 S., R. 22 E., Salt Lake Secs. 28, 29 and 33: All. 1,920.00 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 088	T. 3 S., R. 22 E., Salt Lake Secs. 30 and 31: All. 1,346.28 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 089	T. 4 S., R. 22 E., Salt Lake Secs. 3, 4 and 5: All. 1,919.12 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 090	T. 4 S., R. 22 E., Salt Lake Sec. 6: All; Sec. 7: Lots 1, 7, NE, E2NW, NESW, N2SE; Sec. 8: All. 1,793.43 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 092	T. 5 S., R. 22 E., Salt Lake Sec. 1: All; Sec. 11: NENE, S2NE, SE; Sec. 12: W2NW, SENW, SW, W2SE, SESE. 1,321.60 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony
UT1116 - 097	T. 8 S., R. 22 E., Salt Lake Sec. 6: Lots 1-5, S2NE, SENW. 317.92 Acres Uintah County, Utah Vernal Field Office	White - Tailed Prairie Dog Colony

UT1116 - 102	T. 5 S., R. 23 E., Salt Lake Sec. 5: S2NE, SW, SWSE; Sec. 6: Lots 5-7, SENW, E2SW, W2SE, SESE; Sec. 7: Lots 1-4, NE, E2NW, NESW, NESE; Sec. 18: Lots 7, 8, E2NENWNE, NESWNWNE, S2SWNWNE, SENWNE, E2NESENW, SESENW. 1,175.42 Acres Uintah County, Utah Vernal Field Office SENWNE, E2NESENW, SESENW.	White - Tailed Prairie Dog Colony
UT1116 - 106	T. 16 S., R. 23 E., Salt Lake Sec. 12: E2, NESW, S2SW; Sec. 13: N2NE, NW, N2SW. 760.00 Acres Grand County Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 107	T. 8 S., R. 24 E., Salt Lake Sec. 1: Lots 1, 2, S2NE, SE. 320.00 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 108	T. 8 S., R. 24 E., Salt Lake Sec. 13: S2SE; Sec. 24: E2; Sec. 25: E2. 720.00 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.

UT1116 - 109	T. 8 S., R. 24 E., Salt Lake Sec. 15: N2SW, SESW, SE; Sec. 23: SENE, SWSE. 360.00 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 110	T. 9 S., R. 24 E., Salt Lake Sec. 4: Lots 3, 4, S2N2, S2. 552.49 Acres Uintah County, Utah Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 111	T. 15 1/2 S., R. 24 E., Salt Lake Secs. 33 and 34: All. 905.62 Acres Grand County Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 112	T. 16 S., R. 24 E., Salt Lake Sec. 3: All; Sec. 4: Lots 1, 2, S2NE, SE. 959.23 Acres Grand County Vernal Field Office	At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.
UT1116 - 140	T. 11 S., R. 18 E., Salt Lake Sec. 27: S2NE, E2SW, NWSE; Sec. 33: S2NE, N2SW; Sec. 34: N2NW. 440.00 Acres Uintah County, Utah Vernal Field Office	State Director Discretion

<p>UT1116 - 143</p>	<p>50% U.S. Mineral Interest T. 5 S., R. 21 E., Salt Lake Sec. 13: S2SE; Sec. 24: N2NE. 160.00 Acres Uintah County, Utah Vernal Field Office</p>	<p>At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.</p>
<p>UT1116 - 151</p>	<p><i>partial deferral — deferred section:</i> T. 11 S., R. 15 E., Salt Lake, Sec. 13: E2. 320.00 Acres, Uintah County, Utah, Vernal Field Office</p>	<p>At her discretion, the BLM Utah Acting State Director determined that it was appropriate to defer this parcel in the November 2016 oil and gas lease sale. This deferral was made consistent with the BLM's sage-grouse conservation plans and strategy, which direct the BLM to prioritize oil and gas leasing and development in a manner that minimizes resource conflicts in order to protect important habitat and reduce development time and costs.</p>

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## **Appendix E. *Reserved for Public Comments and Responses***

A 30 day public comment period will be held, this appendix is reserved for the comments received during that comment period

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## Appendix F. Parcel Pictures



**Figure F.1. Lease Parcel UT-1116-004**



**Figure F.2. Lease Parcel UT-1116-005**



**Figure F.3. Lease Parcel UT-1116-006**



**Figure F.4. Lease Parcel UT-1116-009**



**Figure F.5. Lease Parcel UT-1116-010**



**Figure F.6. Lease Parcel UT-1116-012**



**Figure F.7. Lease Parcel UT-1116-013**



**Figure F.8. Lease Parcel UT-1116-014**



**Figure F.9. Lease Parcel UT-1116-015**



**Figure F.10. Lease Parcel UT-1116-016**



**Figure F.11. Lease Parcel UT-1116-032**



**Figure F.12. Lease Parcel UT-1116-038**



**Figure F.13. Lease Parcel UT-1116-039**



**Figure F.14. Lease Parcel UT-1116-049**



**Figure F.15. Lease Parcel UT-1116-067**



**Figure F.16. Lease Parcel UT-1116-069**



**Figure F.17. Lease Parcel UT-1116-070**



**Figure F.18. Lease Parcel UT-1116-071**



**Figure F.19. Lease Parcel UT-1116-093**



**Figure F.20. Lease Parcel UT-1116-094**



**Figure F.21. Lease Parcel UT-1116-103**



**Figure F.22. Lease Parcel UT-1116-105**



**Figure F.23. Lease Parcel UT-1116-121**



**Figure F.24. Lease Parcel UT-1116-122**



**Figure F.25. Lease Parcel UT-1116-123**



**Figure F.26. Lease Parcel UT-1116-142**



**Figure F.27. Lease Parcel UT-1116-143**



**Figure F.28. Lease Parcel UT-1116-151**



**Figure F.29. Lease Parcel UT-1116-152**

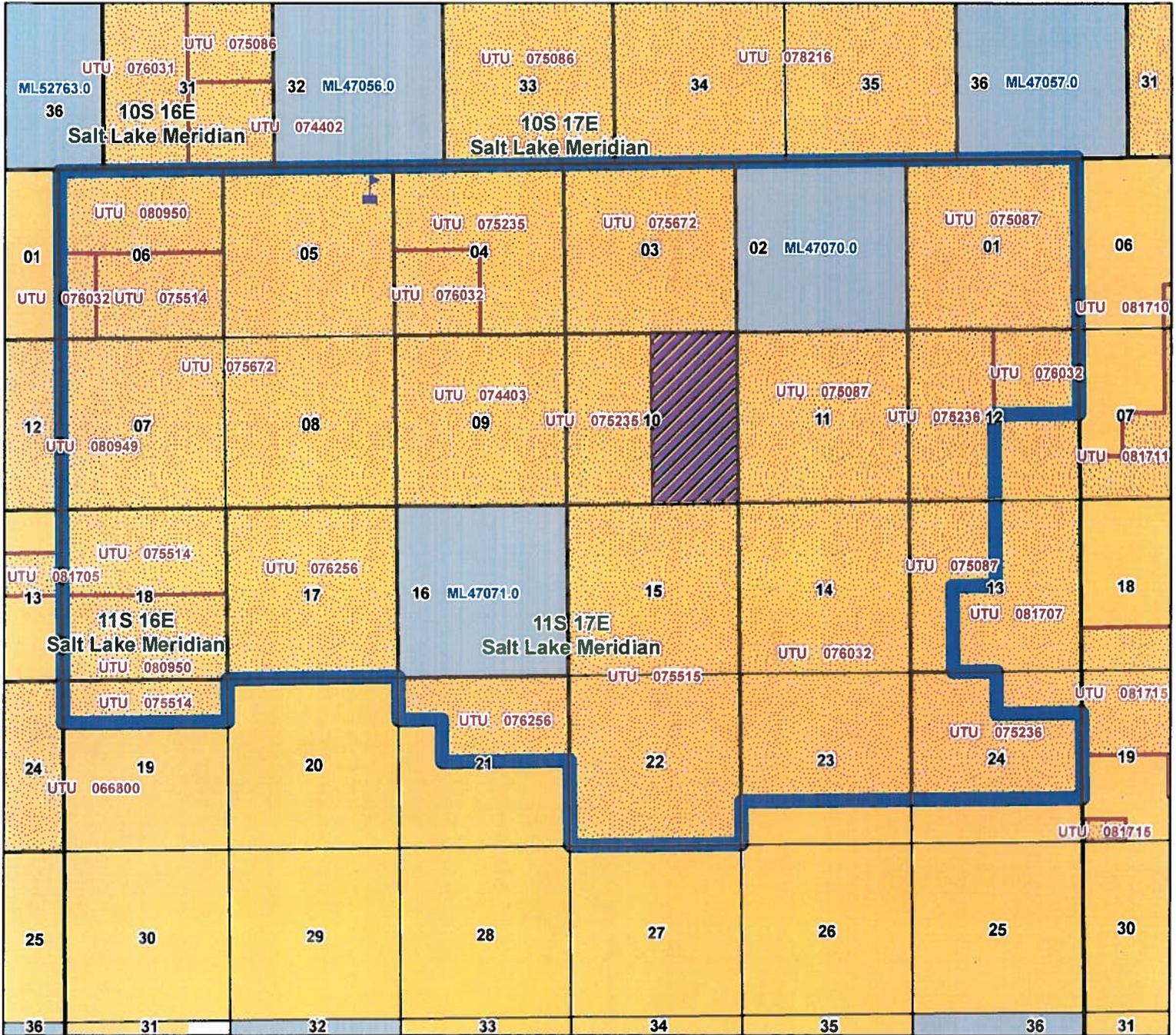
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# Appendix G. Unit Maps

# DESERET UNIT

## Duchesne and Uintah Counties, Utah

EFFECTIVE: June 11, 2014



**UTU89823X**

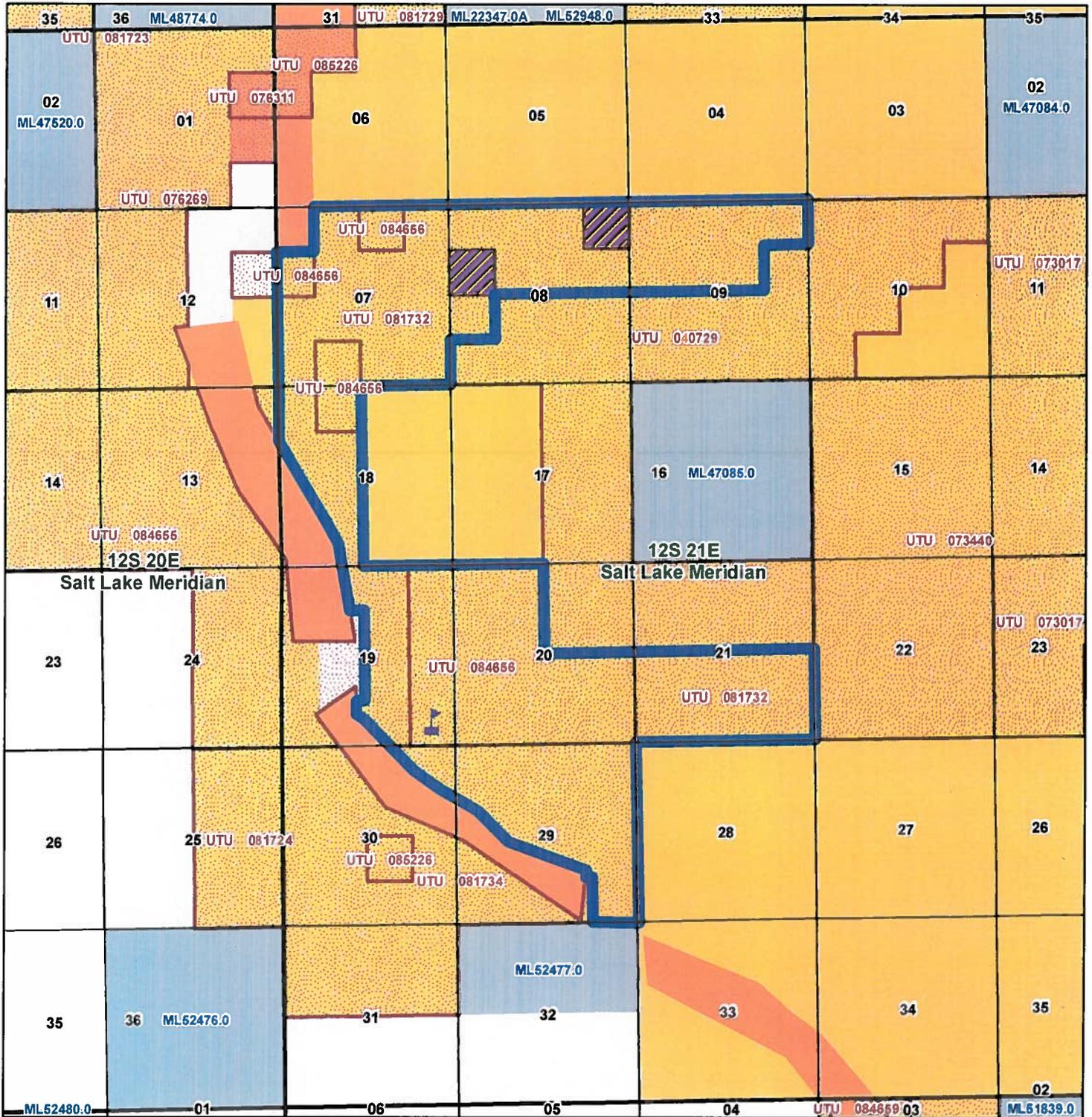
**12,833.81 ACRES**

- First Obligation Well
- Uncommitted
- Unleased Federal

# FLAT STONE UNIT

## Uintah County, Utah

**EFFECTIVE: April, 6 2015**



**UTU90379X**

**3,022.83 ACRES**

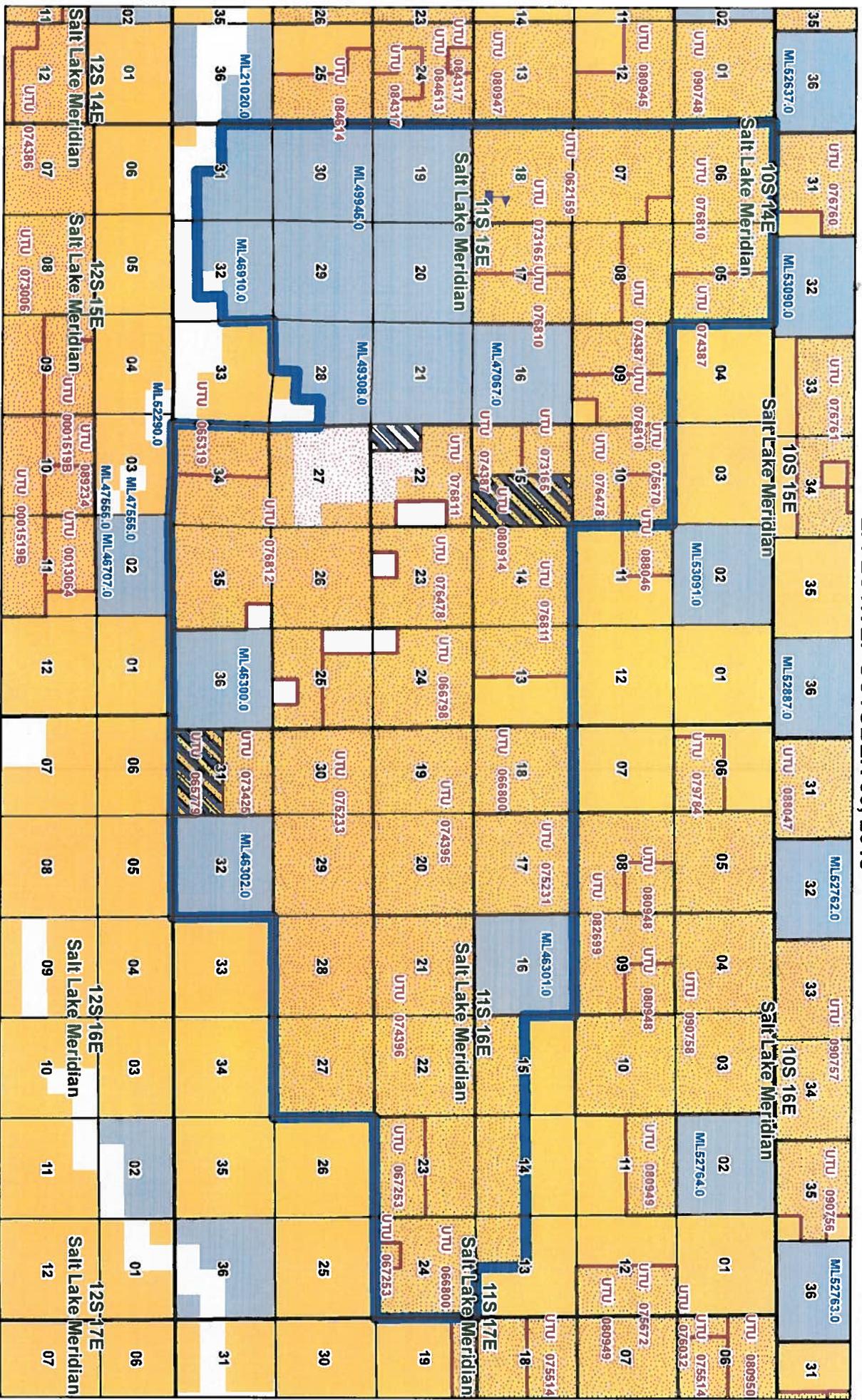
04/27/2015

-  First Obligation Well
-  Unleased Federal

# GATE CANYON II UNIT

## Duchesne County, Utah

### EFFECTIVE: OCTOBER 30, 2015



 First Obligation Well

 Uncommitted

 Unleased Federal

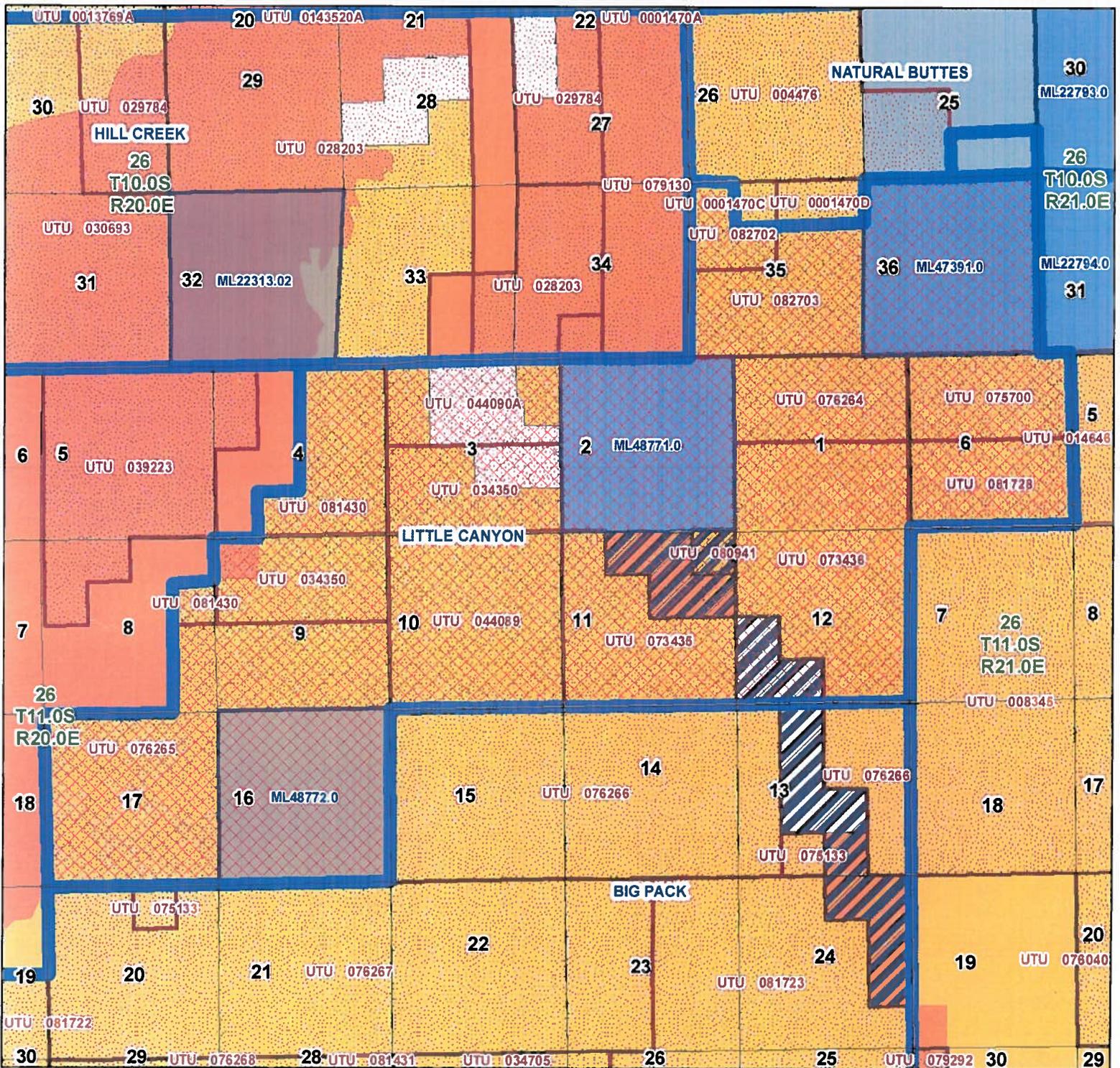
**UTU90523X**  
**27,955.41 ACRES**

11/04/2015

# LITTLE CANYON UNIT

Uintah County, Utah

EFFECTIVE: March 14, 2005



-  WASATCH-MESAVERDE PA "A,B,C", UTU81878E
-  Uncommitted
-  Unleased Federal

**UTU81878X**

**AS CONTRACTED April 3, 2010**  
**7,977.47 ACRES**

**WSTC-MSVD PA "A,B,C"**  
**Allocation**  
 Federal 74.9460%  
 State 25.0540%  
 7,977.47 Acres

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# **Appendix H. Cultural Resources Summary**

BLM Sale ID	Township	Range	Section	County	Acres	Land Owner	Mineral Rights	Surveys	% Surveyed	Cultural Sites	Eligible Sites	Site Types	Sites w/in 1 Mile	Water
UT-1116-004	0110S	0130E	19	Duchesne	319	BLM	Federal	0	0	0	0		< 1 Mile	
UT-1116-005	0110S	0130E	34	Duchesne	319	BLM	Federal	0	0	0	0		< 1 Mile	
UT-1116-006	0100S	0140E	24	Duchesne	401	BLM	Federal	2	6	0	0		< 1 Mile	
UT-1116-009	0110S	0140E	25	Duchesne	838	BLM	Federal	4	14	36	36	Pre/Fremont/Euro	100+	
UT-1116-010	0110S	0140E	27	Duchesne	717	BLM	Federal	4	1	5	4	Pre/Fremont/Euro	100+	
UT-1116-012	0100S	0150E	1	Duchesne	319	BLM	Federal	0	0	0	0	Euro	3	
UT-1116-013	0100S	0150E	3	Duchesne	1248	BLM	Federal	5	3	0	0		< 1 Mile	
UT-1116-014	0100S	0150E	20	Duchesne	2557	BLM	Federal	10	16	19	3	Prehistoric/Euro	10	
UT-1116-015	0100S	0150E	28	Duchesne	160	BLM	Federal	3	5	2	1	Prehistoric	40+	
UT-1116-016	0100S	0150E	31	Duchesne	74	BLM	Federal	0	0	0	0		< 1 Mile	
UT-1116-032	0110S	0170E	10	Duchesne	320	BLM	Federal	2	12	0	0		< 1 Mile	
UT-1116-038	0100S	0180E	13	Uintah	40	BLM	Federal	3	14	0	0		< 1 Mile	
UT-1116-039	0110S	0180E	6	Uintah	638	BLM	Federal	2	4	1	0	Euro	4	
UT-1116-049	0110S	0190E	28	Uintah	159	BLM	Federal	0	0	0	0		< 1 Mile	
UT-1116-067	0110S	0200E	11	Uintah	40	BLM	Federal	1	30	1	1	Prehistoric	11	
UT-1116-069	0030S	0210E	35	Uintah	204	BOR	Federal	5	30	0	0		< 1 Mile	
UT-1116-070	0040S	0210E	1	Uintah	313	BLM	Federal	6	14	9	6	Pre/Fremont/Euro	40+	
UT-1116-071	0040S	0210E	1	Uintah	120	BLM, BOR	Federal	4	19	1	1	1 Fremont	40+	
UT-1116-093	0050S	0220E	29	Uintah	161	Private	Federal	3	22	1	0	Euro	8	
UT-1116-094	0060S	0220E	12	Uintah	111	Private	Federal	2	6	0	0		>1 Mile	
UT-1116-103	0050S	0230E	29	Uintah	82	BLM, Private	Federal	5	8	1	1	Prehistoric	4	
UT-1116-105	0080S	0230E	26	Uintah	40	Private	Federal	1	100	0	0		< 1 Mile	
UT-1116-121	0090S	0250E	35	Uintah	323	BLM	Federal	0	20	0	0		< 1 Mile	
UT-1116-122	0100S	0250E	1	Uintah	2238	BLM	Federal	8	6	0	0		< 1 Mile	
UT-1116-123	0020S	0020W	30	Duchesne	40	Private	Federal	0	0	0	0		< 1 Mile	
UT-1116-142	0030S	0210E	35	Uintah	306	BOR	Federal	4	100	12	8	Pre/Fremont/Euro	40+	
UT-1116-151	0110S	0150E	4	Duchesene	40	BLM	Federal	0	0	0	0		>1 Mile	
UT-1116-152	0120S	0210E	28	Uintah	80	BLM	Federal	1	<1	0	0		< 1 Mile	