United States Department of the Interior
Bureau of Land Management

Environmental Assessment
DOI-BLM-UT-GO10-2017-0028-EA

December 2017 Competitive Oil and Gas Lease Sale

Location: Green River District, Vernal Field Office
Duchesne and Uintah Counties, Utah

Applicant/Address: U.S. Department of the Interior
Bureau of Land Management
Utah State Office
440 West 200 South, Suite 500
Salt Lake City, Utah 84145-0155

Vernal Field Office
170 S. 500 E.
Vernal, Utah 84078
435-781-4400
435-781-4410

June 2017

BLM

TABLE OF CONTENTS

Contents

CHAPTER 1 - INTRODUCTION

1.1 PROJECT LOCATION AND LEGAL DESCRIPTION

LEGAL DESCRIPTION:
Please see Appendix A.

1.2 BACKGROUND

It is the policy of the Bureau of Land Management (BLM) as derived from various laws, including the Mineral Leasing Act of 1920 (MLA) and the Federal Land Policy and Management Act of 1976 (FLPMA), to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs.

Utah is a major source of natural gas for heating and electrical energy production in the lower 48 states. The continued sale and issuance of lease parcels facilitates exploration and production as oil and gas companies seek new areas for production or attempt to develop previously inaccessible or uneconomical reserves

The BLM's Utah State Office conducts quarterly competitive lease sales to sell available oil and gas lease parcels. A Notice of Competitive Lease Sale, which lists lease parcels to be offered at the auction, is published by the Utah State Office at least 90 days before the auction is held. Lease stipulations applicable to each parcel are specified in the Sale Notice. The decision as to which public lands and minerals are open for leasing and what leasing stipulations may be necessary, based on information available at the time, is made during the land use planning process. Constraints on leasing and any future development of split estate parcels are determined by the BLM in consultation with the appropriate surface management agency or the private surface owner.

In the process of preparing a lease sale, the Utah State Office compiles a list of lands nominated and legally available for leasing, and sends a preliminary parcel list to the appropriate District Office where the parcels are located. Field Office staff then review the legal descriptions of the parcels to determine if they are in areas open to leasing under the relevant Resource Management Plan (RMP) and that appropriate stipulations have been included; verify whether any new information has become available that might change any analysis conducted during the planning process; confirm that appropriate consultations have been conducted; and identify any special resource conditions of which potential bidders should be made aware. The nominated parcels are posted online for a two week public scoping period. This posting also includes the appropriate stipulations as identified in the relevant RMP. The BLM then prepares an analysis in compliance with the National Environmental Policy Act (NEPA), usually in the form of an Environmental Assessment (EA).

After the Field Office completes the draft parcel review and NEPA analysis and returns them to the State Office, a list of available lease parcels and associated stipulations and notices is made available to the public through a Notice of Competitive Lease Sale (NCLS). Lease sale notices are posted on the Utah BLM website at: http://go.usa.gov/xXk8ch. On rare occasions, the BLM

may defer or withhold additional parcels prior to the day of the lease sale. In such cases, the BLM prepares an errata to the sale notice.

A draft of the EA and an unsigned Finding of No Significant Impacts (FONSI) (if appropriate) are made available to the public for a 30 day public comment period by posting the documents on the BLM National Register for NEPA documents. For Vernal's December 2017 sale, the documents can be found here: https://go.usa.gov/xN9Gu. The BLM also typically issues press releases to publicly announce the public comment period for the draft EA and unsigned FONSI. Comments received from the public are reviewed and incorporated into the NEPA document, as applicable.

The EA, with any revisions determined appropriate following the public comment period, and, if still considered appropriate, an unsigned FONSI are again made available to the public through the concurrent posting of those documents and a NCLS at least 90 days in advance of the scheduled lease sale. The posting of the NCLS, EA and FONSI initiates a 30 day public protest period for the proposed lease sale offering that will end 60 days before the scheduled lease sale. The stipulations and notices applicable to each parcel proposed for lease will be specified in attachments to the NCLS. If any changes are needed to the parcels or stipulations and notices identified through the NCLS, an erratum is posted to the BLM Utah's Oil and Gas Leasing website, and in the public room for the BLM Utah State Office, in order to notify the public of any such changes. The lease parcels, as identified by the NCLS and any errata, would be offered for sale at a competitive lease sale tentatively scheduled to be held on December 14, 2017.

If the parcels are offered but not leased at the December 2017 lease sale, then they will remain available to be leased noncompetitively for a period of up to two years to any qualified lessee at the minimum bid cost. Parcels obtained in this way may be re-parceled by combining or deleting other previously offered lands. Mineral estate that is not leased within a two-year period after an initial offering will no longer be available and must go through a competitive lease sale process again prior to being leased.

The act of leasing does not authorize any development or use of the surface of lease lands without further application by the operator and approval by the BLM. In the future, the BLM may receive Applications for Permit to Drill (APDs) for those parcels that are leased. If APDs are received, the BLM conducts additional site-specific NEPA analysis before deciding whether to approve the APD, and what conditions of approval (COA) should apply.

The BLM has prepared this EA to disclose and analyze the environmental consequences of the leasing of 64 parcels during the December 2017 oil and gas lease sale. 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 ensures compliance with NEPA 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 40 Code of Federal Regulations (CFR) § 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a FONSI statement. A FONSI statement, if applicable for this EA, would document the reasons why implementation of the selected alternative would not result in significant environmental impacts (effects) beyond those already addressed in the EIS prepared for the current land use

plan: Vernal Field Office RMP [October 2008]. If the decision maker determines that this project has significant impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) may be signed for the EA approving the selected alternative, whether the Proposed Action or another alternative. This EA is tiered to and incorporates by reference the environmental impact analysis contained in the Vernal Field Office Proposed Resource Management Plan and Final Environmental Impact Statement (PRMP) [October 2008].

Sixty-four (64) parcels comprising 66,625.93 acres within the Vernal Field Office (VFO) were nominated for the December 2017 Competitive Oil and Gas Lease Sale. The 64 parcels were determined to be open to be leased for oil and gas development under the Vernal Field Office RMP. This figure is comprised of 64,545.49 acres of federal land and 2,080.44 acres of split-estate land. The mineral rights for these parcels are owned by the federal government and administered by the VFO. The exception is parcel UT1217-103 were the federal government owns 50% of the mineral rights. The legal descriptions of the nominated parcels are in Appendix A.

This EA documents the review of the nominated parcels under the administration of the VFO. It serves to verify conformance with the approved land use plan and provides the rationale for the Field Office's recommendation to offer or to defer particular parcels from a lease sale. This EA is also being used to determine if the stipulations and lease notices attached to the parcels as part of the Proposed Action would be sufficient to protect resources and inform potential lessees of special conditions and restrictions that may constrain development. Additional lease notices may be developed during analysis, if warranted.

1.3 PURPOSE AND NEED

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

1.3.1 Decision to be Made

The BLM will decide whether to lease the nominated parcels and, if so, under what terms.

1.4 PLAN CONFORMANCE REVIEW

The Proposed Action was reviewed for conformance (43 CFR 1610.5, BLM 1617.3) with the following plan (s):

Name of Plan: Vernal Field Office Record of Decision and RMP

Date Approved: October 2008

As amended by: Utah Greater Sage Grouse Proposed Land Use Plan Amendment and Final Environmental Impact Statement [BLM 2015] and Record of Decision

Date Approved: September 2015

Decision Language: The RMP designated approximately 1,727,200 acres of federal mineral estate open for continued oil and gas development and leasing. The RMP (with associated amendments) also describes specific stipulations that would be attached to new leases offered in certain areas. Under the Proposed Action, parcels to be offered would be leased subject to stipulations prescribed by the RMP. Therefore, the Proposed Action conforms to the fluid mineral leasing decisions in the RMP and subsequent amendments, and are consistent with the RMP's goals and objectives for natural and cultural resources.

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.

Appendices: K (Surface Stipulations to all Surface Disturbing Activities), L (Utah's T&E and Special Status Species Lease Notice for Oil and Gas and BLM Committed Measures) and R (Fluid Mineral Best Management Practices) of the VFO RMP Record of Decision contain pertinent stipulations, lease notices and committed measures.

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

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 (43 CFR 3101.1-2). Even if no restrictions are attached to the lease, the operations must be conducted in a manner that avoids unnecessary or undue degradation of the environment and minimizes adverse impacts to the land, air, water,

cultural, biological, and visual elements of the environment, as well as other land uses or users. Also included in all leases are the two mandatory stipulations for the statutory protection of cultural resources and threatened or endangered species (BLM Handbook 3120-1), which are described in Section 2.3.2. BLM would also encourage industry to consider participating in EPA's Natural Gas STAR program. 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.

The following parcels considered in this EA are wholly or partially located within the intended Vernal Master Leasing Plan area: 58, 59, 63, 65, 66, 67, 69, 70, 72, 80, 81, 82, 83, 84, 85, 86, and 87. Rather than deferring nominated parcels in intended MLP areas, parcels received as expressions of interest were forwarded to the field office to conduct appropriate environmental analysis to ensure environmentally responsible leasing of oil and gas resources on federal lands. Evaluation of the parcels will be based on the governing land use plans and site specific NEPA analysis. If it is determined through this EA that current lease stipulations do not provide adequate protection of other resources, FLPMA provides the authority to defer leasing of specific parcels until appropriate plan amendment(s) can be completed to provide additional protective stipulations or to close the area for leasing.

1.4.1 Conformance with Plans of Other Agencies

Parcels 22, 23, and 24 are adjacent to the Ashley National Forest South Unit (the parcels are south of the Forest). Due to topography issues, access to these leases may need to be through the South Unit. Any surface disturbing activities on Forest Service lands that are associated with the leases would be subject to the Forest Service's land use plan and would require prior approval from the Ashley National Forest.

Parcel 44 is near Indian trust assets within the Uintah and Ouray Reservation boundary (the parcel is south of the Indian trust assets). Access to this parcel would likely be from the west and south, so the BLM does not anticipate any impacts to the Trust lands. Therefore, no conflicts with the Ute Tribe's management objectives for the Reservation are anticipated.

Parcel 46 is adjacent to lands withdrawn to the Bureau of Reclamation (BOR) surrounding Brough Reservoir (the parcel is west of the Reservoir). Access may be from the southeast or northeast. Any surface disturbing activities on BOR lands associated with the leases would require the BLM to coordinate with the Bureau of Reclamation to develop mitigation or acquire the BOR's approval.

Parcel 49 is adjacent to the Steinaker Stake Park (the parcel is east of the Park). These lands are withdrawn to the Bureau of Reclamation, but State Parks manages the lands through an agreement with the Bureau of Reclamation. The BLM does not anticipate any direct impacts to these lands. However, a portion of the parcel is located directly across Highway 191 from the main access road to the park. This area of the lease mostly contains 40% or greater slopes which carries with it a No Surface Occupancy stipulation. There are 10 acres of BLM surface and 30 acres of private surface that are visible from the Park entrance, and are flat enough to allow development of well pads. Some private commercial development including a lumber stockpile already exists on the private land. The BLM surface is subject to VRM III management

(disturbance may attract attention but should not dominate the view). The rest of the lease is behind the ridge and not visible from the Park or its entrance.

Parcel 55 is adjacent to the Ouray National Wildlife Refuge (the parcel is north of the Refuge). Access to this parcel would likely be from the east, so the BLM does not anticipate any impacts to Refuge lands. Therefore, no conflicts with the Refuge's management objectives are anticipated.

Parcel 69 is located directly adjacent to the Dinosaur National Monument (the parcel is west of the Monument). Access to this parcel would likely be from the north or south. Stipulation UT-S-168 applies to this parcel and would minimize light and noise pollution to the Monument.

Parcel 70 is located within 0.5 mile of the Dinosaur National Monument (the parcel is south of the Monument and on the opposite side of the Green River). This parcel is private surface. Access to this parcel will likely occur from the south. The parcel is fully visible from the Monument. Private commercial development and agricultural activities have occurred and are occurring on this parcel. Stipulation UT-S-168 applies to this parcel and would minimize light and noise pollution to the Monument.

Parcel 71 is located within 0.25 mile of the main road that accesses Dinosaur National Monument, and within 1 mile of the Monument (the parcel is southeast of the Monument). This parcel is a mix of public and private land. Access to this parcel may occur from the north, south or east. Most of parcel 71 is located up on a ridge. The private surface portion or the parcel already contains private commercial development.

Parcels 80 and 85 are located adjacent to the Utah-Colorado border (the parcels are west of Colorado). The adjacent lands are managed by the Bureau of Land Management White River Field Office. Access to these parcels will likely occur from the northwest, so the BLM does not anticipate impacts to the adjacent WRFO lands.

Most parcels are adjacent to or near lands administered by Utah's Trust Lands Administration. The purpose of the Utah Trust Lands Administration is to generate revenue for the State schools and institutions. Since development of adjacent federal property may stimulate interest in development of Utah Trust Lands, it is assumed that leasing the parcels is consistent with the management objectives of the State.

1.5 ISSUE IDENTIFICATION

1.5.1 Scoping

The principal goal of scoping is to identify issues, concerns, and potential impacts that require detailed analysis. For this project, the BLM used internal scoping to identify potentially affected resources and associated issues.

Internal scoping was conducted through meetings of an interdisciplinary (ID) team of resource specialists and discussion of the nominated parcels. All resources considered are documented in Appendix E Interdisciplinary Team Checklist. The rationale beside each resource explains whether issues for that resource were found that required detailed analysis.

External scoping was conducted by sending notification of the proposed sale to affected landowners including Utah Public Lands Policy and Coordination Office, U.S. Fish and Wildlife Service, private land owners, The National Park Service, U.S. Forest Service, Utah Division of Wildlife Resources, and the State of Utah Trust Lands Administration. Responses were received from Utah Public Lands and Coordination Office (PLPCO) and Dinosaur National Monument (DNM).

PLPCO responded with support for leasing the parcels, requesting that No Surface Occupancy stipulations for Sage-grouse habitat be avoided. DNM responded with concerns about air quality, viewsheds from the Monument, impacts to night skies at the Monument, impacts to soundscapes at the Monument, and water quality in Brush Creek with corresponding T&E fish concerns. Concerns were addressed either by analysis in the EA in the corresponding resource section,or in the case of impacts to night skies and soundscape in the Monument by adding a stipulation to the parcels requiring mitigation of impacts at the time of development..

1.5.2 Public Comment Period

The preliminary EA and the unsigned Finding of No Significant Impact (FONSI) are available for a 30-day public review and comment period beginning June 22, 2017 and ending July 24, 2017. The document is available online at https://go.usa.gov/xN9Gu and in the public room at the Vernal Field Office. The document may be viewed at the field office during regular business hours (7:45 a.m. to 4:30 p.m.), Monday through Friday, except holidays. Written comments should be emailed to blm_UT-Vernal_comments@blm.gov or delivered to 170 S 500 E Vernal Utah, 84078 by close of business on July 24, 2017. Comments received from the public will be reviewed and substantive comments will be incorporated into the EA as appropriate.

1.6 RELATIONSHIP TO STATUTES, REGULATIONS, POLICIES OR OTHER PLANS

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

- Federal Land Policy and Management Act (1976) as amended and the associated regulations at 43 CFR Part 1600
- Mineral Leasing Act (1920) as amended and the associated regulations at 43 CFR Part 3100
- BLM Utah Riparian Management Policy (2005)
- National Historic Preservation Act (1966) as amended and the associated regulations at 36 CFR Part 800
- Endangered Species Act (1973) as amended
- BLM Manual 6840- Special Status Species Management
- Bald and Golden Eagle Protection Act (1962)
- Migratory Bird Treaty Act (1918)
- Utah Partners in Flight Avian Conservation Strategy Version 2.0 (Parrish et al., 2002)

- Birds of Conservation Concern 2002 (USFWS 2008)
- Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds
- MOU between the USDI BLM and USFWS to Promote the Conservation and Management of Migratory Birds (April 2010)
- 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 Handbook 3120-1 Competitive Leases (P)
- BLM Washington Office IM 2016-143 Implementation of Greater Sage-Grouse Resource Management Plan Revisions or Amendments – Oil & Gas Leasing and Development Sequential Prioritization
- MOU Among the USDA, USDI and EPA Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions Through the NEPA Process (2011)
- Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development (BLM UT IM 2010–055)
- BLM-Utah Guidance for the Lands with Wilderness Characteristics Resource (IM UT 2016-027)

These documents, and their associated analysis or information, are hereby incorporated by reference, based on their use and consideration by various authors of this document. The attached Interdisciplinary Team Checklist, Appendix E, was also developed after consideration of these documents and their contents. Each of these documents is available for review upon request to the VFO.

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.

- Vernal Field Office Final Environmental Impact Statement (FEIS) and Proposed Resource Management Plan (PRMP) [BLM 2008a] and Record of Decision

- Utah Greater Sage Grouse Proposed Land Use Plan Amendment and Final Environmental Impact Statement [BLM 2015] and Record of Decision

- Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement [BLM 2007] and Record of decision

CHAPTER 2 - ALTERNATIVES

2.1 INTRODUCTION

This chapter describes the alternatives analyzed in detail. Alternatives considered but not analyzed in detail are also discussed.

2.2 REASONABLY FORESEEABLE DEVELOPMENT SCENARIO

At this time it is unknown when, where, or if future well sites or roads might be proposed on any leased parcel, or even if a lease would be issued. 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).

For the purposes of analysis the BLM has created a Reasonably Foreseeable Development Scenario (RFD), which helps identify and quantify direct, indirect, and cumulative effects of oil and gas activity. These numbers are used for analysis purposes only and carry with them no guarantees of lease issuance or subsequent development. The RFD is 135 wells on 64 parcels, with an estimated total surface disturbance of 590 acres. It is assumed that each parcel would have at least one well developed within it. If proven to be capable of production in paying quantities, that is the minimum requirement to hold a lease. The surface disturbance associated with the well(s) (well pad, access road, etc.) could be located on or off the parcel depending on the parcel's stipulation. Please refer to Appendix D for the assumed number of wells and disturbance per parcel.

When estimating the number of wells per parcel, the BLM assumed a 40-acre down hole spacing on each parcel unless there were State-issued spacing orders that stipulated otherwise, and also considered the oil and gas production ongoing in a two mile radius around each parcel over the last few years. When estimating the surface disturbance per well, the BLM referred to assumptions in existing field development NEPA documents that overlapped the parcels. Where there were no existing NEPA documents, the BLM extrapolated disturbance assumptions from the Greater Uinta Basin Technical Support Document [BLM, 2012], which quantified the total number of wells, the number of wells per pad, and the total acreage of disturbance in the Greater Uinta Basin area.

The following sections provide a general discussion of possible post-leasing RFD activities.

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 an approximate depth of six inches and stockpiled for future reclamation. The size of the well pad would be determined by the size of the drilling rig, number of wells on the pad, and type of well being drilled. The well pad would be constructed of native material and might have gravel placed on it to maintain year round access.

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

usually 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. Please refer to Appendix D for the well pad and road assumptions per parcel.

2.2.2 Well 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 (IM) 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 in most cases hydraulically fracture the productive formation under high pressure. The hydraulic fracturing 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.

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 in the VFO. As a result, HF will be evaluated at the APD stage should the parcel be leased, 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 VFO.

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 water

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. However, along with the production increase, HF activities are suspected of causing contamination of fresh water by creating fluid communication between oil and gas reservoirs and aquifers. The EPA recently conducted an assessment of HF on drinking water resources (https://www.epa.gov/hfstudy).

2.2.3 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 the majority transported by truck to a refinery with a smaller portion being transported by pipeline. 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. Please refer to Appendix D for the pipeline assumptions per parcel.

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 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 by-products 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.

2.2.4 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.

2.2.5 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.

2.2.6 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. Wells would be plugged and abandoned following procedures reviewed by a BLM Petroleum Engineer, Geologist, and approved by the Authorized Officer. Plugging would include cement plugs at strategic positions in the well bore. Surface disturbance would be reclaimed according to the standards established by the Green River District Reclamation Guidelines.

2.3 ALTERNATIVES ANALYZED IN DETAIL

2.3.1 No Action Alternative

The BLM NEPA Handbook (H-1790-1) states that for EAs the No Action Alternative generally means that the Proposed Action would not take place. In the case of a lease sale, the leasing of particular parcels would not take place.

Under the No Action Alternative, the BLM would defer all nominated lease parcels from the December 2017 lease sale. The parcels could be considered for inclusion in future lease sales. Surface management would remain the same, and ongoing oil and gas development would continue on surrounding private, state, and federal leases.

2.3.2 Proposed Action - Lease All Nominated Parcels in Conformance with the RMP

Under this alternative, the BLM would lease Federal mineral estate in nominated parcels available for leasing in the resource area as described in section 2.2 and in accordance with the VFO RMP (October 2008). The current lease sale includes parcels in Duchesne, Grand, and Uintah Counties. Those lands proposed for lease under this alternative total 66,266.73 acres of federal mineral estate and include a combination of federal and private surface (see Appendix A). The lands have been grouped into appropriate lease parcels for competitive sale as oil and gas leases in accordance with the 43 CFR 3100 regulations. The leases would include the standard lease terms and conditions for development of the surface of oil and gas leases provided in 43 CFR 3100. Stipulations to protect other surface and subsurface resources would also apply, as prescribed by the RMP. These stipulations are described in Appendix A.

H-3120-1, the Competitive Leasing Handbook also requires the following two standard stipulations be added to every lease:

Cultural Resources Stipulation

> This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any

activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Endangered Species Act Stipulation

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

2.4 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

No other alternatives to the Proposed Action were identified that would meet the purpose and need of the Proposed Action.

CHAPTER 3 – AFFECTED ENVIRONMENT

3.1 INTRODUCTION

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

The CEQ Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an EA. Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives; or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. To see which resources were determined to not be present or not expected to be impacted by the Proposed Action please refer to Appendix E.

3.2 GENERAL SETTING

Refer to Appendix F for photos taken in or looking into the parcels. The proposed lease parcels are scattered throughout the Vernal Planning area. The land involved is characterized by habitats associated with the Uinta Basin and Colorado Plateau. The parcels are located within Duchesne, Uintah, and Grand Counties. Resources in or near the parcels include botanical, cultural, wildlife, mineral, paleontological, rangeland, recreational, riparian, visual, water, and wilderness characteristics. Land-use and economic resources in and near the parcels include livestock grazing, oil and gas, rights-of-way, and woodland products. Opportunities for camping, fishing, hiking, hunting, off-highway vehicle (OHV) use, sightseeing, and viewing historic sites provide public enjoyment, as well as additional revenues to area businesses.

3.3 RESOURCES/ISSUES BROUGHT FORWARD FOR ANALYSIS

3.3.1 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. However, in October 2016, the Governor of Utah recommended that portions of the Basin be classified as non-attainment for the 8-hour ozone standard of 70 ppb. The EPA is reviewing the-recommendation and formal designations are anticipated in October 2018.

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_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM_{10}) or 2.5 microns in diameter ($PM_{2.5}$). Airborne particulate matter consists of tiny coarse-mode (PM_{10}) or fine-mode ($PM_{2.5}$) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. $PM_{2.5}$ is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM_{10} is primarily from crushing, grinding, or abrasion of surfaces. **Table 3-1** lists the Utah and National Ambient Air Quality Standards.

Table 3-1: Utah and National Ambient Air Quality Standards

Pollutant	Averaging Time	Utah Standards	National Standards		Form of the National Standards
		Concentration	Primary	Secondary	
Ozone (O_3)	8-Hour (ppm)	0.070	0.070	0.070	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Carbon Monoxide (CO)	1-Hour (ppm)	35	35	-	Not to be exceeded more than once per year
	8-Hour (ppm)	9	9	-	
Sulfur Dioxide (SO_2)	1-Hour (ppb)	75	75	-	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	3-Hour (ppm)	0.5[1]	-	0.5	Not to be exceeded more than once per year
Nitrogen Dioxide (NO_2)	1-Hour (ppb)	100	100	-	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Annual Average (ppb)	53	53	53	Annual Mean
PM_{10}[2]	24-Hour ($\mu g/m^3$)	150	150	150	Not to be exceeded more than once per year on average over 3 years
$PM_{2.5}$[2]	24-Hour ($\mu g/m^3$)	35	35	35	98th percentile, averaged over 3 years
	Annual Average ($\mu g/m^3$)	15	12	15	annual mean, averaged over 3 years
Lead	Rolling 3 Month Average ($\mu g/m^3$)	0.15	0.15	0.15	Not to be exceeded

[1] Secondary standard.

[2] PM_{10} indicates particulate matter smaller than 10 microns in aerodynamic diameter, $PM_{2.5}$ is particulate matter smaller than 2.5 microns in aerodynamic diameter.

Source: USEPA 2017a; UDEQ 2010.

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

- Exhaust emissions (primarily CO, NO_x, $PM_{2.5}$, 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_x, $PM_{2.5}$, and HAPs;
- Gasoline and diesel-fueled vehicle tailpipe emissions of VOCs, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$;
- Oxides of sulfur (SO_x), NO_x, fugitive dust emissions from coal-fired power plants, and coal mining/ processing;
- Fugitive dust (in the form of PM_{10} and $PM_{2.5}$) 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 since 2010, except 2012). High wintertime 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_x and VOCs), can create elevated concentrations of ozone at ground-level. 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 2015 design value for the Uintah County is 79 ppb. A design value is a statistic developed from actual monitored data that describes the air quality status of a location relative the level of the NAAQS. Design values are typically used to designate and classify nonattainment areas, as well as to assess progress towards meeting the NAAQS.

The UDAQ conducted limited monitoring of $PM_{2.5}$ in Vernal, Utah in December 2006. During the 2006-2007 winter seasons, $PM_{2.5}$ levels were higher than the $PM_{2.5}$ health standards that became effective in December 2006. The $PM_{2.5}$ levels recorded in Vernal were similar to other areas in northern Utah that experience wintertime inversions. The most likely causes of elevated $PM_{2.5}$ 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. $PM_{2.5}$ 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. Table 3-2 provides representative ambient background data for the region where available based on 2015 Design Values unless otherwise specified (https://www.epa.gov/air-trends/air-quality-design-values).

Table 3-2: Representative Air Quality Background Concentrations

Table 3-2: Ambient Air Quality Background Values

Pollutant	Averaging Period(s)	Background Concentration	Monitor AQS Site ID
SO_2	1-hour	5 ppb	Vernal 490475632
NO_2	Annual 1-hour	3 ppb 54 ppb [1]	Vernal 490472003
PM_{10}	24-hour	--	--
$PM_{2.5}$	Annual 24-hour	5.7 ug/m3 [2] 19 ug/m3 [2]	Vernal 490471004
CO	8-hour 1-hour	1.7 ppm 3.3 ppm	Salt Lake City 490353006

Table 3-2: Ambient Air Quality Background Values			
Pollutant	**Averaging Period(s)**	**Background Concentration**	**Monitor AQS Site ID**
O_3	8-hour	.079 ppm	Vernal 490472003

[1] 2014 Design Value

[2] Invalid design value due to monitor data completeness or quality.

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, ethylbenzene, isomers of xylene (BTEX) compounds, and normal-hexane (n-hexane). EPA established National Emission Standards for Hazardous Air Pollutants (NESHAP) for certain categories of stationary sources.

3.3.2 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 processes 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 carry out the mandates of Federal Lands Policy and Management Act (FLPMA) 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 that 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 3-3).

Table 3-3: Parcels within Areas of Critical Environmental Concern		
ACEC	**Lease Parcels**	**Relevance and Importance Values**
Pariette Wetlands (10,437 acres)	044	Special status bird and plant habitat, wetlands ecosystem.
Red Mountain – Dry Fork Complex (24,285 acres)	049	Relict plant communities, high value archaeological and paleontological sites, watershed, crucial deer and elk habitat.

Table 3-3: Parcels within Areas of Critical Environmental Concern		
ACEC	**Lease Parcels**	**Relevance and Importance Values**
Nine Mile Canyon (44,168 acres)	025, 031B, 038, 039	High value scenery, cultural resources, and special status species.
Lears Canyon (1,375 acres)	022	Relict vegetation communities

FLPMA requires the BLM to give priority to the designation and protection of ACEC's. Protection is afforded by implementing management prescriptions set forth in the approved RMP. Lands within these ACECs are subject to the following relevant special management prescriptions in the VFO RMP:

Pariette Wetlands ACEC:

- Oil and gas will be open to leasing subject to major constraints (NSO)

Red Mountain – Dry Fork Complex ACEC:

- Oil and gas will be open to leasing subject to either standard lease terms and conditions, moderate constraints such as timing limitations or controlled surface use, or major constraints (NSO)

Nine Mile Canyon ACEC:

- Oil and gas will be open to leasing subject to either standard lease terms and conditions, moderate constraints such as timing limitations or controlled surface use, or major constraints (NSO)

Lears Canyon ACEC:

- Oil and gas will be open to leasing subject to major constraints (NSO)
- Recommended for withdrawal from locatable mineral entry

3.3.3 Cultural Resources

This section relies on National Historic Preservation Act (NHPA), as amended in 1992 (54 U.S.C. 300101 et. seq.) language to better integrate both processes without unnecessary duplication of effort and to facilitate public engagement and Section 106 consultation. The NHPA requires government agencies to take into account the effects of their actions on historic properties, defines as cultural resources listed or eligible for listing on the National Register of Historic Places (NRHP). FLPMA and the BLM's 8100 Manual (8100) directs the BLM to consider the impacts to cultural resources in their land management decisions. Cultural resources are defined as constitute "a definite location of human activity, occupation, or use identifiable through field inventories (i.e., surveys), historical documentation, or oral evidence" and 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 (BLM-M-8100). 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

Cultural resources in the Vernal Field Office are broadly broken into a cultural-chronological sequence which includes the Paleoindian, Archaic, Fremont, Protohistoric, and Historic periods. 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. Cultural resources from all of the above periods are known to exist or potentially exist within the current project area.

An intensive analysis and data review was conducted on each parcel to determine the extent of previous survey, the presence of previously recorded cultural sites, and the potential cultural density. The data review and analysis included the VFO office cultural records and maps, the CURES GIS data, Preservation Pro, the General Land Office plats. Class I Inventory and the available Ethnographic data for the Area of Potential Effect (APE), which is the area bounded by each parcel combined with an additional half mile buffer around each parcel being offered for the December 2017 Oil and Gas lease sale. The available and reviewed data included the VFO office cultural records and maps, the CURES GIS data, and Preservation Pro in March-May of 2017 at the VFO for the each of the proposed parcels and a half mile buffer around each parcel. The Utah State Historic Preservation Office maintains the CURES GIS data and Preservation Pro. The APE parcels 80 and 85 contained areas in Colorado; for these areas, the VFO utilized History Colorado's Compass system to gather and review cultural resources data.

In addition to analysis of cultural resources BLM consulted with Native American Tribes and other identified consulting parties to identify information regarding cultural resources and better account for those resources in the project area. BLM is currently consulting 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 Tribal leaders, as well as cultural resource staff on April 13, 2017. Letters included full project descriptions and overview maps, and were sent to the Santa Clara Pueblo, Laguna Pueblo, Eastern Shoshone, Ute Tribe of the Uintah and Ouray Indian Reservation, Ute Mountain, White Mesa Ute Tribe, Southern Ute, Navajo Nation, Pueblo of Jemez, Hopi, Northwestern Band of the Shoshone Nation, Zia Pueblo, and Goshute. Consultation for this lease sale is ongoing.

Additionally the BLM invited the following organizations via letter to participate in Section 106 consultation for this lease sale: the Utah Rock Art Research Association (URARA), Utah Statewide Archaeological Society (USAS), Utah Professional Archaeological Council (UPAC), Southern Utah Wilderness Alliance (SUWA), National Trust for Historic Preservation (NTHP), Utah Division of Oil, Gas and Mining (UDOGM), Uintah County, Duchesne County, Grand County, Nine Mile Canyon Coalition (NMCC), Nine Mile Canyon Settlers Association (NMCSA), and the Ashley National Forest. Consultation is conducted with organizations knowledgeable in the geographic area to obtain input regarding the significance of historic properties and to obtain additional information on the locations and significance of historic properties that may be unknown to the BLM. The letter sent to each organization contained a detailed project description and overview maps. Consultation for this lease sale is ongoing.

In addition to fulfilling BLM's NEPA requirements to seek public input regarding his lease sale, this EA and its public comment process will also be used to fulfill NHPA requirements for public participation for this lease sale.

3.3.4 Greenhouse Gas Emissions/Climate Change

"Climate change" refers to any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among other effects, that occur over several decades or longer. "Global warming" refers to the recent and ongoing rise in global average temperature near Earth's surface. It is caused mostly by increasing concentrations of greenhouse gases in the atmosphere. Global warming is causing climate patterns to change. However, global warming itself represents only one aspect of climate change. Climate is both a driving force and limiting factor for ecological, biological, and hydrological processes, and has great potential to influence resource management.

Climate change science continues to expand and refine our understanding of the impacts of anthropogenic GHG emissions. The Council on Environmental Quality's (CEQ) first Annual Report in 1970 referenced climate change, indicating that "[m]an may be changing his weather." It is now well established that rising global atmospheric GHG emission concentrations are significantly affecting the Earth's climate. These conclusions are built upon a scientific record that has been created with substantial contributions from the United States Global Change

Research Program (USGCRP).[1] Studies have projected the effects of increasing GHGs on many resources normally discussed in the NEPA process, including water availability, ocean acidity, sea-level rise, ecosystem functions, energy production, agriculture and food security, air quality and human health.

Based primarily on the scientific assessments of the USGCRP, the National Research Council, and the Intergovernmental Panel on Climate Change, in 2009 the Environmental Protection Agency (EPA) issued a finding that the changes in our climate caused by elevated concentrations of greenhouse gases in the atmosphere are reasonably anticipated to endanger the public health and public welfare of current and future generations. In 2015, EPA acknowledged more recent scientific assessments that "highlight the urgency of addressing the rising concentration of CO_2 in the atmosphere," [EPA 2015] finding that certain groups are especially vulnerable to climate-related effects. Broadly stated, the effects of climate change observed to date and projected to occur in the future include more frequent and intense heat waves, longer fire seasons and more severe wildfires, degraded air quality, more heavy downpours and flooding, increased drought, greater sea-level rise, more intense storms, harm to water resources, harm to agriculture, ocean acidification, and harm to wildlife and ecosystems.

This EA includes a qualitative and quantitative analysis of possible greenhouse gas emissions that could occur as a result of reasonably foreseeable oil and gas development associated with the parcels being offered for lease. Additional information about potential emissions would also be available and calculated as part of subsequent site-specific reviews at the APD stage.

It is accepted within the scientific community that global temperatures have risen at an increased rate and the likely cause is gases that trap heat in the atmosphere, referred to as greenhouse gases (GHG). GHGs are composed mostly of carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH4), water vapor, and ozone. The greenhouse gas effect is the process in which the radiation from the sun that heats the surface of Earth gets blocked by GHG molecules in Earth's atmosphere. Since GHGs are composed of molecules that absorb and emit infrared electromagnetic radiation (heat), they form an intrinsic part of the greenhouse effect.

Greenhouse gases are often presented using the unit of Metric Tons of CO_2 equivalent (MT CO_2e) or Million Metric Tons (MMT CO2e), a metric to express the impact of each different greenhouse gas in terms of the amount of CO2 making it possible to express greenhouse gases as a single number. For example, 1 ton of methane would be equal to 28-36 tons of CO_2 equivalent, because it has a global warming potential (GWP) over 25 times that of CO_2 [EPA 2017a].

As defined by USEPA, the GWP provides "ratio of the time-integrated radiative forcing from the instantaneous release of one kilogram of a trace substance relative to that of one kilogram of CO_2." The GWP of a greenhouse gas is used to compare global impacts of different gases and used specifically to measure how much energy the emissions of one ton of gas will absorb over a given period of time (e.g. 100 years), relative to the emissions of one ton of CO_2. The GWP

[1] See Global Change Research Act of 1990, Pub. L. 101–606, Sec. 103 (November 16, 1990). For additional information on the United States Global Change Research Program [hereinafter "USGCRP"], visit http://www.globalchange.gov.

accounts for the intensity of each GHG's heat trapping effect and its longevity in the atmosphere. The GWP provides a method to quantify the cumulative effects of multiple GHGs released into the atmosphere by calculating carbon dioxide equivalent for the GHGs.

- Carbon dioxide (CO_2), by definition, has a GWP of 1 regardless of the time period used because it is the gas being used as the reference. CO_2 remains in the climate system for a very long time due to the natural carbon cycle which continuously releases and absorbs carbon and carbon dioxide. Anthropogenic sources of CO_2 emissions have substantially increased since the Industrial Revolution causing increases in the atmospheric concentrations of CO_2 that will last thousands of years [EPA 2017a].

- Methane (CH_4) is estimated to have a GWP of 28-36 times that of CO_2 over 100 years. CH_4 emitted today lasts about a decade on average, which is much less time than CO_2. But CH_4 also absorbs much more energy than CO_2. The net effect of the shorter lifetime and higher energy absorption is reflected in the GWP. The methane GWP also accounts for some indirect effects, such as the fact that methane can act as precursor to ozone formation, and ozone is in itself a greenhouse gas [EPA 2017a].

- Nitrous Oxide (N_2O) has a GWP of 265-298 times that of CO_2 for a 100-year timescale. N_2O emitted today remains in the atmosphere for more than 100 years, on average [EPA 2017a]. Table 3-4 contains GHGs regulated by USEPA and global warming potentials.

Table 3-4: GHG Regulated by USEPA and Global Warming Potentials

Air Pollutant	Chemical Symbol/ Acronym	Global Warming Potential
Carbon Dioxide	CO_2	1
Methane	CH4	28-36
Nitrous Oxide	N_2O	298
Hydrofluorocarbons	HFCs	Varies
Perfluorocarbons	PFCs	Varies
Sulfur hexafluoride	SF_6	22,800

Source: [USEPA 2017a]

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

identified a target worldwide "carbon budget" to estimate the amount of CO_2 the world can emit while still having a likely chance of limiting global temperature rise to 2°C above pre-industrial levels. The international community estimates this budget to be 1 trillion tonnes of carbon [IPCC 2016].

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

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 [NASA 2007]. In 2001, the IPCC (2007) indicated that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences [Hansen et al. 2006] has confirmed these findings, but also indicated that there are uncertainties regarding how climate change may affect different regions. Observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Data indicate that northern latitudes (above 24° N) have exhibited temperature increases of nearly 1.2°C (2.1°F) since 1900, with nearly a 1.0°C (1.8°F) increase since 1970 alone. It also shows temperature and precipitation trends for the United States. For both parameters we see varying rates of change, but overall increases in both temperature and precipitation.

In recent years, many states, tribes, and other organizations have initiated GHG inventories, tallying GHG emissions by economic sector. The U.S. EPA provides links to statewide GHG emissions inventories [EPA 2015]. Guidelines for estimating project-specific GHG emissions are available [URSC 2010], but some additional data, including the projected volume of oil or natural gas produced for an average well, number of wells (as well as other factors described in Section 4.2.1 Air Quality) were used to provide GHG estimates.

3.3.5 Lands with Wilderness Characteristics

Lands with wilderness characteristics are roadless areas having at least 5,000, contiguous acres (or meeting an exception in Manual 6310) that appear to be in a natural condition, and that provide outstanding opportunities for solitude and/or primitive and unconfined forms of recreation. All or portions of the following proposed lease parcels occur within lands found to possess wilderness characteristics. The unit information is summarized from wilderness characteristics inventories completed by the VFO. Parcel information is summarized in Table 3-5.

Parcel (ID#) 037, 038, and 041 are located within the Badlands Cliffs wilderness characteristics inventory unit. The Badlands Cliffs lands with wilderness characteristics unit was inventoried after the completion of the 2008 VFO RMP [BLM 2008], therefore, the unit has not been

analyzed through a land use planning process. Approximately 11,858 acres of the Badlands Cliffs unit possess wilderness characteristics.

Parcels (ID#) 027, 028, 029, and 030 are located within the Big Wash wilderness characteristics inventory unit. The Big Wash lands with wilderness characteristics unit was inventoried after the completion of the 2008 VFO RMP [BLM 2008]. Therefore, the unit has not been analyzed through a land use planning process. Approximately 7,566 acres of the Big Wash unit possess wilderness characteristics.

Parcels (ID#) 022, 024, 025, and 032 are located within the Currant Canyon wilderness characteristics inventory unit. The Currant Canyon lands with wilderness characteristic unit was inventoried after the completion of the 2008 VFO RMP [BLM 2008]. Therefore, the unit has not been analyzed through a land use planning process. Approximately 20,782 acres of the Currant Canyon unit possess wilderness characteristics.

Parcels (ID#) 073and 079 are located within the Hideout Canyon wilderness characteristics inventory unit. Approximately 12,752 acres of the Hideout Canyon unit possess wilderness characteristics. This unit was analyzed in the Vernal RMP.

Parcels (ID#) 031A, 031B, 037, and 039 are located within the Pete's Wash wilderness characteristics inventory unit. The Pete's Wash lands with wilderness characteristics unit was inventoried after the completion of the 2008 VFO RMP [BLM2008]. Therefore, the unit has not been analyzed through a land use planning process. Approximately 6,251 acres of the Pete's Wash unit possess wilderness characteristics.

Parcels (ID#) 034, 035, 036, and 037, are located within the Sheep Wash wilderness characteristics inventory unit. The Sheep Wash lands with wilderness characteristics unit was inventoried after the completion of the 2008 VFO RMP [BLM2008]. Therefore the unit has not been analyzed through a land use planning process. Approximately 8,805 acres of the Sheep Wash unit possess wilderness characteristics.

Table 3-5: Parcels within Wilderness Inventory Units	
Wilderness Inventory Unit	**Parcels**
Badlands Cliffs (11,858 acres)	037, 038, 041
Big Wash (7,566 acres)	027, 028, 029, 030
Currant Canyon (20,782 acres)	022, 024, 025, 032
Hideout Canyon (12,752 acres)	073, 079
Pete's Wash (6,251)	031A, 031B, 037, 039
Sheep Wash (8,805 acres)	034, 035, 036, 037

3.3.6 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. ERMA's generally cover all areas that are not designated as SRMAs. Popular

recreational destinations in the project area include Nine Mile SRMA, and Red Mountain-Dry Fork SRMA. In addition to SRMAs, the BLM VFO identified recreation interest points which due to factors such as location, recreational opportunities, and access, have been identified in the VFO RMP as potential developed recreation sites. Table 3-6 lists the parcels that are in or near SRMAs and recreation sites.

Table 3-6: Parcels in or Near SRMAs and Recreation Sites

Recreation Areas/Sites	Parcels	Recreation Features
Brough Reservoir Recreation Site	046	Brough Reservoir is an irrigation water impoundment reservoir located approximately 16 air miles southwest of Vernal UT. The reservoir is listed as a national blue ribbon fishery. Recreation activities on Brough reservoir are limited to mainly fishing. The VFO RMP has identified the Brough Reservoir Recreation Site as a potential future developed recreation site.
Chicken Springs Campsite	078, 079	Chicken Springs Campsite is an undeveloped dispersed camping area. The VRO RMP has identified the Chicken Springs site as a potential future developed recreation site.
Nine Mile SRMA	025, 031B, 039, 038	Recreation opportunities available to visitors within the Nine Mile SRMA include but are not limited to backpacking, camping, dirt biking, enjoying the natural and cultural features, four wheel driving, hiking, horseback riding, hunting, antler shed gathering, 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.
Pariette Campsite	044	Recreational opportunities within the Pariette Wetland include but are not limited to waterfowl hunting, big game hunting, fishing, birding, enjoying natural features, hiking, backpacking, operating OHV's, and scenic driving. The VFO RMP has identified the Pariette Wetlands as a potential future developed recreation site.
PR Springs Campsite	078	PR Springs Campsite is an undeveloped dispersed camping area. The VFO RMP had identified PR Springs site as a potential future developed recreation site.
Red Mountain-Dry Fork SRMA	049	Recreation opportunities available to visitors within the Red Mountain-Dry Fork SRMA include but are not limited to mountain biking, camping, hiking, operating off-highway vehicles (OHV), horseback riding, sightseeing, birding, scenic driving, and some winter sports such as cross country skiing. The Red Mountain-Dry Fork SRMA is managed to provide for maintenance and development of OHV or non-OHV trails as well as watershed values, relict vegetation communities, and crucial deer and elk winter habitat.

Table 3-6: Parcels in or Near SRMAs and Recreation Sites		
Recreation Areas/Sites	**Parcels**	**Recreation Features**
Red Mountain Recreation Site	049	The Red Mountain Recreation site is an area that occurs within the Red Mountain-Dry Fork SRMA, and the Vernal Utah urban interface due to the recreation resources as well as its proximity to Vernal Utah. This area is a minimally developed recreation area that the VFO RMP identified as a potential future developed recreation area.

3.3.7 Plants: Special Status Plant Species

BLM's 6840 policy is to ensure that actions authorized on BLM lands do not contribute to the need to list Sensitive species. The Utah BLM-Sensitive plant species presented in the table below, "BLM-Sensitive Plants," have populations and/or suitable habitat identified within the Project Area, or have the potential to be affected by the Proposed Action, per review of BLM GIS data. The parcels in which each species and/or its suitable habitat have been identified are listed in the table.

Table 3-7: BLM-Sensitive Plants			
Species	Status	Potential Occurrence and Habitat Type	Parcels
Astragalus equisolensis (horseshoe milkvetch)	BLM Sensitive	Duchesne River Formation in sagebrush, shadscale, horsebrush and other mixed desert shrub communities. 4800-5200 ft.	046, 047, 048, 052, 053, 054, 055, 063, 064, 065, 066, 067, 068, 069, 071, 072, 075
Astragalus hamiltonii (Hamilton milkvetch)	BLM Sensitive	Habitat includes eroding slopes of the Duchesne River, Wasatch, and less commonly Mowry Shale, Dakota, and other formations in desert shrub and pinyon-juniper plant communities from 5,500 to 6,740 ft.	046, 047, 049, 053, 054
Cryptantha barnebyi (Barneby's catseye)	BLM Sensitive	White semi-barren shale knolls of the Green River Formation in shadscale, rabbitbrush, sagebrush, and pinyon-juniper communities. 6000-7900 ft.	056
Cryptantha grahamii (Graham's catseye)	BLM Sensitive	Green River Shale in mixed desert shrub, sagebrush, pinyon-juniper, and mountain brush communities. 5000-7400 ft.	031A, 031B, 038, 039, 056
Lepidium huberi (Huber pepperplant)	BLM Sensitive	Sand or silty sands derived from the Chinle formation, and on the Park City and Weber Sandstone formations in sagebrush, snowberry, mountain mahogany,	049, 080, 081, 082, 083, 084, 085, 086, 087

Table 3-7: BLM-Sensitive Plants			
Species	Status	Potential Occurrence and Habitat Type	Parcels
		ponderosa pine, Douglas fir, lodgepole pine, and spruce-fir communities. 7300-9700 ft.	
Mentzelia goodrichii (Goodrich blazingstar)	BLM Sensitive	Steep, white, marly calciferous shale outcrops of the Green River formation with scattered limber pine, pinyon pine, Douglas fir, mountain mahogany, and rabbitbrush. 6440 - 8800 ft.	022, 023, 024
Thelesperma caespitosum Green River greenthread	BLM Sensitive	White shale benches and windswept slopes of the Green River and Uinta formation with pinyon and mountain mahogany. 5900-8400 ft.	022, 023, 024
Yucca sterilis (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. The parcels listed are known to contain suitable habitat for the species, based on documented populations.	Sandy soils in all parcels. 040, 042, , 044, 047, 048, 051, 052, 053, 054, 055, 056, 063, 065, 066, 067, 068, 070, 075, 077

3.3.8 Plants: Threatened, Endangered, or Candidate Plant Species

Five federally Threatened or Endangered (T&E) and two Proposed plant species occur in the project area. The five T&E species were analyzed for the 2008 RMP and are addressed in the Interdisciplinary Team Checklist in Appendix E. The two Proposed species presented in Table 3.7, "Threatened, Endangered, Proposed, and Candidate Plants," occur within the Project Area, have potential or suitable habitat identified within the Project Area, and / or have the potential to be affected by the Proposed Action, per BLM GIS data review. The U.S. Fish and Wildlife Service's proposal to list Graham's beardtongue and White River beardtongue were reinstated through a court order on October 25, 2016 (USDC Colorado. 10/25/16. Case 1:15-cv-00615-WJM Document 59). Plaintiffs and the co-signers to the Conservation Agreement for the two species were instructed to meet and discuss changes to the agreement with the objective of preventing them from being listed. Additional analysis for these two species is included in this EA because of this new information.

Table 3-8 Threatened, Endangered, Proposed, and Candidate Plants			
Species	**Status**	**Potential Occurrence and Habitat Type**	**Parcels**
Penstemon grahamii (Graham's beardtongue)	Proposed for Federal Listing	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 ft.	038
Penstemon scariosus var. *albifluvis* (White River beardtongue)	Proposed for Federal Listing	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.	056, 073

3.3.9 Visual Resources

The BLM uses Visual Resource Inventory (VRI) to inventory and Visual Resource Management (VRM) classifications to 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. VRM is set by the 2008 Vernal RMP. 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: Class I, Class II, Class III, and Class IV. These classes represent the relative value of the visual resources and provide the basis for considering visual values in land management (see Table 3-9).

Table 3-9 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 class III 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.
Class IV	The objective of Class IV is to provide for management activities that require major modifications to the existing character of the landscape. The level of change to the landscape can be high. The management activities may dominate the view and may be the major focus of viewer

Table 3-9 VRM Class Objectives	
VRM Class	**VRM Objective**
	attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic visual elements of form, line, color, and texture.

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. Class I has the highest value and is assigned to special management areas where a management decision has previously been made to maintain a natural landscape. 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. See Table 3-10 Visual Resource Management Class of Parcels for a listing of parcels by VRM Class as designated by the Vernal RMP. Note; some parcels may occur in multiple VRI classes and therefore may occur under more than one row in the VRI Class table.).

Table 3-10 Visual Resource Management Class of Parcels	
VRMClass	**Parcels**
Class I	None
Class II	022, 044, 069, 073, 078, 79, 83, 85, 86, 87
Class III	027, 028, 029, 030, 031A, 031B, 032, 038, 039, 044, 047, 048, 049, 052, 053, 054, 056, 059, 063, 064, 065, 066, 067, 071, 072, 074, 075, 076, 078, 080, 081, 082, 083, 084, 085, 086, 087
Class IV	027, 028, 029, 030, 033, 034, 035, 036, 040, 042, 045, 046, 047, 048, 052, 053, 054, 055, 056, 066, 067, 072, 074, 075, 076, 077, 080, 081, 082, 083, 084, 085, 086, 087

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-I. 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 routes or observation points.

VRI Classes II, III, and IV are determined based on a combination of scenic quality, sensitivity level, and distance-zone overlays to assign the appropriate class. Because VRM Class I is 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 3-11 below and reflect each parcel's Visual Resource Inventory Class recommendation. Note: some parcels may occur in multiple VRI classes and therefore may occur under more than one row in the VRI Class table.

Table 3-11 Visual Resource Inventory Class Objective of Lease Parcels	
VRI Class	**Parcels**
Class I	None
Class II	022, 023, 024, 030, 031A, 031B, 035, 036, 037, 038, 039, 044, 049, 055, 065, 069, 070
Class III	035, 038, 041, 043, 044, 048, 049, 052, 054, 056, 057, 058, 059, 060, 061, 062, 063, 064, 065, 069, 071, 130
Class IV	027, 028, 029, 030, 033, 034, 035, 036, 040, 042, 045, 046, 047, 048, 052, 053, 054, 055, 056, 066, 067, 072, 074, 075, 076, 077, 080, 081, 082, 083, 084, 085, 086, 087

Viewshed of Dinosaur National Monument

The Dinosaur National Monument is a U.S. National Monument located on the southeast flank of the Uinta Mountains on the border between Colorado and Utah, and encompasses approximately 210,844 acres. Managing for preservation, and drawing approximately 300,000 visitors annually, the Dinosaur National Monument provides substantial paleontological, historical, natural, scenic and recreational value/opportunities to the public as well providing an important socio economic benefit to the surrounding communities. Parcels 069, 070, and 071 occur in close proximity to the Dinosaur National Monument.

Parcel 069 is located approximately 3 miles west and directly adjacent to the border of the Dinosaur Monument and Visitor Center (KOP 1), and 1 mile north of 9500 E. (KOP2). Approximately 1,460 acres occur on BLM land with 40 acres within private land. Total anticipated disturbance for this parcel is 4 acres. Anticipated disturbance of 4 acres at the nearest point from KOP 1 would total .00027% field of vision intrusion to the average observer. Similarly the field of vision intrusion to the average observer for KOP 2 would be .0011%. Parcel 071 is located on private surface ownership, the BLM cannot regulate the level of development that occurs within parcel 071.

Parcel 070 is located approximately 2 miles south of the Dinosaur Monument Visitor Center (KOP 1), and 1.4 miles from 9500 E. (KOP 2). All 120 acres occur on private land with private surface ownership. Total anticipated disturbance for this parcel is 4 acres. Anticipated disturbance of 4 acres at the nearest point from KOP 1 would total .0027% field of vision intrusion to the average observer. Similarly the field of vision intrusion to the average observer for KOP 2 would be .0098%.

Parcel 071 is located approximately 5 miles southwest of the Dinosaur Monument Visitor Center (KOP 1), and .5 miles from 9500 E. (KOP 2). Approximately 1,175 acres occur on BLM land with 238 acres within private land. Total anticipated disturbance for this parcel is 1 acre.

Anticipated disturbance of 1 acre at the nearest point from KOP 1 would total .00019% field of vision intrusion to the average observer. Similarly the field of vision intrusion to the average observer for KOP 2 would be .0024%.

Parcels 065, 067, 072 are located within line-of-sight between 18 and 28 miles southwest of the Dinosaur Monument. Due to the distance and level of anticipated development for each of these parcels, proposed oil and gas development would account for 0.00041% of the average person's field of view obstruction if viewed from the Dinosaur Monument visitor Center. Anything below .5% obstruction will not attract the attention to the casual observer (see KOP 1 & 2 viewshed maps).

3.3.10 Wildlife: BLM Sensitive Species and Migratory Birds

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 Endangered Species Act (ESA). Based on the Utah BLM Sensitive Fish and Wildlife Species List – December 20, 2010, 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 VFO has used available data sources to determine if the parcels fall within known habitat for BLM Sensitive Species After site-specific review, it has been determined that the BLM Sensitive Species listed in Table 3-12, "Wildlife: BLM Sensitive Species and their Associated Habitats" may occur within the project area or be affected by the Proposed Action.

Table 3-12: Wildlife: BLM Sensitive Species and their Associated Habitats

Species	Status	Habitat Type	Associated Parcels
MAMMALS			
Townsend's big-eared bat, Spotted bat, Allen's big-eared bat, Western red bat, Fringed myotis, Big free-tailed bat	BLM Sensitive Species	These species potentially occur throughout Utah. Sixteen species of bat have been captured or detected in Uintah County in the Book Cliffs area. The only two bats that have not been detected or captured in the area are the Western red bat and Allen's big-eared bat. Habitat for these sensitive species are present within the proposed project areas.	All Parcels
White-tailed Prairie Dog	BLM Sensitive Species	White-tailed prairie dogs require deep, well-drained soils for	25, 30, 31A, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 44,

Table 3-12: Wildlife: BLM Sensitive Species and their Associated Habitats			
Species	**Status**	**Habitat Type**	**Associated Parcels**
		development of burrows. A majority the WTPD habitat occurs in semi-arid to arid areas with mixed stands of shrubs and grasses.	45, 46, 47, 48, 49, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 74, 75, 76, 77, 80, 81, 82, 83, 84, 85, 86, 87, 103
BIRDS			
Greater Sage-Grouse	BLM Sensitive Species	Breeds and nest in sagebrush dominate shrublands. Considered a sagebrush obligate species. Year-long resident of sagebrush steppe habitats.	See Table 4-10
Grasshopper sparrow, bobolink, Lewis' woodpecker, long-billed curlew, and American three-toed woodpecker.	BLM Sensitive Species	Variety of habitats.	All Parcels
Amphibians			
Great Plains Toad	BLM Sensitive Species	Found in damp areas in open grasslands, deserts, semi-desert shrublands, open floodplains and farm fields.	All Parcels
Reptiles			
Smooth Green Snake	BLM Sensitive Species	Found in marshes, meadows, open woods, and stream edges.	All Parcels

Migratory Birds (including BLM Sensitive and USFWS Birds of Conservation Concern):

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

habitats, and to reduce the likelihood of a sensitive bird species from being listed under the Endangered Species Act.

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

In addition to the BLM Sensitive Species identified in Table 3-12 , the BLM considers impacts to USFWS Birds of Conservation Concern. The following USFWS Birds of Conservation Concern have potential to occur within the lease parcels: Brewer's sparrow, Cassin's finch, pinyon jay, juniper titmouse, veery, American bittern, gray vireo.

The Project Area is within the USFWS Bird Conservation Region 16, Southern Rockies/Colorado Plateau. Lease parcels also overlap with the 2005 Intermountain West Joint Venture (IWJV 2005) Red Mountain, Upper Green River, Green River, and Pariette Wetlands Bird Habitat Conservation Areas.

White-tailed Prairie Dogs:

Most of the parcels are located within known habitat and existing colonies of white-tailed prairie dog (WTPD). WTPDs are listed as a sensitive species within the State of Utah and by BLM and are currently undergoing a 12-month Endangered Species Act (ESA) review/finding with the USFWS (https://www.fws.gov/endangered/what-we-do/listing-workplan.html). WTPDs are a rodent species that inhabit regions of eastern Utah and portions of Wyoming, Colorado, and Montana. In Utah, the WTPD can be found at approximately 1280-2438 m in elevation (Boschen 1986 and Cranney and Day 1994). They form colonies that are typically a few acres, but can range up to several hundred acres (Messmer et al. 1993). WTPD often colonize in irregular patterns over the landscape (Lupis et al. 2007). This irregular mosaic pattern of distribution makes accurate mapping of colony boundaries difficult, thus, accurate occupied habitat is hard to estimate, so suitable habitat is mapped using topographic features, substrate variation or the best estimate of the investigator (Seglund et al. 2004).

Populations of WTPD can fluctuate by more than 50% between consecutive years, which is likely due to vegetation quality and quantity and disease cycles (Menkens 1987 and Lupis et al. 2007). WTPD are mainly herbivorous and obtain most of their needed water from the plants they eat (Lupis et al. 2007). WTPDs can become water stressed during their active season, thus the presence of succulent vegetation may be crucial for prairie dogs to gain sufficient weight to guarantee winter survival and sustaining of WTPD populations (Beck 1994 and Lupis et al. 2007). Plague may also be another reason that colonies show such dramatic fluctuations in densities and shifts in occupied habitats (Seglund et al. 2004). Research on plague epizootics

and its effects on WTPD decline and management are still on going and remain a critical question for future management in WTPD conservation (Seglund et al. 2004).

In Utah, WTPD colonies provide habitat for many other vertebrate species, such as burrowing owl and the experimental non-essential endangered black-footed ferret populations in Coyote Basin, Kennedy Wash, and Snake John complexes (Clark et al. 1982 and Seglund et al. 2004). WTPD also serve as a food source for multiple predators, such as ferruginous hawk, golden eagle and coyote. WTPD reproduction generally occurs in late February with young born in late April to early May and the juveniles emerging above ground around the beginning of late May and June (Seglund et al. 2004). WTPDs generally hibernate for 4 to 5 months during the winter and may aestivate during mid to late summer. However, in the Uinta Basin WTPD have been recorded to be active nearly any time of the year even during harsh winters (Hollister 1916, Tileston and Lechleitner 1966, Bakko and Brown 1967, Pizzimenti 1976, Harlow and Menkens 1986, B. Maxfield, UDWR, pers. comm. 2017). It has been observed that winter hibernation and summer aestivation timing patterns often varies with latitude and elevation (Hollister 1916, Tileston and Lechleitner 1966, Bakko and Brown 1967, Pizzimenti 1976, Harlow and Menkens 1986, Seglund et al. 2004).

Several of the limiting factors that were identified for WTPD populations in Utah are disease (i.e. sylvatic plague), changing plant communities and drought (i.e. cheatgrass), and human disturbance (i.e. oil and gas development, agricultural conversion and recreational shooting) (Seglund et al. 2004). Oil and gas development within the Vernal Field Office is extensive and has been identified as a threat to WTPDs in Utah (Seglund et al. 2004). Disturbance from potential development of the parcels will displace WTPD from burrows, foraging areas, reduce prey species, influence predator species, and loss of habitat may occur. The majority of the parcels have or have high potential for WTPD habitat and active colonies.

Greater Sage-Grouse (GRSG):

Parcel Prioritization in GRSG Habitat

The Record of Decision for the Great Basin GRSG Sub-Regions includes a prioritization objective that aims to:

> *…Prioritize oil and gas leasing and development outside of identified PHMAs and GHMAs to further limit surface disturbance and to encourage new development in areas that would not conflict with GRSG. This objective is intended to guide development to lower conflict areas and, as such, protect important habitat and reduce the time and cost associated with oil and gas leasing development. It would do this by avoiding sensitive areas, reducing the complexity of environmental review and analysis of potential impacts on sensitive species, and decreasing the need for compensatory mitigation.* (1-23)

In September 2016, BLM issued Washington Office Instruction Memorandum (IM) No. 2016-143, Implementation of Greater Sage-Grouse Resource Management Plan Revisions or Amendments – Oil & Gas Leasing and Development Sequential Prioritization, to provide guidance on implementing the prioritization objective. The IM clarified:

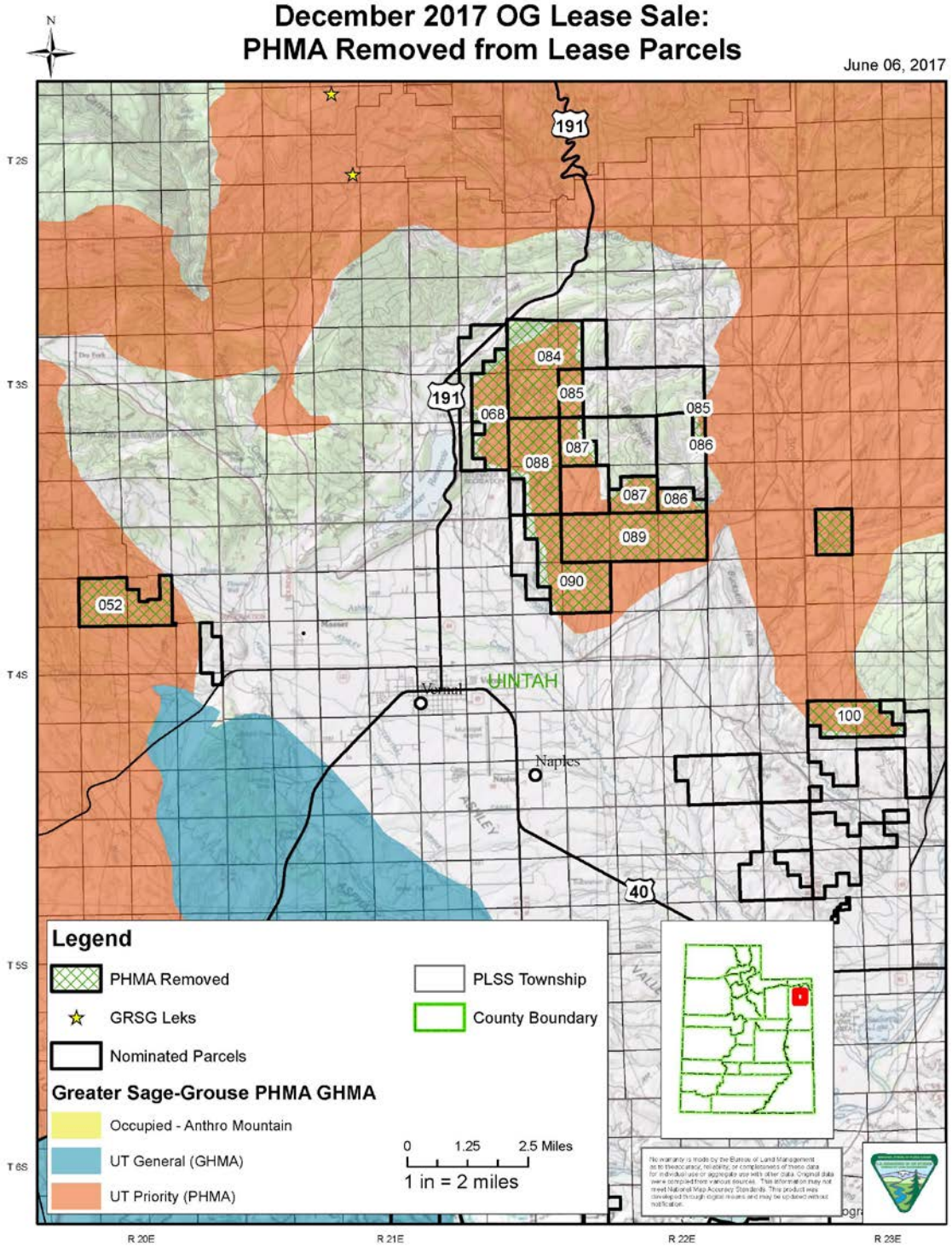
This guidance is not intended to direct the Authorized Officer to wait for all lands outside GRSG habitat areas to be leased or developed before allowing leasing within GHMAs, and then to wait for all lands within GHMAs to be leased before allowing leasing or development within the next habitat area (PHMA, for example). Rather it is intended to ensure consideration of the lands outside of GHMAs and PHMAs for leasing and development before considering lands within GHMAs and, thereafter, to ensure consideration of lands within GHMAs for leasing and development before considering any lands within PHMAs for leasing and development in an effort to focus future surface disturbance outside of the most important areas for sage-grouse conservation consistent with the conservation objectives and provisions in the GRSG Plans. (2) … *BLM state offices will use this* Prioritization Sequence*, these parcel-specific factors, and the BLM's workload capacity and other workload priorities as they determine work plans for the oil and gas leasing program.* (5)

In the process of preparing a lease sale, the Utah State Office sends a draft parcel list to each field office where the parcels are located. The Utah State Office compiled the draft parcel list from 102 parcels in the Vernal and Price Field Offices that were deferred from the previous year's (December 2016) lease sale. Of those 102 parcels, the Utah State Office first identified between 35 and 40 parcels outside GRSG habitat to forward for field office consideration. Then, based on an assessment of the field office staff's additional workload capacity, the Utah State Office added additional parcels with GHMA to the draft parcel list, as well as some parcels with small slivers of PHMA. Those parcels with PHMA are discussed below. Out of the 112,609.49 acres reconsidered from the deferred lands, the Utah State Office pulled from the draft parcel list 11,286.02 acres of PHMA and 2,662.31 acres for tar sands and cultural resource conflicts. In keeping with the guidance in IM 2016-143, this process ensured that no appropriate parcels outside of GRSG habitat were excluded from consideration. Proposed parcels were then evaluated against several of the prioritization factors as outlined in IM 2016-143. Table 3-13 summarizes these factors for the 47 sage grouse parcels, where parcels meeting the most factors are organized towards the top. Map 3-1 depicts parcels containing PHMA that were not forwarded to the Vernal Field Office on the draft parcel list.

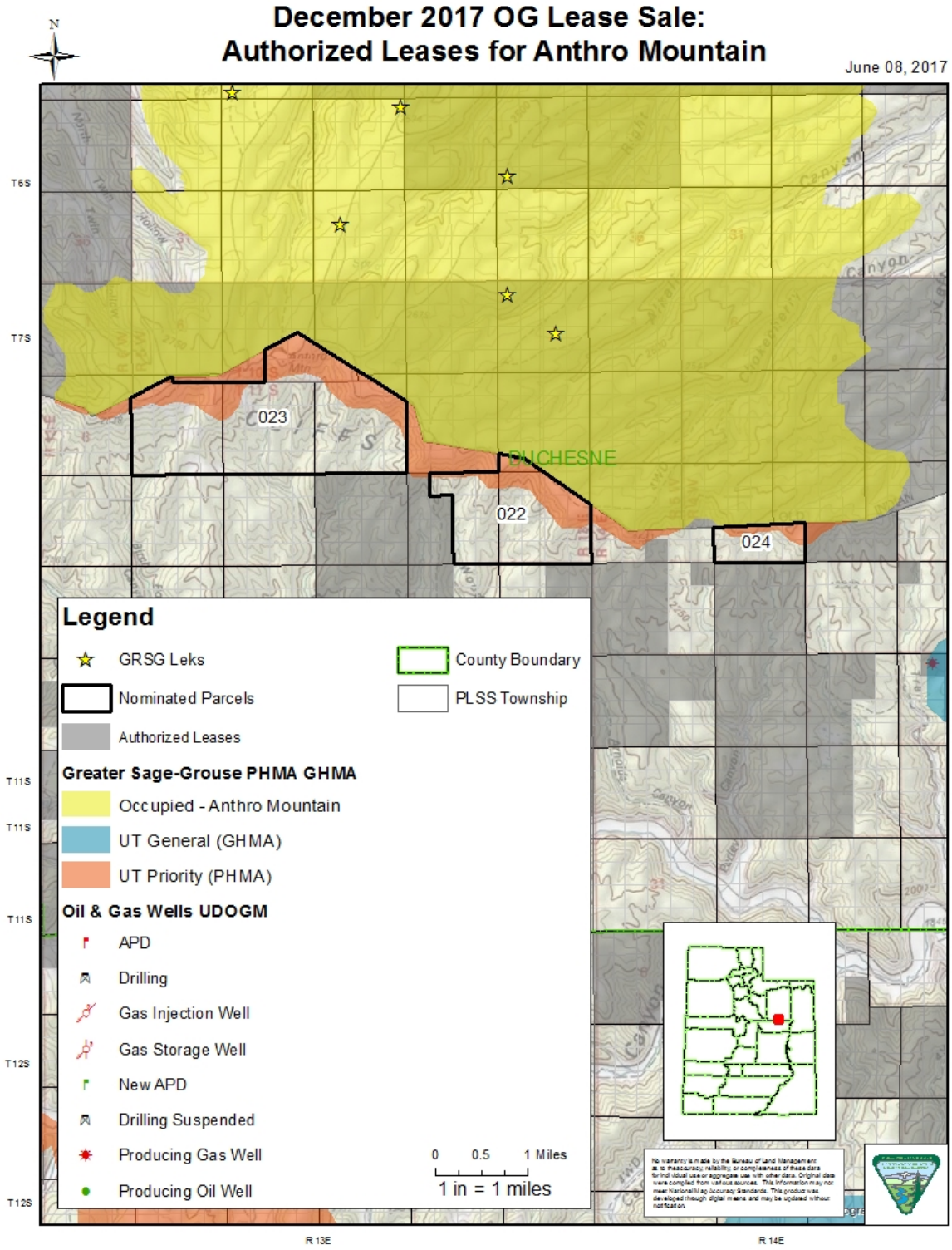
Table 3-13: **Relationship of the 47 parcels within GRSG habitat to oil and gas prioritization considerations**

Nominated Parcel #[1]	Adjacent Existing Lease?	Within Existing OG Unit?	Within Field-Developed EIS?	High Gas Potential > 36 Bcf	High Oil Potential > 710 Bcf
035	Y	Y	Y	Y	Y
041	Y	Y	Y	Y	Y
077	Y	Y	Y	Y	Y
038	Y	Y/N	Y	Y/N	Y
046	Y	Y/N	Y	Y	Y
033	Y	Y	Y	Y/N	Y
075	Y	Y/N	N	Y	Y
025	Y	Y	N	Y	Y
030	Y	Y	Y	N	Y
031A	Y	Y	Y	N	Y

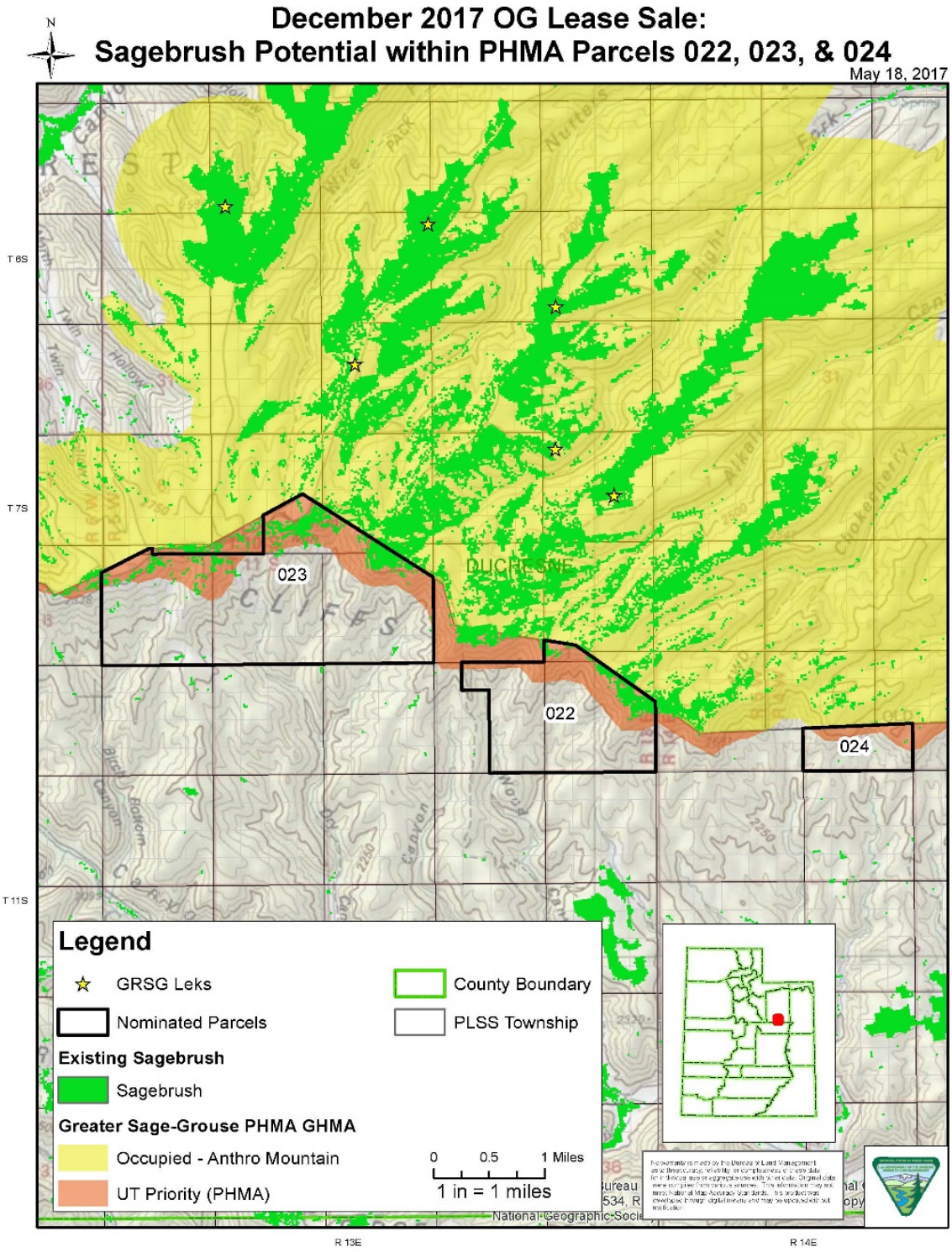
Table 3-13: Relationship of the 47 parcels within GRSG habitat to oil and gas prioritization considerations					
Nominated Parcel #[1]	**Adjacent Existing Lease?**	**Within Existing OG Unit?**	**Within Field-Developed EIS?**	**High Gas Potential > 36 Bcf**	**High Oil Potential > 710 Bcf**
032	Y	Y	Y	N	Y
034	Y	Y	Y	Y/N	N
037	Y	Y	Y	N	Y
039	Y	Y	Y	N	Y
053	Y	Y	N	Y/N	Y
056	Y	Y	N	Y/N	Y
047	Y	N	Y	Y/N	Y
052	Y	N	N	Y/N	Y
054	Y	N	N	Y/N	Y
073	Y	N	N	Y	Y
074	Y	N	N	Y	Y
076	Y	N	N	Y	Y
078	Y	N	N	Y	Y
079	Y	N	N	Y	Y
086	Y	N	N	Y/N	Y/N
022	Y	N	N	N	Y
023	Y	N	N	N	Y
024	Y	N	N	N	Y
071	Y	N	N	Y/N	N
087	N	N	N	Y/N	Y/N
084	N	N	N	Y/N	Y/N
069	Y	N	N	N	N
080	N	N	N	Y/N	N
081	N	Y/N	N	N	N
085	N	N	N	Y/N	N
045	N	N	N	N	N
049	N	N	N	N	N
057	N	N	N	N	N
058	N	N	N	N	N
059	N	N	N	N	N
060	N	N	N	N	N
061	N	N	N	N	N
062	N	N	N	N	N
070	N	N	N	N	N
082	N	N	N	N	N
083	N	N	N	N	N
103	N	N	N	N	N
[1] A 'Y/N' value indicates that the parcel was both within and outside of designated boundary.					



Map 3-1 PHMA clipped from proposed lease parcels as part of prioritization factors from IM 2016-143 Lease parcels 049, 058, 059, 062, and 069 contain slivers of PHMA, totaling 20 acres, which are on the periphery of mapped GRSG range. Based on site visits, location, and aerial imagery, the majority of these areas are marginal habitat. Parcels 022, 023, and 024 lie against the south cliff-side of the Anthro Mountain GRSG population (Map 3-2 and Map 3-3), and contain approximately 932 acres of PHMA.



Map 3-2 Proposed Anthro Mountain lease parcels in relationship to PHMA and authorized leases.



Map 3-3: Proposed Anthro Mountain lease parcels in relationship to PHMA and modeled LANDFIRE sagebrush cover.

These Anthro Mountain parcels are immediately adjacent to existing oil and gas leases, which is identified as the most important parcel-specific "factor to consider" (IM 2016-143) when

configuring quarterly lease sales. Using LANDFIRE EVT and BPS data, aerial imagery, and lek data, the BLM observed that these acres are mainly composed of a pinyon-juniper woodland and mixed mountain shrub community, where sagebrush is completely absent or a minor component in the landscape. The BLM determined that these PHMA acres were not conducive to GRSG habitat because of these vegetative characteristics and extreme hill-slopes, so they were carried forward for detailed consideration (Map 3-3). The leasing team visited these sites on May 8, 2017 to ground truth these observations. Photos of these parcels are presented in Appendix F.

The following maps provide additional supporting documentation for this section and can be found in the NEPA Register project page.

- Maps 3-4—3-7 show the proposed lease parcels in relation to the BSUs, PHMA, GHMA, and Opportunity area boundaries.
- Maps 3-8—3-10 show the proposed lease parcels in relation to brood-rearing or winter habitat and GRSG leks as per the Utah Division of Wildlife habitat layers.
- Maps 3-11—3-14 show the proposed lease parcels in relationship to existing authorized oil and gas lease parcels and development.
- Maps 3-15—3-17 show the proposed lease parcels in relationship to Federal oil and gas units and oil and gas densities.
- Map 3-18 shows modeled disturbance in relation to BSUs.
- Map 3-19 shows GRSG habitat presence based on mapped LANDFIRE of sagebrush and conifer cover.

Description of Parcels in GRSG Habitat

BLM's 2015 *Record of Decision and Approved Resource Management Plan Amendments for the Great Basin Region* (GRSG ROD) and the *Utah Greater Sage-grouse Approved Resource Management Plan Amendment* (ARMPA) (BLM 2015) identified three population areas (Biologically Significant Units, or BSU) within the Green River District: the Uintah, Strawberry, and Carbon (Map 3-4). Within these population areas, GRSG habitat is classified between Priority Habitat Management Areas (PHMA) and General Habitat Management Areas (GHMA) (Maps 3-5—3-7). PHMA are BLM-administered lands identified as having the highest value for maintaining sustainable GRSG populations and include breeding, late brood-rearing, winter concentration areas, and migration or connectivity corridors, while GHMA are BLM-administered lands that include areas of occupied seasonal or year-round habitat outside of PHMA (ARMPA 5-7 and 5-15). Additionally, MA-SSS-6 in Utah's ARMPA identifies management actions that BLM should consider when projects are proposed outside GHMA or PHMA, but within State of Utah Sage-Grouse Management Areas (SGMA), including opportunity areas, and USFWS priority areas for conservation (PAC), as well as adjacent to PHMA outside those areas (ARMPA 2-13 2-14). As discussed in the GRSG ROD, "The purpose of this action is to provide direction for managing areas outside PHMAs and GHMAs that have been treated to improve GRSG habitat" (2-11). BLM has identified where parcels contain these opportunity areas, or "those portions of a GRSG management area that currently do not contribute to its life cycle but are where restoration and rehabilitation can provide additional habitat when linked to existing GRSG populations" (ARMPA, 5-13 to 5-14), in Table 3-14.

Site visits for all 64 parcels were completed between April 6 and May 8, 2017. During site visits a visual assessment was made to confirm the extent of the mapped PHMA and GHMA boundaries within each parcel (see Appendix F for site photos). Of the 64 proposed lease parcels, 9 parcels include portions of PHMA totaling 952.26 acres, 33 parcels include portions of GHMA totaling 30,371.50 acres, and 11 parcels contain opportunity areas totaling 7,203.48 acres. GHMA acreage accounts for approximately 47% of the total acreage offered for lease (Table 3-14). Of the 47 parcels containing GHMA, PHMA, or opportunity areas, 30 parcels are adjacent to existing leases and 8 parcels are proximate to existing leases. Lek buffer guidelines for GRSG are outlined in the stipulations and notices for applicable parcels (Appendix A). Lek buffers help protect critical breeding and nesting grounds from disturbance and degradation. None of the 47 parcels are within the 0.25 or 0.5 mile buffer zone of a known lek, however there are 7 parcels within a 2 mile buffer to known leks (Table 3-15).

- Table 3-14 summarizes the percent acres of PHMA, GHMA, Opportunity areas, and Fluid Mineral leasing categories for the 47 parcels overlapping identified GRSG habitat.
- Table 3-15 summarizes the percent acres of GRSG habitat type (winter vs brood-rearing), and lek buffer intersection for the 47 parcels overlapping identified GRSG habitat.

Table 3-14: Percent Acres of PHMA, GHMA, SGMA Opportunity, and Fluid Mineral Lasing Categories

Nominated Parcel #	Nominated Acres	PHMA (%)	GHMA (%)	SGMA (%) Opportunity	Open (%)*	CSU (%)*	NSO (%)*
022	980.79	28.17	0.00	0.00	---	---	28.17
023	2,125.03	27.59	0.00	0.00	---	---	27.59
024	258.40	26.73	0.00	0.00	---	---	26.73
025	800.00	0.00	13.78	0.00	12.07	---	1.7
030	1,020.76	0.00	61.46	0.00	61.46	---	---
031A	1,761.40	0.00	70.47	0.00	70.47	---	---
032	1,122.72	0.00	36.22	0.00	36.22	---	---
033	2,199.60	0.00	74.31	0.00	74.31	---	---
034	2,080.00	0.00	68.92	0.00	68.92	---	---
035	600.00	0.00	87.94	0.00	87.94	---	---
037	80.00	0.00	13.34	0.00	13.34	---	---
038	2,234.48	0.00	26.42	0.00	26.42	---	---
039	853.78	0.00	56.23	0.00	56.23	---	---
041	359.20	0.00	100.00	0.00	100	---	---
045	290.76	0.00	0.00	99.05	---	---	---
046	859.60	0.00	99.72	0.00	99.72	---	---
047	1,920.00	0.00	101.12	0.00	64.01	11.72	---
049	840.16	0.89	0.00	99.03	---	< 0.01	0.89
052	1,794.16	0.00	99.21	0.00	24.90	74.71	0.49
053	1,155.38	0.00	100.09	0.00	5.0	95.05	---
054	1,401.43	0.00	85.54	0.00	66.61	17.73	---

Table 3-14: Percent Acres of PHMA, GHMA, SGMA Opportunity, and Fluid Mineral Lasing Categories							
Nominated Parcel #	**Nominated Acres**	**PHMA (%)**	**GHMA (%)**	**SGMA (%) Opportunity**	**Open (%)***	**CSU (%)***	**NSO (%)***
056	1,280.00	0.00	90.30	0.00	2.93	87.36	---
057	320.00	0.00	0.00	100.94	---	---	---
058	1,566.14	0.29	0.00	99.10	0.29	---	---
059	903.32	0.56	0.00	99.36	0.56	---	---
060	1,080.00	0.03	0.00	100.00	---	---	---
061	144.64	0.00	0.00	100.00	---	---	---
062	478.28	0.10	0.00	99.65	< 0.01	---	---
069	1,460.54	0.19	0.00	95.96	< 0.01	---	---
070	120.04	0.00	0.00	100.00	---	---	---
071	1,175.42	0.00	0.00	7.50	---	---	---
073	760.00	0.00	2.15	0.00	---	2.15	---
074	320.00	0.00	99.96	0.00	---	99.96	---
075	720.00	0.00	99.80	0.00	---	99.80	---
076	360.00	0.00	76.46	0.00	---	76.46	---
077	552.49	0.00	100.00	0.00	100	---	---
078	905.62	0.00	98.25	0.00	---	98.25	---
079	959.23	0.00	50.57	0.00	---	50.57	---
080	2,141.56	0.00	99.70	0.00	99.70	---	---
081	2,395.57	0.00	60.15	0.00	57.53	2.62	---
082	1,574.63	0.00	1.79	0.00	---	1.79	---
083	1,920.00	0.00	56.41	0.00	38.3	18.11	---
084	2,560.00	0.00	45.98	0.00	38.25	7.73	---
085	2,370.88	0.00	91.08	0.00	39.14	51.82	---
086	1,920.00	0.00	100.00	0.00	23.57	76.5	---
087	1,520.00	0.00	100.21	0.00	78.05	22.16	---
103	160.00	0.00	82.98	0.00	---	---	---

***Fluid Mineral leasing categories pulled from the UT ARMPA Figure 2-4 where Open is open for leasing with standard stipulations, Controlled Surface Use (CSU) is open with moderate stipulations, No Surface Occupancy (NSO) is open with major stipulations, and '---' indicates not classified.**

Table 3-15: Percent Acres of GRSG habitat type (winter or brood-rearing), and lek buffer intersection						
Nominated Parcel #	**Nominated Acres**	**Winter (%)**	**Brood-rearing (%)**	**2-mile Lek Buffer (%)**	**3.1-mile Lek Buffer (%)**	**4-mile Lek Buffer (%)**
022	980.79	28.17	28.17	39.19	100.00	100.00
023	2,125.03	27.59	27.59	26.22	93.11	100.00
024	258.40	26.73	26.73	0.00	37.5	100.00

Table 3-15: Percent Acres of GRSG habitat type (winter or brood-rearing), and lek buffer intersection						
Nominated Parcel #	**Nominated Acres**	**Winter (%)**	**Brood-rearing (%)**	**2-mile Lek Buffer (%)**	**3.1-mile Lek Buffer (%)**	**4-mile Lek Buffer (%)**
025	800.00	13.78	13.78	0.00	0.00	0.00
030	1,020.76	61.17	61.17	100.00	0.00	0.00
031A	1,761.40	70.47	70.47	0.00	0.00	0.00
032	1,122.72	36.22	36.22	0.00	0.00	0.00
033	2,199.60	74.31	74.31	0.00	0.00	0.00
034	2,080.00	68.92	68.92	0.00	0.00	0.00
035	600.00	87.94	87.94	0.00	0.00	0.00
037	80.00	13.34	13.34	0.00	0.00	0.00
038	2,234.48	26.42	26.42	0.00	0.00	0.00
039	853.78	56.23	0.00	0.00	0.00	0.00
041	359.20	100.00	100.00	0.00	1.00	0.00
045	290.76	0.00	0.00	0.00	0.00	0.00
046	859.60	70.51	100	0.00	0.00	52.00
047	1,920.00	66.03	100	0.00	2.00	78.00
049	840.16	0.00	0.89	0.00	0.00	0.00
052	1,794.16	84.16	100	45.53	88.15	100.00
053	1,155.38	98.77	100	8.50	92.96	100.00
054	1,401.43	31.98	85.54	0.70	51.46	100.00
056	1,280.00	0.00	90.30	0.00	0.00	0.00
057	320.00	0.00	0.00	0.00	0.00	0.00
058	1,566.14	< 0.01	< 0.01	0.00	0.00	0.00
059	903.32	< 0.01	< 0.01	0.00	0.00	0.00
060	1,080.00	0.00	0.00	0.00	0.00	0.00
061	144.64	0.00	0.00	0.00	0.00	0.00
062	478.28	0.00	< 0.01	0.00	0.00	0.00
069	1,460.54	< 0.01	< 0.01	0.00	0.00	0.00
070	120.04	0.00	0.00	0.00	0.00	0.00
071	1,175.42	0.00	0.00	0.00	0.00	0.00
073	760.00	0.00	2.15	0.00	0.00	0.00
074	320.00	99.96	99.96	0.00	25.75	100.00
075	720.00	99.80	99.80	0.00	0.00	0.00
076	360.00	76.46	76.46	0.00	0.00	0.00
077	552.49	100.00	100.00	0.00	0.00	0.00
078	905.62	0.00	98.25	0.00	0.00	0.00
079	959.23	0.00	50.57	0.00	0.00	0.00
080	2,141.56	99.70	99.70	0.00	0.00	0.00

Table 3-15: Percent Acres of GRSG habitat type (winter or brood-rearing), and lek buffer intersection						
Nominated Parcel #	**Nominated Acres**	**Winter (%)**	**Brood-rearing (%)**	**2-mile Lek Buffer (%)**	**3.1-mile Lek Buffer (%)**	**4-mile Lek Buffer (%)**
081	2,395.57	60.15	60.15	0.00	0.00	3.90
082	1,574.63	1.79	1.79	0.00	4.90	54.23
083	1,920.00	56.41	56.41	0.00	0.00	20.02
084	2,560.00	45.98	45.98	24.1	81.62	100.00
085	2,370.88	91.08	91.08	0.00	0.00	0.00
086	1,920.00	100.00	100.00	0.00	0.00	0.02
087	1,520.00	100.00	100.00	0.00	36.45	76.65
103	160.00	0.00	82.98	0.00	0.00	71.91

CHAPTER 4 – ENVIRONMENTAL IMPACTS

4.1 INTRODUCTION

This chapter discusses the environmental consequences of implementing the alternatives described in Chapter 2. Under NEPA, actions with the potential to affect the quality of the human environment must be disclosed and analyzed in terms of direct and indirect impacts—whether beneficial or adverse and short or long term—as well as cumulative impacts. Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts 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 impacts are the effects on the environment that result from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions.

4.2 DIRECT AND INDIRECT IMPACTS

No direct impacts would occur from the Proposed Action of leasing but indirect impacts could be expected from potential development of the leases. For each resource described in Ch. 3, a reasoned analysis is included containing quantitative or detailed qualitative information, i.e. a "hard look" concerning the direct and indirect impacts to the resource from leasing and potential development. Assumptions about the types and intensities of development are outlined in Chapter 2 and Appendix D. The impacts of stipulations are described here as design features of the Proposed Action and not as mitigation.

Lease notices are information notice that has no legal consequences, except to give notice of existing requirements." (43 CFR 3101. 1-3). Lease notices cannot require new restrictions or requirements to mitigate potential impacts beyond those supported by the standard lease terms, law, or regulations.

Each section may include a discussion of the potential Conditions of Approval that could be applied at the APD stage to further mitigate any impacts. These are potential mitigation measures based on the impacts seen in the site specific analysis, are not attached to the lease, and not part of this decision.

4.2.1 Air Quality

4.2.1.1 Impacts of No Action Alternative

The No Action alternative would not result in potential impacts to air quality because the parcels would not be leased, and therefore, not developed.

4.2.1.2 Impacts of Proposed Action Alternative

The act of leasing would not result in changes to air quality. However, should the parcels be leased, development of those leases could impact air quality conditions. It is not possible to

accurately estimate potential air quality impacts by modeling 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.

Should development on the parcels be proposed, and prior to authorizing specific proposed projects on the subject leases, emission inventories would need to be developed. Air quality dispersion modeling, which may also be required at that time, includes direct and 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). 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. To determine RFD emissions, multiply the below numbers by the 135 assumed wells.

Table 4-1 Anticipated Emissions Per Well[1] (tons per year)

Pollutant	Development	Production	Total
NO_X	14.2	2.2	16.4
CO	3.2	3.2	6.4
SO_X	0.9	0	0.9
PM_{10}	0.7	0.03	0.73
$PM_{2.5}$	0.3	0.01	0.31
VOC	2.4	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

[1] Emissions included one producing well and associated operations traffic during the year in which the project is developed.

Well development includes NO_x, SO_2, 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_X and CO emissions, with lesser amounts of SO_2. These emissions would be short-term during the drilling completion phases.

During well production, continuous NO_X, CO, VOC, and HAP emissions would originate from well pad separators, condensate storage tank vents, dehydrators, wellhead heaters and daily tailpipe and fugitive dust emissions from operations traffic. Road dust (PM_{10} and $PM_{2.5}$) would also be produced by vehicles servicing the wells.

The primary sources of HAPs are from 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 per well.

The BLM has developed Best Management Practices (BMPs), which are mitigation measures applied to oil and natural gas drilling and production to help ensure that energy development is conducted in an environmentally responsible manner. The BLM encourages industry to incorporate and implement BMPs to reduce impacts to air quality through reduction of emissions, surface disturbances, and dust from field production and operations. Typical measures include:

- Open burning of garbage or refuse would not occur at well sites or other facilities;
- Drill rig would be equipped with Tier II or better diesel engines;
- Vent emissions for stock tanks and natural gas TEG dehydrators would be controlled by routing the emission to a flare or similar control device which would reduce emissions by 95% or greater;
- All internal combustion equipment would be kept in good working order;
- Flared hydrocarbon gases at high temperatures in order to reduce emissions of incomplete combustion through the use of multi-chamber;
- Watering dirt roads during periods of high use to reduce fugitive dust emissions;
- Co-location wells and production facilities to reduce new surface disturbances;
- Use of natural gas fired or electric drill rig engines;
- The use of selective catalytic reducers and low-sulfur fuel for diesel-fired drill rig engines;
- Adherence to BLM's Notice to Lessees' (NTL) 4a concerning the venting and flaring of gas on Federal leases for natural gas emissions that cannot be economically recovered;
- Protecting hydraulic fracturing sand from wind erosion;
- Implementation of directional drilling and horizontal completion technologies whereby one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores;
- Requiring that vapor recovery systems be maintained and functional in area where petroleum liquids are stored; and
- Preforming interim reclamation to reclaim area of the pad not required for production facilities and to reduce the amount of dust form the pads

Additionally, the BLM encourages oil and natural gas companies to adopt other proven, cost-effective technologies and practices that improve operational efficiency and reduce natural gas emissions.

In October 2012, the EPA promulgated air quality regulations for completion of hydraulically fractured gas wells [EPA 2015]. These rules include measures that reduced the emissions of volatile organic compounds during gas well completions, for example utilizing a process known as a "green" completion in which natural gas brought up during flow back is captured in tanks rather than in open fluid pits. Other measures to reduce emissions are included in the EPA's Natural Gas STAR program. The EPA U.S. inventory data shows that industry's implementation

of BMPs proposed by the EPA's Natural Gas STAR program has reduced emissions from oil and gas exploration and development [EPA 2016b].

Application of Stipulation UT-S-01 and Notices UT-LN-99 and UT-LN-102 to each of the leases 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 through application of BMPs and other technologies that may improve operational efficiency and reduce natural gas emissions.

4.2.2 Areas of Critical Environmental Concern

4.2.2.1 Impacts of No Action Alternative

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

4.2.2.2 Impacts of Proposed Action Alternative

The issuance of leases would not directly impact the ACECs relevance and importance values. 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. No Surface Occupancy, controlled surface use, and timing limitation stipulations UT-S-21, UT-S-23, UT-S-11, and UT-S-25 would be applied to each parcel within their respective ACEC in order to mitigate impacts of gas development on ACEC values. Refer to the respective resource sections within this document for specific impacts to ACEC relevance and importance values (e.g., impacts to scenic resources are discussed within the Visual Resources section).

Lears Canyon ACEC

The relevant and important value associated with the Lears Canyon ACEC is relict vegetation. Parcel 022 occurs marginally within the ACEC, and will be subject to lease stipulation UT-S-21: No Surface Occupancy. No impacts to relict vegetation will therefore occur.

Nine Mile Canyon ACEC

The relevant and important value of scenery 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. Parcel 025 occurs marginally within the ACEC; approximately 12 acres located in the southwest corner of parcel 025, west of the Rye Patch Road would be subject to lease stipulation UT-S-23: 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.

Pariette Wetland ACEC

The relevant and important values associated with the Pariette Wetlands ACEC are special status birds and plant habitat, and wetlands ecosystem. Parcel 044 occurs within the Pariette Wetlands ACEC and would be subject to lease stipulation UT-S-11: No surface occupancy will be allowed

within the Pariette Wetlands ACEC. Therefore, no impacts are anticipated to the ACEC values from the proposed action.

Red Mountain-Dry Fork ACEC
The relevant and important values associated with the Red Mountain-Dry Fork ACEC are relict plant communities, high value archaeological and paleontological sites, watershed, and crucial deer and elk habitat. Parcel 049 occurs within the Red Mountain-Dry Fork ACEC and would be subject to stipulation UT-S-25: No surface occupancy for oil and gas leasing within approximately 1,988 acres within Red Mountain-Dry Fork Complex ACEC. Approximately 21,802 acres will be open to leasing subject to moderate constraints such as timing limitations and controlled surface use.

Table 4-2 Areas of Critical Environmental Concern		
ACEC	**Lease Notice or Stipulation**	**Parcel**
Nine Mile Canyon	UT-S-23 - No Surface Occupancy/Controlled Surface Use/Timing Limitations	025
Pariette Wetland	UT-S-11 – No Surface Occupancy	044
Red Mountain-Dry Fork	UT-S-25 – No Surface Occupancy/Controlled Surface Use/Timing Limitations	049
Lears Canyon	UT-S-21 – No Surface Occupancy	022

4.2.3 Cultural Resources

4.2.3.1 Impacts of No Action Alternative
The no action alternative would result in no impacts to cultural resources because the parcels would not be leased, and therefore, not developed.

4.2.3.2 Impacts of Proposed Action Alternative

All 64 parcels were analyzed individually for whether reasonable development could occur within the parcel. Reasonable development is as defined in Section 2.2 and Appendix D. The Area of Potential Effect (APE) is the area bounded by each parcel combined with an additional a half-mile buffer around each parcel. This APE is specific to this undertaking and covers the geographic area in which this lease sale may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist (see 36CFR800.16(d)).

The analysis of effects took into account parcel size, topography, and location, along with the records-review data and synthesis. Previous survey conducted within the lease parcels resulted in 14,115.96 acres being surveyed or 21.3% of the total acres within the parcels. Previous survey coverage within the parcels varies widely (0% to 100%). Analysis resulted in the identification of 127 previously recorded sites located within the proposed lease parcels of which BLM determined 40 to be eligible to the NRHP. Eligible sites include lithic scatters, rock shelters, campsites, a trail maker, roads, canals, homesteads, a corral, and a dugout.

In addition to records review and analysis, the BLM initiated consultation with thirteen Native American Tribes, and invited 12 additional parties to provide new information regarding cultural resources within the project area. Consultation is on going.

All parcels are in areas with sufficient survey coverage within or on adjacent or similar landforms to make reasonable assumptions regarding site density within or near the lease parcels. In addition, reasonable assumptions on site density were or will be additionally informed by professional judgement, consulting party input, and geologic data. The VFO determined that parcels 023, 032, 049, 054, 055, 065, 069, 083, and 085 are likely to have a moderate site density. All other parcels are likely to have a low site density.

While site densities are expected to be mostly low, there is the understanding that oil and gas facilities development may occur within a sold parcel. For this reason and given the sensitive nature of some cultural resources within the project area, this lease sale has the potential to impact cultural resources within or near that parcel. Future authorized development may result in direct impacts to cultural resources, such as ground disturbing activities within site boundaries, or indirect impacts to cultural resources sensitive to visual and other indirect effects, such as rock art. Any future undertakings associated with oil and gas development on these leases will handled as project specific National Environmental Policy Act actions and National Historic Preservation Act Section 106 undertakings.

Additionally, the lease for each issued parcel will include a mandatory stipulation for the statutory protection of cultural resources within proposed parcels (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 avoided, minimized, or mitigated. 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) and UT-LN-68 to all lease parcels.

In addition to the above, the BLM prepared a cultural resources report to document a reasonable and good faith effort to identify historic properties and any effects this undertaking may have on historic properties, as required by Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C 306108).

4.2.4 Greenhouse Gas Emissions/Climate Change

4.2.4.1 Impacts of No Action Alternative

The No Action alternative would not result in potential impacts to Greenhouse Gas Emissions/Climate Change because the leases would not be issued, and therefore, not developed.

4.2.4.2 Impacts of Proposed Action Alternative

As explained in Section 3.3.4, the effects of climate change observed to date and projected to occur in the future include more frequent and intense heat waves, longer fire seasons and more severe wildfires, degraded air quality, more heavy downpours and flooding, increased drought, greater sea-level rise, more intense storms, harm to water resources, harm to agriculture, ocean acidification, and harm to wildlife and ecosystems.

There would be no GHG emissions as a direct result of the Proposed Action, which is administrative in nature – i.e., issuance of leases for Federal mineral resources. Nevertheless, the BLM recognizes that GHG emissions are a potential effect of the subsequent fluid mineral exploration and/or development of any leases that are issued. Oil and gas activities may lead to the installation and production of new wells, which may consequently produce an increase in GHG emissions. The primary sources of GHG emissions include the following:

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

In recent years, many states, tribes, and other organizations have initiated GHG inventories, tallying GHG emissions by economic sector. The U.S. EPA provides links to statewide GHG emissions inventories [EPA 2015]. Guidelines for estimating project-specific GHG emissions are available [URSC 2010], but some additional data, including the projected volume of oil or natural gas produced for an average well, number of wells (as well as other factors described in Section 4.2.1 Air Quality) were used to provide GHG estimates.

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 statement is grounded in the purpose of NEPA to concentrate on matters that that are truly significant to the Proposed Action (40 CFR §§ 1500.4(b), 1500.4(g), 1501.7.). In light of the difficulties in attributing specific climate impacts to individual projects, it is recommended agencies use the projected GHG emissions as a proxy for assessing a Proposed Action's potential climate change contribution.

Indirect Greenhouse Gas Emissions

Indirect greenhouse gas emissions from speculative future oil and gas well production on the proposed lease parcels was for a single well. Total Greenhouse Gas Warming Potential (GWP), which includes direct emissions of carbon dioxide, methane, and nitrous oxide from an oil or gas producing well is estimated based on using a generic emissions calculator,) which estimated

emissions of 1,192 tons per year CO2e for a single operational well, and 2,305 tons per year CO2e for a single drill rig.

Downstream Greenhouse Gas Emissions

Indirect Downstream GHG emissions are estimated based on an average cumulative production rate of 24,120 barrels of oil, and 421,302 MCF gas over the life of a well, based on the production history for the fields and regions in which the parcels are located. [Utah DOGM 2016] Indirect GHG emissions are also only calculated for carbon dioxide based on combustion of the product. Using the RFD of in Appendix D, and an EPA emissions factor of 0.43 Metric tons of CO_2 per Barrel, [EIA 2006], and 0.054717 MT of CO_2 per MCF of gas [EPA 2017b] indirect GHG emissions can be estimated at 4,512,231 metric tons per well. For total assumed emissions, multiply these numbers by the 135 projected wells. Actual GHG emissions may range from zero (assuming no lease parcels sold or developed) to an indeterminate upper range based on realized production rates, control technology, and physical characteristics of any oil produced.

As it is not possible to assign a "significance" value or impact to these numbers since there are no applicable emission threshold or standards, the emissions estimates themselves are presented as a proxy for impact.

Uncertainties of GHG Calculations

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

End Uses

The estimates above provide a complete GHG lifecycle of a well from site inspection to possible indirect emissions through combustion. A rough estimate was possible using publicly available information and using estimates from future production for reasonably foreseeable development. With respect to the rough estimates of indirect CO_2 emissions, it should be noted that it is a difficult to discern with certainty what end uses for the fuels extracted from a particular leasehold might be reasonably foreseeable. For instance, some end uses of fossil fuels extracted from Federal leases include: combustion of transportation fuels, fuel oils for heating and electricity generation, as well as production of asphalt and road oil, and the feedstocks used to make chemicals, plastics, and synthetic materials. At this time, there is some uncertainty with regard to the actual development that may occur.

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

Availability of Input Data

In light of the difficulties in attributing specific climate impacts to individual projects, it is recommended agencies use the projected GHG emissions as a proxy for assessing a Proposed Action's potential climate change contribution. Estimates were made based on readily available data and reasonable assumptions about potential future development. There are many factors that affect the potential for GHG emissions estimates at the leasing stage: a lease may not be issued or purchased, so no GHG emissions would be expected; a lease may be purchased but never explored, so again there would be no GHG emissions; a lease may be purchased and an exploratory well drilled that showed no development potential, so minimal GHG emissions would occur; or a lease may be purchased, explored, and developed. If developed there are notable 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 operator dynamics, to name a few. Further NEPA analysis would be conducted at the APD stage, when specific development details with which to analyze potential GHG emissions are likely to be known.

Monetizing Costs and Benefits: Social Cost of Greenhouse Gases

Guidance states that "NEPA does not require monetizing costs and benefits" and allows for agency discretion in including monetized assessment of the impacts of GHGs in NEPA documents [BLM 2017]. The BLM finds that including monetary estimates of the social cost of GHGs (SC GHG) in its NEPA analysis for this Proposed Action would not be useful. Since the BLM is not doing a cost-benefit analysis in this NEPA document, we do not believe monetizing only SCC GHG would be instructive.

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

The BLM holds regulatory jurisdiction over portions of natural gas and petroleum systems, identified in the USEPA *Inventory of U.S. Greenhouse Gas Emissions and Sinks* [EPA 2016d]. Exercise of this regulatory jurisdiction has led to development of Best Management Practices (BMPs), which are state-of-the-art mitigation measures applied to oil and natural gas drilling and production to help ensure that energy development is conducted in an environmentally responsible manner. The BLM encourages industry to incorporate and implement BMPs to reduce impacts to air quality through reduction of emissions, surface disturbances, and dust from field production and operations. Typical measures are mentioned below:

- Open burning of garbage or refuse would not occur at well sites or other facilities;
- Drill rigs would be equipped with Tier II or better diesel engines;
- Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater;
- All internal combustion equipment would be kept in good working order;
- Flared hydrocarbon gases at high temperatures in order to reduce emissions of incomplete combustion through the use of multi-chamber combustors;
- Watering dirt roads during periods of high use to reduce fugitive dust emissions;
- Co-location wells and production facilities to reduce new surface disturbances;
- Use of natural gas fired or electric drill rig engines;

- The use of selective catalytic reducers and low-sulfur fuel for diesel-fired drill rig engines;
- Adherence to BLM's Notice to Lessees' (NTL) 4a concerning the venting and flaring of gas on Federal leases for natural gas emissions that cannot be economically recovered;
- Protecting hydraulic fracturing sand from wind erosion;
- Implementation of directional drilling and horizontal completion technologies whereby one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores;
- Requiring that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; and
- Performing interim reclamation to reclaim areas of the pad not required for production facilities and to reduce the amount of dust from the pads.

Additionally, the BLM encourages oil and natural gas companies to adopt proven, cost-effective technologies and practices that improve operational efficiency and reduce natural gas emissions. In October 2012, USEPA promulgated air quality regulations for completion of hydraulically fractured gas wells [EPA 2015]. These rules required air pollution mitigation measures that reduced the emissions of volatile organic compounds during gas well completions. Mitigation included utilizing a process known as a "green" completion in which natural gas brought up during flowback is captured in tanks rather than in open fluid pits. Among other measures to reduce emissions include the USEPA's Natural Gas STAR program. The USEPA U.S. inventory data shows that industry's implementation of BMPs proposed by the program has reduced emissions from oil and gas exploration and development [EPA 2016].

4.2.5 Lands with Wilderness Characteristics

4.2.5.1 Impacts of No Action Alternative

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

4.2.5.2 Impacts of Proposed Action Alternative

Although the leasing of the parcels 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 a 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, reclamation time, and the number of acres disturbed within each parcel. 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".

The following wilderness characteristic units have not been analyzed within a land use plan: Badlands Cliffs, Big Wash, Sheep Wash, Pete's Wash, and Currant Canyon. Generally, impacts from the development of a lease would be similar to those described above. Other stipulations not specific to the protection of wilderness characteristics may reduce the potential for these impacts. Table 4-3 quantifies RFD disturbance assuming that only standard oil and gas leasing stipulations apply (e.g., no additional protective measures, such as NSO).

Hideout Canyon area

The Hideout Canyon area was considered for the protection of wilderness characteristics in the VFO FEIS and was not selected as for management of those characteristics in the approved RMP. Hideout Canyon is not managed for wilderness characteristics due to the high potential for oil and gas resources as well as a high interest in oil and gas leasing within the Hideout Canyon unit. The VFO FEIS pg. 4-192 states that; "all or parts (between 54% and 100%) of non-WSA lands with wilderness characteristics totaling up to 150,421 acres, would lose their natural characteristics and opportunities for solitude and primitive recreation due to surface disturbance and the presence and noise of people and equipment during exploration for and development of oil and gas resources". 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 (e.g., well pads, access roads, and pipelines) 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. Anticipated disturbance due to potential oil and gas development within the Hideout Canyon wilderness inventory unit can be found in Table 4-3 below. These estimates assume that all disturbance will occur inside the inventory unit, regardless of whether the entire parcel is within the unit.

Table 4-3 Acres of Anticipated Disturbance in Lands with Wilderness Characteristics Units

Unit Name	**Unit Acres**	**Total Anticipated Disturbance**	**Parcel #**
Badlands Cliffs	11,858	26	037, 038, 041
Big Wash	7,559	7	028, 029
Currant Canyon	27,121	15.5	022, 024, 025, 032
Hideout Canyon	12,752	12	073, 079
Pete's Wash	6,251	26	031A, 031B, 037, 039
Sheep Wash	8,605	24	034, 035, 036, 037
Total:	**74,145**	**110.5**	

4.2.6 Recreation

4.2.6.1 Impacts of No Action Alternative

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

4.2.6.2 Impacts of Proposed Action Alternative

The issuance of lease parcels which occur within the following recreation SRMAs/sites would not directly impact the recreation SRMAs/sites respectively. However, as the BLM 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. The anticipated disturbance for each recreation site/SRMAs are shown in the table below. These estimates are conservative in that they assume all disturbance will occur inside the SRMA or recreation site regardless of whether the entire parcel is within those areas.

Table 4-4 SRMAs/Recreation Sites and Anticipated Disturbance Acres

SRMA/Recreation Site	Lease Notice or Stipulation	Anticipated Disturbance (Acres)	Parcels
Brough Reservoir Campsite (VFO RMP designation; currently not developed)	UT-S-123 – No Surface Occupancy – Riparian, Floodplains, and Public Water Reservoirs	62	046
Chicken Springs Campsite (VFO RMP designation; currently not developed)	None	40	078
Nine Mile SRMA	UT-S-23 – Surface Occupancy/Controlled Surface Use/Timing Limitations	29.5	025, 031B, 038, 039
Pariette Campsite (VFO RMP designation; currently not developed)	UT-S-11 – No Surface Occupancy – Pariette Wetlands ACEC	5.1	044
PR Springs Campsite (VFO RMP designation; currently not developed)	None	48	078, 079
Red Mountain-Dry Fork SRMA	UT-S-25 – No Surface Occupancy/Controlled Surface Use/Timing Limitations	4	049
Red Mountain Recreation Site (Parcel in close proximity)	UT-S-25 – No Surface Occupancy/Controlled Surface Use/Timing Limitations	4	049

Should construction and drilling occur, the sights and sounds associated with the development of 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. This would be implemented through application of Lease Notice 115 on the following parcels: 25, 31B, 38, 39, 44, 46, and 49.

4.2.7 Plants: Special Status Plant Species

4.2.7.1 Impacts of No Action Alternative

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

4.2.7.2 Impacts of Proposed Action Alternative

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 with 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 the parcels. In addition to the potential loss or damage to individual plants, direct dispersed and indirect impacts could occur from development 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.

Impacts at the time of development could be adequately addressed through conditions of approval applied to the permit approvals. To inform potential lessees of the potential presence of sensitive plant species and the requisite COAs, a species-specific lease notice would be attached for Horseshoe milkvetch (*Astragalus equisolensis*) (UT-LN-89) and lease notices UT-LN-49 (Utah Sensitive Species) and UT-LN-51 (Special Status Plants: Not Federally Listed) would be attached for the other five Sensitive species and any other Sensitive species discovered in the future on the parcels, Lease notices UT-LN-49 and UT-LN-51 may require modifications to the Surface Use Plan of Operations. Lease notice UT-LN-89 outlines specific mitigation measures and survey requirements for Horseshoe milkvetch. The application of these lease notices would ensure that the issuance of leases would not trend these Sensitive species toward listing.

For detailed descriptions of the notices and how they are implemented, see Appendices A and C. The table below lists the lease notices for BLM Sensitive Plant Species and the parcels these notices and stipulation would be applied to.

Table 4-5 Applicable Lease Notices and Stipulations for BLM Sensitive Plant Species.	
Lease Notice or Stipulations	Applicable Parcels
UT-LN-49 (Utah Sensitive Species)	All Parcels
UT-LN-51 (Special Status Plants: Not Federally Listed)	022, 023, 024, 031A, 031B, 038, 039, 040, 042, 044, 046, 047, 048, 049, 052, 053, 054, 055, 056, 063, 064, 065, 066, 067, 068, 069, 071, 072, 073, 075, 077, 080, 081, 082, 083, 084, 085, 086, 087
UT-LN-89 (Horseshoe milkvetch [*Astragalus equisolensis*])	046, 047, 048, 052, 053, 054, 055, 063, 064, 065, 066, 067, 068, 069, 071, 072, 075

4.2.8 Plants: Threatened, Endangered, or Candidate Plant Species

4.2.8.1 Impacts of No Action Alternative

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

4.2.8.2 Impacts of Proposed Action Alternative

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 with 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.

Potential loss or damage to individual plants or populations could occur from development. Direct dispersed and indirect impacts may also occur, 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 surface disturbance and project related traffic.

To inform potential lessees of the potential presence of the two federally proposed plant species and the requisite COAs, a species-specific lease notice would be attached for Graham beardtongue (*Penstemon grahamii*) (UT-LN-90). UT-LN-134 (Graham beardtongue [*Penstemon grahamii*] and White River beardtongue [*Penstemon scariosus* var. *albifluvis*] Conservation Areas) have been applied to parcels identified as containing designated Conservation Agreement Areas. Additional mitigation and conservation measures may be required for these parcels if the leases are issued and proposed for development (see Conservation Agreement and Strategy for Graham's Beardtongue [*Penstemon grahamii*] and White River Beardtongue [*P. scariosus* var. *albifluvis*] SWCA 2014) and after BLM conferences with the Fish and Wildlife Service for this action or at the development stage.

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

Table 4-6 Applicable Lease Notices and Stipulations for Threatened, Endangered, Proposed, and Candidate Plant Species.	
Lease Notice or Stipulations	Applicable Parcels
T&E-05 (Listed Plant Species)	025, 031A, 031B, 032, 033, 038, 039, 042, 044, 046, 047, 048, 049, 052, 054, 055, 056, 063, 065, 066, 068, 069, 071, 072, 073, 077, 078, 079, 082.
UT-LN-90 (Graham beardtongue [*Penstemon grahamii*])	038
UT-LN-134 (Graham beardtongue [*Penstemon grahamii*] and White River beardtongue [*Penstemon scariosus* var. *albifluvis*] Conservation Areas)	038, 056, 073
Endangered Species Act (ESA) Stipulation	All parcels

4.2.9 Visual Resources

4.2.9.1 Impacts of No Action Alternative

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

4.2.9.2 Impacts of Proposed Action Alternative

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 with a No Surface Occupancy stipulation, the issuance of leases does convey an expectation that drilling and development would occur.

For purposes of this analysis, there could be potential effects to visual resources found in the existing inventory classifications identified in the VRI section 3.3.9. These impacts would result from future development in the form of oil wells/pads, pipelines, compressors, power lines, constructed roads and other linear features. These impacts include modification to form, line, color, and texture of the existing landscape. Modifications would be allowable so long as it conforms to the visual resource management decision established in the VFO RMP (RMP 2008b). Further detailed analysis of these potential impacts to the VRI would be analyzed as appropriate when oil and gas development plans and permits to drill are submitted. Mitigations and design features in order to reduce the potential impacts to the visual resources 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 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.

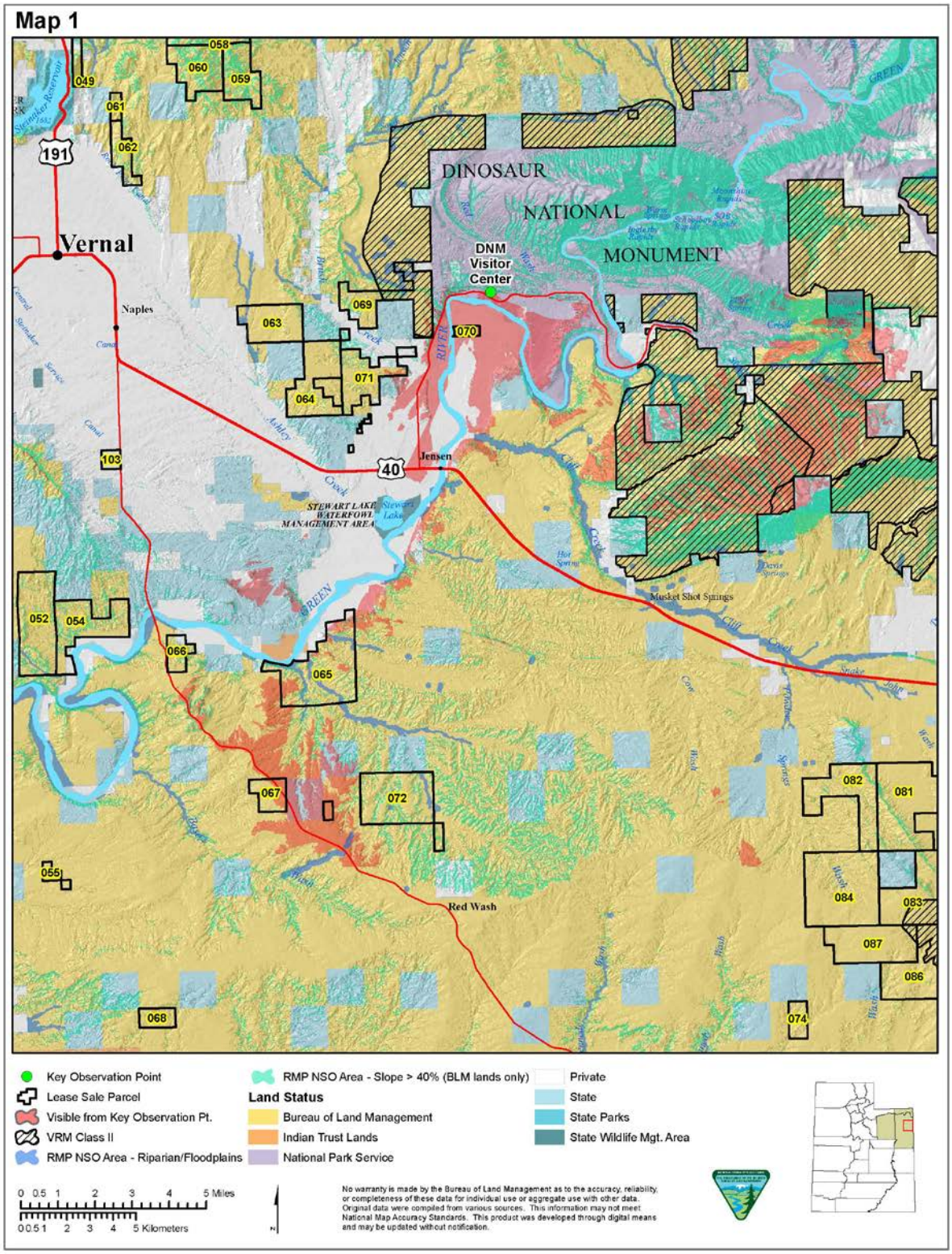
The potential adverse impacts to visual resources would include the visual contrasts created by construction equipment, pipelines, well pads, temporary and permanent access roads, and other forms of infrastructure associated with oil and gas exploration and development. In general, drilling rigs and 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 as appropriate, 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 parcels 022, 044, 069, 073, 078, 079, 083, 085, 086, and 087; UT-S-157 (NSO/CSU/TL Visual Resources) and UT-S-159 (VRM II).

Table 4-7: VRM Stipulations and Notices		
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	UT-S-159 - Controlled Surface Use – Visual Resources – VRM II	022, 044, 069, 073, 078, 079, 083, 085, 086, 087

Impacts to Dinosaur National Monument

Oil and gas development and production as described in the proposed action on parcels 069, 070, and 071 may be within the line-of-sight from key observation points (KOP) of the Dinosaur National Monument.. Potential impacts of any development activity that may occur within the line-of-sight from key observation points may cause potential impacts to the Monument, Monument visitors and the local community. These impacts could include reduction or alteration of current viewsheds, dark night skies, and soundscape. KOP's relevant to the proposed oil and gas lease sale parcels were selected to best represent potential impacts and changes to the visual landscape as observed by the casual observer (visitor to the Dinosaur National Monument). Impacts from light and sound would be minimized by implementing the provisions outlined within the Gold Book as well as 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. In order minimize the impact to dark night skies minimal use of lighting as needed for safety as well as dedicated use of the best available technology related to lighting should be used in order to minimize the artificial sky glow emitted by potential future development and production other design features include but are not limited to, light only where needed and when needed (motion sensors to turn on/off light when needed), use of lights with shroud to direct light downwards, use of warm light (avoid blue/white light), avoid flaring gas at night, when flaring is necessary employ the use of a visual screen or enclosed combustion chamber. (Lease Notice 115) In addition, every attempt to minimize the disturbance footprint for any oil and gas

Map 4-1 Viewshed from the Dinosaur National Monument Visitor Center with overlays of the Class II VRM and No Surface Occupancy Designations.



development within the line-of-sight of key observations points would be implemented. Future layout of development should take into consideration the topography and vegetation as an important sound shield and visual screen in order to further minimize impacts to the visual resource and soundscape. In addition to these mitigation measures, the majority of the area within parcel 069 that is visible from KOP's (western border of Dinosaur Monument) occurs within timing and controlled surface use leasing category VRM II as well as UT-S-159 controlled surface use, and UT-S-168 – Controlled surface use – light and sound: areas adjacent to Dinosaur National Monument.

4.2.10 Wildlife: BLM Sensitive Species and Migratory Birds

4.2.12.1 Impacts of No Action Alternative

The No Action alternative would not result in any potential impacts because the parcels would not be leased, and therefore, not developed.

4.2.12.2 Impacts of Proposed Action Alternative

The issuance of leases would not directly affect BLM Sensitive Species or their associated habitat. However, the issuance of a lease does convey an expectation that oil and gas development could occur. Chapter 3 identifies BLM Sensitive 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 a future Proposed Action, noise disturbances and increased traffic levels could temporarily displace wildlife species. Refer to Appendices A and C for a description of the lease notices.

Table 4-8: BLM Sensitive Species and Migratory Birds Potential Impacts.

Species	Potential Impacts	Associated Stipulations	Associated Lease Notices
MAMMALS			
Towsend's big-eared bat, Spotted bat, Allen's big-eared bat, Western red bat, Fringed myotis, Big free-tailed 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 habitat may be avoided due to human presence, noise, and the potential influx of invasive weeds.	None	UT-LN-49

Table 4-8: BLM Sensitive Species and Migratory Birds Potential Impacts.			
Species	**Potential Impacts**	**Associated Stipulations**	**Associated Lease Notices**
BIRDS (All Migratory Birds Including BLM Sensitive and USFWS Birds of Conservation Concern)			
BLM Sensitive Species: Grasshopper Sparrow, Bobolink, Lewis' Woodpecker, Brewer's Sparrow, Cassin's finch Pinyon Jay, Juniper Titmouse, Veery, American Bittern, Gray Vireo, Long-billed Curlew, American Three-toes Woodpecker USFWS Birds of Conservation Concern: Brewer's Sparrow, Cassin's finch Pinyon Jay, Juniper Titmouse, Veery, American Bittern, Gray Vireo, Long-billed Curlew, American Three-toed Woodpecker	Potential future development impacts could result in a loss of habitat for migratory birds. Direct impacts to nesting and breeding migratory birds may occur, depending on the time of construction and drilling. If development occurs in the spring, during nesting season for most migratory birds, the 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, avoidance and destruction of nests, eggs and nestlings. Mitigation measures would apply.	None	UT-LN-45 UT-LN-49
Reptiles and Amphibians			
Great Plains Toad and Smooth Green Snake	Potential effects of future proposed disturbance on reptiles and amphibians could include destruction of habitat, mortality due to increased roads and infrastructure, and increase human activities could pollute or destroy habitat.	None	UT-LN-49

BLM Sensitive Species such as bats, reptiles, and amphibians may be impacted by oil and gas activities as described in Table 4-8. The Proposed Action Alternative includes an additional lease notice for Utah Sensitive Species (UT-LN-49) that would be applied to all parcels to minimize direct and indirect impacts to BLM Sensitive Species.

Migratory Birds (including BLM Sensitive and USFWS Birds of Conservation Concern):

The subject leasing action in itself would not impact any of the migratory bird species potentially present in the Project Area; however, oil and gas construction and development activities that may follow lease issuance could affect migratory birds and nesting success. Direct and indirect impacts include nest destruction, nest abandonment, nest failure and chick mortality. Other impacts include breeding or wintering habitat loss and fragmentation from development and human disturbance through noise, dust and construction.

Construction and development activities proposed during the migratory bird nesting season (March 1 through August 31) can impact migratory birds by disrupting breeding behavior and breeding success. Examples of impacts to nesting migratory birds include nest abandonment, nest failure and chick mortality. Other impacts include breeding or wintering habitat loss and fragmentation from development and human disturbance through noise, dust and construction.

The Proposed Action Alternative includes an additional lease notice (UT-LN-45) to inform the lessee that surveys for nesting migratory birds may be required during the primary migratory bird breeding season (March 1 through August 31) whenever surface disturbances and/or occupancy is proposed on any of the lease parcels. Surveys are to be conducted by qualified biologists and appropriate spatial and temporal buffers applied accordingly.

The Proposed Action Alternative also would include adding a lease notice for the protection of BLM Utah Sensitive Species (UT-LN-49) wherein 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 species.

Lease Notices that would be applied to the subject lease parcels include to minimize impacts to migratory birds are: UT-LN-45 (Migratory Birds) and UT-LN-49 (Utah Sensitive Species).

White-tailed Prairie Dogs:

In most parcels, there is high potential for active WTPD colonies to be present (Table 4-9). Future development could pass through these WTPD colonies and habitat, thus displacement from foraging areas and loss of habitat could occur. WTPDs have been petitioned for listing several times under the ESA. Many threats have been cited for WTPD such as oil and gas development, urbanization, agricultural conversion, altered fire regimes, disease, shooting and poisoning, and inadequate regulatory mechanisms. In 2010, the USFWS found the WTPD listing was not warranted, but in 2014, the U.S. Federal Court overruled this finding stating that the USFWS did not look at historical range and cumulative impacts regarding regulatory mechanisms for oil and gas development. Thus the listing of the WTPD is currently be reviewed by USFWS in a 12-month finding.

WTPD are found in Northeastern Utah where an extensive amount of oil and gas development has and will happen. Approximately 45% of the predicted habitat for WTPD is found within identified oil and gas fields (Hersey et al. 2017).Research has previously indicated that oil and gas development has impacted other species cohabiting the WTPD range including sage grouse (Walker et al. 2007, Naugle et. al 2011, Holloran et al. 2015), pronghorn (Beckmann et al. 2012), mule deer (Sawyer et al. 2006), and other sagebrush obligate passerine bird species (Ingelfinger and Anderson 2004, Gilbert and Chalfoun 2011, Hethcoat and Chalfoun 2015, and Hersey et al.

2017). Hersey at al. 2017 did find WTPD occupancy declining closer to wells potentially due to direct habitat loss and direct disturbance. However, they also observed that sites with greater numbers of wells were more likely to be colonized perhaps due to disturbed soils and associated vegetation, which may serve as an attractant. Hersey et al. 2017 concluded that the study showed that WTPDs persisted on the landscape with no notable decline in occupancy over the last decade even with a higher amount of oil and gas development.

To protect WTPD habitat, the Vernal BLM field office RMP contains controlled surface use stipulations for oil and gas leasing within certain active prairie dog colonies (Coyote Basin, Snake John, Shiner Basin, Kennedy Wash, Myton Bench complexes). The WTPD colonies that fall within the Black-footed Ferret Primary Management Zone also have more protection than those that fall outside these designated BFF management areas (Table 4-9). In some areas, oil and gas development has continued with no obvious effects on prairie dogs, however, there may be a distance or density threshold were development might affect populations (Hersey et al. 2007). The issuance of leases would not directly influence WTPD or its habitat. However, the issuance of a lease does convey an expectation that oil and gas development could occur.
Future Mitigation (if an APD is submitted):

- The location may be moved 200 m from the original spot in order to reduce impacts to WTPD habitat.

Table 4-9: Lease sale stipulations and notices that will help to minimize impacts to white-tailed prairie dogs and their associated habitat.

Species	Applicable Stipulations	Applicable Lease Notices	Parcels
White-tailed prairie dog		UT-LN-49 and UT-LN-25	25, 30, 31A, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 44, 45, 46, 47, 48, 49, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, , 87, 103
White-tailed prairie dog colonies within Coyote Basin, Snake John, Shiner Basin, Kennedy Wash, Myton Bench complexes	UT-S-218		40, 74, 75, 76, 77, 80, 81, 82, 85, 86
Black-footed ferret	UT-S-299	T&E- 02	74, 75, 76, 77

Greater Sage-Grouse:

4.2.12.3 Impacts of No Action Alternative

The No Action alternative would not offer any of the proposed parcels for lease. This alternative would have no indirect or direct impacts on GRSG because there will be no change.

4.2.12.4 Impacts of Proposed Action Alternative

The Proposed Action would offer 952.26 acres of PHMA and 30,371.50 acres of GHMA within the proposed parcels at the December 2017 competitive oil and gas lease sale. The Proposed Action would allow for mineral development while protecting GRSG and their habitat through conservation measures and mitigation. The administrative action of offering the identified parcels for lease presents no direct impacts to GRSG or their habitat. However, the future development of these leases – for example, after an APD is approved – will result in direct and indirect impacts to GRSG and their habitat.

These impacts were taken into account and measures to avoid, minimize, and mitigate impacts to GRSG populations are incorporated into the Utah ARMPA.

For the proposed alternative, disturbance from the RFD has been calculated for each parcel based on the disturbance assumptions discussed in Chapter 2 (see Appendix D). The assumed disturbances create direct and indirect impacts to GRSG habitat and their population. The disturbance assumptions estimate that 415.70 acres will be disturbed within the 47 parcels containing GRSG habitat. Because these parcels are 43% non-habitat and 57% GRSG habitat, it is unlikely that all 415.70 acres of assumed disturbance would be situated within GRSG habitat.

Direct impacts from oil and gas developments include reduction of habitat through the removal of sagebrush. Indirect impacts from oil and gas developments include habitat fragmentation, increased predation, and decreased nest success. With every APD application, GRSG habitat will be evaluated on a site-specific basis, and conditions of approval to mitigate adverse impacts will be applied for the proposed action. This may include a decision to avoid GRSG habitat, and, when possible, to mitigate direct and indirect impacts. Mitigation and conservation measures for oil and gas development within GRSG habitat are outlined within the Utah ARMPA. These management actions, to help reduce impacts to GRSG and their habitat, include:

- MA-SSS-3: This management action applies to disturbances or activities in PHMA. It applies conservation measures for:
    a) *Net Conservation Gain* to mitigate ground disturbing activities and ensure a net conservation gain to the species.
    b) *Disturbance Caps* to ensure anthropogenic disturbance does not exceed 3 percent, regardless of landownership.
    c) *Density Caps* to ensure the average density of energy and mining facilities does not exceed 1 facility per 640 acres (square mile), regardless of landownership.
    d) *Predation* to minimize anthropogenic activities that may attract predators
    e) *Noise Restrictions* at occupied leks to manage noise at or below 10 decibels
    f) *Tall Structure Restrictions* to limit placement of tall structures within nesting and breeding habitats.
    g) *Seasonal Restrictions* to prevent anthropogenic disturbances during seasonal life cycle periods such as lekking and nesting.
    h) *Buffers* near active leks to reduce impacts to lekking sites and bird activity.

i) *Required Design Features* to help consider and mitigate impacts of potential development.

- MA-SSS-5: This management action applies to disturbances or activities in GHMA that can result in habitat loss. It applies conservation measures for:
    a) *Existing Management* implementing GRSG management actions that were included in the existing RMP's (Vernal RMP/ROD 2008)
    b) *Net Conservation Gain* to mitigate ground disturbing activities and ensure a net conservation gain to the species.
    c) *Buffers* near active leks to reduce impacts to lekking sites and bird activity.
    d) *Required Design Features* to help consider and mitigate impacts of potential development.

All leasing within GRSG habitat is consistent with the Utah ARMPA, and stipulations developed through land use planning have been applied to the pertinent parcels. For a list of stipulations relating to GRSG and the parcels to which they apply, see (Table 4-10).

Table 4-10: Applicable Lease Stipulations

Number	Lease Stipulations	Applicable Parcels
UT-S-195	No Surface Occupancy – Greater Sage-Grouse Leks	None
UT-S-205	Timing Limitation – Greater Sage-Grouse Brood Rearing and Nesting	022, 023, 052, 054, 084
UT-S-206	Controlled Surface Use – Greater Sage-Grouse (Noise Reduction)	None
UT-S-207	Controlled Surface Use – Greater Sage-Grouse (Structures)	022, 023, 052, 054, 084
UT-S-347	No Surface Occupancy – Greater Sage-Grouse Priority Habitat Management Areas	022, 023, 024, 049, 058, 059, 060, 062, 069
UT-S-348	Controlled Surface Use/No Surface Occupancy – Disturbance Cap	022, 023, 024, 049, 058, 059, 060, 062, 069
UT-S-349	Controlled Surface Use/No Surface Occupancy – Density Limitation	022, 023, 024, 049, 058, 059, 060, 062, 069
UT-S-350	Timing Limitation/Controlled Surface Use – Breeding Season Noise Limitations	022, 023, 024, 049, 058, 059, 060, 062, 069
UT-S-352	Controlled Surface Use – Tall Structures	022, 023, 024, 049, 058, 059, 060, 062, 069
UT-S-353	Timing Limitation – Greater Sage-Grouse Breeding Nesting and Early Brood Rearing	022, 023, 024, 049, 058, 059, 060, 062, 069
UT-S-354	Timing Limitation – Greater Sage-Grouse Brood-Rearing	022, 023, 024, 049, 058, 059, 060, 062, 069
UT-S-355	Timing Limitation – Greater Sage-Grouse Winter Habitat	022, 023, 024, 058, 059, 069

Table 4-10: Applicable Lease Stipulations		
UT-S-356	Controlled Surface Use – Indirect Impacts from Noise	None
UT-S-357	Controlled Surface Use – Indirect Impacts from Tall Structures	None

Table 4-11: Applicable Lease Notices		
Number	**Lease Notices**	**Applicable Parcels**
UT-LN-129	Greater Sage-Grouse – Disturbance Cap	022, 023, 024, 049, 058, 059, 060, 062, 069
UT-LN-130	Greater Sage-Grouse – Density Limitation	022, 023, 024, 049, 058, 059, 060, 062, 069
UT-LN-131	Greater Sage-Grouse – Net Conservation Gain	022, 023, 024, 025, 030, 031a, 032, 033, 034, 035, 037, 038, 039, 041, 046, 047, 049, 052, 053, 054, 056, 058, 059, 060, 062, 069, 073, 074, 075, 076, 077, 078, 079, 080, 081, 082, 083, 084, 085, 086, 087, 103
UT-LN-132	Greater Sage-Grouse – Required Design Features	022, 023, 024, 025, 030, 031a, 032, 033, 034, 035, 037, 038, 039, 041, 046, 047, 049, 052, 053, 054, 056, 058, 059, 060, 062, 069, 073, 074, 075, 076, 077, 078, 079, 080, 081, 082, 083, 084, 085, 086, 087, 103
UT-LN-133	Greater Sage-Grouse – Buffer	022, 023, 024, 030, 041, 047, 052, 053, 054, 074, 082, 084, 087

4.3 CUMULATIVE IMPACTS

4.3.1 Introduction

NEPA requires federal agencies to consider the cumulative effects of proposals under their review. Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations 40 CFR §1508.7 as "the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency . . . or person undertakes such other actions." The CEQ has stated that the "cumulative effects analyses should be conducted on the scale of human communities, landscapes, watersheds, or airsheds" using the concept of "project impact zone" (i.e., the area that might be influenced by the Proposed Action).

Offering and issuing leases for the subject parcels, in itself, would not result in cumulative impacts to any resource. Nevertheless, future development of the leases could be an indirect effect of leasing. The RMP/EIS, provides the BLM's analysis of cumulative effects of oil and gas development based on the reasonably foreseeable oil and gas development scenario. This analysis is hereby incorporated by reference and is available at http://go.usa.gov/x9yYz. The cumulative impacts analysis in the RMP/EIS accounted for the potential impacts of development of lease parcels in the planning area as well as past, present and reasonably foreseeable actions known at that time. This analysis expands upon the RMP/EIS analysis by incorporating new information.

4.3.2 Cumulative Impacts

4.3.2.1 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_X controls); 2021 Scenario 2 (VOC controls); and 2021 Scenario 3 (NO_X 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 (Ambient Air Quality Standards) 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; however, model-adjusted results from the MATS tool (which accounts for model performance biases) indicated that non-winter ozone concentrations are below the NAAQS and state AAQS for all monitors and area 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 (4^{th} highest daily maximum is 3ppb 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 highest?). There is no predicted ozone dis-benefit associated with Scenario 2 mitigation measures (i.e., there is no area with

predicted ozone increases relative to the OTB Scenarios). 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 or 2021 OTB Scenario. Both scenarios predict a relatively large increase in ozone concentrations within the vicinity of Ouray indicating potential ozone dis-benefits associated with NO_X control mitigation measures.
- NO_2, CO, SO_2, $PM_{2.5}$, and PM_{10}
    - There are seven monitoring stations within the 4-km domain with daily $PM_{2.5}$ concentrations that exceed the NAAQS and state AAQS in the baseline emissions inventory.
    - All modeled NO_2, CO SO_2, $PM_{2.5}$, and PM_{10} values are well below the NAAQS and state AAQS in the Uinta Basin.
    - The model-predicted $PM_{2.5}$ and PM_{10} concentrations may underestimate future impacts due to a negative model bias through the year in the 4-km domain with the largest bias occurring in summer [ACOM and STL].
    - Results from the MATS tool (which accounts for model performance biases) indicated that $PM_{2.5}$ 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 stations would continue to exceed the NAAQS and state AAQS.
    - No monitoring stations within the 4-km domain exceed the annual $PM_{2.5}$ NAAQS and state AAQS during the 2010 typical or 2021 Scenarios.
    - Two unmonitored areas within the Uinta Basin exceed the annual PM2.5 NAAQS and state AAQS during the 2010 typical year, and impacts in these areas tend to increase under the 2021 Scenarios 1 and 2. Under 2021 Scenarios 3, the annual $PM_{2.5}$ impacts decrease in the Uinta Base due to combustion control measures.
    - The 2021 scenarios generally have lower NO_2, CO, SO_2, $PM_{2.5}$, and PM_{10} 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_2, 3-hour SO_2, annual SO_2, and annual PM_{10}.
    - Under the 2021 scenarios, most assessment areas exceed the 24-hour $PM_{2.5}$ 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 20^{th} 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 to air quality impacts.

4.3.2.2 Areas of Critical Environmental Concern

The cumulative impact boundary of analysis for the Lears Canyon ACEC, Nine Mile Canyon ACEC, and Pariette Wetland ACEC are these respective ACEC resource areas as analyzed in the VFO FEIS. The rationale for this boundary is that special management considerations are placed on the ACECs to protect the identified relevant and important (R&I) values. The R&I values for these ACECs are outlined in Chapter 3. 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 area of impact would be the same as outlined in sections 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 022, 025, 031B 038, 039, 044, and 049 available for lease and mineral development. For specific analysis of the cumulative impacts to the R&I values contained within the ACECs please refer to the applicable resource sections of this document. The No Action alternative would not contribute to any cumulative impacts to ACECs.

4.3.2.3 Cultural Resources

The cumulative impact area for this resource is ½ mile buffer around each parcel. 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 utility 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.

4.3.2.4 Greenhouse Gas Emissions/Climate Change

Even though the Proposed Action of leasing would not contribute to cumulative effects on air resources, future foreseeable development could contribute to cumulative GHG emissions. The primary sources of emissions include the following:

- Fossil fuel combustion for construction and operation of oil and gas facilities – vehicles driving to and from production sites, engines that drive drill rigs, etc. These produce

CO_2 in quantities that vary depending on the age, types, and conditions of the equipment as well as the targeted formation, locations of wells with respect to processing facilities and pipelines, and other site-specific factors.

- Fugitive CH_4 – CH_4 that escapes from wells (both gas and oil), oil storage, and various types of processing equipment. This is a major source of global CH_4 emissions. These emissions have been estimated for various aspects of the energy sector, and starting in 2011, producers are required under 40 C.F.R. §98, to estimate and report their CH_4 emissions to the EPA.
- Combustion of produced oil and gas – it is expected that operations will produce marketable quantities of oil and/or gas. Combustion of the oil and/or gas would release CO_2 into the atmosphere. Fossil fuel combustion is the largest source of global CO_2.

Since climate change and global warming are global phenomena, for purposes of this NEPA analysis, the analysis presented above about the direct and indirect effects of GHG emissions from the Proposed Action is also an analysis of the cumulative effects of the Proposed Action. The BLM has determined that this analysis "adequately addresses the cumulative impacts for climate change from the Proposed Action, and therefore a separate cumulative effects analysis for GHG emissions is not needed.

4.3.2.5 Lands with Wilderness Characteristics

The cumulative impact boundary of analysis for lands with wilderness characteristics is the boundary of the inventory unit that were found to possess wilderness characteristics. The cumulative effects and area of impact would be similar as outlined in sections 4.10.2 and 4.23.8 of the VRO 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 of wilderness characteristics within the units affected. Development in these areas was disclosed in the VFO FEIS and Proposed RMP and accepted by the decision in the RMP. The No Action alternative would not contribute to any cumulative impacts within lands with wilderness characteristics.

Table 4-12 Lands with Wilderness Characteristics Inventories

Inventory Unit Name	Total IU Acres	Anticipated Disturbance (Acres)	Analyzed VFO RMP	Parcel #
Badlands cliffs	11,858	26	No	037, 038, 041
Big Wash	7,566	24.5	No	027, 028, 029, 030
Currant Canyon	20,782	15.5	No	022, 024, 025 032
Hideout Canyon	12,752	12	Yes	073, 079
Pete's Wash	6,251	26	No	031A, 031B, 037, 038
Sheep Wash	8,805	24	No	034, 035, 036, 037

Badlands Cliffs
Leasing the parcels described in the Proposed Action (approximately 2,342 acres within the Badlands Cliffs unit represent approximately 19% of the Badlands Cliffs Wilderness Characteristics inventory Unit), combined with all other active leases within this unit (approximately 8,207 acres) would result in the total leased area of approximately 10,549 acres. Cumulatively 89% of the Badlands Cliffs inventory unit would be leased for oil and gas development.

Big Wash
Leasing the parcels described in the Proposed Action (approximately 434 acres within the Big Wash unit represent approximately 7% of the Big Wash Wilderness Characteristics inventory unit). Combined with all other active leases within this unit (approximately 5,352 acres) would result in the total leased area of approximately 5,886 acres. Cumulatively 78% of the Big Wash inventory unit would be leased for oil and gas development.

Currant Canyon
Leasing parcels described in the Proposed Action (approximately 2,031 acres within the Currant Canyon unit represent approximately 16% of the Currant Canyon Wilderness Characteristics inventory unit). Combined with all other active leases within this unit (approximately 10,723 acres) would result in the total leased area of approximately 12,754 acres. Cumulatively 61% of the Currant Canyon inventory unit would be leased for oil and gas development. Parcels 022, and 025 occur partially within areas that have a NSO leasing stipulations which would apply to these parcels.

Hideout Canyon
Leasing parcels described in the Proposed Action (approximately 823 acres within the Hideout Canyon unit represent approximately 6% of the Hideout Canyon Wilderness Characteristics inventory unit). Combined with all other active leases within this unit (approximately 4,773 acres) would result in the total leased area of approximately 5,596 acres. Cumulatively 44% of the Hideout Canyon inventory unit would be leased for oil and gas development. Hideout Canyon was analyzed for wilderness characteristics in the VRO RMP but not carried forward due to high potential for oil and gas development as well as high interest for oil and gas leasing.

Pete's Wash
Leasing parcels described in the Proposed Action (approximately 680 acres within the Pete's Wash unit represent approximately 11% of the Pete's Wash wilderness characteristics inventory unit). Combined with all other active leases within this unit (approximately 4,841 acres) would result in the total leased area of approximately 5,221 acres. Cumulatively 88% of the Pete's Wash inventory unit would be leased for oil and gas development.

Sheep Wash
Leasing parcels described in the Proposed Action (approximately 534 acres within the Sheep Wash unit represent approximately 6% of the Sheep Wash wilderness characteristics inventory unit). Combined with all other active leases within the unit (approximately 5,631 acres) would

result in the total leased area of approximately 6,165 acres. Cumulatively 70% of the Sheep Wash inventory unit would be leased for oil and gas development.

If development were to occur within these wilderness characteristic inventory units, 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 unit would most likely result in the fragmentation of the units 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.

4.3.2.6 Recreation

The cumulative impact area for recreation are the Brough Reservoir Campsite, Nine Mile SRMA, Pariette Campsite, and Red Mountain SRMA, and their respective area boundaries. 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 sections 4.12.2 and 4.23.10 in the VFO RMP (2008b). The past, present, and foreseeable future actions include development of new and existing mineral rights (including pump jacks, roads, pipelines, well 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 025, 031B, 038, 039, 044, 046, and 049.

Brough Reservoir (80 Acres)
No part of the Brough Reservoir recreation site is currently leased. The Proposed Action would lease an approximate 29 acres within the Brough Reservoir recreation site representing approximately 36% of the recreation site. The No Action alternative would not contribute any cumulative impacts.

Nine Mile Canyon SRMA (44,168 Acres)
Currently approximately 17,387 acres are leased for oil and gas development within the Nine Mile Canyon SRMA. The Proposed Action would lease an additional four parcels within Nine Mile SRMA, approximately 1,441 acres for a total of approximately 18,828 acres or 43% of the SRMA. The No Action alternative would not contribute any cumulative impacts.

Pariette Campsite (70 Acres)
No part of the Pariette Campsite is currently leased. The Proposed Action would lease an approximate 70 acres within the Pariette Campsite representing 100% of the recreation site. The No Action alternative would not contribute any cumulative impacts.

Red Mountain-Dry Fork SRMA (24,285)
Currently approximately 14 acres are leased for oil and gas development within the Red Mountain-Dry Fork SRMA. The Proposed Action would lease an additional parcel within the Red Mountain-Dry Fork SRMA approximately 306 acres for a total of approximately 320 acres or 1% of the SRMA. The No Action alternative would not contribute any cumulative impacts.

4.3.2.7 Plants: Special Status Plant 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 4.23.14, and 4.23.16 in the VFO RMP. Cumulative impacts include reduction in habitat, habitat fragmentation, increased road access for OHV use, illegal collection of individuals, and increase in nonnative plants and noxious weeds, which would crowd out special status plant species. 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.

4.3.2.8 Plants: Threatened, Endangered, or Candidate Plant Species

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 4.23.14, and 4.23.16 in the VFO RMP. Cumulative impacts include reduction 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.

4.3.2.9 Visual Resources

The cumulative impact area considered for visual resources is the applicable inventory units of the Vernal Field Office Visual Resource Inventory (November 2011) affected by the proposed parcels. 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 project area. Cumulative impacts are incorporated by reference to sections 4.12.2, 4.23.10 and 4.23.17 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 64 parcels available for lease and mineral development Parcels 022, 044, 069, 073, 078, 79, 83, 85, 86, and 87 in VRM Class II areas; Parcels: 027, 028, 029, 030, 031A, 031B, 032, 038, 039, 044, 047, 048, 049, 052, 053, 054, 056, 059, 063, 064, 065, 066, 067, 071, 072, 074, 075, 076, 078, 080, 081, 082, 083, 084, 085, 086, and 087 VRM Class III; and parcels: 027, 028, 029, 030, 033, 034, 035, 036, 040, 042, 045, 046, 047, 048, 052, 053, 054, 055, 056, 066, 067, 072, 074, 075, 076, 077, 080, 081, 082, 083, 084, 085, 086, and 087 in VRM Class IV. Visual contrast analysis would be conducted as appropriate per BLM policy 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.

Dinosaur National Monument

The bounds of analysis for cumulative impacts pertaining to parcels 069, 070, and 071 in relation to the Dinosaur National Monument will be an approximate 6 mile radius from KOP 2 (see

map). The rationale behind this boundary is that from KOP 2, all of the described lease parcels as well as KOP and surrounding areas within the Dinosaur National Monument are included when considering potential cumulative effects to viewshed, dark night skies, and soundscape. Cumulative impacts are incorporated by reference to sections 4.12.2 and 4.23.10 in the VFO RMP (2008b). The past, present and foreseeable future actions include development of new and existing mineral rights (including pump jacks, roads, pipelines, well construction, pipeline development including maintenance of existing right of ways, etc.). Cumulative impacts could include but are not limited to noise, light, and traffic from oil and gas drilling and production in the area as well as traffic, noise, and visual disturbances from general recreation travel and land access including travel and tourism to the Dinosaur National Monument. These described impacts are prominent in an urban interface area such as this. The Proposed Action would contribute to these cumulative impacts by leasing parcels 069, 070, and 071. These impacts could potentially alter the human environment and some recreation visitor satisfaction could be diminished because natural processes may be altered. The No Action Alternative would not contribute any cumulative impacts.

4.3.2.10 Wildlife: BLM Sensitive Species and Migratory Birds

Migratory Birds (including BLM Sensitive and USFWS Birds of Conservation Concern)
The cumulative impact area for migratory birds is the Vernal Field Office planning area (7,325,500 acres). Cumulative impacts are incorporated by reference to sections 3.19.1.11, 3.19.1.12, and 4.22.12 in the VFO RMP (BLM 2008b). Past, present and future uses and impacts of the cumulative impact area may include oil and gas development, realty actions, urbanization, continued agricultural activities and increased recreational impacts. Cumulative impacts include loss of migratory bird breeding and foraging habitat, habitat fragmentation, and disruption or alteration of seasonal migration routes. Birds who avoid nesting within the immediate area of the project would have available habitat with in the remaining intact cumulative impact area. Leasing and ensuing development of one or more of these lease parcels is likely to contribute to a sustained reduction in the overall abundance of most affected species through direct and indirect impacts, but it would not be expected to increase cumulative effects to levels that would compromise the viability of any migratory bird population or the use of broader intact landscapes within or near the cumulative impact area. The Proposed Action would contribute to these cumulative impacts by making the 64 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 result in an accumulation of impacts.

BLM Sensitive Bats, Reptiles and Amphibians

The cumulative impact area for BLM Sensitive bats, reptiles, and amphibians is the Vernal Field Office planning area. Cumulative impacts are incorporated by reference to section 4.23.10 (BLM2008b). Past, present, and future uses and impacts of the cumulative impact area may include oil and gas development, realty actions, urbanization, continued agricultural activities and increased recreation impacts. Cumulative impacts to BLM Sensitive Species of bats, reptiles, and amphibians identified in Chapter 3 include loss of habitat, habitat fragmentation,

and disruption of important habitat values. Leasing and ensuing development of one or more parcels is may contribute to a sustained reduction in the abundance of BLM Sensitive Species through local direct and indirect impacts, but is not likely to increase cumulative effects to levels where BLM Sensitive Species (bats, reptiles, and amphibians) population viability would be compromised. The No Action Alternative would not result in an accumulation of impacts.

White-tailed Prairie Dog:

The cumulative impact area for white-tailed prairie dog is the Vernal Field Office. Cumulative impacts are incorporated by reference to 4.22.10 in the VFO RMP (BLM 2008b). Current and future uses and impacts of the cumulative impact area may include oil and gas development, urbanization and increased recreational impacts. Future development could result in a loss of WTPD habitat. 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. As cumulative activities occur, adjacent habitats may be avoided due to human presence. Cumulative activities could also alter potential prairie dogs habitat, making it less suitable for the establishment of colonies, thus affecting other species that rely on WTPD and their habitat for survival. Habitat quality WTPD can also be degraded by the introduction of noxious and invasive weeds. Weed invasions may lead to a decrease in the amount of native perennials and bare ground, thereby degrading habitat for WTPD by decreasing visibility, forage quality, and burrow development. However, weed control efforts would minimize the spread of noxious and invasive weeds. Past, present, and future land uses have reduced and will likely continue to reduce the quality and quantity of habitats for wildlife species. Habitat alteration occurring throughout the range of these species would potentially reduce the ability of such species to recover. Cumulative impacts include habitat fragmentation, loss of prey species, increased predation, and loss of breeding habitat. The No Action Alternative would not result in an accumulation of impacts.

Greater Sage-Grouse:

The cumulative impact area for GRSG is the VFO planning area. The Proposed Action would incrementally add to the overall leased acres within the VFO. Currently, there are 565,600 acres open to leasing within PHMA and GHMA boundaries within the VFO (UT ARMPA 2015). Of these acres, 64% (362,909.03 ac.) have been leased and the proposed parcels would cumulatively add 5.42% (30,666.01 ac.) additional acres. Future development of one or more of these parcels will contribute to the cumulative impact of habitat fragmentation and disturbance to vegetative communities. Assumptions of disturbance from development are presented in Appendix D and assume a disturbance of 415.70 acres out of the 30,371.50 total acres within the 47 parcels in GRSG management areas. The potential development and fragmentation, however, is concentrated within the GHMA boundaries and is not likely to cumulatively add fragmentation to the habitat within PHMA when accounting for the No Surface Occupancy stipulation. Past, present, and future uses for the cumulative impact area may include oil and gas development, realty actions such as right-of-ways, urbanization, agricultural activities, recreational impacts, and change in vegetative communities due to fire, disturbance, or weeds. Cumulatively, habitat fragmentation may affect GRSG populations over time, as discussed in the direct and indirect impacts. Since the BSUs within the CIAA have not reached the 3% disturbance cap, cumulative

impacts from the Proposed Action are not expected to exceed this cap. The No Action alternative would not result in cumulative impacts.

CHAPTER 5 – COORDINATION AND CONSULTATION

5.1 LIST OF PERSONS, AGENCIES, AND ORGANIZATIONS CONSULTED

Public and agency involvement has occurred as described below.

Name	
Utah State Historic Preservation Office	N (5
Consulting Parties Invited: Utah Rock Art Research Association Utah Statewide Archaeological Society Utah Professional Archaeological Council Southern Utah Wilderness Alliance National Trust for Historic Preservation Utah Division of Oil, Gas, and Mining Uintah County, Public Lands Nine Mile Canyon Coalition Duchesne County, Community Development Nine Mile Canyon Settlers Association Grand County Ashley National Forset Utah State Parks Dinosaur National Monument	N (5
U.S. Fish and Wildlife Service	E
Tribes Eastern Shoshone Tribe Ute Indian Tribe Ute Mountain Ute Tribe White Mesa Ute Tribe Santa Clara Pueblo Tribe	G ar

Name	
Zia Pueblo Tribe Northwest Band Shoshone Goshute Indian Tribe Southern Ute Tribe Pueblo of Laguna Hopi Tribe Navajo Nation Pueblo of Jemez	
Private land owners	C
Utah Public Lands Policy and Coordination Office	C
National Park Service	C
U.S. Forest Service	C
Utah Division of Wildlife Resources	C
Utah School and Institutional Trust Lands Administration	C
Utah State Parks: Steinaker	C
Utah State Parks: Red Fleet	C
Bureau of Reclamation	C
Ouray National Wildlife Refuge	C
Bureau of Land Management White River Field Office	C
J.R. Simplot Company	C

5.2 LIST OF PREPARERS AND PARTICIPANTS

INTERDISCIPLINARY REVIEW

Please refer to Appendix E to see the interdisciplinary review.

List of Prepares

Name	Title	Responsible for the following Section(s) of this EA
David Gordon	Natural Resource Specialist	Team Lead, Chapters 1 and 2
Stephanie Howard	Planning and Environmental Coordinator	Document Preparation and Review, Air Quality
Rene Arce	Recreation Planner	ACES, LWC, Recreation, VRM
David Grant	Archaeologist	Cultural Resources
Natasha Hadden Jerrad Goodell Leah Lewis Julie Davenport	Wildlife Biologist Aquatic Ecologist Sage Grouse Biologist Planning and Environmental Specialist	Migratory Birds, Special Status Animal Species, Wildlife (Aquatic & Terrestrial),

CHAPTER 6 – References, Acronyms, and Appendices

6.1 REFERENCES CITED

[Bakko and Brown 1967] Bakko, E.B. and L.N. Brown. 1967. Breeding biology of the white-tailed prairie dog, *Cynomys leucurus*, in Wyoming. Journal of Mammalogy 48(1):100-112.

[Beck 1994] Beck, E.W. 1994. The effect of resource availability on the activity of white-tailed prairie dogs. M.S. thesis. Utah State University, Logan, Utah.

[Beckmann et al. 2012] Beckmann, J.P., K. Murray, R.G. Seidler, and J. Berger. 2012. Human-mediated shifts in animal habitat use: Sequential changes in pronghorn use of a natural gas field in Greater Yellowstone. Biological Conservation 147: 222–233.

[BLM 2016] Bureau of Land Management. 2016. *Moab Master Leasing Plan and Proposed Resource Management Plan Amendments/Final Environmental Impact Statement*. U.S. Department of the Interior, Bureau of Land Management, Moab and Monticello Field Offices. July 2016.

[BLM 2015] Bureau of Land Management. 2015. *Utah Greater Sage-Grouse Approved Resource Management Plan Amendment and Final Environmental Impact Statement.* U.S. Department of the Interior, Bureau of Land Management, Utah State Office. September 2015.

[BLM 2008] BLM (Bureau of Land Management). 2008. *Record of Decision for the Vernal Field Office Resource Management Plan.* U.S. Bureau of Land Management, Vernal Utah.

]BLM 2008b] BLM (Bureau of Land Management). 2008b. *Vernal Field Office Resource Management Plan.* U.S. Department of the Interior, Bureau of Land Management, Vernal District Office.

[Boden et. al. 2013] Boden, T. A., Marland, G., & Andres, R. J. *Global, regional, and national fossil-fuel CO2 emissions*. U.S. Department of Energy. Oak Ridge, TN: Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory. doi:10.3334/CDIAC/00001_V2013.

[Boschen 1986] Boschen, N.S. 1986. Black-footed ferret study in the Cisco Desert area of Utah introductory report. Utah Division of Wildlife Resources, Salt Lake City, Utah.

[Clark et al. 1982] Clark, T. W., T. M. Campbell, D. G. Socha, and D. E. Casey. 1982. Prairie dog colony attributes and associated vertebrate species. Great Basin Naturalist 42:572-582.

[Cranney and Day 1994] Cranney, S.J. and K.S. Day. 1994. 1993 prairie dog density surveys in the Diamond Mountain Resource Area. Utah Division of Wildlife, Northeast Region, Vernal, Utah.

[Doherty et al. 2008] Doherty, Kevin E., David E. Naugle, Brett L. Walker, and Jon M. Graham. "Greater Sage-Grouse Winter Habitat Selection and Energy Development." Journal of Wildlife Management 72, no. 1 (January 1, 2008): 187–95. doi:10.2193/2006-454.

[EIA 2006] Energy Information Agency (EIA) Volume 2, Energy, 2006; *Carbon Dioxide Emissions Coefficients,* http://www.eia.gov/tools/faqs/faq.cfm?id=7&t=7.

[EPA 2013] Environmental Protection Agency. (EPA). *Greenhouse gas reporting program* .Retrieved from http://www.epa.gov/ghgreporting/reporters/subpart/w.html.

[EPA 2015] Environmental Protection Agency (EPA). *Prevention of Significant Deterioration (PSD) basic information.* Retrieved from http://www.epa.gov/nsr/prevention-significant-deterioration-basic-information.

[EPA 2016a] Environmental Protection Agency (EPA). Retrieved from https://www.epa.gov/ghgemissions/understanding-global-warming-potentials*Understanding global warming potentials.*

[EPA 2017] Environmental Protection Agency (EPA). *U.S. greenhouse gas inventory report, 1990-2015.* Retrieved from https://www.epa.gov/sites/production/files/2017-02/documents/2017_executive_summary.pdf

[EPA 2016c] Environmental Protection Agency, February 2, 2016, *Greenhouse Gas Equivalencies Calculator,* https://www.epa.gov/energy/ghg-equivalencies-calculator-calculations-and references,

[EPA 2016d] Environmental Protection Agency (EPA) *Inventory of U.S. Greenhouse Gas Emissions and Sinks* .

[Fitzgeral et al. 1994] Fitzgerald, J.P., C.A. Meaney, and D.M. Armstrong. 1994. Mammals of Colorado. Denver Museum of Natural History and University Press of Colorado. 467 pp.

[Gilbert and Chalfoun 2011] Gilbert, M.M., and A.D. Chalfoun. 2011. Energy development affects populations of sagebrush songbirds in Wyoming. Journal of Wildlife Management 75: 816–824.

[Green 1993] Green, G.A. 1993. Ecological considerations for management of breeding Burrowing Owls in the Columbia Basin. J. Raptor Res. 27:60.

[Green et al. 2017] Green, Adam W., Cameron L. Aldridge, and Michael S. O'donnell. "Investigating Impacts of Oil and Gas Development on Greater Sage-Grouse." The Journal of Wildlife Management 81, no. 1 (2017): 46–57. doi:10.1002/jwmg.21179.

[Gutiérrez et al. 1995] Gutiérrez, R.J., A.B. Franklin, and W.S. LaHaye. 1995. Spotted owl (Strix occidentalis). The birds of North America, number 179. The Academy of Natural Sciences Philadelphia and the American Ornithologists Union, Washington, DC, USA.

[Halterman et al. 2015] Halterman, M.D., M.J. Johnson, J.A. Holmes and S.A. Laymon. 2015. A natural history summary and survey protocol for the Western distinct population segment of the yellow-billed cuckoo: U.S. Fish and Wildlife Techniques and Methods, 45 p.

[Hamlin and Mackie 1989] Hamlin, K.L. and R.J. Mackie. 1989. Mule deer in the Missouri River Breaks, Montana: a study of population dynamics in a fluctuating environment. Montana Fish, Wildlife, and Parks, Wildlife Division, Federal Aid to Wildlife Restoration Final Report, Project W-120-R-7-18, Program Number 1, Study BF-1.0, Job Numbers 2 and 3, Helena, Montana.

[Hansen et. al. 2006] Hansen J., Sato, M., Ruedy, R., Lo, K., Lea, D.W., & Medina-Elizade, M. (2006). Global temperature change. *Proceedings of the National Academy of Sciences 103*(39), 14288-14293. National Academy of Sciences of the United States. Retrieved from www.pnas.orgcgidoi10.1073pnas.0606291103.

[Harju 2010] Harju, Seth M., Matthew R. Dzialak, Renee C. Taylor, Larry D. Hayden-Wing, and Jeffrey B. Winstead. “Thresholds and Time Lags in Effects of Energy Development on Greater Sage-Grouse Populations.” Journal of Wildlife Management 74, no. 3 (March 23, 2010): 437–48. doi:10.2193/2008-289.

[Harlow and Menkens 1986] Harlow, H.J. and G.E. Menkens Jr. 1986. A comparison of hibernation in the black-tailed prairie dog, white-tailed prairie dog, and Wyoming ground squirrel. Canadian Journal of Zoology 64: 793-796.

[Haug et al. 1993] Haug, E. A., B. A. Millsap, and M. S. Mitchell. 1993. Burrowing owl (Speotyto cunicularia). No. 61 in A. Poole and F. Gill, editors, The birds of North America. The Academy of Natural Sciences, Philadelphia, and American Ornithologists’ Union, Washington, D. C.

[Hersey et al. 2017] Hersey, K., A. Wright, B. Maxfield, and A. Brewerton. 2017. An assessment of anthropogenic impacts and landscape features on white-tailed prairie dog occupancy in Utah 2008-2016. State of Utah Department of Natural Resources, Division of Wildlife Resources, Salt Lake City, Utah.

[Hethcoat and Chalfoun 2015] Hethcoat, M. G., and A. D. Chalfoun. 2015. Toward a mechanistic understanding of human-induced rapid environmental change: a case study linking energy development, nest predation, and predators. Journal of Applied Ecology 52:1492–1499.

[Hollister 1916] Hollister, N. 1916. A systematic account of the prairie dogs. North American Fauna 40:5-36.

[Holloran et al. 2015] Holloran, M.J., B.C. Fedy, and J. Dahlke. 2015. Winter habitat use of greater sage-grouse relative to activity levels at natural gas well pads. Journal of Wildlife Management 79: 630–640.

[Holloran et al. 2009] Holloran, Matthew J., Rusty C. Kaiser, and Wayne A. Hubert. "Yearling Greater Sage-Grouse Response to Energy Development in Wyoming." Journal of Wildlife Management 74, no. 1 (December 23, 2009): 65–72. doi:10.2193/2008-291.

[IPCC 2007] Intergovernmental Panel on Climate Change. (IPCC) *Climate change 2007: Mitigation, contribution of working group III to the fourth assessment report of the Intergovernmental Panel on Climate Change* [B. Metz, O. R. Davidson, P. R. Bosch, R. Dave, L. A. Meyer (eds.)]. Cambridge, UK and New York, NY: Cambridge University Press. Retrieved from http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg3_report_mitigation_of_climate_change.htm.

[IPCC 2016] Intergovernmental Panel on Climate Change (IPCC). (2016). Infographic: The Global Carbon Budget. http://www.wri.org/ipcc-infographics.

[Ingelfinger and Anderson 2004] Ingelfinger, F. and S. Anderson. 2004. Passerine response to roads associated with natural gas extraction in a sagebrush steppe habitat. Western North American Naturalist 64: 385–395.

[Johnson et al. 2004] Johnson, H., J. Sushinsky, A. Holland, E. Bergman, T. Balzer, J. Garner, and S. Reed. 2017. Increases in residential and energy development are associated with reductions in recruitment for a large unglulate. Global Change Biology 23: 578-591.

[Lewis 2014] Lewis, Leah R., "Habitat Characteristics of Mexican Spotted Owls (Strix occidentalis lucida) in the Canyonlands of Southern Utah" (2014). *All Graduate Theses and Dissertations.* Paper 3335. http://digitalcommons.usu.edu/etd/3335.
Willey, D. W. 1998. Movements and habitat utilization by Mexican Spotted Owls within the Canyonlands of Utah. Dissertation, Northern Arizona University, Flagstaff, Arizona.

[Lupis et al. 2007] Lupis, S. G., K. D. Bunnell, T. A. Black, and T. A. Messmer. 2007. Utah Gunnison's prairie dog and white-tailed prairie dog conservation plan: Draft #5. Utah Division of Wildlife Resources, Salt Lake City, Utah.

[Manier et al. 2014] Manier, D.J., Bowen, Z.H., Brooks, M.L., Casazza, M.L., Coates, P.S., Deibert, P.A., Hanser, S.E., and Johnson, D.H., 2014, Conservation buffer distance estimates for Greater Sage-Grouse—A review: U.S. Geological Survey Open-File Report 2014–1239, 14 p., http://dx.doi.org/10.3133/ofr20141239.

[Messmer et al. 1993] Messmer, T.A., J. Keyes and R. McDonald. 1993. A prairie dog abatement program in San Juan County, Utah, DigitalCommons@University of Nebraska - Lincoln.

[Menkens 1987] Menkens, G.E., Jr. 1987. Temporal and spatial variation in white-tailed prairie dog (Cynomys leucurus) populations and life histories in Wyoming. Dissertation, University of Wyoming, Laramie, Wyoming.

[NASA 2007] National Aeronautics and Space Administration Goddard Institute for Space Studies. (2007). *GISS surface temperature analysis*. Retrieved from http://data.giss.nasa.gov/gistemp/2007/.

[Naugle and Boyce 2011] Naugle, D. E., and M. S. Boyce. Energy Development and Wildlife Conservation in Western North America. Island Press, 2011. https://books.google.com/books?id=CWaI3Eaph6IC.

[Naugle et al. 2011] Naugle, D.E., K.E. Doherty, B.L. Walker, and M.J. Holloran. 2011. Energy development and greater sage-grouse. in Greater sage-grouse: Ecology and conservation of a landscape species and its habitats in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA.

[Naugle 2011] Naugle, D. 2011. Energy development and wildlife conservation in Western North America. Island Press, Washington D.C, 82 pp.

[Pizzimenti 1976] Pizzimenti, J.J. 1976. Genetic divergence and morphological convergence in the prairie dogs, *Cynomys gunnisoni* and *Cynomys leucurus*. I. Morphological and Ecological Analyses. Evolution 30:345-366.

[Rich 1986] Rich, T. D. 1986. Habitat and nest-site selection by burrowing owls in the sagebrush steppe of Idaho. Journal of Wildlife Management 50:548-555.

Sawyer et al. 2006] Sawyer, H., R.M. Neilson, F. Lindzey, and L.L. McDonald. 2006. Winter habitat selection of mule deer before and during development of a natural gas field. Journal of Wildlife Management 70: 396–403.

[Seglund et al. 2004] Seglund, A., E. Grenier, B. Luce, A. Puchniak, and P. Schnurr. 2004. White-tailed prairie dog Conservation Assessment.

[SWCA 2014] SWCA Environmental Consultants (SWCA). 2014. Conservation Agreement and Strategy for Graham's Beardtongue (*Penstemon grahamii*) and White River Beardtongue (*Penstemon scariosus* var. *albifluvis*). July 22, 2014.

[Tileston and Lechleitner 1966] Tileston, J.V. and R.R. Lechleitner. 1966. Some comparisons of the black-tailed and white-tailed prairie dogs in north-central Colorado. The American Midland Naturalist 75(2):292-316.

[USFWS 2014] United States Fish and Wildlife Service, Utah Ecological Services Field Office. 2014. *Ecological Restoration Mitigation Calculation Guidelines for impacts to* Sclerocactus

wetlandicus *and* Sclerocactus brevispinus *Habitat*. United States Department of the Interior, Fish and Wildlife Service, Utah Ecological Services Field Office, West Valley City, Utah.

[URSC 2010] URS Corporation. (2010) *Climate change supplementary information report, Montana, North Dakota and South Dakota Bureau of Land Management.* Denver Co. Retrieved from http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing/leasingEAs.html

[UDWR 2014] UDWR (Utah Division of Wildlife Resources). 2014. Utah Mule Deer Statewide Management Plan. Statewide Management Plan for Mule Deer. State of Utah Department of Natural Resources, Division of Wildlife Resources, Salt Lake City, Utah.

[UDWR 2015] UDWR (Utah Division of Wildlife Resources). 2015. Statewide Management Plan for Elk. State of Utah Department of Natural Resources, Division of Wildlife Resources, Salt Lake City, Utah.

[UDOGM 2016] Utah Division of Oil, Gas and Mining, Production Report, 2016, https://oilgas.ogm.utah.gov/pub/Publications/Reports/Prod/Well/Wel_Oct_2016.pdf

[USDC Colorado 2016] USDC Colorado. 10/25/16. Case 1:15-cv-00615-WJM, Document 59. Order vacating administrative action and requiring meet-and-confer between the parties.

[USFWS 2004] USFWS (U.S. Department of the Interior Fish and Wildlife Service). 2004. Environmental assessment for designation of critical habitat for the Mexican spotted owl. Region 2.

[USFWS 2012] USFWS (United States Fish and Wildlife Service). 2012. Final recovery plan for the Mexican Spotted Owl (*Strix occidentalis lucida*), First Revision, Albuquerque, New Mexico, USA.

[USFWS 2013] USFWS (U.S. Fish and Wildlife Service). 2013. Recovery plan for the black-footed ferret (Mustela nigripes). U.S. Fish and Wildlife Service, Denver, Colorado. 157 pp. http://www.fws.gov/mountain prairie/species/mammals/blackfootedferret/2013NovRevisedRecoveryPlan.pdf

[UT GRSG Working Group 2013] Utah Greater Sage-Grouse Working Group. 2013. 2013 Conservation Plan for Greater Sage-grouse in Utah. February 14, 2013. Internet website: http://wildlife.utah.gov/uplandgame/sagegrouse/pdf/greater_sage_grouse_plan.pdf.

[Walker et al. 2007] Walker B.L., D.E.Naugle, and, K.E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. Journal of Wildlife Manage 71: 2644–2654.

[Ward et al. 1995] Ward, J.P., Jr., A.B. Franklin, S.E. Rinkevich, and F. Clemente. 1995. Chapter 1: Distribution and abundance of Mexican spotted owls. Pp. 1-14 in Recovery plan for the Mexican spotted owl (Strix occidentalis lucida), volume II. USDI Fish and Wildlife Service, Albuquerque, New Mexico, USA.

[Ward et al. 1995] Ward, J.P., Jr., and W.M. Block. 1995. Chapter 5: Mexican spotted owl prey ecology. Pp. 1-48 in Recovery plan for the Mexican spotted owl (Strix occidentalis lucida), volume II. USDI Fish and Wildlife Service Albuquerque, New Mexico, USA.

6.2 LIST OF ACRONYMS

The below table contains a list of acronyms and their meanings that are frequently used by the BLM and which may have been used in the writing of this document.

TABLE 6-1: ACRONYMS

Acronym	Meaning
ACEC	Area of Critical Environmental Concern
ACEPM	Applicant-Committed Environmental Protection Measure
AO	Authorized Officer
APD	Application for Permit to Drill
APE	Area of Potential Effect
AUM	Animal Unit Month
BCC	Birds of Conservation Concern
BLM	Bureau of Land Management
BMP	Best Management Practice
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CIAA	Cumulative Impact Analysis Area
CO	Carbon Monoxide
COA	Condition of Approval
CWA	Clean Water Act
DAQ	Division of Air Quality
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
FO	Field Office
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
HAP	Hazardous Air Pollutants
IDT	Interdisciplinary Team

Acronym	Meaning
MBTA	Migratory Bird Treaty Act
NAAQS	National and Utah Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NI	Not Impacted
NP	Not Present
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
OHV	Off-highway Vehicle
Onsite	Onsite Inspections per Onshore Order #1
OSHA	Occupational Safety and Health Act
PAC	Protected Activity Center
PIF	Partners in Flight
PUP	Pesticide Use Proposal
RCRA	Resource Conservation and Recovery Act of 1976
RFD	Reasonable Foreseeable Development
RMP	Resource Management Plan
ROD	Record of Decision
ROW	Right-of-way
SARA	Superfund Amendments and Reauthorization Act
SDR	State Director Review
SHPO	State Historic Preservation Office
SITLA	School and Institutional Trust Lands Administration
SMA	Surface Management Agency
SPCC	Spill Prevention, Control and Countermeasure
SRMA	Special Recreation Management Area
SUPO	Surface Use Plan of Operations
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UDOGM	Utah Division of Oil, Gas and Mining
UDWaR	Utah Division of Water Rights
UDWR	Utah Division of Wildlife Resources
USACE	United States Army Corps of Engineers
USDI	U.S. Department of the Interior

Acronym	Meaning
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VRM	Visual Resource Management
WSA	Wilderness Study Area

6.3 LIST OF APPENDICES

Appendix A –Proposed Action with Stipulations for Lease
Appendix B – Recommended Parcel Deferrals
Appendix C – Stipulation and Notice Exhibits
Appendix D – Development Assumptions
Appendix E – Interdisciplinary Team Checklist
Appendix F – Photo of the Parcels
Appendix G – Response to Public Comments

Appendix A – Proposed Action with Stipulations for Lease

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
UT1217 – 022	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	<u>Stipulations</u> H 3120: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-21:** No Surface Occupancy Lears Canyon ACEC **UT-S-96**: No Surface Occupancy – Fragile Soil/Slopes Greater than 40% **UT-S-99**: Controlled Surface Use – Fragile Soil/Slopes **UT-S-100**: Controlled Surface Use – Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation – Visual Resources UT-S-159: Controlled Surface Use – Visual Resources – VRM II UT-S-205: TL – Greater Sage-Grouse Brood Rearing and Nesting UT-S-207: CSU – Greater Sage-Grouse (Structures) **UT-S-261**: TL-Raptor Buffers **UT-S-347 GRSG**: No Surface Occupancy – Greater Sage-Grouse PHMA **UT-S-348 GRSG**: Controlled Surface Use/NSO – Disturbance Cap **UT-S-349 GRSG**: Controlled Surface Use/NSO - Density Limitation **UT-S-350 GRSG**: Timing Limitation/Controlled Surface Use – Breeding Season Noise Limitations **UT-S-352 GRSG**: Controlled Surface Use – Tall Structures **UT-S-353 GRSG**: Timing Limitation – Greater Sage-Grouse Breeding, Nesting, and Early Brood Rearing **UT-S-354 GRSG**: Timing Limitation – Greater Sage-Grouse Brood Rearing **UT-S-355 GRSG**: Timing Limitation – Greater Sage-Grouse Winter Habitat <u>Notices</u> **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-16**: Pronghorn Fawning 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-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-129:** Greater Sage-Grouse-Disturbance Cap **UT-LN-130:** Greater Sage-Grouse Density Limitation **UT-LN-131:** Greater Sage-Grouse- Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features **UT-LN-133:** Greater Sage-Grouse- Buffer
UT1217 – 023	T. 10 S., R. 13 E., SLM Secs. 31, 33 and 34: All; T. 11 S., R. 13 E., Salt Lake Secs. 3, 4 and 5: All. 2,125.03 Acres	<u>Stipulations</u> **H-3120:** Endangered Species Act and Cultural Resources Stipulations **UT-S-01:** Air Quality **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Waster Reserves

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
	Duchesne County, Utah Vernal Field Office	**UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-205**: TL – Greater Sage-Grouse Brood Rearing and Nesting **UT-S-207**: CSU – Greater Sage-Grouse (Structures) **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL-Raptor Buffers **UT-S-347 GRSG:** No Surface Occupancy - Greater Sage-Grouse PHMA **UT-S-348 GRSG:** Controlled Surface Use/ NSO - Disturbance Cap **UT-S-349 GRSG:** Controlled Surface Use/ NSO - Density Limitation **UT-S-350 GRSG:** Timing Limitation/Controlled Surface Use- Breeding Season Noise Limitations **UT-S-352 GRSG:** Controlled Surface Use -Tall Structures **UT-S-353 GRSG:** Timing Limitation - Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing **UT-S-354 GRSG:** Timing Limitation - Greater Sage-Grouse Brood Rearing **UT-S-355 GRSG:** Timing Limitation - Greater Sage-Grouse Winter habitat <u>Notices</u> **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning 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-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-85**: Tar Sands Area **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-129**: Greater Sage-Grouse-Disturbance Cap **UT-LN-130**: Greater Sage-Grouse Density Limitation **UT-LN-131:** Greater Sage-Grouse - Net Conservation Gain **UT-LN-132:** Greater Sage-Grouse - Required Design Features **UT-LN-133**: Greater Sage-Grouse- Buffer
UT1217 – 024	T. 11 S., R. 14 E., Salt Lake Sec. 8: All. 258.40 Acres Duchesne County, Utah Vernal Field Office	<u>Stipulations</u> **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/controlled Surface Use/Timing Limitation - Visual Resources **UT-S-261**: TL-Raptor Buffers **UT-S-347 GRSG**: No Surface Occupancy - Greater Sage-Grouse PHMA **UT-S-348 GRSG**: Controlled Surface Use/ NSO - Disturbance Cap **UT-S-349 GRSG**: Controlled Surface Use/ NSO - Density Limitation **UT-S-350 GRSG**: Timing Limitation/Controlled Surface Use- Breeding Season Noise Limitations **UT-S-352 GRSG**: Controlled Surface Use -Tall Structures **UT-S-353 GRSG**: Timing Limitation - Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-S-354 GRSG: Timing Limitation - Greater Sage-Grouse Brood Rearing **UT-S-355 GRSG**: Timing Limitation - Greater Sage-Grouse Winter habitat <u>Notices</u> **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **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-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-129**: Greater Sage-Grouse-Disturbance Cap **UT-LN-130**: Greater Sage-Grouse Density Limitation **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse - Required Design Features **UT-LN-133**: Greater Sage-Grouse - Buffer
UT1217 – 025	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	**<u>Stipulations</u>** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-23**: No Surface Occupancy/Controlled Surface Use/Timing Limitations - Nine Mile Canyon ACEC **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL-Raptor Buffers **<u>Notices</u>** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin T&E-05: Listed Plant Species **T&E-06**: Mexican Spotted Owl T&E-22: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131:** Greater Sage-Grouse- Net Conservation Gain **UT-LN-132:** Greater Sage-Grouse- Required Design Features
UT1217 – 027	T. 10 S., R. 15 E., Salt Lake Sec. 1: All. 641.04 Acres Duchesne County, Utah	**<u>Stipulations</u>** **H 3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%)

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
	Vernal Field Office	**UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers Notices **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 028	T. 10 S., R. 15 E., Salt Lake Sec. 22: NE; Sec. 23: W2NE, NW, W2SE. 480.00 Acres Duchesne County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123:** NSO – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128:** Federal Flood Risk Management Standard
UT1217 – 029	T. 10 S., R. 15 E., Salt Lake Sec. 28: SENE, NESE. 80.00 Acres Duchesne County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-11: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-53**: Riparian Areas **UT-LN-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 030	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-44**: Raptors **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-53**: Riparian Areas **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **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
UT1217 – 031A	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		Notices **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-12**: Pariette Cactus (Sclerocactus Brevispinus) and Uinta Basin hookless cactus [Sclerocactus Glaucus (Brevispinus and Wetlandicus)] **T&E-21**: Shrubby reed-mustard (Schoenocrambe Suffrutescens) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-51**: Special Status Plants: Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 031B	T. 11 S., R. 15 E., Salt Lake Sec. 13: E2. 320.0 Acres Duchesne County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-23:** No Surface Occupancy/Controlled Surface Use/Timing Limitations - Nine Mile Canyon ACEC **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers UT-S-317: Unit Joinder – Gate Canyon II (UTU90523X) **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-12**: Pariette Cactus (Sclerocactus Brevispinus) and Uinta Basin hookless cactus [Sclerocactus Glaucus (Brevispinus and Wetlandicus)] **T&E-21**: Shrubby reed-mustard (Schoenocrambe Suffrutescens) **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72:** High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
UT1217 – 032	T. 11 S., R. 15 E., Salt Lake Sec. 3: S2NE, S2NW, S2; Sec. 4: All; 1,122.72 Acres Duchesne County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 033	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-53**: Riparian Areas **UT-LN-57:** Public Water Reserve **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-83: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 034	T. 10 S., R. 16 E., Salt Lake Secs. 13, 14 and 15: All; Sec. 23: E2NE, E2SE. 2,080.00 Acres Duchesne County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-53**: Riparian Areas **UT-LN-57:** Public Water Reserve **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 035	T. 10 S., R. 16 E., Salt Lake Sec. 25: N2, N2SW, SESW, SE. 600.00 Acres Duchesne County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01:** Air Quality **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100:** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-45: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 036	T. 10 S., R. 16 E., Salt Lake Sec. 27: N2; Sec. 28: N2. 640.00 Acres Duchesne County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25:** White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 037	T. 10 S., R. 16 E., Salt Lake Sec. 35: SENE, SESE. 80.00 Acres Duchesne County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-23**: No Surface Occupancy/Controlled Surface Use/Timing Limitations - Nine Mile Canyon ACEC **UT-S-96**: No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100:** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-25: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features **UT-LN-134**: Graham's beardtongue and White River beardtongue
UT1217 – 038	T. 11 S., R. 16 E., Salt Lake Sec. 1: All; Sec. 11: S2; Sec. 12: W2; Sec. 13: N2NE, N2NW, SE; Sec. 14: N2; Sec. 15: N2. 2,234.48 Acres Duchesne County, Utah Vernal Field Office	**<u>Stipulations</u>** **H-3120**: Endangered Species and Cultural Resources Act Stipulation **UT-S-01:** Air Quality **UT-S-23:** No Surface Occupancy/Controlled Surface Use/Timing Limitations - Nine Mile Canyon ACEC **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247:** TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL-Raptor Buffers **<u>Notices</u>** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-12:** Pariette Cactus (Sclerocactus Brevispinus) and Uinta Basin hookless cactus [Sclerocactus Glaucus (Brevispinus and Wetlandicus)] **T&E-21**: Shrubby Reed - Mustard (Schoenocrambe Suffrutescens) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site ROWs **UT-LN-90:** Graham's Beardtongue (Penstemon Grahamii) **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features UT-LN-134: Graham's Beardtongue (Penstemon grahamii) & White River Beardtongue (P. scariosus var. albifluvis) Conservation Area
UT1217 – 039	T. 11 S., R. 16 E., Salt Lake Sec. 6: Lots 1-7, S2NE, SENW; Sec. 7: All.	**<u>Stipulations</u>** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01**: Air Quality **UT-S-23:** No Surface Occupancy/Controlled Surface Use/Timing Limitations - Nine Mile Canyon ACEC

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
	853.78 Acres Duchesne County, Utah Vernal Field Office	**UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL - Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-12:** Pariette Cactus (Sclerocactus Brevispinus) and Uinta Basin hookless cactus [Sclerocactus Glaucus (Brevispinus and Wetlandicus)] **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-51**: Special Status Plants: Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-83:** Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 040	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01**: Air Quality **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-218:** Controlled Surface Use – White-tailed Prairie Dog **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-51**: Special Status Plants: Not Federally Listed **UT-LN-68:** Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**:Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 041	T. 10 S., R. 17 E., Salt Lake Sec. 30: Lot 4;	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01**: Air Quality **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 %

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
	Sec. 31: Lots 1-4, E2NW, E2SW. 359.20 Acres Duchesne County, Utah Vernal Field Office	**UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100**: Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL - Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWs **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **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
UT1217 – 042	T. 9 S., R. 18 E., Salt Lake Sec. 33: S2. 320.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL - Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-12**: Pariette Cactus (Sclerocactus Brevispinus) and Uinta Basin hookless cactus [Sclerocactus Glaucus (Brevispinus and Wetlandicus)] **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45:** Migratory Birds **UT-LN-49**: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 044	T. 9 S., R. 19 E., Salt Lake Sec. 14: Lots 1-3, NW, N2SW;	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01**: Air Quality **UT-S-11:** No Surface Occupancy - Pariette Wetlands ACEC,

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
	Sec. 15: All. 952.05 Acres Uintah County, Utah Vernal Field Office	**UT-S-53**: No Surface Occupancy - Developed Recreation Sites **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-117**: No Surface Occupancy - River Corridors: Lower Green River, **UT-S-123**: No Surface Occupancy - Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Recourses **UT-S-159:** Controlled Surface Use – Visual Resources - VRM II **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL - Raptor Buffers **UT-S-278:** Controlled Surface Use- Bald Eagle Winter Roost **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-12**: Pariette Cactus (Sclerocactus Brevispinus) and Uinta Basin hookless cactus [Sclerocactus Glaucus (Brevispinus and Wetlandicus)] **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25:** White-tailed and Gunnison Prairie Dog **UT-LN-37:** Bald 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-60**: Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-107:** Bald Eagle **UT-LN-113:** Western Yellow-Billed Cuckoo **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 045	T. 4 S., R. 20 E., Salt Lake Sec. 13: Lots 2, 5-7, SWNE, W2SE; Sec. 24: Lot 1. 290.76 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surfaces Occupancy– Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261:** TL - Raptor Buffers **UT-S-316:** Material Site Rights-of-Way **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin T&E-22: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45:** Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-85**: Tar Sands Area **UT-LN-96**: Air Quality Mitigation Measures

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-99: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 046	T. 6 S., R. 20 E., Salt Lake Sec. 30: Lots 1-4, E2NW, E2SW; Sec. 31: All excluding U16133. 859.60 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01**: Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL - Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species T&E-22: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **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-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site Rows **UT-LN-89**: Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 047	T. 6 S., R. 20 E., Salt Lake Secs. 33, 34 and 35: All. 1,920.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01**: Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL - Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **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-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-89:** Horseshoe Milkvetch (Astragalus Equisolensis)

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-96: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115**: Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **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
UT1217 – 048	T. 7 S., R. 20 E., Salt Lake Sec. 27: E2NW. 80.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01**: Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL-Raptor Buffers **UT-S-278:** Controlled Surface Use – Bald Eagle Winter Roost **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-37:** Bald Eagle Habitat **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-51**: Special Status Plants - Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-89**: Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-107:** Bald Eagle **UT-LN-115:** Light and Sound
UT1217 – 049	T. 3 S., R. 21 E., Salt Lake Sec. 13: Lot 1, W2NE, SENE, NENW, S2NW, SW, NWSE; Sec. 24: W2NW, W2SW; Sec. 25: W2NW, W2SW, SESW. 840.16 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01**: Air Quality **UT-S-25**: No Surface Occupancy/Controlled Surface Use/Timing Limitations - Red Mountain/Dry Fork Complex ACEC. **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-100:** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: NO Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157**: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-230**: TL-Crucial Deer and Elk Winter Range **UT-S-231:** CSU – Crucial Deer Winter Range **UT-S-261**: TL-Raptor Buffers **UT-S-347 GRSG:** No Surface Occupancy - Greater Sage-Grouse PHMA **UT-S-348 GRSG**: Controlled Surface Use/ NSO - Disturbance Cap **UT-S-349 GRSG**: Controlled Surface Use/ NSO - Density Limitation **UT-S-350 GRSG**: Timing Limitation/Controlled Surface Use- Breeding Season Noise Limitations **UT-S-352 GRSG:** Controlled Surface Use -Tall Structures **UT-S-353 GRSG:** Timing Limitation - Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-S-354 GRSG: Timing Limitation - Greater Sage-Grouse Brood Rearing **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-02:** Crucial Winter Mule Deer and Elk Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-51**: Special Status Plants - Not Federally Listed **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site Rows **UT-LN-96**: Air Quality Mitigation Measures **UT-LN-99**: Regional Ozone Formation Controls **UT-LN-102**: Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-129**: Greater Sage-Grouse-Disturbance Cap **UT-LN-130**: Greater Sage-Grouse Density Limitation **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 052	T. 6 S., R. 21 E., Salt Lake Secs. 3, 10 and 15: All. 1,794.16 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01** Air Quality **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-205:** Timing Limitation - Greater Sage-Grouse Brood Rearing and Nesting **UT-S-207:** Controlled Surface Use - Greater Sage-Grouse (Structures) **UT-S-247:** TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL - Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-51** Special Status Plants- Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-89:** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-113:** Western Yellow-Billed Cuckoo **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-132: Greater Sage-Grouse- Required Design Features **UT-LN-133**: Greater Sage-Grouse- Buffer
UT1217 – 053	T. 6 S., R. 21 E., Salt Lake Secs. 6 and 7: All. 1,155.38 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01** Air Quality **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL - Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-89:** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-113**: Western Yellow-Billed Cuckoo **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **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
UT1217 – 054	T. 6 S., R. 21 E., Salt Lake Sec. 11: All; Sec. 12: Lots 1, 2, 7, 8, S2; Sec. 14: Lots 7, 8, N2NW, SWNW, W2SW. 1,401.43 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resource Stipulations **UT-S-01** Air Quality **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-205:** Timing Limitation - Greater Sage-Grouse Brood Rearing and Nesting **UT-S-207:** Controlled Surface Use - Greater Sage-Grouse (Structures) **UT-S-247:** TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL - Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-25:** White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83** Site Rows

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-85 Tar Sands Area **UT-LN-89:** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-113:** Western Yellow-Billed Cuckoo **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **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
UT1217 – 055	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247:** TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL-Raptor Buffers **UT-S-278:** Controlled Surface Use- Bald Eagle Winter Roost **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05** Listed Plant Species **T&E-12** Pariette Cactus (Sclerocactus Brevispinus) and Uinta Basin hookless cactus [Sclerocactus Glaucus (Brevispinus and Wetlandicus)] **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-37:** Bald Eagle Habitat **UT-LN-45:** Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-51:** Special Status Plants – Not Federally Listed **UT-LN-60** Steep Slopes **UT-LN-61** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83** Site Rows **UT-LN-89:** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-107:** Bald Eagle **UT-LN-113:** Western Yellow-Billed Cuckoo **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 056	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01** Air Quality **UT-S-96** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-S-157 No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-175** controlled Surface Use/Timing Limitations Cultural Resources - Upper willow Creek Area of the Book Cliffs **UT-S-230:** TL-Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05** Listed Plant Species **T&E-20** Clay reed-mustard (Schoencrambe Argillacea) **T&E-21** Shrubby reed-mustard (Schoenocrambe Suffrutescens) T&E-22: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-02**: Crucial Winter Mule Deer and Elk Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **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-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site ROWS **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132:** Greater Sage-Grouse- Required Design Features
UT1217 – 057	T. 3 S., R. 22 E., Salt Lake Sec. 17: E2. 320.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resource Stipulations **UT-S-01** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-174** No Surface Occupancy/Controlled Surface Use/Timing Limitations Cultural Resources - Uinta Foothills Area **UT-S-230**: TL-Crucial Deer and Elk Winter Range UT-S -231: CSU – Crucial Deer Winter Range **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02:** Crucial Winter Mule Deer and Elk Habitat **UT-LN-25:** White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49:** Utah Sensitive Species UT-LN-56: Drinking Water Source Protection Zone **UT-LN-60** Steep Slopes **UT-LN-61** Severe Soil Erosion & Steep Slopes **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site Rows **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-102 Air Quality Analysis **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 058	T. 3 S., R. 22 E., Salt Lake Sec. 20: Lots 1, 2, S2NE, SE; Sec. 21: All; Sec. 22: N2, SW, N2SE, SWSE. 1,566.14 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-174** No Surface Occupancy/Controlled Surface Use/Timing Limitations Cultural Resources - Uinta Foothills Area **UT-S-230:** TL-Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range **UT-S-261**: TL-Raptor Buffers **UT-S-347 GRSG:** No Surface Occupancy - Greater Sage-Grouse PHMA **UT-S-348 GRSG:** Controlled Surface Use/ NSO - Disturbance Cap **UT-S-349 GRSG**: Controlled Surface Use/ NSO - Density Limitation **UT-S-350 GRSG:** Timing Limitation/Controlled Surface Use- Breeding Season Noise Limitations **UT-S-352 GRSG:** Controlled Surface Use -Tall Structures **UT-S-353 GRSG:** Timing Limitation - Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing **UT-S-354 GRSG:** Timing Limitation - Greater Sage-Grouse Brood Rearing **UT-S-355 GRSG:** Timing Limitation - Greater Sage-Grouse Winter habitat **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02:** Crucial Winter Mule Deer and Elk Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45:** Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-53:** Riparian Areas **UT-LN-60** Steep Slopes **UT-LN-61** Severe Soil Erosion & Steep Slopes **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-129:** Greater Sage-Grouse-Disturbance Cap **UT-LN-130:** Greater Sage-Grouse Density Limitation **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 059	T. 3 S., R. 22 E., Salt Lake Sec. 27: Lots 2-5, 8-10, SWNE, SENW, E2SW, W2SE; Sec. 34: Lots 1-3, W2NE, NW. 903.32 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-174** No Surface Occupancy/Controlled Surface Use/Timing Limitations Cultural Resources - Uinta Foothills Area

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-S-230: TL-Crucial Deer and Elk Winter Range **UT-S-261:** TL-Raptor Buffers **UT-S-347 GRSG:** No Surface Occupancy - Greater Sage-Grouse PHMA **UT-S-348 GRSG:** Controlled Surface Use/ NSO - Disturbance Cap **UT-S-349 GRSG**: Controlled Surface Use/ NSO - Density Limitation **UT-S-350 GRSG:** Timing Limitation/Controlled Surface Use- Breeding Season Noise Limitations **UT-S-352 GRSG:** Controlled Surface Use -Tall Structures **UT-S-353 GRSG:** Timing Limitation - Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing **UT-S-354 GRSG:** Timing Limitation - Greater Sage-Grouse Brood Rearing **UT-S-355 GRSG:** Timing Limitation - Greater Sage-Grouse Winter habitat **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-60** Steep Slopes **UT-LN-61** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-129:** Greater Sage-Grouse-Disturbance Cap **UT-LN-130:** Greater Sage-Grouse Density Limitation **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 060	T. 3 S., R. 22 E., Salt Lake Sec. 28: All; Sec. 29: NE, E2SE; Sec. 33: N2NE, N2NW, SWNW. 1,080.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulations **UT-S-01** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-174** No Surface Occupancy/Controlled Surface Use/Timing Limitations Cultural Resources - Uinta Foothills Area **UT-S-230:** TL-Crucial Deer and Elk Winter Range **UT-S-261:** TL-Raptor Buffers **UT-S-347 GRSG:** No Surface Occupancy - Greater Sage-Grouse PHMA **UT-S-348 GRSG:** Controlled Surface Use/ NSO - Disturbance Cap **UT-S-349 GRSG**: Controlled Surface Use/ NSO - Density Limitation **UT-S-350 GRSG:** Timing Limitation/Controlled Surface Use- Breeding Season Noise Limitations **UT-S-352 GRSG:** Controlled Surface Use -Tall Structures **UT-S-353 GRSG:** Timing Limitation - Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing **UT-S-354 GRSG:** Timing Limitation - Greater Sage-Grouse Brood Rearing **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02:** Crucial Winter Mule Deer and Elk Habitat

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-25: White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-53**: Riparian Areas **UT-LN-60** Steep Slopes **UT-LN-61** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-129:** Greater Sage-Grouse-Disturbance Cap **UT-LN-130:** Greater Sage-Grouse Density Limitation **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 061	T. 3 S., R. 22 E., Salt Lake Sec. 31: Lots 2-4. 144.64 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulations **UT-S-01** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-230:** TL-Crucial Deer and Elk Winter Range **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02:** Crucial Winter Mule Deer and Elk Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45:** Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-53:** Riparian Areas **UT-LN-60** Steep Slopes **UT-LN-61** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 062	T. 4 S., R. 22 E., Salt Lake Sec. 6: Lots 4-7, E2SW; Sec. 7: Lot 1, E2NW, NESW, NWSE. 478.28 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-230:** TL-Crucial Deer and Elk Winter Range **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **UT-S-347 GRSG**: No Surface Occupancy - Greater Sage-Grouse PHMA **UT-S-348 GRSG:** Controlled Surface Use/ NSO - Disturbance Cap **UT-S-349 GRSG:** Controlled Surface Use/ NSO - Density Limitation

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-S-350 GRSG: Timing Limitation/Controlled Surface Use- Breeding Season Noise Limitations **UT-S-352 GRSG:** Controlled Surface Use -Tall Structures **UT-S-353 GRSG**: Timing Limitation - Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing **UT-S-354 GRSG:** Timing Limitation - Greater Sage-Grouse Brood Rearing **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02:** Crucial Winter Mule Deer and Elk Habitat **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **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-60** Steep Slopes **UT-LN-61** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83** Site Row, **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-129:** Greater Sage-Grouse-Disturbance Cap **UT-LN-130:** Greater Sage-Grouse Density Limitation **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 063	T. 4 S., R. 22 E., Salt Lake Sec. 34: E2, E2NW; Sec. 35: All. 1,040.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01** Air Quality **UT-S-96** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species T&E-22: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-25**: White-tailed and Gunnison Prairie Dog **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-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83** Site Row **UT-LN-89** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-102 Air Quality Analysis **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 064	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01** Air Quality **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247:** TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-25:** White-tailed and Gunnison Prairie Dog **UT-LN-45**: Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83** Site Rows **UT-LN-89** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-115** Light and Sound **UT-LN-128** Federal Flood Risk Management Standard
UT1217 – 065	T. 6 S., R. 22 E., Salt Lake Sec. 12: Lots 12, 13, SESW, NESE; Sec. 13: NE, NENW, S2NW, S2; Sec. 14: Lots 12, 13, NESE, S2SE; Sec. 15: Lots 12 and 13; Secs. 23 and 24: All. 2,282.27 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01** Air Quality **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **UT-S-278**: Controlled Surface Use-Bald Eagle Winter Roost **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-37:** Bald 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-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-89** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96** Air Quality Mitigation Measures

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-99 Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-107:** Bald Eagle **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 066	T. 6 S., R. 22 E., Salt Lake Sec. 17: SWNE, W2. 360.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01** Air Quality **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **UT-S-278**: Controlled Surface Use-Bald Eagle Winter Roost **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-37:** Bald Eagle Habitat **UT-LN-45**: Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-89** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102** Air Quality Analysis **UT-LN-107:** Bald Eagle **UT-LN-115** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 067	T. 7 S., R. 22 E., Salt Lake Sec. 1: W2SW; Sec. 3: Lots 1-8, S2NE, SENW, NESW, N2SE. 563.88 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-0**1 Air Quality **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45:** Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51:** Special Status Plants - Not Federally Listed **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-89** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96:** Air Quality Mitigation Measures

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-99: Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 068	T. 8 S., R. 22 E., Salt Lake Sec. 6: Lots 1-5, S2NE, SENW. 317.92 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01** Air Quality **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-123** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05** Listed Plant Species **T&E-12**: Pariette Cactus (Sclerocactus Brevispinus) and Uinta Basin hookless cactus [Sclerocactus Glaucus (Brevispinus and Wetlandicus)] **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-45:** Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51:** Special Status Plants - Not Federally Listed **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site Rows **UT-LN-89:** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128:** Federal Flood Risk Management Standard
UT1217 – 069	T. 4 S., R. 23 E., Salt Lake Sec. 28: S2NW, SW; Sec. 29: N2NE, SENE, S2SW, S2SE; Sec. 30: Lots 3, 4, SESW, S2SE; Sec. 31: Lots 1, 4, NE, E2NW, N2SE; Sec. 33: Lots 7, 8, NW, N2SW. 1,460.54 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-159**: Controlled Surface Use – Visual Resources – VRM II **UT-S-168:** Controlled Surface Use - Light and Sound: Areas Adjacent to Dinosaur National Monument **UT-S-230:** TL-Crucial Deer and Elk Winter Range **UT-S-231**: CSU – Crucial Deer Winter Range **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261**: TL-Raptor Buffers **UT-S-278**: Controlled Surface Use-Bald Eagle Winter Roost **UT-S-347 GRSG**: No Surface Occupancy - Greater Sage-Grouse PHMA **UT-S-348 GRSG:** Controlled Surface Use/ NSO - Disturbance Cap **UT-S-349 GRSG:** Controlled Surface Use/ NSO - Density Limitation **UT-S-350 GRSG**: Timing Limitation/Controlled Surface Use- Breeding Season Noise Limitations **UT-S-352 GRSG:** Controlled Surface Use -Tall Structures **UT-S-353 GRSG**: Timing Limitation - Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-S-354 GRSG: Timing Limitation - Greater Sage-Grouse Brood Rearing **UT-S-355 GRSG:** Timing Limitation - Greater Sage-Grouse Winter habitat **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-02:** Crucial Winter Mule Deer and Elk Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **UT-LN-37:** Bald 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-60:** Steep Slopes **UT-LN-61** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83** Site Rows **UT-LN-89** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-107:** Bald Eagle **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-129:** Greater Sage-Grouse-Disturbance Cap **UT-LN-130:** Greater Sage-Grouse Density Limitation **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 070	T. 4 S., R. 23 E., Salt Lake Sec. 34: Lots 5-7. 120.04 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy - Riparian, Floodplains, and Public water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-168** Controlled Surface Use - Light and Sound: Areas Adjacent to Dinosaur National Monument **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-25**: White-tailed and Gunnison Prairie Dog **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-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site Rows **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-128: Federal Flood Risk Management Standard
UT1217 – 071	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy - Riparian, Floodplains, and Public water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-168** Controlled Surface Use - Light and Sound: Areas Adjacent to Dinosaur National Monument **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-25:** White-tailed and Gunnison Prairie Dog **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-60:** Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site Rows **UT-LN-89** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128:** Federal Flood Risk Management Standard
UT1217 – 072	T. 7 S., R. 23 E., Salt Lake Secs. 5 and 6: All. Sec. 9: W2NW, NWSW. 1,861.16 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-tailed and Gunnison Prairie Dog **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-60:** Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site Rows **UT-LN-89** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard
UT1217 – 073	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	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100:** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-159**: Controlled Surface Use – Visual Resources – VRM II **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-45**: Migratory Birds **UT-LN-49:** Utah Sensitive Plants **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-53:** Riparian Areas **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWS **UT-LN-85** Tar Sands Area **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128:** Federal Flood Risk Management Standard **UT-LN-131:** Greater Sage-Grouse - Net Conservation Gain **UT-LN-132:** Greater Sage-Grouse- Required Design Features **UT-LN-134**: Graham's Beardtongue (penstemon grahamii) & White River Beardtongue (p. scariosus var. albifluvis) Conservation Area
UT1217 – 074	T. 8 S., R. 24 E., Salt Lake Sec. 1: Lots 1, 2, S2NE, SE. 320.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01** Air Quality **UT-S-96** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123** No Surface Occupancy - Riparian, Floodplains, and Public water Reserves **UT-S-157** No Surface Occupatancy/Controled Surface Use/Timing Limitation - Visual Resourse **UT-S-218:** CSU-White-Tailed Prairie Dog **UT-S-261**: TL-Raptor Buffers **UT-S-299**: CSU/TL-Black Footed Ferret PMZ

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		Notices **T&E-02:** Black footed Ferret **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWS **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128:** Federal Flood Risk Management Standard **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
UT1217 – 075	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100:** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123:** No Surface Occupancy - Riparian, Floodplains, and Public water Reserves **UT-S-157** No Surface Occupatancy/Controled Surface Use/Timing Limitation - Visual Resourse **UT-S-218**: CSU-White-Tailed Prairie Dog **UT-S-261**: TL-Raptor Buffers **UT-S-299:** CSU/TL-Black Footed Ferret PMZ **Notices** **T&E-02:** Black footed Ferret **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83** Site Rows **UT-LN-89** Horseshoe Milkvetch (Astragalus Equisolensis) **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128:** Federal Flood Risk Management Standard **UT-LN-131:** Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 076	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	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100:** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123:** No Surface Occupancy - Riparian, Floodplains, and Public water Reserves

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-S-157: No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-218**: CSU-White-Tailed Prairie Dog **UT-S-261:** TL-Raptor Buffers **UT-S-299**: CSU/TL-Black Footed Ferret PMZ **Notices** **T&E-02**: Black footed Ferret **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-45**: Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site ROWS **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128:** Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 077	T. 9 S., R. 24 E., Salt Lake Sec. 4: Lots 3, 4, S2NE, S2NW, S2. 552.49 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100:** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123:** No Surface Occupancy - Riparian, Floodplains, and Public water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-218**: CSU-White-Tailed Prairie Dog **UT-S-261:** TL-Raptor Buffers **UT-S-299:** CSU/TL-Black Footed Ferret PMZ **Notices** **T&E-02:** Black footed Ferret **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-16**: Pronghorn Fawning 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-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site Rows **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 078	T. 15 1/2 S., R. 24 E., Salt Lake	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
	Secs. 33 and 34: All. 905.62 Acres Grand County Vernal Field Office	**UT-S-01:** Air Quality **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100:** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-159**: Controlled Surface Use – Visual Resources – VRM II **UT-S-247:** TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-45:** Migratory Birds **UT-LN-49**: Utah Sensitive Species **UT-LN-53**: Riparian Areas **UT-LN-56**: Drinking Water Source Protection Zone **UT-LN-57:** Public Water Reserve **UT-LN-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-83:** Site Rows **UT-LN-85:** Tar Sands Area **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 079	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	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-96:** No Surface Occupancy - Fragile Soils/slopes Greater than 40 % **UT-S-99:** Controlled Surface Use - Fragile Soils/Slopes **UT-S-100:** Controlled Surface Use - Fragile Soil/Slopes (21%-40%) **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-159**: Controlled Surface Use – Visual Resources – VRM II **UT-S-247**: TL-Crucial Elk Calving and Deer Fawning Habitat **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-11**: Crucial Elk Calving and Deer Fawning Habitat **UT-LN-45:** Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-53:** Riparian Areas **UT-LN-56**: Drinking Water Source Protection Zone **UT-LN-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-83: Site ROWS **UT-LN-85** Tar Sands Area **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132:** Greater Sage-Grouse- Required Design Features
UT1217 – 080	T. 7 S., R. 25 E., Salt Lake Secs. 1, 11, 12, 13 and 14: All. 2,141.56 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-218**: CSU-White-Tailed Prairie Dog **UT-S-230:** TL-Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02**: Crucial Winter Mule Deer and Elk Habitat **UT-LN-16**: Pronghorn Fawning 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-60:** Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWS **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128:** Federal Flood Risk Management Standard **UT-LN-131:** Greater Sage-Grouse - Net Conservation Gain **UT-LN-132:** Greater Sage-Grouse- Required Design Features
UT1217 – 081	T. 7 S., R. 25 E., Salt Lake Sec. 3: Lots 3-6, 10-12, S2NE, S2NW, S2; Secs. 4 and 9: All; Sec. 10: SW. 2,395.57 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123**: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-218**: CSU-White-Tailed Prairie Dog **UT-S-230**: TL-Crucial Deer and Elk Winter Range **UT-S-231**: CSU – Crucial Deer Winter Range **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02**: Crucial Winter Mule Deer and Elk Habitat

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-16: Pronghorn Fawning Habitat **UT-LN-45:** Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-60:** Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes **UT-LN-68:** Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-83:** Site ROWS **UT-LN-85:** Tar Sands Area **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132:** Greater Sage-Grouse- Required Design Features
UT1217 – 082	T. 7 S., R. 25 E., Salt Lake Sec. 5: Lots 1-12, S2NE, S2NW, SE; Sec. 6: Lots 1, 8-12, S2NE, S2NW, SW; Sec. 8: E2. 1,574.63 Acres Uintah County, Utah Vernal Field Office	**<u>Stipulations</u>** **H-3120:** Endangered Species Act and Cultural Resources Stipulations **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-218**: CSU-White-Tailed Prairie Dog **UT-S-230:** TL-Crucial Deer and Elk Winter Range **UT-S-231**: CSU – Crucial Deer Winter Range **UT-S-261:** TL-Raptor Buffers **<u>Notices</u>** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **T&E-05**: Listed Plant Species **T&E-22**: Ute Ladies'-Tresses (Spiranthes Diluvialis) **UT-LN-02**: Crucial Winter Mule Deer and Elk Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-45**: Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-60:** Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes U**T-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWS **UT-LN-85:** Tar Sands Area **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **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
UT1217 – 083	T. 7 S., R. 25 E., Salt Lake Secs. 15, 21 and 22: All. 1,920.00 Acres	**<u>Stipulations</u>** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
	Uintah County, Utah Vernal Field Office	**UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource UT-S-159: Controlled Surface Use – Visual Resources – VRM II **UT-S-230:** TL-Crucial Deer and Elk Winter Range **UT-S-231**: CSU – Crucial Deer Winter Range **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02**: Crucial Winter Mule Deer and Elk Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-Tailed and Gunnison Prairie Dog **UT-LN-45:** Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-60:** Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83**: Site ROWS **UT-LN-85** Tar Sands Area **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132:** Greater Sage-Grouse- Required Design Features
UT1217 – 084	T. 7 S., R. 25 E., Salt Lake Secs. 17, 18, 19 and 20: All. 2,560.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surfaces Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-205:** Timing Limitation - Greater Sage-Grouse Brood Rearing and Nesting **UT-S-207**: Controlled Surface Use - Greater Sage-Grouse (Structures) **UT-S-230:** TL-Crucial Deer and Elk Winter Range **UT-S-231**: CSU – Crucial Deer Winter Range **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02**: Crucial Winter Mule Deer and Elk Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25**: White-Tailed and Gunnison Prairie Dog **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-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83:** Site ROWS **UT-LN-85** Tar Sands Area

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-96: Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **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
UT1217 – 085	T. 7 S., R. 25 E., Salt Lake Secs. 23 and 24: All; Sec. 25: Lots 1-3, W2NW, SWSW; Secs. 26 and 35: All. 2,370.88 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resource Stipulations **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource UT-S-159: Controlled Surface Use – Visual Resources – VRM II **UT-S-218**: CSU-White-Tailed Prairie Dog **UT-S-230**: TL-Crucial Deer and Elk Winter Range **UT-S-231**: CSU – Crucial Deer Winter Range **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03:** Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02**: Crucial Winter Mule Deer and Elk Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-45:** Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-60:** Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes **UT-LN-68:** Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-83** Site Rows **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132:** Greater Sage-Grouse- Required Design Features
UT1217 – 086	T. 7 S., R. 25 E., Salt Lake Secs. 27, 33 and 34: All. 1,920.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120:** Endangered Species Act and Cultural Resources Stipulation **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource UT-S-159: Controlled Surface Use – Visual Resources – VRM II **UT-S-218**: CSU-White-Tailed Prairie Dog **UT-S-230:** TL-Crucial Deer and Elk Winter Range **UT-S-231**: CSU – Crucial Deer Winter Range **UT-S-261:** TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02**: Crucial Winter Mule Deer and Elk Habitat

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
		UT-LN-16: Pronghorn Fawning 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-60:** Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-85** Tar Sands Area **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features
UT1217 – 087	T. 7 S., R. 25 E., Salt Lake Secs. 28 and 29: All; Sec. 30: NE, E2SE. 1,520.00 Acres Uintah County, Utah Vernal Field Office	**Stipulations** **H-3120**: Endangered Species Act Stipulation **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves **UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-159**: Controlled Surface Use – Visual Resources – VRM II **UT-S-230:** TL-Crucial Deer and Elk Winter Range **UT-S-231**: CSU – Crucial Deer Winter Range **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-02**: Crucial Winter Mule Deer and Elk Habitat **UT-LN-16**: Pronghorn Fawning Habitat **UT-LN-25:** White-Tailed and Gunnison Prairie Dog **UT-LN-45:** Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-51** Special Status Plants - Not Federally Listed **UT-LN-60:** Steep Slopes **UT-LN-61** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources **UT-LN-72**: High Potential Paleontological Resources **UT-LN-83**: Site ROWS **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **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
UT1217 – 103 **50% U.S. MINERAL INTEREST**	T. 5 S., R. 21 E., Salt Lake Sec. 13: S2SE; Sec. 24: N2NE. 160.00 Acres	**Stipulations** **H-3120**: Endangered Species Act and Cultural Resources Stipulations **UT-S-01:** Air Quality **UT-S-99**: Controlled Surface Use - Fragile Soils/Slopes **UT-S-123:** No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves

BLM Sale ID	Legal Description of Available Parcel	Lease Stipulations and Notices
	Uintah County, Utah Vernal Field Office	**UT-S-157:** No Surface Occupancy/Controlled Surface Use/Timing Limitation - Visual Resource **UT-S-261**: TL-Raptor Buffers **Notices** **T&E-03**: Endangered Fish of the Upper Colorado River Drainage Basin **UT-LN-25:** White-Tailed and Gunnison Prairie Dog **UT-LN-45:** Migratory Birds **UT-LN-49:** Utah Sensitive Species **UT-LN-53**: Riparian Areas **UT-LN-60:** Steep Slopes **UT-LN-61:** Severe Soil Erosion & Steep Slopes **UT-LN-68**: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources **UT-LN-96:** Air Quality Mitigation Measures **UT-LN-99:** Regional Ozone Formation Controls **UT-LN-102:** Air Quality Analysis **UT-LN-115:** Light and Sound **UT-LN-128**: Federal Flood Risk Management Standard **UT-LN-131**: Greater Sage-Grouse - Net Conservation Gain **UT-LN-132**: Greater Sage-Grouse- Required Design Features

Appendix B - Recommend Parcels for Deferral

UT1217 – 026
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

This parcel is being deferred because of conflicts with Cultural Resources

UT1217 – 043
T. 9 S., R. 19 E., Salt Lake
Sec. 13: NENE, S2NE, E2SW, SE.
360.00 Acres
Uintah County, Utah
Vernal Field Office

This parcel is being deferred because of conflicts with Cultural Resources

UT1217 – 050 Deferred
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

This parcel is being deferred due to conflicts with a Tar Sands Lease Sale

UT1217 – 051 Deferred
T. 5 S., R. 21 E., Salt Lake
Sec. 15: Lots 1-8;
Sec. 19: NE, E2NW, S2;
Sec. 22: Lots 1, 2, S2NE;
Sec. 23: Lots 4, 5, S2NW, SW;
Sec. 24: NESE;
Sec. 30: SWNW.
1,434.55 Acres
Uintah County, Utah
Vernal Field Office

This parcel is being deferred due to conflicts with a Tar Sands Lease Sale

Appendix C - Stipulation and Notice Exhibits

NUMBER	UTAH LEASE STIPULATIONS
H-3120-1	The Cultural Resources and Endangered Species Act Stipulations from the Competitive Leasing Handbook that are part of the proposed action, Section 2.3.2, will be attached to all leases.
UT-S-01	**AIR QUALITY** All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower shall not emit more than 2 grams of NO_x per horsepower-hour. **Exception:** This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. **Modification**: None **Waiver**: None **AND** All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour. **Exception**: None **Modification**: None **Waiver**: None
UT-S-11	**NO SURFACE OCCUPANCY – PARIETTE WETLANDS ACEC** No surface occupancy will be allowed within the Pariette Wetlands ACEC. **Exception:** None **Modification**: None **Waiver**: None
UT-S-21	**NO SURFACE OCCUPANCY – LEARS CANYON ACEC** No surface occupancy for oil and gas leasing within 1,375 acres of the Lears Canyon ACEC to protect relict vegetation. **Exception**: None **Modification**: None **Waiver**: None
UT-S-23	**NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATIONS – NINE MILE CANYON ACEC** 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. **Exception**: None **Modification**: None **Waiver**: None

NUMBER	UTAH LEASE STIPULATIONS
UT-S-25	**NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATIONS – RED MOUNTAIN/DRY FORK COMPLEX ACEC** No surface occupancy for oil and gas leasing within approximately 1,988 acres within Red Mountain/Dry Fork Complex ACEC. Approximately 21,802 acres will be open to leasing subject to moderate constraints such as timing limitations and controlled surface use. **Exception**: None **Modification**: None **Waiver**: None
UT-S-53	**NO SURFACE OCCUPANCY – DEVELOPED RECREATION SITES** No surface disturbing activities, shooting of firearms or grazing will occur within developed recreation sites. **Exception**: An exception will be granted if the disturbance were related to recreational infrastructure support. **Modification**: None **Waiver**: None
UT-S-96	**NO SURFACE OCCUPANCY – FRAGILE SOILS/SLOPES GREATER THAN 40%** No surface occupancy for slopes greater than 40 percent. **Exception:** 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: ● An erosion control strategy; ● GIS modeling; ● Proper survey and design by a certified engineer. **Modification:** 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. **Waiver**: None
UT-S-99	**CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES** The surface operating standards for oil and gas exploration and development (Gold Book) shall be used as a guide for surface-disturbing proposals on steep slopes/hillsides. **Exception**: None **Modification**: None **Waiver**: None

NUMBER	UTAH LEASE STIPULATIONS
UT-S-100	**CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES (21%-40%)** 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: ● An erosion control strategy; ● GIS modeling; ● Proper survey and design by a certified engineer. **Exception**: None **Modification**: None **Waiver**: None
UT-S-117	**NO SURFACE OCCUPANCY – RIVER CORRIDORS: LOWER GREEN RIVER** Between the Indian trust land boundary at Ouray and the Carbon County line, surface disturbing activities within the Lower Green River Corridor and Lower Green River Expansion will be subject to NSO within line of sight or up to one-half mile from the centerline of the river, whichever is less. **Exception**: Future facilities will be placed within the existing ROW corridor near the Four Mile Bottom area where an existing pipeline crosses the Green River. **Modification**: None **Waiver**: None
UT-S-123	**NO SURFACE OCCUPANCY – RIPARIAN, FLOODPLAINS, AND PUBLIC WATER RESERVES** 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. **Exception:** 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. **Modification**: None **Waiver**: None
UT-S-157	**NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATION – VISUAL RESOURCES** 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

NUMBER	UTAH LEASE STIPULATIONS
	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. **Exception:** Exempted are recognized utility corridors. **Modification:** None **Waiver:** None
UT-S-159	**CONTROLLED SURFACE USE – VISUAL RESOURCES - VRM II** 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. **Exception**: Exempted are recognized utility corridors. **Modification**: None **Waiver**: None
UT-S-168	**CONTROLLED SURFACE USE – LIGHT AND SOUND: AREAS ADJACENT TO DINOSAUR NATIONAL MONUMENT** Minimize noise and light pollution adjacent to Dinosaur National Monument using best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to direct noise away from the monument. Additionally, there will be a requirement to reduce light pollution by using methods such as limiting height of light poles, timing of lighting operations (meaning limiting lighting to times of darkness associated with drilling and work over or maintenance operations), limiting wattage intensity, and constructing light shields. However, this requirement is not applicable if it affects human health and safety. Movement of operations to mitigate sound and light impacts will be required to be at least 200 meters from the Monument boundary for VRM Classes II, III and IV. **Exception**: An exception may be granted if a determination is made that natural barriers or view sheds would meet these mitigation objectives or if human health and safety were adversely affected. **Modification**: None

NUMBER	UTAH LEASE STIPULATIONS
	Waiver: None
UT-S-174	**NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATIONS CULTURAL RESOURCES – UINTA FOOTHILLS AREA** The area will be open for oil and gas leasing and other surface disturbing activities subject to timing and controlled surface-use stipulations or NSO. **Exception**: Permit excavation of cultural resources sites in NSO areas. **Modification**: None **Waiver**: None
UT-S-175	**CONTROLLED SURFACE USE/TIMING LIMITATIONS CULTURAL RESOURCES – UPPER WILLOW CREEK AREA OF THE BOOK CLIFFS** To preserve the unique representation of the Archaic period, the surface disturbing activities will be subject to timing and controlled surface use stipulations. **Exception**: None **Modification**: None **Waiver**: None
UT-S-205	**TIMING LIMITATION – GREATER SAGE-GROUSE BROOD REARING AND NESTING** 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 **March 1 - June 15**. **Exception:** None **Modification:** None **Waiver:** None
UT-S-207	**CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (STRUCTURES)** 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. **Exception**: None **Modification**: None **Waiver**: None
UT-S-218	**CONTROLLED SURFACE USE – WHITE-TAILED PRAIRIE DOG** No surface-disturbing activities within 660 feet of prairie dog colonies identified within prairie dog habitat. No permanent aboveground facilities are allowed within the 660 feet buffer. **Exception:** An exception may be granted by the authorized officer if the applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to

NUMBER	UTAH LEASE STIPULATIONS
	develop a lease and avoid colonies the authorized officer will allow for loss of prairie dog colonies and/or habitat to satisfy terms and conditions of the lease. **Modification:** The authorized officer may modify the boundaries of the stipulation area if portions of the area does not include prairie dog habitat or *active* colonies are found outside current defined area, as determined by BLM. **Waiver:** May be granted if in the leasehold if it is determined that habitat no longer exists or has been destroyed.
UT-S-230	**TIMING LIMITATION – CRUCIAL DEER AND ELK WINTER RANGE** No surface disturbing activities in deer and elk crucial winter range from **December 1 - April 30**. **Exception**: 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. **Modification**: 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. **Waiver**: 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.
UT-S-231	**CONTROLLED SURFACE USE – CRUCIAL DEER WINTER RANGE** Within crucial deer winter range, no more than 10% of such habitat will be subject to surface disturbance and remain un-reclaimed at any given time. **Exception**: This stipulation may be excepted if either the resource values change or the lessee/operator demonstrates to BLMs satisfaction that impacts can be mitigated. **Modification**: None **Waiver**: None
UT-S-247	**TIMING LIMITATION – CRUCIAL ELK CALVING AND DEER FAWNING HABITAT** In order to protect crucial elk calving and deer fawning habitat exploration, drilling, and other development activity will not be allowed from **May 15 - June 30**. **Exception**: 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. **Modification**: None **Waiver**: None

NUMBER	UTAH LEASE STIPULATIONS
UT-S-261	**TIMING LIMITATION – RAPTOR BUFFERS** 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. **Exception**: None **Modification**: 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: 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) 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. 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 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. **Waiver**: None
UT-S-278	**CONTROLLED SURFACE USE – BALD EAGLE WINTER ROOST** 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. **Exception**: None **Modification**: None **Waiver**: None

NUMBER	UTAH LEASE STIPULATIONS
UT-S-299	**CONTROLLED SURFACE USE/TIMING LIMITATIONS – BLACK-FOOTED FERRET - PRIMARY MANAGEMENT ZONE AREA** BLM will manage the black-footed ferrets and the black-footed ferret primary management zone (PMZ) consistent with the Black-footed Ferret Reintroduction Plan Amendment (UT-080-1999-02) and those portions of the Cooperative Plan for the Reintroduction and Management of Black-footed Ferret in Coyote Basin, Uintah County, Utah that are consistent with this plan amendment. New power lines constructed through the PMZ will be raptor proof. Management activities within the PMZ will be conducted with the objective of maintaining at least 10,000 acres of prairie dog colonies. According to the US Fish and Wildlife Service (USFWS) and the Utah Division of Wildlife Resources (UDWR), a minimum of 8,000 acres is acceptable as long as the ferret habitat rating (the number of ferret families the habitat can support) does not fall below 50% of the 1989 levels. Whenever possible, such activities will avoid prairie dog habitat. Otherwise, activities will be designed to impact the smallest area possible and/or those areas with the lowest prairie dog densities. The creation of additional prairie dog habitat (e.g. burning vegetation and drilling new holes, etc.) will be required only if the disturbance or development reduces the prairie dog acreage below the 8,000 acre threshold. The period between breeding and emergence of young is a period of "sensitivity" for ferrets. This period extends from March 1 to July 15. The period between birth and emergence of young is a period of "critical" importance for successful ferret productivity. This period extends from May 1 to July 15. Activities involving the development or construction of temporary or permanent surface disturbances will be prohibited within 1/8 mile boundaries of known home ranges of female ferrets during the "critical" period from May 1 thru July15. The home ranges will be determined from data obtained from radio collard animals. Previously existing or permitted operations which may occur within these boundaries will continue normal operations; however, no new surface disturbances will be initiated at these sites during the "critical" period. If a ferret is discovered at a commercial facility (e.g. Gilsonite mine, well pad, power plant), it will then be decided by the USFWS and UDWR, if removal of the ferret was necessary and, if so, removal will be initiated within 48 hours. If the targeted animal(s) cannot be captured within 72 hours of the commencement of trapping activities, such activities will cease and be replaced by a monitoring program to ascertain the status of the animal(s). Further attempts to remove the subject animal(s) will be based on this monitoring. If ferrets are discovered at the site of a proposed commercial operation, then mitigation in the form of: delay of activities, movement of ferret(s), offsite prairie dog habitat development, redesign of activities, or any combination of the above will be required. The course of events chosen will be determined cooperatively by the operator, UDWR, the USFWS, and land management agencies.

NUMBER	UTAH LEASE STIPULATIONS
	Exception: Retrofitting of existing poles and towers to raptor proof standards will not be required. Maintenance or construction of previously existing or permitted operations can continue. Ephemeral surface disturbance (disturbance in prairie dog habitat for less than six months, after which it again becomes or can be made suitable for prairie dog use), such as prescribed fire or herbicide treatment, may be conducted within 1/8 mile of the boundary of the home range of a female from March 1 to May 1. In general, the disturbance should be completed before the critical period begins. The USFWS, UDWR, and the land management agencies will determine if this exemption applies. Normal travel and surveying activities will not be restricted. **Modification**: None **Waiver**: None
UT-S-316	**MATERIAL SITE RIGHTS-OF-WAY:** Lessee shall conduct operations in conformity with the following requirements: 1. The Utah State Department of Highways will have unrestricted rights of ingress of the property. 2. The lease will not conflict with the right of the Utah State Department of Highways to remove any road-building materials from the property. 3. The Utah State Department of Highways reserves the right to set up, operate, and maintain such facilities as are reasonable to expedite the removal, production, and use of the materials; and the lessee shall not interfere with the Highway Department's use of the property for such purposes.
UT-S-317	**UNIT JOINDER** The successful bidder will be required to join the Gate Canyon II Unit Agreement or show reason why a joinder should not be required.
UT-S-347 GRSG	**NO SURFACE OCCUPANCY - GREATER SAGE-GROUSE PRIORITY HABITAT MANAGEMENT AREAS*** No surface occupancy within Greater Sage-Grouse Priority Habitat Management Areas (PHMA). **Exception:** The Authorized Officer with concurrence with the State Director, may grant an exception only where the proposed action: i. Would not have direct, indirect, or cumulative effects on GRSG or its habitat; OR, ii. Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to GRSG. The conservation gain must include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts. The Authorized Officer may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed

NUMBER	UTAH LEASE STIPULATIONS
	action satisfies (i) or (ii). Such finding shall initially be made by a team of one field biologist or other GRSG expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publically available at least quarterly. **Modification:** None **Waiver:** None
UT-S-348 GRSG	**CONTROLLED SURFACE USE/NO SURFACE OCCUPANCY – DISTURBANCE CAP** Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent on all lands (regardless of land ownership) at each level: 1) PHMA associated with a GRSG population area (referred to as biologically significant units {BSU} when coordinating across state lines) and 2) within the proposed project analysis area to protect PHMA and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above (UT-S-347 GRSG) were granted. See Appendix E of the GRSG Approved RMP Amendment for disturbance calculation instructions. **Exception:** None **Modification:** None **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-349 GRSG	**CONTROLLED SURFACE USE/NO SURFACE OCCUPANCY – DENSITY LIMITATION** Limit the density of energy and mining facilities within Priority Habitat Management Areas (PHMA) during project authorization to an average of one energy/mineral facility per 640 acres on all lands (regardless of land ownership) in PHMA within a proposed project analysis area to protect PHMA and the life-history needs of GRSG from habitat loss and limit fragmentation in PHMA. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above (UT-S-347 GRSG) were granted. See Appendix E of the GRSG Approved RMP Amendment for calculation details. **Exception:** None **Modification:** None **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.

NUMBER	UTAH LEASE STIPULATIONS
UT-S-350 GRSG	**TIMING LIMITATION/CONTROLLED SURFACE USE – BREEDING SEASON NOISE LIMITATIONS** Limit noise from discrete anthropogenic disturbances within Priority Habitat Management Areas (PHMA), including activities from construction, operation and maintenance, to below 10 decibels above ambient sound levels (baseline as available at the signing of the GRSG RMP Amendment ROD or as first measured thereafter) at occupied leks from 2 hours before to 2 hours after official sunrise and sunset during breeding season to protect strutting Greater Sage-Grouse from auditory disturbance associated with development during the breeding season. **AND** Limit project related noise in other PHMA habitats and seasons where it would be expected to reduce functionality of habitats that support associated GRSG populations in order to protect GRSG from direct disturbance near leks within PHMA. **Exception:** None **Modification:** As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate measures would be implemented where necessary to minimize potential for noise impacts on PHMA GRSG population behavioral cycles. **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-352 GRSG	**CONTROLLED SURFACE USE – TALL STRUCTURES*** Limit the placement of permanent tall structures** within Priority Habitat Management Areas (PHMA) breeding and nesting habitats to minimize placement of structures that introduction of e new perching and/or nesting opportunities for avian predators. **Exception:** None **Modification:** None **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted. **For the purposes of this restriction, a tall structure is any man-made structure that provides for perching/nesting opportunities for predators (e.g., raptors and ravens) that are naturally absent, or that decreases the use of an area by GRSG. A determination as to whether something is considered a tall structure will be made based on local conditions such as existing vegetation or topography.
UT-S-353 GRSG	**TIMING LIMITATION – GREATER SAGE-GROUSE BREEDING, NESTING AND EARLY BROOD REARING***

NUMBER	UTAH LEASE STIPULATIONS
	Manage uses to prevent disturbance to GRSG populations and habitat by applying seasonal restrictions (e.g., no surface disturbance) between Feb 15 – June 15, in Greater Sage-Grouse Priority Habitat Management Areas (PHMA) breeding, nesting, and early brood-rearing habitat to seasonally protect those habitats from disruptive activity. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with the appropriate State of Utah agency. **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-354 GRSG	**TIMING LIMITATION – GREATER SAGE-GROUSE BROOD-REARING** Manage uses to prevent disturbance to GRSG populations and habitat by applying seasonal restrictions (e.g., no surface disturbance) between April 15 – August 15 in the Greater Sage-Grouse (GRSG) Priority Habitat Management Areas (PHMA) brood-rearing habitat to seasonally protect that habitat from disruptive activity. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with the appropriate State of Utah agency. **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-355 GRSG	**TIMING LIMITATION – GREATER SAGE-GROUSE WINTER HABITAT** Manage uses to prevent disturbance to GRSG populations and habitat by applying seasonal restrictions (e.g., no surface disturbance) between Nov 15 – March 15 in Priority Habitat Management Areas (PHMA) for Greater Sage-Grouse (GRSG) winter habitat to protect GRSG within PHMA from disruptive activity during the winter season. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with the appropriate State of Utah agency.

NUMBER	UTAH LEASE STIPULATIONS
	Waiver: None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.

NUMBER	UTAH LEASE NOTICES
T&E-02	**BLACK-FOOTED FERRET** 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 *Cooperative Plan for the Reintroduction and Management of Black-Footed Ferrets in Coyote Basin, Uintah County, Utah* 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.
T&E-03	**ENDANGERED FISH OF THE UPPER COLORADO RIVER DRAINAGE BASIN** The Lessee/Operator is given notice that the lands in this parcel contain Critical Habitat for the Colorado River fish (bonytail, humpback chub, Colorado pike minnow, and razorback sucker) listed as endangered under the Endangered Species Act, or these parcels have watersheds that are tributary to designated habitat. Critical habitat was designated for the four endangered Colorado River fishes on March 21, 1994(59 FR 13374-13400). Designated critical habitat for all the endangered fishes includes those portions of the 100-year floodplain that contain primary constituent elements necessary for survival of the species. Avoidance or use restrictions may be placed on portions of the lease. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s). 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Avoid loss or disturbance of riparian habitats. 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate

NUMBER	UTAH LEASE NOTICES
	drilling in suitable riparian habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 6. Conduct watershed analysis for leases in designated critical habitat and overlapping major tributaries in order to determine toxicity risk from permanent facilities. 7. Implement Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, Technical Note 423). 8. Drilling will not occur within 100 year floodplains of rivers or tributaries to rivers that contain listed fish species or critical habitat. 9. In areas adjacent to 100-year flood plains, particularly in systems prone to flash floods, analyze the risk for flash floods to impact facilities, and use closed loop drilling, and pipeline burial or suspension according to Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, Technical Note 423, to minimize the potential for equipment damage and resulting leaks or spills. Water depletions from *any* portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect or adversely modify the critical habitat of the four resident endangered fish species, and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletion amounts must be reported to BLM. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.
T&E-05	**LISTED PLANT SPECIES** 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 1. Site inventories: a. Must be conducted to determine habitat suitability, 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, c. Documentation should include, but not be limited to individual plant locations and suitable habitat distributions, and d. All surveys must be conducted by qualified individuals. 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:

NUMBER	UTAH LEASE NOTICES
	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	**MEXICAN SPOTTED OWL** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for Mexican spotted owl, a federally listed species. The Lessee/Operator is given notice that the lands in this lease contain Designated Critical Habitat for the Mexican spotted owl, a federally listed species. Critical habitat was designated for the Mexican spotted owl on August 31, 2004 (69 FR 53181-53298). Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate

NUMBER	UTAH LEASE NOTICES
	measures will depend whether the action is temporary or permanent, and whether it occurs within or outside the owl nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s). 2. Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the conservation measures below if project activities occur within 0.5 mile of suitable owl habitat. Determine potential effects of actions to owls and their habitat. a. Document type of activity, acreage and location of direct habitat impacts, type and extent of indirect impacts relative to location of suitable owl habitat. b. Document if action is temporary or permanent. 3. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 4. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in canyon habitat suitable for Mexican spotted owl nesting. 6. For all temporary actions that may impact owls or suitable habitat: a. If the action occurs entirely outside of the owl breeding season (March 1 – August 31), and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey. b. If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity must be delayed until outside of the breeding season. c. Rehabilitate access routes created by the project through such means as raking out scars, re-vegetation, gating access points, etc. 7. For all permanent actions that may impact owls or suitable habitat: a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities.

NUMBER	UTAH LEASE NOTICES
	b. If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC). c. Avoid drilling and permanent structures within 0.5 mi of suitable habitat unless surveyed and not occupied. d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims. e. Limit disturbances to and within suitable habitat by staying on approved routes. f. Limit new access routes created by the project. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.
T&E-12	**PARIETTE CACTUS (*SCLEROCACTUS BREVISPINUS*) AND UINTA BASIN HOOKLESS CACTUS [*SCLEROCACTUS GLAUCUS (BREVISPINUS AND WETLANDICUS*)]** 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. 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 (http://www.fws.gov/endangered/wildlife.html). 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: 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing

NUMBER	UTAH LEASE NOTICES
	activities to determine if suitable Pariette cactus and Uinta Basin hookless cactus habitat is present. 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. *Sclerocactus brevispinus* surveys should be conducted March 15th to June 30th, unless extended by the BLM ii. *Sclerocactus 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 *Sclerocactus brevispinus* and one year from the survey date for *Sclerocactus wetlandicus.* 3. Design project infrastructure to minimize impacts within suitable habitat[2]: 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[3], 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. 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, 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

NUMBER	UTAH LEASE NOTICES
	techniques when the pipeline crosses the habitat to ensure the pipelines don't move towards the population, d. Before and during construction, areas for avoidance should be visually identifiable in the field (e.g., flagging, temporary fencing, rebar, etc.), e. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, f. Designs will avoid concentrating water flows or sediments into occupied habitat, g. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and h. 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 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. 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. 7. The lessee will observe the management and conservation measures developed for the Level 1 and 2 Core Conservation Areas that have been identified by the USFWS. These conservation measures include disturbance caps (no further disturbance in Core 1 Areas and a 5% disturbance cap in Core 2 Areas). 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.
T&E-20	**CLAY REED - MUSTARD (*SCHOENCRAMBE ARGILLACEA*)** 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: 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

NUMBER	UTAH LEASE NOTICES
	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 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: 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 (usually May 1st to June 5th, in the Uintah 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), 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, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until May 1st the following year. 3. Design project infrastructure to minimize impacts within suitable habitat[2]: a. 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,

NUMBER	UTAH LEASE NOTICES
	b. Reduce well pad size to the minimum needed, without compromising safety, c. Limit new access routes created by the project, d. Roads and utilities should share common right-of-ways where possible, e. 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, f. Place signing to limit off-road travel in sensitive areas, and g. Stay on designated routes and other cleared/approved areas. 4. Within occupied habitat[3], project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: a. 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, b. Follow the above recommendations (3.) for project design within suitable habitats, c. 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, d. 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, e. 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, f. 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, g. 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, h. Construction activities will not occur from May 1st through June 5th within occupied habitat, i. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.,

NUMBER	UTAH LEASE NOTICES
	j. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, k. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and l. 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 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. 6. 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. 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.
T&E-21	**SHRUBBY REED - MUSTARD (*SCHOENOCRAMBE SUFFRUTESCENS)*** 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. 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 (http://www.fws.gov/endangered/wildlife.html). Occupied habitat is defined as areas currently or historically known to support shrubby reed-mustard;

NUMBER	UTAH LEASE NOTICES
	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 shrubby reed-mustard habitat is present. 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 (April 15th to August 1st, unless extended by the BLM), 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, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until April 15th the following year. 3. Design project infrastructure to minimize impacts within suitable habitat: 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

NUMBER	UTAH LEASE NOTICES
	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 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. 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. 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.
T&E-22	**UTE LADIES'-TRESSES (*SPIRANTHES DILUVIALIS*)** 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

NUMBER	UTAH LEASE NOTICES
	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 <http://www.fws.gov/endangered/wildlife.html>. 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: 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. 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 USFWS accepted survey protocols, b. 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, c. 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 Uintah 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), d. 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, e. Will include, but not be limited to, plant species lists, habitat characteristics, source of hydrology, and estimated hyroperiod, and f. Will be valid until August 1st the following year. 3. Design project infrastructure to minimize direct or indirect impacts to suitable habitat both within and downstream of the project area: a. Alteration and disturbance of hydrology will not be permitted, b. Reduce well pad size to the minimum needed, without compromising safety, c. Limit new access routes created by the project, d. Roads and utilities should share common right-of-ways where possible, e. Reduce width of right-of-ways and minimize the depth of excavation needed for the road bed, f. Construction and right-of-way management measures should avoid soil

NUMBER	UTAH LEASE NOTICES
	compaction that would impact Ute ladies' tresses habitat, g. 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), h. Place signing to limit off-road travel in sensitive areas, i. Stay on designated routes and other cleared/approved areas, and j. All disturbed areas will be re-vegetated with species approved by USFWS and BLM botanists. 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. 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, c. 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, d. Before and during construction, areas for avoidance should be visually identifiable in the field (e.g., flagging, temporary fencing, rebar, etc.), e. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, f. Designs will avoid altering site hydrology and concentrating water flows or sediments into occupied habitat, g. 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 h. 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 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.

NUMBER	UTAH LEASE NOTICES
	6. 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.
UT-LN-02	**CRUCIAL WINTER MULE DEER AND ELK HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing crucial mule deer and/or elk winter habitat. Exploration, drilling and other development activities would be restricted from December 1 through April 30 to protect crucial winter range. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-11	**CRUCIAL ELK CALVING AND DEER FAWNING HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing crucial elk calving or deer fawning habitat. Exploration, drilling and other development activities may be restricted from May 15 through June 30 to protect calving / fawning. Modifications may be required in the Surface Use Plan of Operations including seasonal timing restrictions to protect the species and its habitat.
UT-LN-16	**PRONGHORN FAWNING HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing antelope fawning habitat. Exploration, drilling and other development activities may be restricted from May 1 through June 29 to protect antelope fawning. Modifications may be required in the Surface Use Plan of Operations including seasonal timing restrictions to protect the species and its habitat.
UT-LN-25	**WHITE-TAILED AND GUNNISON PRAIRIE DOG** The lessee/operator is given notice that this lease parcel has been identified as containing white-tailed or Gunnison prairie dog habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect white-tailed or Gunnison prairie dog from surface disturbing activities in accordance with the Endangered Species Act and 43 CFR 3101.1-2.
UT-LN-37	**BALD EAGLE HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing Bald Eagle Habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect the Bald Eagle and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.
UT-LN-40	**GOLDEN EAGLE HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing Golden Eagle Habitat. Modifications to the Surface Use Plan of

NUMBER	UTAH LEASE NOTICES
	Operations may be required in order to protect the Golden Eagle and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.
UT-LN-44	**RAPTORS** Appropriate seasonal and spatial buffers shall be placed on all known raptor nests in accordance with Utah Field Office Guidelines for Raptor Protection from Human and Land use Disturbances (USFWS 2002) and Best Management Practices for Raptors and their Associated Habitats in Utah (BLM 2006). All construction related activities will not occur within these buffers if pre-construction monitoring indicates the nests are active, unless a site-specific evaluation for active nests is completed prior to construction and if a BLM wildlife biologist, in consultation with USFWS and UDWR, recommends that activities may be permitted within the buffer. The BLM will coordinate with the USFWS and UDWR and have a recommendation within 3-5 days of notification. Any construction activities authorized within a protective (spatial and seasonal) buffer for raptors will require an on-site monitor. Any indication that activities are adversely affecting the raptor and/or its' young the on-site monitor will suspend activities and contact the BLM Authorized Officer immediately. Construction may occur within the buffers of inactive nests. Construction activities may commence once monitoring of the active nest site determines that fledglings have left the nest and are no longer dependent on the nest site. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-45	**MIGRATORY BIRD** The lessee/operator is given notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within priority habitats. Surveys should focus on identified priority bird species in Utah. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations.
UT-LN-49	**UTAH SENSITIVE SPECIES** The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, Migratory Bird Treaty Act and 43 CFR 3101.1-2.

NUMBER	UTAH LEASE NOTICES
UT-LN-51	**SPECIAL STATUS PLANTS: NOT FEDERALLY LISTED** 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.
UT-LN-53	**RIPARIAN AREAS** The lessee/operator is given notice that this lease has been identified as containing riparian areas. No surface use or otherwise disruptive activity allowed within 100 meters of riparian areas unless it can be shown that (1) there is no practicable alternative; (2) that all long-term impacts are fully mitigated; or (3) that the construction is an enhancement to the riparian areas. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-56	**DRINKING WATER SOURCE PROTECTION ZONE** This lease (or a portion thereof) is within a public Drinking Water Source Protection zone. Before application for a permit to drill (APD) submittal or any proposed surface-disturbing activity, the lessee/operator must contact the public water system manager to determine any zoning ordinances, best management or pollution prevention measures, or physical controls that may be required within the protection zones. Drinking Water Source Protection plans are developed by the public water systems under the requirements of R309-600. Drinking Water Source Protection for Ground-Water Sources. (Utah Administrative Code). There may also be county ordinances in place to protect the source protection zones, as required by Section 19-4-113 of the Utah Code. Incorporated cities and towns may also protect their drinking water sources using Section 10-8-15 of the Utah Code. This part of the Code gives cities and towns the extraterritorial authority to enact ordinances to protect a source of drinking water ... "For 15 miles above the point from which it is taken and for a distance of 300 feet on each side of such stream..." Class I cities (greater than 100,000 population) are granted authority to protect their entire watersheds. Some public water sources qualify for monitoring waivers which reduce their monitoring requirements for pesticides and volatile organic chemicals (VOCs). Exploration, drilling, and production activities within Source Protection zone 3 could jeopardize these waivers, thus requiring increased monitoring. Contact the public water system to determine what effect your activities may have on their monitoring waivers. Please be aware of other State rules to protect surface and ground water: the Utah Division of Water Quality Rules R317 Water Quality Rules; and Rules of the Utah Division of Oil, Gas and Mining, Utah Oil and Gas Conservation Rules R649. At the time of development, drilling operators will additionally conform to the operational regulations in Onshore Oil & Gas Order No. 2 (which requires the

NUMBER	UTAH LEASE NOTICES
	protection and isolation of all usable quality waters, ≤ 10,000 mg/L Total Dissolved Solids), Onshore Oil and Gas Order No. 7 (which prescribes measures required for the handling of produced water to insure the protection of surface and ground water sources) and the Surface Operating Standards and Guidelines for Oil and Gas Development, The Gold Book, Fourth Edition-Revised 2007 (which provides information and requirements for conducting environmentally responsible oil and gas operations). Additional mitigation measures may be necessary to prevent adverse impacts from oil and gas exploration and development activities. Mitigation measures may include submitting an erosion control plan with best management practices (BMPs) that address rigorous interim reclamation which might include surface roughening, vegetative buffer strips, etc.; and sediment control through the use of sediment logs, silt fences, erosion control blankets, outlet/inlet protection of water control features such as culverts or diversion ditches, sediment traps, run on/run off pad design features. If project activities are close to sensitive areas or water sources a semi or closed-loop drilling system should be required.
UT-LN-57	**PUBLIC WATER RESERVE** The lessee/operator is given notice that lands in this lease have been identified as a designated Public Water Reserve. Surface occupancy or use is subject to the Public Water Reserve Executive Order No. 107. Modification to the Surface Use Plan of Operations may be required for the protection of the reserve up to and including no surface occupancy or use. Protection of a designated public water reserve as discussed in Public Water Reserve Executive Order No. 107. This limitation does not apply to operations and maintenance of producing wells.
UT-LN-60	**STEEP SLOPES** The lessee/operator is given notice that this lease has been identified as containing steep slopes. No surface use or otherwise disruptive activity allowed on slopes in excess of 30 percent without written permission from the Authorized Officer. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-61	**SEVERE SOIL EROSION & STEEP SLOPES** The lessee/operator is given notice that the lands in this lease have been identified as having critical to severe soil erosion conditions and slopes exceeding 40%. The authorized officer may prohibit surface disturbing activities during wet and muddy periods to minimize watershed damage. Modifications to the Surface Use Plan of Operations may also be required. This limitation does not apply to operation and maintenance of producing wells.
UT-LN-68	**NOTIFICATION & CONSULTATION REGARDING CULTURAL RESOURCES** 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

NUMBER	UTAH LEASE NOTICES
	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.
UT-LN-72	**PALEONTOLOGICAL** The lessee/operator is given notice that this lease has been identified as containing paleontological resources. Surveys will be required whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within geological strata that may contain important paleontological resources. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Exploration, drilling and other development activities may be restricted based on the result of the field survey; the authorized officer will determine appropriate mitigations. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-83	**SITE ROW** The lessee/operator is given notice that lands in this lease have an existing site ROW present. Modifications to the Surface Use Plan of Operations may be required or other appropriate mitigation as deemed necessary by the BLM Authorized Officer in order to protect the valid existing rights.
UT-LN-85	**TAR SANDS AREA** Section 350 of the Energy Policy Act of 2005, enacted August 8, 2005, and amended the Mineral Leasing Act to authorize the Secretary of Interior to issued oil and gas leases in special tar sand areas. Please be advised that all or part of this lease parcel lies within a Special Tar Sands Area. The successful bidder should be aware that special tar sands underlie this lease area. The authorized officer may modify the location or timing of oil and gas activities to provide for future tar sand development.
UT-LN-89	**HORSESHOE MILKVETCH *(ASTRAGALUS EQUISOLENSIS)*** In order to minimize effects to the federal candidate horseshoe milkvetch, 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) will not result in a trend toward federal listing of the species. 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

NUMBER	UTAH LEASE NOTICES
	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 horseshoe milkvetch; characteristics include sagebrush, shadscale, horsebrush, and other mixed desert shrub communities in Duchesne River Formation soils at 4,790 to 5,185 feet. Occupied habitat is defined as areas currently or historically known to support horseshoe milkvetch; 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 horseshoe milkvetch habitat is present. 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 (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), c. Will occur within 300' from the centerline 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 May 1st the following year. 3. Design project infrastructure to minimize impacts within suitable habitat[2]: 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,

NUMBER	UTAH LEASE NOTICES
	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 May 1st to June 5th (flowering period); dust abatement applications will be comprised of water only, d. The edge of the well pad should be located at least 300' 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 suitable habitat to ensure pipelines don't move towards the population, f. Construction activities will not occur from May 1st through June 5th 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 horseshoe milkvetch 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. 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. 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 coordination with the U.S. Fish and Wildlife Service.
UT-LN-90	**GRAHAM'S BEARDTONGUE (*PENSTEMON GRAHAMII*)** In order to minimize effects to the federally proposed Graham's beardtongue, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service) developed the following avoidance and minimization measures. 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

NUMBER	UTAH LEASE NOTICES
	disturbance area within potential habitat[1] prior to any ground disturbing activities to determine if suitable Graham's beardtongue habitat is present. 2. Within suitable habitat[3], 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[4] 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 April 15th to May 20th 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), c. Will occur within 300' from the centerline 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 April 15th the following year. 3. Design project infrastructure to minimize impacts within suitable habitat[2]: 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[4], 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 20th (flowering period); dust abatement applications will be comprised of water only, d. The edge of the well pad should be located at least 300' 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

NUMBER	UTAH LEASE NOTICES
	techniques when the pipeline crosses the habitat (exposed raw shale knolls and slopes derived from the Parachute Creek and Evacuation Creek members of the geologic Green River Formation) to ensure 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 Graham's beardtongue 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 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 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. 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 conservation of the species.
UT-LN-96	**AIR QUALITY MITIGATION MEASURES** The lessee is given notice that the Bureau of Land Management (BLM) in coordination with the U.S. Environmental Protection Agency and the Utah Department of Air Quality, among others, has developed the following air quality mitigation measures that may be applied to any development proposed on this lease. Integration of and adherence to these measures may help minimize adverse local or regional air quality impacts from oil and gas development (including but not limited to construction, drilling, and production) on regional ozone formation. • All internal combustion equipment would be kept in good working order. • Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer. • Open burning of garbage or refuse would not occur at well sites or other facilities.

NUMBER	UTAH LEASE NOTICES
	• Drill rigs would be equipped with Tier II or better diesel engines. • Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater. • Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers. • During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible. • Well site telemetry would be utilized as feasible for production operations. • Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr for engines <300HP; and 1g NOx/bhp-hr for engines >300HP. Additional site-specific measures may also be employed to avoid or minimize effects to local or regional air quality. These additional measures will be developed and implemented in coordination with the U.S. Environmental Protection Agency, the Utah Department of Air Quality, and other agencies with expertise or jurisdiction as appropriate based on the size of the project and magnitude of emissions.
UT-LN-99	**REGIONAL OZONE FORMATION CONTROLS** To mitigate any potential impact oil and gas development emissions may have on regional ozone formation, the following Best Management Practices (BMPs) would be required for any development projects: • Tier II or better drilling rig engines • Stationary internal combustion engine standard of 2g NOx/bhp-hr for engines <300HP and 1g NOx/bhp-hr for engines >300HP • Low bleed or no bleed pneumatic pump valves • Dehydrator VOC emission controls to +95% efficiency • Tank VOC emission controls to +95% efficiency
UT-LN-102	**AIR QUALITY ANALYSIS** The lessee/operator is given notice that prior to project-specific approval, additional air quality analyses may be required to comply with the National Environmental Policy Act, Federal Land Policy Management Act, and/or other applicable laws and regulations. Analyses may include dispersion modeling and/or photochemical modeling for deposition and visibility impacts analysis, control equipment determinations, and/or emission inventory development. These analyses may result in the imposition of additional project-specific air quality control measures.
UT-LN-107	**BALD EAGLE** The Lessee/Operator is given notice that the lands in this parcel contains nesting/winter roost habitat for the bald eagle. The bald eagle was de-listed in 2007; however, it is still afforded protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 1940). Therefore, avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend

NUMBER	UTAH LEASE NOTICES
	on whether the action is temporary or permanent, and whether it occurs within or outside the bald eagle breeding or roosting season. A temporary action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding or roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease will not lead to the need to consider listing the eagle as threatened or endangered. Integration of, and adherence to the following measures will facilitate review and analysis of any submitted permits under the authority of this lease. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s), and be conducted according to protocol. 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season of January 1 to August 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 5. Temporary activities within 0.5 miles of winter roost areas, e.g., cottonwood galleries, will not occur during the winter roost season of November 1 to March 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 6. No permanent infrastructure will be placed within 1.0 mile of nest sites. 7. No permanent infrastructure will be placed within 0.5 miles of winter roost areas. 8. Remove big game carrion from within 100 feet of lease roadways occurring within bald eagle foraging range. 9. Avoid loss or disturbance to large cottonwood gallery riparian habitats. 10. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species. Additional measures may also be employed to avoid or minimize effects to the species between the lease sale stage and lease development stage. These additional measures will be developed and implemented in coordination with the

NUMBER	UTAH LEASE NOTICES
	U.S. Fish and Wildlife Service.
UT-LN-113	**WESTERN YELLOW-BILLED CUCKOO** The Lessee/Operator is given notice that the lands in or adjacent to this parcel contain potentially suitable habitat that falls within the range for western yellow-billed cuckoo, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend upon whether the action is temporary or permanent, and whether it occurs within or outside the breeding and nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action could continue for more than one breeding season and/or cause a loss of habitat or displace western yellow-billed cuckoos through disturbances. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to, these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Avoidance and minimization measures include the following: 1. Habitat suitability within 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. 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. 3. For all temporary actions that may impact cuckoo or suitable habitat: a. If action occurs entirely outside of the cuckoo breeding season (June 1 – Aug 31), and leaves no structure or habitat disturbance, action can proceed without a presence/absence survey. b. If action is proposed between June 1 and August 31, presence/absence surveys for cuckoo will be conducted prior to commencing activity. If cuckoo are detected, activity should be delayed until September 1. c. Eliminate access routes created by the project through such means as raking out scars, revegetation, gating access points, etc. 4. For all permanent actions that may impact cuckoo or suitable habitat: a. Protocol level surveys by permitted individuals will be conducted prior to commencing activities. b. If cuckoos are detected, no activity will occur within 0.25 mile of occupied habitat. 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). d. Ensure noise levels at 0.25 mile from suitable habitat do not exceed baseline conditions. Placement of permanent noise-generating facilities

NUMBER	UTAH LEASE NOTICES
	should be determined by a noise analysis to ensure noise does not encroach upon a 0.25 mile buffer for suitable habitat. 5. Temporary or permanent actions will require monitoring throughout the duration of the project to ensure that western yellow-billed cuckoo or its habitat is not affected in a manner or to an extent not previous considered. Avoidance and minimization measures will be evaluated throughout the duration of the project. 6. Water produced as a by-product of drilling or pumping will be managed to ensure maintenance or enhancement of riparian habitat. 7. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 8. Ensure that water extraction or disposal practices do not result in change of hydrologic regime that would result in loss or degradation of riparian habitat. 9. Re-vegetate with native species all areas of surface disturbance within riparian areas and/or adjacent uplands. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.
UT-LN-115	**LIGHT AND SOUND** In accordance with the Vernal RMP Decision MIN-5, the BLM will seek to minimize light and sound pollution within the project area 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 (e.g., sensitive habitat, campgrounds, river corridors, and Dinosaur National Monument). Light pollution will be mitigated by using methods such as limiting height of light poles, timing of lighting operations (meaning limiting lighting to times of darkness associated with drilling and work over or maintenance operations), limiting wattage intensity, and constructing light shields. If a determination is made that natural barriers or view sheds will meet these mitigation objectives, the above requirements may not apply.
UT-LN-128	**FEDERAL FLOOD RISK MANAGEMENT STANDARD** 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.)
UT-LN-129	**GREATER SAGE-GROUSE – DISTURBANCE CAP** Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent of 1) PHMA associated with a GRSG population area (referred to as biologically significant units {BSU} when coordinating across

NUMBER	UTAH LEASE NOTICES
	state lines) and 2) within the proposed project analysis area, on all lands (regardless of ownership) at each level. (See Appendix E of the GRSG Approved RMP Amendment for disturbance calculation instructions)
UT-LN-130	**GREATER SAGE-GROUSE – DENSITY LIMITATION** Limit the density of energy and mining facilities within Priority Habitat Management Areas (PHMA) during project authorization to an average of one energy/mineral facility per 640 acres on all lands (regardless of land ownership) in PHMA within a proposed project analysis area to protect PHMA and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA.
UT-LN-131	**GREATER SAGE-GROUSE – NET CONSERVATION GAIN** In Priority and General Habitat Management Areas (PHMA and GHMA) all actions that result in habitat loss and degradation will require mitigation that provides a net conservation gain to the Greater Sage-Grouse (GRSG). Mitigation must account for any uncertainty associated with the effectiveness of the mitigation and will be achieved through avoiding, minimizing and compensating for impacts. Mitigation will be conducted according to the mitigation framework found in Appendix F in the Utah Approved Management Plan Amendment.
UT-LN-132	**GREATER SAGE-GROUSE – REQUIRED DESIGN FEATURES** Apply the Required Design Features (RDF)* in Appendix C of the Utah Approved Management Plan Amendment when leasing within Priority and General Habitat Management Areas (PHMA and GHMA). *RDFs may not be required if it is demonstrated through the NEPA analysis that the RDF associated project/activity is: • Documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable; • An alternative RDF, state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for GRSG or its habitat; • Provide no additional protection to GRSG or its habitat.
UT-LN-133	**GREATER SAGE-GROUSE - BUFFER** In Priority and General Habitat Management Areas (PHMA and GHMA), the BLM will apply the lek buffer-distances identified in the USGS Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Open File Report 2014-1239) in accordance with Appendix B, Applying Lek-Buffer Distances, consistent with valid and existing rights and applicable law in authorizing management actions.
UT-LN-134	**GRAHAM'S BEARDTONGUE** (Penstemon grahamii) & **WHITE RIVER BEARDTONGUE (**P. scariosus var. albifluvis)

NUMBER	UTAH LEASE NOTICES
	CONSERVATION AREA This lease is subject to the management requirements set forth in the Conservation Agreement for Graham's Beardtongue (Penstemon grahamii) and White River Beardtongue (P. scariosus var. albifluvis) (July 2014 as amended), to the extent this Conservation Agreement is further amended and/or in effect. 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 conservation of the species.

Appendix D – Development Assumptions

Table showing parcel development assumptions

*When there was no spacing order, it was assumed that the parcel would be developed on a 40-acre downhole spacing.

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
UT1217-022	980.79	None*	24	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells was calculated by dividing the total acreage of the parcel by the downhole 40-acre spacing order; the parcel is not within a 2-mile radius of any well that has produced any hydrocarbons within (2010-2016).
UT1217-023	2,125.03	None*	53	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells was calculated by dividing the total acreage of the parcel by the downhole 40-acre spacing order; the parcel is not within a 2-mile radius of any well that has produced any hydrocarbons within (2010-2016).
UT1217-024	258.40	None*	6	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells was calculated by dividing the total acreage of the parcel by the downhole 40-acre spacing order; the parcel is not within a 2-mile radius of any well that has produced any hydrocarbons within (2010-2016).
UT1217-025	800.00	None*	20	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad.

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														Down Hole: Maximum number of wells was calculated by dividing the total acreage of the parcel by the downhole 40-acre spacing order; the parcel is not within a 2-mile radius of any well that has produced any hydrocarbons within (2010-2016).
UT1217-027	641.04	None*	16	4	1	4	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	14	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: Very high hydrocarbon productivity within 2 miles of producing oil well test date 7/26/2014 Oil:95 Bbls/day Gas: 207Mcf/day Total cumulative Oil: 19,417 Bbls Total cumulative Gas: 61,060 Mcf Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-028	480.00	None*	12	1	1	1	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	3.5	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: Very high hydrocarbon productivity within 2 miles of producing oil well test date 7/26/2014 Oil:95 Bbls/day Gas: 207Mcf/day Total cumulative Oil: 19,417 Bbls Total cumulative Gas: 61,060 Mcf Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-029	80.00	None*	2	1	1	1	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	3.5	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: ~8 miles away from high production Area. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-030	1,020.76	None*	25	1	1	1	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	3.5	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: ~8.5 miles away from OW tested on 6/29/2013: 306 Bbls/day; Gas 47Mcf/day and Cumulative oil: 50,221 Bbls, Cumulative Gas:71,554 Mcf. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-031A	1,761.40	None*	44	1	1	1	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	3.5	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: ~8.5 miles away from OW tested on 6/29/2013: 306 Bbls/day; Gas 47Mcf/day and Cumulative oil: 50,221 Bbls, Cumulative Gas:71,554 Mcf. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-031B	320.0	None*	8	1	1	1	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	3.5	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: ~8.5 miles away from OW tested on 6/29/2013: 306 Bbls/day; Gas 47Mcf/day and Cumulative oil: 50,221 Bbls, Cumulative Gas:71,554 Mcf. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-032	1,122.72	None*	28	1	1	1	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	3.5	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														would be drilled on the pad until more production information is available. Down Hole: Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-033	2,199.60	None*	54	2	1	2	Greater Uinta Basin TSD[2,5]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: The maximum number of wells was calculated by total acreage of the parcel divided by the assumed 40-acre downhole spacing. Within 2-mile radius there are only 2 producing wells on the lease adjacent to the east. It is assumed that this parcel will have the same amount of development. 6/29/2013: 306 Bbls/day; Gas 47Mcf/day and Cumulative oil: 50,221 Bbls, Cumulative Gas:71,554 Mcf
UT1217-034	2,080.00	None*	52	2	1	2	Greater Uinta Basin TSD[2,5]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: The maximum number of wells was calculated by total acreage of the parcel divided by the assumed 40-acre downhole spacing. Within 2-mile radius there are only 2 producing wells on the lease adjacent to the east. It is assumed that this parcel will have the same amount of development. 6/29/2013: 306 Bbls/day; Gas 47Mcf/day and Cumulative oil: 50,221 Bbls, Cumulative Gas:71,554 Mcf
UT1217-035	600.00	None*	15	1	1	1	Greater Uinta Basin TSD[2,5]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-036	640.00	None*	16	1	1	1	Greater Uinta Basin TSD[2,5]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Assumed 40 acre spacing 306 Bbls/day; Gas 47Mcf/day and Within 5 miles of high producing field 2012-2013 Oil: 3782 Gas: 7946
UT1217-037	80.00	None*	2	2	1	2	Greater Uinta Basin TSD[2,5]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Assumed 40 acre spacing 306 Bbls/day; Gas 47Mcf/day and 2.1 miles away from Oil well: Cumulative oil: 50,221 Bbls, Cumulative Gas: 71,554 Mcf. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-038	2,234.48	None*	55	3	1	3	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	11	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: 306 Bbls/day; Gas 47Mcf/day and 2 miles away from Oil well:Cumulative oil: 50,221 Bbls, Cumulative Gas: 71,554 Mcf (2013-2017). Maximum number of wells is calculated by

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-039	853.78	None*	8	3	1	3	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	11	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-040	640.00	None*	16	4	1	4	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	14	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: Within 2 miles of a highly productive Field Total cumulative Oil: 137,804 BblsTotal cumulative Gas:229,209 Mcf first Production: 06/12/2013 production tests: Oil: 196 Bbls/dayGas: 48 Mcf/day. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-041	359. 20	None*	9	2	1	2	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	7	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: Within 2 miles of wells with Cumulative Oil: 50,221 Bbls, and Gas: 71,554 Mcf Production test date 6/29/2013 Oil:306 Bbls/day, Gas:47 Mcf/day Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
UT1217-042	320.00	None*	8	2	1	2	Gasco Uinta Basin EIS[4]	1.8	0.15	0.5[3]	0.24	1.2[3]	7	Disturbance: The Gasco ROD allowed 1 well pad per 160 acres. It is assumed that only one well would be drilled on the pad until more production information is available. Down Hole: Within 2 miles of 2 wells with Cumulative oil production: 53,805 Bbls, & Cumulative gas production: 110,296 Mcf Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-044	952.05	None*	23	1	1	1	Monument Butte EIS[7] (NSO so drilling would occur from outside the lease boundary)	2	0.18	1.3[6]	0.25	1.8	5.1	Disturbance: ROD allowed 1 large or small well pad per 40 or greater. With the majority of the lease being No Surface Occupancy, the surface disturbance would have to occur off lease or On the portion of the lease that has controlled surface use stipulations. Do to the shallow formations directional drilling would be limited decreasing the amount of well pads on or adjacent to the lease. Down Hole: Within 2 miles of a gas well first produced 3/13/2012 with 1,313 Mcf/day. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-045	290.76	None*	7	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells was calculated by dividing the total acreage of the parcel by the downhole 40-acre spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius. The parcel is not within two miles of any historically producing well (2010-2016).

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order.
UT1217-046	859.60	142-01 (40 acre)	21	10	1	10	Gusher EA[9]	2.0	0.26	2.9[8]	0.54	1.3	62	Disturbance: The Gusher EA development assumptions ranged from 2 to 6 wells per section, with a median of 1 well pad per 160 acres. It is assumed that there will be one well per pad until more production data is available. Down Hole: Within 2 miles of well with 75 Bbls/day on 7/10/13 and 37 Mcf/day gas. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-047	1,920.00	142-01(vacated), (40 acre)	48	10	1	10	Gusher EA[9]	2.0	0.26	2.9[8]	0.54	1.3	62	Disturbance: The Gusher EA development assumptions ranged from 2 to 6 wells per section, with a median of 1 well pad per 160 acres. It is assumed that there will be one well per pad until more production data is available. Down Hole: Within highly productive zone from 2012-2015 5 wells within 2 mile radius with total cumulative Oil production:222,423 Bbls & Cumulative Gas prod.: 388,580 Mcf Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-048	80.00	270-06: (40 acre)	2	2	1	2	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Within highly productive zone from 2012-20155 wells within 2 mile radius with total cumulative Oil production:222,423 Bbls. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-049	840.16	None*	21	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	21	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historically producing wells, (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-052	1,794.16	None*	44	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-053	1,155.38	None*	28	1	1	1	Gusher EA[9]	2.0	0.26	2.9[8]	0.54	1.3	6.2	Disturbance: The Gusher EA development assumptions ranged from 2 to 6 wells per section, with a median of 1 well pad per 160 acres. It is assumed that there will be one well per pad until more production data is available. Down Hole: Not within 2 miles of any historically producing wells, (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-054	1,401.43	None*	35	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-055	320.00	2: 55's 1:none, other 1	2	2	1	2	QEP Greater Deadman Bench EIS[10]	3.15	0.18	0.65	0.18	0.65	8.9	Disturbance: The QEP Greater Deadman Bench Road allowed 1 well pad per 40 or greater acres. It is assumed that each well pad will have one well, until more production information is available. Down Hole: T he maximum number of wells per parcel is calculated by the parcel's total acreage divided by the spacing order. 3 small parcels only one falls in (40.84 acres) 145-11 (160 acre spacing),All 3 individual parcels fall within 2 miles of a historically productive zone (2012- 2014).
UT1217-056	1,280.00	None*	32	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: The maximum number of wells is calculated by dividing the total parcel acreage by the spacing order. The Anticipated number of wells is a realistic estimate of the probability of a well actually producing, from the parcel based on historical (2010-2016) production data. Not within 2 miles of any historical producing wells (2010-2016).
UT1217-057	320.00	None*	8	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-058	1,566.14	None*	39	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-059	903.32	None*	22	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historical producing wells, (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-060	1,080.00	None*	27	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historical producing wells, (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-061	144.64	None*	3	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-062	478.28	None*	11	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historical producing wells. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-063	1,040.00	None*	26	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historically producing wells. (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-064	1,321.60	None*	33	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad.

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														Down Hole: Not within 2 miles of any historical producing wells. (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-065	2,282.27	None*	57	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historical producing wells. (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-066	360.00	None*	9	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historical producing wells. (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-067	563.88	None*	14	2	1	2	QEP Greater Deadman Bench EIS[10]	3.15	0.18	0.65	0.18	0.65	8.9	Disturbance: The QEP Greater Deadman Bench Road allowed 1 well pad per 40 or greater acres. It is assumed that each well pad will have one well, until more production information is available. Down Hole: Within 2 miles of well that produced 42 BBLs/day in 2013, and 3,254 Mcf gas/day on 10/12/2003 Maximum number of

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-068	317.92	None*	7	2	1	2	QEP Greater Deadman Bench EIS[10]	3.15	0.18	0.65	0.18	0.65	8.9	Disturbance: The QEP Greater Deadman Bench Road allowed 1 well pad per 40 or greater acres. It is assumed that each well pad will have one well, until more production information is available. Down Hole: within 2 miles of well that produced 126 Bbls/day on 2/1/2013 Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-069	1,460.54	None*	36	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historical producing wells. (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-070	120.04	None*	3	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historical producing wells. (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-071	1,175.42	None*	29	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	1	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any historical producing wells. (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-072	1,861.16	None*	46	10	1	10	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	40	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Within 2 miles of Gas well that produced 1,775 MCF gas/day on 2/13/2015, and another producing 3,254 Mcf/day on 10/6/2013. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-073	760.00	None*	19	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-074	320.00	129-01 (80 acre)	4	4	1	4	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	16	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Within 2 miles of well that produced 30 BBLs/day on 9/7/2013. No Gas. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-075	720.00	129-01 (80 acre)	9	5	1	5	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	20	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Within 2 miles of well that produced 30 BBLs/day on 9/7/2013 with no gas. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-076	360.00	Cause 129-01 (80 acre)	4	4	1	4	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	16	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Within 2 miles of well that produced 30 BBLs/day on 9/7/2013 with no gas. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
UT1217-077	552.49	Cause 179-15 (10acre)	55	1	1	1	West Bonanza EA[12]	2	0.25	1.8[11]	0.25	0[9]	3.8	Disturbance: The West Bonanza EA Decision Record allowed 1 well pad per 80 or greater acres. It is assumed that each well pad will have one well on it, until further production information is available. Down Hole: Within 2 miles of well that produced 150Bbls/day on 6/17/2011, and 68 Mcf/day gas. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-078	905.62	None*	22	10	1	10	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	40	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Within 2 miles of well tested 2/11/2011Producing 327 Mcf/day and 12 Bbls/day. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-079	959.23	None*	23	2	1	2	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Within 2 miles of well tested on 2/11/2011 that produced 327 Mcf/day and 12 Bbls/day. Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2 mile radius and topography.
UT1217-080	2,141.56	None*	53	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any wells that have historically produced any Hydrocarbons (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-081	2,395.57	None*	59	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any well that has historically produced any hydrocarbons (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-082	1,574.63	None*	39	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any well that have historically produced any hydrocarbons (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
UT1217-083	1,920.00	None*	48	1	1	1	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	4	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any well that have historically produced any hydrocarbons (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-084	2,560.00	None*	64	2	1	2	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any well that have historically produced any hydrocarbons (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-085	2,370.88	None*	59	2	1	2	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any well that have historically produced any hydrocarbons (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-

Parcel Number	Parcel Size (Acres)	Spacing Order (if any)	Maximum Number of Wells Per Parcel	Anticipated Number of Wells Per Parcel	Anticipated Number of Wells per Pad	Anticipated Number of Well Pads Per Parcel	Existing Documents used for the Disturbance Assumptions	Disturbance per Well Pad (Acres)	Road Length per Well Pad (Miles)	Road Disturbance per Well Pad (Acres)	Pipeline Length per Well Pad (Miles)	Pipeline Disturbance per Well Pad (Acres)[1]	Total Disturbance Per Parcel (Acres)	Considerations and Rationale Behind the Number of Wells and Well pads Assumed per Parcel.
														2016) production data within a 2-mile radius and topography.
UT1217-086	1,920.00	None*	48	2	1	2	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any well that have historically produced any hydrocarbons (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-087	1,520.00	None*	38	2	1	2	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any well that have historically produced any hydrocarbons (2010-2016). Maximum number of wells is calculated by dividing the parcel's total acreage by the spacing order. The Anticipated number of wells is a more realistic estimate of the potential activity level on the parcel, taking into account historical (2010-2016) production data within a 2-mile radius and topography.
UT1217-103	160.00	None*	4	2	1	2	Greater Uinta Basin TSD[2]	2	0.5	2	1	0	8	Disturbance: Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total number of well pads. Which came out to be 1.5 wells per pad. We then rounded down to the assumption of 1 well per well pad. Down Hole: Not within 2 miles of any wells that have produced any hydrocarbons (2010-2016). Within 5 miles of area of high productivity 2014 Oil well 8/13/2014 278 Bbls/day, 12 Mcf gas/day
Total	66,266.73 Acres		1,654 Wells	135 Wells		135 Well Pads							590 Acres	

Appendix E – Interdisciplinary Team Checklist

APPENDIX F: Interdisciplinary Team Checklist
INTERDISCIPLINARY TEAM CHECKLIST
RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)
Project Title: Vernal 2017 Lease Sale
NEPA Log Number: DOI-BLM-UT-G010-2017-0028
Project Leader: David Gordon
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.

Determination	Resource/Issue	Rationale for Determination	Signature	Date
PI	Air Quality & Greenhouse Gas Emissions	Leasing itself would not have impacts to air quality and GHG. 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.	Stephanie Howard	5/19/2017
NP	BLM natural areas	None present as per GIS and RMP review	Rene' Arce	5/19/2017
PI	Cultural: Archaeological Resources	The BLM conducted an intensive literature and data review for the 64 parcels. Previous survey conducted within the lease parcels resulted in 14,115.96 acres being surveyed or 21.3% of the total acres within the parcels. Analysis resulted in the identification of 127 previously recorded sites located within the proposed lease parcels of which BLM determined 40 to be eligible to the NRHP. Eligible sites include lithic scatters, rock shelters, campsites, trail maker, roads, canals, homesteads, corral, and dugout. The VFO determined that parcels 023, 032, 049, 054, 055, 065, 069, 083, and 085 are likely to have a moderate site density. All other parcels are likely to have a low site density. While site densities are expected to be mostly low, there is the understanding that oil and gas facilities development may occur within a sold parcel. For this reason and given the sensitive nature of some cultural resources within the project area, this lease sale has the potential to impact cultural resources within or near that parcel. Future authorized development may result in direct impacts to cultural resources, such as ground disturbing activities within site boundaries, or indirect impacts to cultural resources sensitive to visual and other indirect effects, such as rock art.	David Grant	6/20/2017

NI	Cultural: Native American Religious Concerns	No Traditional Cultural Properties (TCPs) are identified within the Area of Potential Effect. The proposed undertaking will not hinder access to or use of Native American religious sites. The BLM sent a letter to 13 tribes, leaders and cultural specialists on 04/07/2017. Consultation is ongoing.	David Grant	5/18/17
PI	Designated Areas: Areas of Critical Environmental Concern	Parcel 044 occurs within the Pariette Wetlands ACEC. Relevance and Importance (R&I) values include special status bird and plant habitat, and wetlands ecosystem. Parcel 049 occurs within the Red Mountain-Dry Fork ACEC. R&I values include relict plant communities, high value archaeological and paleontological sites, watershed, and crucial deer and elk habitat. Parcel 022, occurs within the Lears Canyon ACEC. R&I values include relict vegetation. Parcel 025 occurs within the Nine Mile Canyon ACECACEC. R&I values include high value scenery, cultural resources, and special status species.	Rene' Arce	5/09/2017
NI	Designated Areas: Wild and Scenic Rivers	Parcel 044 occurs marginally (approximately 39 acres) within the suitable Wild and Scenic River section of the Green River. Stipulation UT-S-117 No Surface Occupancy – River Corridors: Green River wouldw apply to this parcel. No ground disturbance would be anticipated within the suitable Wild and Scenic River corridor. Application of this stipulation is sufficient to protect the WSR.	Rene' Arce	5/19/2017
NP	Designated Areas: Wilderness Study Areas	None present as per GIS/RMP review.	Rene' Arce	5/18/2017
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.	David Gordon	5/15/17
NI	Farmlands (prime/unique)	The act of leasing by itself will not have an impact on prime/unique farmlands. The Natural Resource Conservation Service has listed certain soil types as prime farmlands if the land is irrigated. Parcels 047, 048, 069, 070, 071, and 103 have lands that are irrigated. Theirrigated lands are privately owned, and the lessee/operator	David Gordon	5/22/17

		usually enters into a surface use agreement (SUA) with the landowner. Since development with in irrigated farmlands interferes with the irrigation system, it is avoided if possible. If development does take prime farmlands out of production, the loss is usually a fraction of the entire farmland, and eventually the affected area can be put back into production. Therefore, the impacts do not warrant detailed analysis. ..		
NI	Fuels/Fire Management	Disturbance in big sagebrush vegetation types could increase the amount of invasive plants, specifically Bromus tectorum. The increase of Bromus tectorum will lead to an increase in fire frequency and rate of spread. Applying the Green River District Reclamation Guidelines should prevent additional hazardous fuels. There are no planned hazardous fuels projects in the immediate area.	Blaine Tarbell	3/7/17
NI	Geology / Minerals / Energy Production	All or portions of the following parcels are located within the Sunnyside Special Tar Sands Area (STSA) parcel 023. All or portions of parcels 045 and 054 are within the Asphalt Ridge STSA. All or portions of the following parcels are within the Raven Ridge (STSA), 081, 082, 083, 084, and 086. All or portions of the following parcels fall within the P.R. Springs (STSA), 073, 078, and 079. Leasing of parcels located within STSAs would retain the right to develop oil and gas mineral resources. It would not include the right to developpotential tar sand commodities, nor retain the rights on that commodity within parcels established as combined hydrocarbon leases. The addition of lease notice 85 is sufficient to protect this resource. 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 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, phosphates, and tar sands for example, in addition to the oil and gas resource.	Dallas Nutt	3/1/2017
		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	Mike McKinley	6/07/17

		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.		
NI	Invasive Plants / Noxious Weeds / Vegetation	Invasive Plants/Noxious Weeds: Invasive plant and noxious weed species may be present in the parcels proposed for leasing. The act of leasing would not introduce or spread invasive plant and noxious weed infestations in the Project Area. Development within leased parcels would require site-specific analysis and mitigation which would be conducted as these projects are proposed. Vegetation: the Proposed Action of leasing the parcels would not result in the removal of native vegetation. Site-specific analysis of vegetation impacts would be conducted after the parcels are leased and projects requiring vegetation removal or disturbance are proposed.	Christine Cimiluca	2/16/2017
NI	Lands/Access	The lease parcels are located within the Vernal Field Office Resource Management Plan planning area which allows for oil and gas development with associated road and pipeline right-of-ways. Current land uses, within the areas identified in the lease parcels 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. Coordination with existing Right-of-Way holders in the proposed lease parcels would occur if their right-of-way would be affected. There are several identified Uintah and Duchesne County Class B and D roads within the lease parcels. Coordination with Uintah/Duchesne counties would need to occur if the roads need upgrading or other permits are required. Public Water Reserves (PWRs):	Margo Roberts	5/5/2017

		Allow no new surface-disturbing activities within active flood plains, public water reserves, or 100 meters of riparian areas unless: • There are no practical alternatives. • Impacts will be fully mitigated. • The action is designed to enhance the riparian resources. Parcel 78 sections 33 and 34 are within a public water reserve. Application of Lease Notice 57 and Stipulation 123 is sufficient to protect the resource.		
PI	Lands/Access: Adjacent Landowners	Some of the parcels are adjacent to Ashley National Forest, Indian trust assets within the Uintah and Ouray Indian Reservation, Steinaker State Park (lands withdrawn to the Bureau of Reclamation), Ouray National Wildlife Refuge, Dinosaur National Monument, and Colorado. Refer to the plan conformance and consultation/coordination section of the EA for identification and resolution of any concerns associated with the proximity of these parcels to these adjacent landowners/managers. Any resource specific concerns raised are addressed in that resource's Chapter 3 and 4 analysis in the EA, so there will not be a separate section in this EA for Lands/Access: Adjacent Landowners.	Stephanie Howard	6/14/2017
PI	Lands with Wilderness Characteristics	Multiple proposed lease parcels occur within lands found to possess wilderness characteristics: Parcels 037, 038, and 041 occur partially or fully within the Badlands Cliffs Lands with Wilderness Characteristics inventory unit. Parcels 027, 028, 029, and 030 occur partially or fully within the Big Wash Lands with Wilderness Characteristics inventory unit. Parcels 022, 024, 025, and 032 occur partially or fully within the Currant Canyon Lands with Wilderness Characteristics inventory unit. Parcels 073, and 079 occur partially or fully within the Hideout Canyon Lands with Wilderness Characteristics inventory unit. Parcels 031A, 031B, 037, and 039 occur partially or fully within the Pete's Wash Lands with Wilderness Characteristics inventory unit. Parcels 034, 035, 036, and 037 occur partially or fully within Sheep Wash Lands with Wilderness Characteristics inventory unit.	Rene' Arce	

NI	Livestock Grazing & Rangeland Health Standards	The lease sale will not affect Livestock Grazing or Rangeland Health. Any potential impacts that may result from future development would be addressed through site-specific analysis conducted for specific proposed actions.	Tracey Hart	5/18/2017
NI	Paleontology	There is a potential for the proposed lease locations to be spatially on or near areas designated as high PYFC (potential fossil yield classification) zones for in-situ fossil localities. Lease Notice UT-LN-72 needs to be applied to all parcels in order to inform potential lessees of the potential conflict.. 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. 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.	Dallas Nutt	66/19/2017
PI	Plants: BLM Sensitive	Horseshoe milkvetch (*Astragalus equisolensis*) potential habitat polygon: UT-1217-47, 52, 53, 54, 55, 65, 66, 67, 72) and within the suitable habitat model: UT-1217-46, 48, 63, 64, 68, 69, 71, 75. Plants have been documented within parcel 65. Hamilton milkvetch (*Astragalus hamiltonii*) suitable or potential habitat: UT-1217-46, 47, 49, 52, 53, 54. Barneby's cryptantha (*Cryptantha barnebyi*) has suitable habitat in parcel 056. Graham's cryptantha (*Cryptantha grahamii*) has been documented in parcel 38, per BLM GIS data review. Suitable habitat for this species is present in parcel 031A, 031B, 038, 039, and 056, and may be present in additional parcels. Huber pepperplant (*Lepidium huberi*) has been documented in parcel 85, per BLM GIS data review. Suitable habitat is present in parcels 080, 081, 082, 083, 084, 085, 086, and 087. Goodrich's blazingstar (*Mentzelia goodrichii*) has been documented in parcels 022 and 0230, per BLM	Christine Cimiluca	2/16/2017

		GIS data review and suitable habitat exists in parcels 022, 023, and 024. Green River greenthread (*Thelesperma caespitosum*) has been identified in parcels 022, 023, and 024, per BLM GIS data review. Suitable habitat for sterile yucca (*Yucca sterilis*) may be present in the Project Area in all parcels.		
NI - Clay reed-mustard, Shrubby reed-mustard, Uinta Basin hookless cactus, Ute ladies'-tresses	Plants: Threatened, Endangered, Proposed, or Candidate	Clay reed-mustard (*Hesperidanthus argillacea*) potential habitat: UT-1217-056 Shrubby reed-mustard (*Hesperidanthus suffrutescens*) potential habitat: UT-1217-031A, 031B, 038, 056. Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) or Pariette cactus (*Sclerocactus brevispinus*) potential habitat: UT-1217-031A, 031B, 038, 039, 042, 044, 055, 068. Parcel UT-1217-038 is also within Core 2 habitat. No parcels are within Core 1 habitat. The parcels identified as containing Core Conservation Areas (Table 3-8) will require additional mitigation and conservation measures if the leases are issued and proposed for development (see Ecological Restoration Mitigation Calculation Guidelines for impacts to *Sclerocactus wetlandicus* and *Sclerocactus brevispinus* Habitat, USFWS 2014). Suitable habitat for Ute ladies'-tresses (*Spiranthes diluvialis*) is present in parcels UT-1217-025, 032, 033, 044, 045, 046, 047, 048, 049, 052, 054, 055, 056, 063, 065, 066, 069, 071, 072, 073, 077, 078, 079, 082. FWS consultation on the above species has been conducted and the following T&E lease notices were developed, with a finding of may affect, likely to adversely affect the species. The lease notices and the standard ESAESA stipulation described in Section 2.3.2 have been applied to the appropriate parcels.. No further analysis is required at this stage because FWS determined these lease notices will adequately protect the species at the time of development. T&E-05 Listed Plant Species UT-1217-025, 031A, 031B, 032, 033, 038, 039, 042, 044, 046, 047, 048, 049, 052, 054, 055, 056, 063, 065, 066, 068, 069, 071, 072, 073, 077, 078, 079, 082. T&E-12 Pariette cactus (*Sclerocactus brevispinus*) and Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) UT-1217-031A, 031B, 038, 039, 042, 044, 055, 068.	Christine Cimiluca	2/16/2017

PI - Graham's beard-tongue, White River beard tongue		T&E-20 Clay reed-mustard (*Hesperidanthus argillacea/Schoenocrambe argillacea*) UT-1217-056 T&E 21 Shrubby reed-mustard (*Hesperidanthus suffrutescens/Schoenocrambe suffrutescens*) UT-1217-031A, 031B, 038, 056 T&E-22 Ute ladies's-tresses [*Spiranthes diluvialis*] UT-1217-025, 032, 033, 044, 045, 046, 047, 048, 049, 052, 054, 055, 056, 063, 065, 066, 069, 071, 072, 073, 077, 078, 079, 082 Graham's beardtongue (*Penstemon grahamii*) and White River beardtongue (*Penstemon scariosus* var. *albifluvis*) Core Conservation Area Unit 1 (Sand Wash): UT-1217-38. Graham'sGraham's beardtongue plants have been documented near this parcel, per BLM GIS data review. White River beardtongue plants have been documented in parcels 056 and 073, per BLM GIS data review. UT-LN-90 Graham's beardtongue (*Penstemon grahamii*) UT-1217-038 UT-LN-134 Graham's beardtongue (*Penstemon grahamii*) and White River beardtongue (*Penstemon scariosus* var. *albifluvis*) Conservation Area UT-1217-038, 056, 073		
PI	Recreation	Parcel 046 occurs partially within the proposed Brough Reservoir Recreation site. Parcels 025, 031B, 039, and 038 occur partially or fully within the Nine Mile Special Recreation Management Area. Parcel 044 occurs fully within the proposed Pariette Camp Site. Parcel 049 occurs partially within the Red Mountain-Dry Fork Special Recreation Management Area. Parcel 53 overlaps a portion of the McCoy Flats trails. Potential impacts to these high use recreation areas due to oil and gas development could include reduced visitor experience due to visible oil and gas development as well as noise and increased traffic associated with oil and gas production. Future detailed analysis of proposed development plans would be necessary in order to mitigate these impacts. Parcel 49 occurs in close proximity to Steinaker reservoir and associated Steinaker State Park, as well as the Highway 191 Scenic byway. Potential impacts to these high use recreation	Rene' Arce	5/19/2017

		areas due to oil and gas development could include reduced visitor experience due to visible oil and gas development as well as noise and increased traffic associated with oil and gas production. Future detailed analysis of proposed development plans would be necessary in order to mitigate these impacts. Parcels 069, 070, and 071 occur in close proximity to the Dinosaur National Monument. Potential impacts due to oil and gas development include: visual, noise, and light pollution associated with oil and gas development and operations. Stipulation UT-S-168 as well as future detailed analysis of proposed development plans would be necessary in order mitigate these impacts. Parcels 044, 052, 054, 055, 065, 061, 066, 071 occur adjacent to, or in close proximity to the Green River. Potential impacts to recreationists floating the river due to oil and gas development include noise and visual impacts due to the sights and sound of oil and gas development and production. Future detailed analysis of proposed development plans would be necessary in order to mitigate the impact to river recreationist by considering topography, proposed locations of development and equipment, and timing drilling and construction operations to occur during times of the year when recreationists are likely not on the river. Parcel 055 occurs adjacent to the Ouray Wildlife Refuge. Potential impacts due to oil and gas development would include noise and visual impacts to recreationist visiting the refuge as well as floating the Green River. Impacts to management of the refuge could also be a possibility. Future detailed analysis of proposed development plans as well as coordination with refuge management would be necessary in order to mitigate these potential impacts. Parcel 64, 71 occur within the Jensen Hills open ride area. Potential impacts due to oil and gas development include reduced visitor experience, visual, noise and motorized vehicle conflicts. Future detailed analysis of proposed development plans would be necessary in order to mitigate these potential impacts. Parcels 57 and 79 occur in close proximity to Red Fleet State Park. Due to the distance and topography as well as recreation user patterns within the proposed leas parcels impacts to the		

		management of the Stat Park and recreationists due to oil and gas development would not be anticipated. Parcel 034 occurs within a designated special recreation use permit campsite for Second Nature wilderness therapy permitee. Potential impacts due to oil and gas development include interference with wilderness therapy operations, safety, and a reduced ability for the permitee to fulfil their objective as outlined in their permit. Future detailed analysis of proposed development plans would be necessary in order to mitigate these potential impacts.		
NI	Socio-Economics	No impacts to the social or economic status of the counties or nearby communities would occur from the leasing of these parcels due to the small size of this project in relation to ongoing development throughout the Uinta Basin.	David Gordon	5/17/17
NI	Soils: Physical / Biological	The proposed lease sale and the identified parcels all fall within fragile soil areas, which are typically slow to develop, prone to erosion, highly saline, typically low restoration potential, and have very low organic matter. The following stipulations UT-S-96 and UT-S-100 Lease stipulations No Surface Occupancy and Controlled surface use (NSO/NSO and a CSU), would apply to following parcels as indicated: 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 49, 56, 73, 74, 75, 76, 77, 78, and 79. The other remaining parcels: 44, 55, 57, 58, 59, 60, 61, 62, 69, 71, 72, 80, 81, 82, 83, 85, 86, 87, and 103. We recommend attaching the lease notice LN60 and LN61 because of similar issues to the parcels identified above and brought forward in the 2016 lease sale EA. Both lease notices and the NSO/CU Stipulations applied are referenced in the 2008 Vernal RMP. These are fragile soils/slopes stipulations but were not applied to remaining parcels; however, remaining parcels do have similar concerns from GIS analysis standpoint and on the ground observations. Biological soil crusts have also been identified on most of these parcels from field visits, and existing soil survey data. These communities of organisms should be avoided from potential future ground disturbing actions. Although the 2017 lease sale allows for various assumptions on amount of potential wells sited within these leased parcels, the amount of effect to high desert soils is hard to quantify at this time. Even the one well assumption is hard to quantify because we do not know where these potential future actions would be specifically sited, which matters when looking at site-specific impacts to soil resources, including biological soil crusts. Once we	James Hereford II	5/10/2017

		receive site specifics within these parcels, we will be able to better understand the potential effects to these fragile soil resources and provide detailed analysis at those times. Recommend adhering to all objectives in the - Green River District Reclamation Guidelines as well for any future potential impacts to soils. Especially those that relate to soil salvage and protection of the resource for restoration purposes.		
PI	Visual Resources	Parcels 022, 044, 069, 073, 078, 079, 083, 085, 086, and 087 occur partially or fully within Visual Resource Management Class (VRM) 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. Parcels 027, 028, 029, 030, 031A, 031B, 032, 038, 039, 044, 047, 048, 049, 052, 053, 054, 056, 059, 063, 064, 065, 066, 067, 071, 072, 074, 075, 076, 078, 080, 081, 082, 083, 084, 085, 086, and 087 occur partially or fully within VRM Class III. The objective of class III 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 027, 028, 029, 030, 033, 034, 035, 036, 040, 042, 045, 046, 047, 048, 052, 053, 054, 055, 056, 066, 067, 072, 074, 075, 076, 077, 080, 081, 084, 085, 086, and 087 occur partially or fully within VRM Class IV. The objective of Class IV is to provide for management activities that require major modifications to the existing character of the landscape. The level of change to the landscape can be high. The management activities may dominate the view and may 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 repetition of the basic visual elements of form, line, color, and texture.	Rene' Arce	5/19/2017
NI	Wastes (hazardous/solid)	SOPs, BMPs and design features would be applied at the APD stage as COAs and these would sufficiently manage hazardous or solid wastes. The creation or storage of wastes would not occur as a result of lease issuance.	David Gordon	5/17/17
NI	Water: Groundwater Quality	Three parcels 057, 078 and 079, are within Drinking Water System Source Protection Zones.	Mike McKinley	06/07/2017

		Lease Notice UT-LN-056 will be attached to those parcels EPA stated in the draft June 2015, *Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources* ("EPA Draft" http://cfpub.epa.gov/ncea/hfstudy/recordisplay.cfm?deid=244651), that "We did not find evidence that these mechanisms have led to widespread, systemic impacts on drinking water resources in the United States…The number of identified cases where drinking water resources were impacted are small relative to the number of hydraulically fractured wells …There is insufficient pre- and post-hydraulic fracturing data on the quality of drinking water resources. This inhibits a determination of the frequency of impacts. Other limiting factors include the presence of other causes of contamination, the short duration of existing studies, and inaccessible information related to hydraulic fracturing activities. There is not sufficient evidence to support the contention that hydraulic fracturing negatively impacts ground water to an unacceptable degree…The potential impacts to surface and/or ground water from hydraulic fracturing activities has not been shown to reach a level requiring detailed analysis." *See* EPA Draft at ES-23.		
NI	Water: Hydrologic Conditions (stormwater)	Hydrologic conditions do exist in the Vernal Field Office, leasing of the proposed leases 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 leases 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 leases. In light of existing knowledge regarding resource values on the subject leases, which is based upon the analysis in the VFO RMP [BLM2008] resource specialist knowledge and lease site-visits, significant impacts beyond those already addressed in the Record of Decision VFO RMP are not anticipated to occur as a result of the proposed leases.	David Gordon	5/17/17
NP	Water: Municipal Watershed / Drinking Water Source Protection	Not presenttp as per BLM GIS layer and RMP review	David Gordon	5/19/17
NI	Water:	Although leasing of the parcels will not directly affect these resources if oil and gas development	Jerrad Goodell	5/18/17

	Steams, Riparian, Wetlands, Floodplains	occurs the impacts can be mitigated by the application of the following notices and stipulations. UT-S-123: NO SURFACE OCCUPANCY – RIPARIAN, FLOODPLAINS, AND PUBLIC WATER RESERVES parcels 22, 23, 24, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47, 49, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68. 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, and 103 UT-LN-53: RIPARIAN AREAS 22, 23, 24, 29, 30, 33, 34, 44, 46, 47, 56, 58, 60, 61, 62, 63, 65, 69, 70, 71, 72, 73, 77, 78, 79, 80, 86, and 103 UT-LN-128: Federal Flood Risk Management Standard- parcels - 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47, 49, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, and 103		
NI	Water: Surface Water Quality	Leasing 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 leases would be subject to the standard lease terms, and all applicable laws, regulations and onshore orders in existence at the time of lease issuance. The before mentioned conditions along with the stipulations and notices applied for floodplain and riparian will protect surface water quality. Site-specific analysis would be required prior to the approval of any ground disturbance proposal on the leases. The company must adopt a spill prevention plan and storm water control plan to control any potential pollutants from reaching the surface water with in the field office, (for example, Brush Creek, the White River and the Green River) at the site specific APD stage. If the company plans on affecting these waters directly, a Stream Alteration Permit would be required, and would also require additional NEPA to look at those changes In light of existing knowledge regarding resource values on the subject leases, which is based upon the analysis in the VFO RMP [BLM2008] resource specialist knowledge and lease site-visits, significant impacts beyond those already addressed in the Record of Decision for the VFO	David Gordon	5/17/17

		RMP are not anticipated to occur as a result of leasing the proposed parcels.		
NI	Water: Water Rights	Leasing itself would not have impacts to water rights. However, should development occur on the proposed lease parcels, water rights could be impacted by the development of oil and/or gas wells. Leasing the proposed parcels would not, by itself, authorize any 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, 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 lease parcels.	David Gordon	5/17/17
NI	Water: Waters of the U.S.	Waters of the U.S. are present within the project area. The act of leasing will not affect waters of the U.S. If developed there is a potential that disturbed soils could affect the water of the U.S. For impacts, analysis refer to Surface Water Quality Section.	David Gordon	5/17/17
NI	Wild Horses	Parcel 56 is adjacent to the Hill Creek Herd Area. The leasing of these parcels will not impact the current protected Wild Horses within the Winter Ridge or Hill Creek Herd Areas. Future impacts from subsequent infrastructure development during the development phases will be analyzed as appropriate and necessary during the site-specific development NEPA process.	Dusty Carpenter	5/17/17
PI	Wildlife: Migratory Birds (including raptors)	- Numerous bird species may migrate through, or nest within all proposed parcels. Project actions would be planned to occur after August 31 to mitigate for any impending impacts or disturbance during the nesting season (March 1 – August 31). Actual disturbance impacts would be analyzed and evaluated during the APD and NEPA process. Application of the lease notice UT-LN-45, if followed, would minimize impacts to nesting migratory birds during the breeding season and additional conditions may be applied following site-specific NEPA at the APD stage. In addition, lease notice UT-LN-49 would apply to any migratory bird species that are identified on the Utah sensitive species list. NI- Raptors- Timing stipulations UT-S-261, would be applied to all parcels. In addition, lease notice UT-LN-49 would apply to any raptor species that are identified on the Utah sensitive species list. Therefore, the stipulations and notices would provide adequate protection and are consistent with the Vernal RMP. NI- Bald eagle winter roosting areas were identified in parcels: 44, 48, 55, 65, 66, and 69,	Natasha Hadden	5/23/2017

		per GIS review. However, stipulation UT-S-278 and lease notices UT-LN-107 and UT-LN-37 would be applied; therefore, the stipulation and notices would provide adequate protection and is consistent with the Vernal RMP.		
NI	Wildlife: Fish (designated or non-designated)	While only parcels 44, and 79 have threatened, endangered, candidate or conservation agreement species (including their associated habitats), any water depletion from the Upper Colorado River Basin is likely to adversely affect critical habitat for the endangered fish of the Colorado River System. Lease notice T&E-03 Endangered Fish of the Upper Colorado River Drainage Basin should be applied to all parcels. The Vernal Field office has a programmatic agreement with the USFWS that states water depletion projects less than 100-acre feet is likely to adversely affect the four endangered fish, however the USFWS service believes the recovery program for these species will adequately address the effects.It is estimated that 3-acre feet of water would be needed for the drilling and completion of 1 well. Not all water sources are considered to be depleting from the Green River Basin the impacts and total depletion will be analyzed in the APD stage. Impacts to habitat and water quality for all fish species are adequately addressed in the Surface Water Quality, and the Steams, Riparian, Wetlands, Floodplains sections of this document.	Jerrad Goodell	5/18/17
PI	Wildlife: Non-USFWS Designated	PI Greater Sage-grouse- GRSG Priority Habitat (PHMA) within parcels: 22, 23, 24, 49, 58, 59, 62, 69 GRSG General Habitat (GHMA) within parcels: 25, 30, 31, 32, 33, 34, 35, 37, 38, 39, 41, 46, 47, 52, 53, 54, 56, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 103 NI- 12,281 acres of mule deer crucial winter range occurs in parcels 49, 56, 57, 58,69, 80, 81, 82, 83, 84, 85, 86, and 87. No parcels fall within the identified mule deer migration corridor. However, stipulations UT-S-230 and UT-231 and lease notice UT-LN-02 would be applied; therefore, the stipulations and notice would provide adequate protection and is consistent with the Vernal RMP. NI- 3,721 acres of mule deer crucial fawning habitat occurs in parcels 23, 44, 52, 54, 55, 62, 64, 65, 66, 69, 71, 73, 78, and 79. However, stipulation UT-S-247 and lease notice UT-LN-11 would be applied; therefore, the stipulation and notice would provide adequate protection and is consistent with the Vernal RMP. NI- 2,718 acres of elk crucial winter range occurs	Leah Lewis Natasha Hadden	5/2/17 5/23/2017

		in parcels 49, 56, 57, 58, 59, 60, 61, and 62. However, stipulation UT-S-230 and lease notice UT-LN-02 would be applied; therefore, the stipulation and notice would provide adequate protection and is consistent with the Vernal RMP. NI- 6,562 acres of elk crucial calving habitat occurs in parcels 27, 28, 29, 30, 31A, 32, 33, 34, 35, 36, 37, 38, 39, 41, 73, 78, and 79. However, stipulation UT-S-247 and lease notice Ut-LN-11 would be applied; therefore, the stipulation and notice would provide adequate protection and is consistent with the Vernal RMP. NI- According to UDWR GIS layers, there is 28,291 acres of pronghorn crucial yearlong habitat in parcels 22, 23, 33, 34, 35, 36, 37, 38, 40, 41, 42, 44, 46, 47, 55, 65, 66, 67, 68, 72, 74, 75, 76, 77, 80, 81, 82, 83, 84, 85, 86, 87 and 7,465 acres of substantial yearlong habitat in parcels 29, 30, 31A, 32, 39, 46, 47, 48, 52, 53, and 54. However, lease notice UT-LN-16 would be applied; therefore, the lease notice would minimize impacts from April 15- June15 to protect pronghorn fawning habitat. PI- White-tailed prairie dog (BLM sensitive species) are potentially found in all parcels except: 22, 23, 24, 27, 28, 29, 31B, 73, 78, and 79. Stipulation UT-S-218 and lease notices UT-LN-25 and UT-LN-49 would be applied to all applicable parcels that contain white-tailed prairie dog habitat. PI- Amphibians and Reptiles: Great Plains toad and Smooth green snake are potentially found in all parcels. However, lease notice UT-LN-49 will be applied to all applicable parcels in order to help minimize impacts to these BLM Sensitive Species.		
NI	Wildlife: Threatened, Endangered, Proposed or Candidate	Potential Mexican spotted owl (Threatened) habitat is identified for parcel: 25, per GIS review. However, stipulations UT-S-261, and H-3120 and lease notice T&E-06 would be applied; therefore, the stipulations and lease notices would minimize impacts to breeding and nesting Mexican spotted owl and their associated habitats. Proposed Critical Habitat for yellow-billed cuckoo (Threatened) is identified for parcels: 44, 52, 54, and 55 per GIS review. However, stipulation H-3120 and lease notices UT-LN-113	Natasha Hadden	5/23/2017

		and UT-LN-45 would be applied; therefore, the lease notices and stipulation would minimize impacts to breeding and nesting yellow-billed cuckoo and their associated habitats. The black-footed ferret (Endangered, but considered a "non-essential" experimental population) primary management zone area is identified for parcels: 74, 75, 76, and 77 per GIS review. However, stipulations UT-S-299 and H-3120 and lease notice T&E-02 would be applied; therefore, the stipulations and lease notice would minimize impacts to breeding black-footed ferrets and their associated habitat. FWS consultation on the above species has been conducted and the applicable lease notices and stipulations were developed, with a finding of may affect, likely to adversely affect. The lease notices and the standard ESA stipulation described in Section 2.3.2 have been applied to the appropriate parcels. No further analysis is required at this stage because FWS determined these lease notices will adequately protect the species at the time of development.		
NI	Woodlands/Forestry	Forest and woodland resources 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. In light of existing knowledge regarding resource values on the subject parcels, RMP analysis, BLM VFO resource specialist knowledge, parcel site-visits, and the protective measures that would be applied to the parcels if leased, significant impacts beyond those already addressed in the VFO RMP [BLM 2008b] are not anticipated to occur as a result of leasing the proposed parcels.	David Palmer	5/17/17

FINAL REVIEW:

Reviewer Title	Signature	Date	Comments
Environmental Coordinator			
Authorized Officer			

Appendix F – Photos of the Parcel

UT1217-022

UT1217-023

UT1217-024

UT1217-025

UT1217-027

UT1217-028

UT1217-029

UT1217-030

UT1217-031A

UT1217-031B

UT1217-032

UT1217-033

UT1217-034

UT1217-035

UT1217-036

UT1217-037

UT1217-038

UT1217-039

UT1217-040

UT1217-041

UT1217-042

UT1217-044

UT1217-045

UT1217-046

UT1217-047

UT1217-048

UT1217-049

UT1217-052

UT1217-053

UT1217-054

UT1217-055

UT1217-056

UT1217-057

UT1217-058

UT1217-059

UT1217-060

UT1217-061

UT1217-062

UT1217-063

UT1217-064

UT1217-065

UT1217-066

UT1217-067

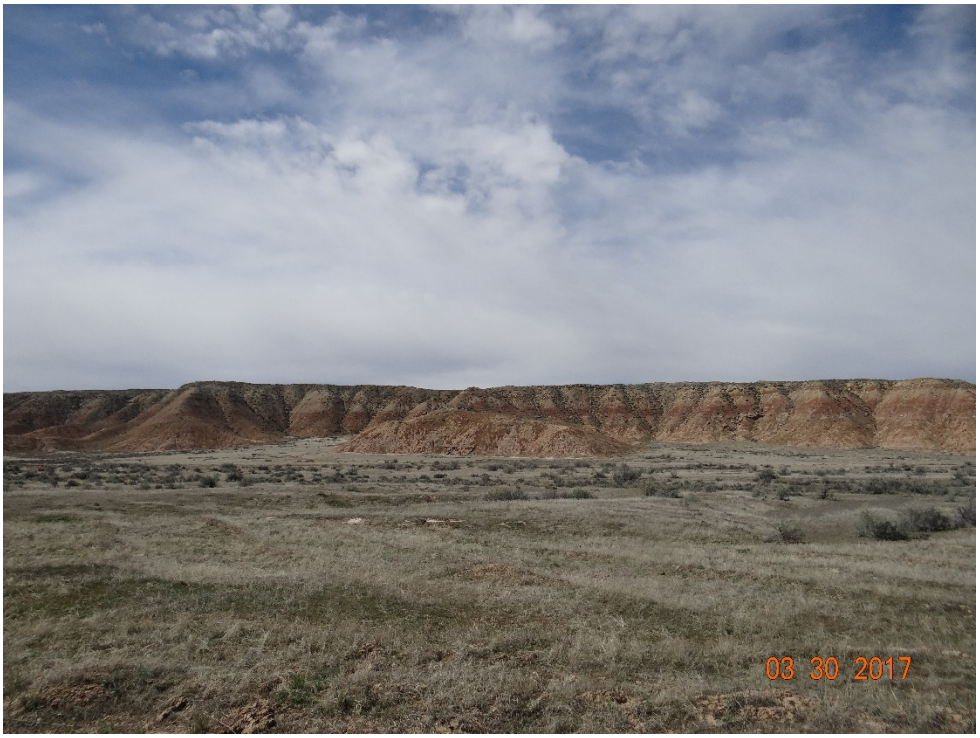
UT1217-068

UT1217-069

UT1217-070

UT1217-071

UT1217-072



UT1217-073

UT1217-074

UT1217-075

UT1217-076

UT1217-077

UT1217-078

UT1217-079

UT1217-080

UT1217-081

UT1217-082

UT1217-083

UT1217-084

UT1217-085

UT1217-086

UT1217-087

UT1217-103

Appendix G – Responses to Public Comments

(reserved)