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December 2017 Competitive Oil and Gas Lease Sale

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

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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, electrical energy production and production of domestic and industrial materials in the lower 48 states, as well as a substantial source of crude oil for fuel as well as domestic and industrial products. 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 at <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) (BLM, Vernal Field Office Proposed Resource Management Plan and Final Environmental Impact Statement., 2008a)(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 this EA 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 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, 2015a)[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 (MLP) 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 BOR 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 BOR, but State Parks manages the lands through an agreement with the BOR. 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 of 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.

Both Uintah and Duchesne Counties have management plans. The County General Plans contain specific policy statements addressing public and multiple-use, resource use and development, access, and wildlife management. In general, the Plan indicates support for development proposals through its emphasis on multiple-use, public land management practices, responsible use and optimum utilization of public land resources. The counties, throughout their Plans, support the development of natural resources as they become available as new technology allows.

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 3120 – Competitive Leases (P) (BLM, 2013a)
- 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, 2013b)
- 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 Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) and (BLM, 2008a)
- Record of Decision for the Vernal Field Office Resource Management Plan (BLM, 2008b)
- Utah Greater Sage Grouse Proposed Land Use Plan Amendment and Final Environmental Impact Statement (BLM, 2015a) and Record of Decision (BLM, 2015b)
- 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 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.

2.2.2.1 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. The RFD includes all reasonably foreseeable development technologies that may be used, and thus, this EA considers the impacts of all reasonably foreseeable oil and gas development regardless of the specific technologies used, including HF. . 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 include 64 parcels totaling 62,007.19 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 2017.

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 (O₃), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM₁₀) or 2.5 microns in diameter (PM_{2.5}).

Airborne particulate matter consists of tiny coarse-mode (PM₁₀) or fine-mode (PM_{2.5}) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. PM_{2.5} is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM₁₀ 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 Concentration | National Primary Standards | National Secondary Standards | Form of the National Standards |
| 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. |
| Carbon Monoxide (CO) | 8-Hour (ppm) | 9 | 9 | - | Not to be exceeded more than once per year. |
| Sulfur Dioxide (SO ₂) | 1-Hour (ppm) | 75 | 75 | - | 99th percentile of 1-hour daily maximum concentrations averaged over 3 years. |
| Sulfur Dioxide (SO ₂) | 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 | - | 98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| Nitrogen Dioxide (NO ₂) | Annual Average (ppb) | 53 | 53 | 53 | Annual mean |
| PM ₁₀ ² | 24-Hour (µg/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 (µg/m ³) | 35 | 35 | 35 | 98 th percentile, averaged over 3 years |
| PM _{2.5} ² | Annual Average (µg/m ³) | 15 | 12 | 15 | Annual mean, averaged over 3 years |
| Lead | Rolling 3 Month Average (µg/m ³) | 0.15 | 0.15 | 0.15 | Not to be exceeded |

| Table 3-1: Utah and National Ambient Air Quality Standards | | | | | |
|---|-----------------------|-------------------------------------|-----------------------------------|-------------------------------------|---------------------------------------|
| Pollutant | Averaging Time | Utah Standards Concentration | National Primary Standards | National Secondary Standards | Form of the National Standards |
| 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: (EPA, 2016)[EPA 2016]; | | | | | |

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, SO₂, PM₁₀, 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 PM₁₀ 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: 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/m ³ ² 22 ug/m ³ ³ | Vernal 490471004 |
| CO | 8-hour 1-hour | 1.7 ppm 3.3 ppm | Salt Lake City 490353006 |
| O ₃ | 8-hour | .079 ppm | Vernal 490472003 |
| ¹ 2014 Design Value | | | |
| ² Invalid design value due to monitor data completeness or quality. | | | |
| ³ 2014-2016 design value for the Vernal monitor. | | | |

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 Land 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 than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern.

The following lease parcels occur partially or fully within areas designated as ACECs (Table 3-3).

| 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. |
| Nine Mile Canyon ¹ (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 |
| ¹ None of these parcels would be located below the rim of Nine Mile Canyon. | | |

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 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 for 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. . 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 (CO₂), nitrous oxide (N₂O), 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

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>.

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 CO₂ equivalent (MT CO₂e) 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 CO₂ equivalent, because it has a global warming potential (GWP) over 25 times that of CO₂ (EPA, 2017d).

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 CO₂.” 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 CO₂. The GWP accounts for the intensity of each GHG’s heat trapping effect and its longevity in the atmosphere. The GWP provides a method to quantify the cumulative effects of multiple GHGs released into the atmosphere by calculating carbon dioxide equivalent for the GHGs.

- Carbon dioxide (CO₂), by definition, has a GWP of 1 regardless of the time period used because it is the gas being used as the reference. CO₂ 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 CO₂ emissions have substantially increased since the Industrial Revolution causing increases in the atmospheric concentrations of CO₂ that will last thousands of years (EPA, 2017d).
- Methane (CH₄) is estimated to have a GWP of 28-36 times that of CO₂ over 100 years. CH₄ emitted today lasts about a decade on average, which is much less time than CO₂. But CH₄ also absorbs much more energy than CO₂. 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, 2017c).
- Nitrous Oxide (N₂O) has a GWP of 265-298 times that of CO₂ for a 100-year timescale. N₂O emitted today remains in the atmosphere for more than 100 years, on average (EPA, 2017d). 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 | CH ₄ | 28-36 |

| Table 3-4: GHG Regulated by USEPA and Global Warming Potentials | | |
|--|-------------------------------------|-------------------------------------|
| Air Pollutant | Chemical Symbol/ Acronym | Global Warming Potential |
| Nitrous Oxide | N ₂ O | 298 |
| Hydrofluorocarbons | HFCs | Varies |
| Perfluorocarbons | PFCs | Varies |
| Sulfur hexafluoride | SF ₆ | 22,800 |
| Source: (EPA, 2017d) | | |

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 CO₂ 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 (WRI, n.d.).

Because GHGs circulate freely throughout Earth’s atmosphere, climate change is a global issue. The largest component of global anthropogenic GHG emissions is CO₂. 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 CO₂ and methane. Natural gas systems were the second largest anthropogenic source category of CH₄ emissions in the United States in 2015 with 162.4 MMT CO₂ e of CH₄ emitted into the atmosphere. Those emissions have decreased by 31.6 MMT CO₂ e (16.3 percent) since 1990 (EPA, 2017c).

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 [(Herring, 2007)]. In 2001, the IPCC (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, 2017b). 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, 2008b). 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#) 073 and 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 and was not selected as for management of those characteristics in the approved 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 (BLM, 2008b). 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 (BLM, 2008b). 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. |

| Table 3-6: Parcels in or Near SRMAs and Recreation Sites | | |
|---|----------------|---|
| Recreation Areas/Sites | Parcels | Recreation Features |
| 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. |
| 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 |
| <i>Astragalus equisolensis</i> (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 |
| <i>Astragalus hamiltonii</i> (Hamilton milkvetch) | BLM Sensitive | Habitat includes eroding slopes of the Duchesne River, Wasatch, and | 046, 047, 049, 052, 053, 054 |

| Table 3-7: BLM-Sensitive Plants | | | |
|---|---------------|--|---|
| Species | Status | Potential Occurrence and Habitat Type | Parcels |
| | | less commonly Mowry Shale, Dakota, and other formations in desert shrub and pinyon-juniper plant communities from 5,500 to 6,740 ft. | |
| <i>Cryptantha barnebyi</i> (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 |
| <i>Cryptantha grahamii</i> (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 |
| <i>Lepidium huberi</i> (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, ponderosa pine, Douglas fir, lodgepole pine, and spruce-fir communities. 7300-9700 ft. | 049, 080, 081, 082, 083, 084, 085, 086, 087 |
| <i>Mentzelia goodrichii</i> (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 |
| <i>Thelesperma caespitosum</i> 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 |
| <i>Yucca sterilis</i> (sterile yucca) | BLM Sensitive | Known occurrences of the species are found growing in sandy soils. However, this species is new to the Utah BLM-Sensitive plant species list and, as such, has not been extensively surveyed for nor is the range and exact habitat requirements fully understood. Therefore, at this time, any sandy soils within the proposed lease parcels have to be assumed to be potential habitat for the species. 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, 075, 077 |

3.3.8 Plants: Threatened, Endangered, or Candidate Plant Species

(Note) Parcel 73 has been deferred and parcels 038 and 056 have been adjusted to remove the area within the Conservation Agreement.

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 1:15-cv-00615-WJM, Document 59, 2016). 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 |
| <i>Penstemon grahamii</i> (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 |
| <i>Penstemon scariosus</i> var. <i>albifluvis</i> (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 |

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 |

| Table 3-9 VRM Class Objectives | |
|---------------------------------------|---|
| VRM Class | VRM Objective |
| | 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 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 | |
|---|---|
| VRM Class | 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 from 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; including dark night skies, and recreational value/opportunities to the public as well as providing an important socio economic benefit to the surrounding communities. Parcels 069, 070, and 071 occur in close proximity to the Dinosaur National Monument (note: Parcels 069 and 070 have been removed from consideration from leasing until such time as the lands are re-nominated. (See the deferred lands list for more information.)

Parcel 069 is located approximately 1.6 miles west of the Visitors Center directly adjacent to the western border of the Dinosaur Monument. (KOP 1), and 0.26 miles west of KOP 2. Approximately 1,460 acres occur on BLM land with 40 acres within private land.

Parcel 070 is located approximately 1 mile south of the Dinosaur Monument Visitor Center (KOP 1), and 0.42 miles east of KOP 2. All 120 acres occur on private land with private surface ownership.

Parcel 071 is located approximately 2.5 miles southwest of the Dinosaur Monument Visitor Center (KOP 1), and 1.1 miles south west of KOP 2. Approximately 1,175 acres occur on BLM land with 238 acres within private land.

Parcels 065, 067, 072 are located within line-of-sight between 18 and 28 miles southwest of the Dinosaur Monument.

3.3.10 Wildlife: BLM Sensitive Species and Migratory Birds

3.3.10.1 Sensitive Species

BLM manages sensitive species in accordance with BLM Manual 6840 with the objective to initiate proactive conservation measures that reduce or eliminate threats to these species to minimize the likelihood of and need for listing of these species under the 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, |

| 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. | 39, 40, 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, 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 |

3.3.10.2 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.

3.3.10.3 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) (Cranney & Day, 1994)]. They form colonies that are typically a few acres, but can range up to several hundred acres (Messmer, Keyes, & McDonald, 1993). WTPD often colonize in irregular patterns over the landscape (Lupis, Bunnell, Black, & Messmer, 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, Grenier, Luce, Puchniak, & Schnurr, 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, Jr., 1987) and (Lupis, Bunnell, Black, & Messmer, 2007)]. WTPD are mainly herbivorous and obtain most of their needed water from the plants they eat (Lupis, Bunnell, Black, & Messmer, 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, Bunnell, Black, & Messmer, 2007)]. Plague may also be another reason that colonies show such dramatic fluctuations in densities and shifts in occupied habitats (Seglund, Grenier, Luce, Puchniak, & Schnurr, 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, Grenier, Luce, Puchniak, & Schnurr, 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, Campbell, Socha, & Casey, 1986) and (Seglund, Grenier, Luce, Puchniak, & Schnurr, 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, Grenier, Luce, Puchniak, & Schnurr, 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 & Lechleitner, 1966), (Bakko & Brown, 1967), (Pizzimenti, 1976) (Harlow & Menkens, 1986), (Maxfield, 2017)]. It has been observed that winter hibernation and summer aestivation timing patterns often varies with latitude and elevation [(Hollister, 1916), (Tileston & Lechleitner, 1966), (Bakko & Brown, 1967), (Pizzimenti, 1976), (Harlow & Menkens, 1986), (Seglund, Grenier, Luce, Puchniak, & Schnurr, 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, Grenier, Luce, Puchniak, & Schnurr, 2004). Oil and gas development within the Vernal Field Office is extensive and has been identified as a threat to WTPDs in Utah (Seglund, Grenier, Luce, Puchniak, & Schnurr, 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.

3.3.10.4 Greater Sage-Grouse (GRSG):

Parcel Prioritization in GRSG Habitat

The Record of Decision (page 1-23) 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. (BLM, 2015b)

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. (page 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. (page 5) (BLM, 2016d)

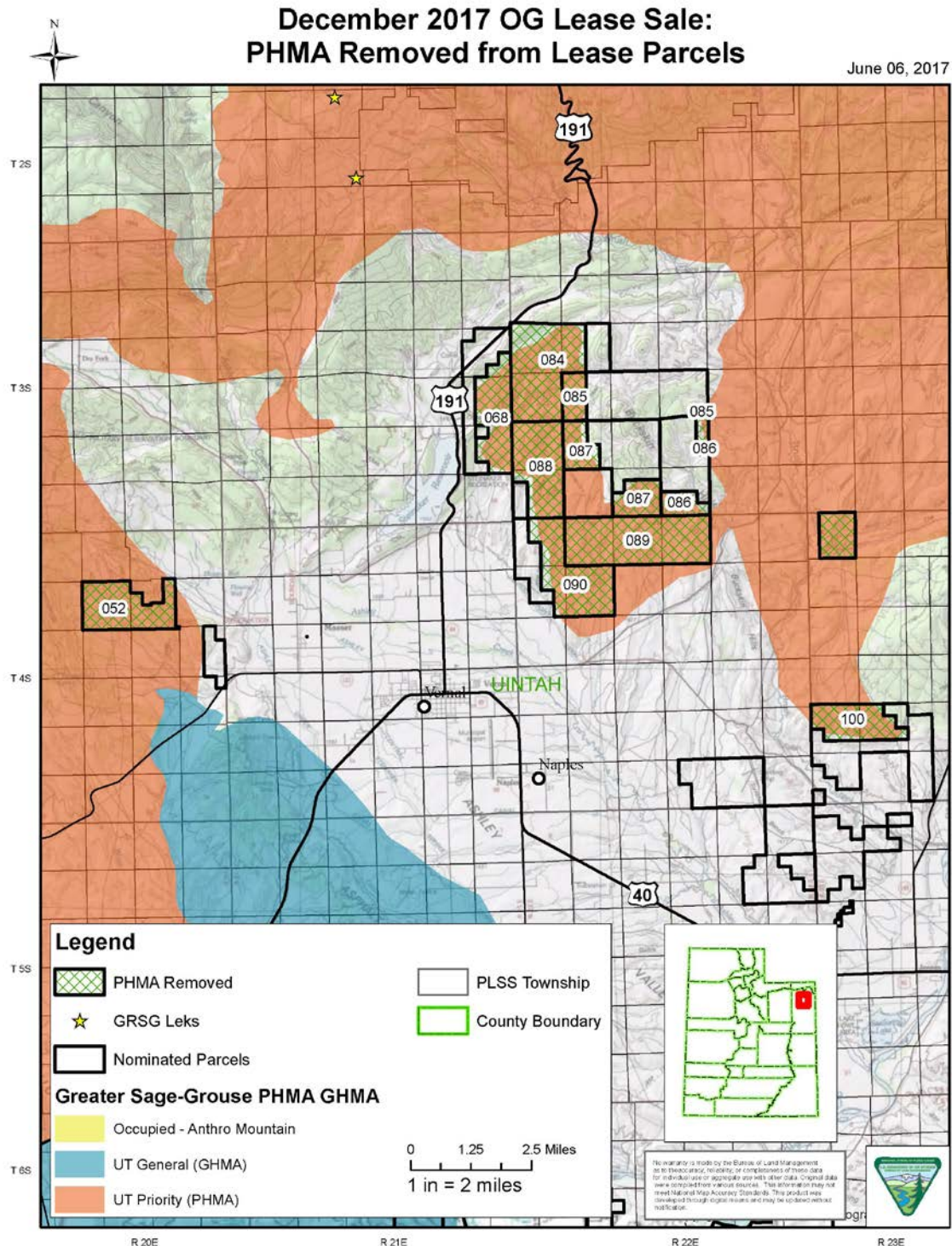
In the process of preparing a lease sale, the Utah State Office sends a draft parcel list to each field office where the parcels are located. The Utah State Office compiled the draft parcel list from 102 parcels in the Vernal and Price Field Offices that were deferred from the previous year's (December 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 3-13 depicts parcels containing PHMA that were not forwarded to the Vernal Field Office on the draft parcel list.

| 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 |

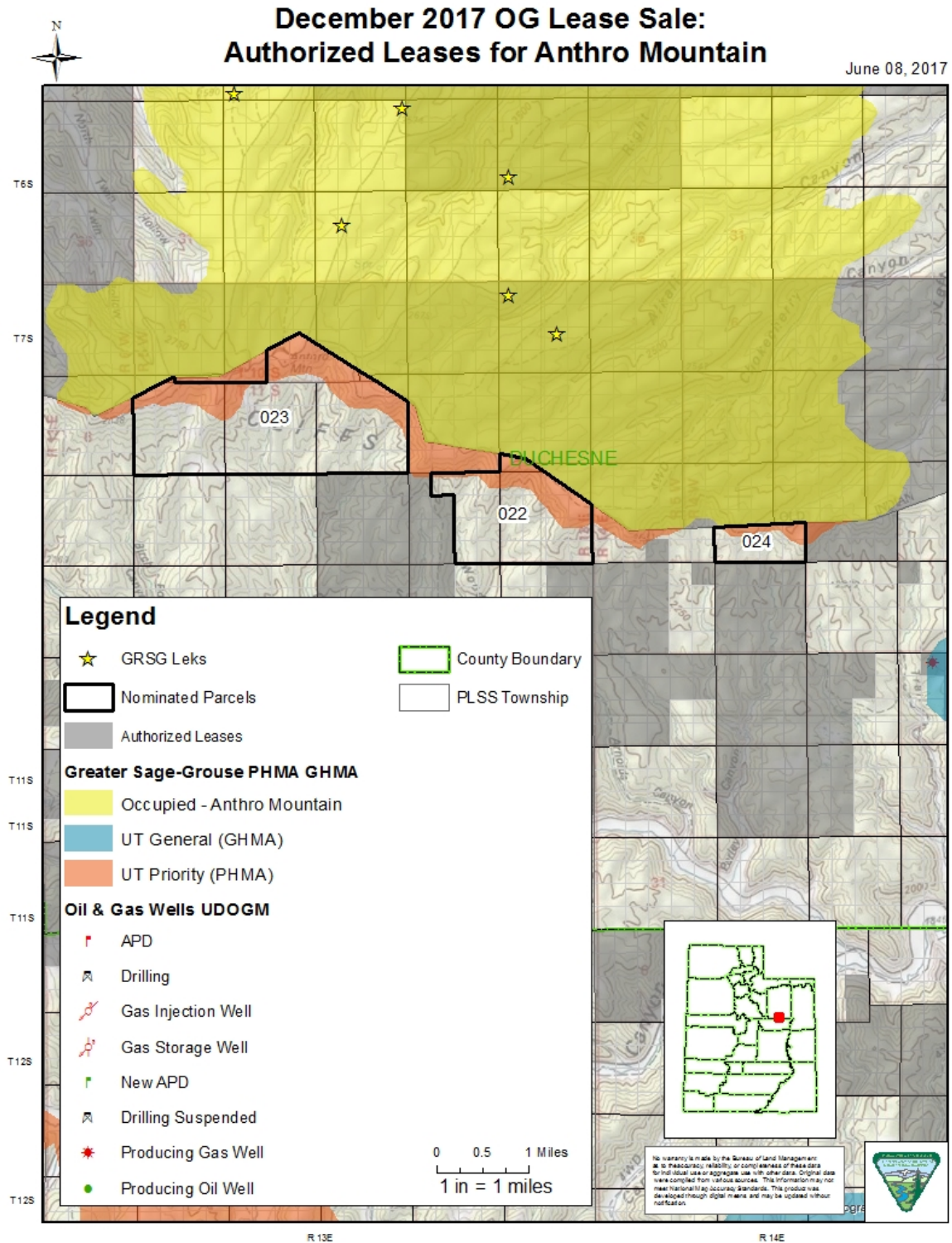
Table 3-13: Relationship of the 47 parcels within GRSG habitat to oil and gas prioritization considerations

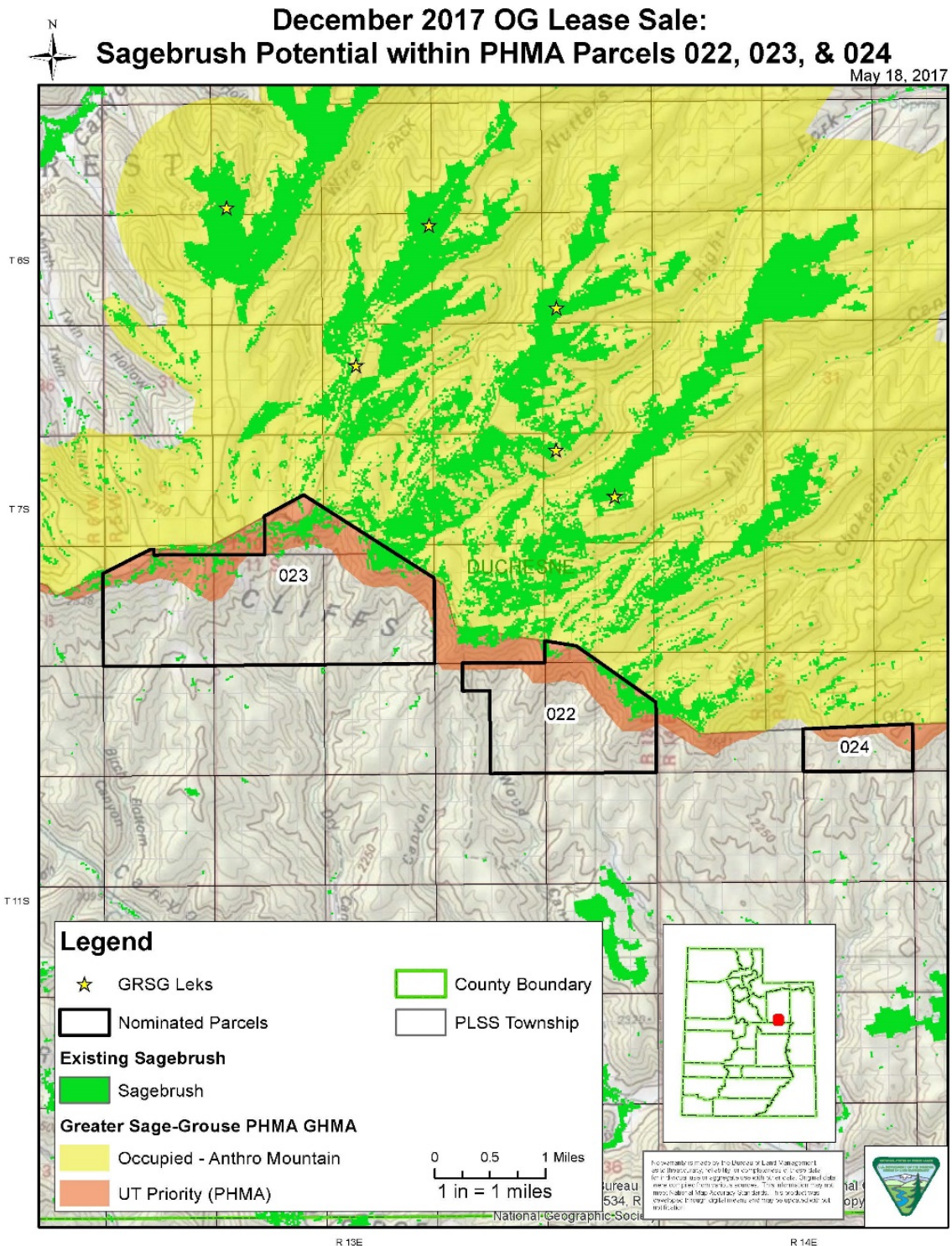
| Nominated Parcel #¹ | Adjacent Existing Lease? | Within Existing OG Unit? | Within Field-Developed EIS? | High Gas Potential > 36 Bcf | High Oil Potential > 710 Bcf |
|---------------------------------------|---------------------------------|---------------------------------|------------------------------------|---------------------------------------|--|
| 031A | Y | Y | Y | N | Y |
| 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.





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) (BLM, 2015b) and the *Utah Greater Sage-grouse Approved Resource Management Plan Amendment* (ARMPA) (BLM, 2015a) 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.

| 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 |

| 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 (%)* |
| 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 | --- |
| 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 |

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 (%) |
|---------------------------|------------------------|-------------------|--------------------------|------------------------------|--------------------------------|------------------------------|
| 024 | 258.40 | 26.73 | 26.73 | 0.00 | 37.5 | 100.00 |
| 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 an 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.

Please note that all of parcels 49, 69, and 73 have been deferred from this sale, portions of parcels 38 and 56 have been deferred from this sale, and parcel 70 has been removed from this sale, as described in Appendix B. The analysis of these parcels has not been removed from chapter 4 however, due to public interest in the parcels. The fact that the analysis was left in chapter 4 does not imply that these parcels will be offered in the December 2017 lease sale. Deferral is not a no-leasing decision. These parcels may be revisited in future lease sales once the identified concerns (listed in Appendix B) are addressed.

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, SO₂, 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 SO₂. 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 (PM₁₀ 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 combustors;
- Watering dirt roads during periods of high use to reduce fugitive dust emissions;
- Co-location of 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
- Performing interim reclamation to reclaim area 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 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-96, 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. Application of Lease Notice UT-LN-149 to parcel 071 would be adequate for the leasing stage to disclose potential future restrictions and to facilitate the reduction of potential impacts upon

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; approximately 1.4 acres located in the north west corner of the parcel 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. None of the parcels would be located below the rim of the Canyon. 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, 031, 038, and 039 occur partially within the ACEC; a combined total of approximately 1994 acres are located within the Nine Mile ACEC 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. All 1994 acres as proposed occur above the canyon rim and within standard leasing stipulation leasing category outside of VRM Class II management objective. Therefore, no impacts to scenery within the ACEC would be anticipated.

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, 031B, 038, 039 |
| 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 marker, 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 Handbook H-3120), 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 (BLM Handbook H-3120-1) 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 CO₂ in quantities that vary depending on the age, types, and conditions of the equipment as well as the targeted formation, locations of wells with respect to processing facilities and pipelines, and other site-specific factors;
- Fugitive CH₄ – CH₄ that escapes from wells (both gas and oil), oil storage, and various types of processing equipment. This is a major source of global CH₄ 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 CH₄ 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 CO₂ into the atmosphere. Fossil fuel combustion is the largest source of global CO₂.

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, 2017a). 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 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.

Direct and Indirect Greenhouse Gas Emissions

Potential direct and indirect greenhouse gas emissions for a single oil and gas well have been estimated based on the maximum emissions calculated for Alternative D in the Greater Monument Butte FEIS (Chapter 4 page 4-26 Table 4.2.1.4.1-1) (BLM, 2016a). Total Greenhouse Gas Warming Potential (GWP), which includes direct and indirect emissions of carbon dioxide, methane, and nitrous oxide from an oil or gas well (including well development and production) are 2,284 tons per year (tpy) CO₂e for a single oil well, and 2,415 tons per year CO₂e for a single gas well. For 135 potential wells, this would equate to 308,340 tpy CO₂e for oil wells and 326,025 tpy CO₂e for gas wells. Accurate assessments of GHG emissions are not possible at the leasing stage since emissions are dependent on factors such as specific equipment used and duration of use, applicant-committed emission controls, and the expected production rate from the oil or gas well. These factors are not known at the leasing stage. Furthermore, additional infrastructure such as pipelines, roads, compressor stations, gas plants and evaporation ponds are also not reasonably foreseeable at the leasing stage and are dependent on the level of development that may occur if the parcels are leased. GHG emission estimates from the Greater Monument Butte FEIS are provided as a representative example of the area for the purposes of this EA.

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. (UDOGM, 2017a). Indirect GHG emissions are also only calculated for carbon dioxide based on combustion of the product. Using the RFD in Appendix D, and an EPA emissions factor of 0.43 Metric tons of CO₂ per Barrel (Administration, 2016), and 0.054717 MT of CO₂ per MCF of gas (EPA, 2017) indirect GHG emissions can be estimated at 33,423.94 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 CO₂ emissions, it should be noted that it is difficult to discern with certainty what end uses might be reasonably foreseeable for the fuels extracted from a particular leasehold. For instance, some end uses 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

The BLM finds that including monetary estimates of the Social Cost of Carbon (SCC) in its NEPA analysis for this Proposed Action would be of limited use in analyzing and selecting between alternatives.

1. The SCC reflects the monetary cost incurred by the emission of one additional metric ton of carbon dioxide. The Proposed Action would not result in any direct emissions, and

although indirect emissions are estimated for the EA's future development scenario, there is no guarantee in this EA that, if the parcels are leased, development will occur at all, let alone as forecast in the development scenario, due to changes in commodity price, supply and demand, regulatory controls, and development technology.

2. The CEQ regulation states (in part), "...for the purposes of complying with the Act, the weighing of the merits and drawbacks of various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations." No socioeconomic analysis was included in the EA as per the Interdisciplinary Checklist (Appendix E). The BLM finds that including monetary estimates of the social cost of GHGs (SC GHG) in its NEPA analysis for this Proposed Action would not be useful because the BLM is not doing a cost-benefit analysis for other resources in this NEPA document. We do not believe monetizing only SC 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, 2016). 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 |
| <i>Total:</i> | 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.

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 [<i>Astragalus equisolensis</i>]) | 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

(Note) Parcel 73 has been deferred and parcels 038 and 056 have been reduced to remove the area within the Conservation Agreement.

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. |

| Table 4-6 Applicable Lease Notices and Stipulations for Threatened, Endangered, Proposed, and Candidate Plant Species. | |
|---|--------------------|
| Lease Notice or Stipulations | Applicable Parcels |
| UT-LN-90 (Graham beardtongue [<i>Penstemon grahamii</i>]) | 038 |
| UT-LN-154_ : White River Beardtongue (<i>Penstemon Scariosus</i> Var. <i>Albifluvis</i>) | 038, 056 |
| 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).

Impacts to Viewshed from the 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). (Note: Parcels 069 and 070 have been deferred from this sale. See the deferred lands list for more information.)

Total anticipated disturbance for Parcel 69 is 4 acres. Anticipated disturbance of 4 acres at the nearest point from KOP 1 would total 0.00021% field of vision intrusion to the average observer. Total anticipated disturbance for Parcel 70 is 4 acres. Anticipated disturbance of 4 acres at the nearest point from KOP 1 would total 0.0027% field of vision intrusion to the average observer. Similarly the field of vision intrusion to the average observer for KOP 2 would be 0.0098%.

Parcel 070 is located on private surface ownership, the BLM cannot regulate the level of non-Federal lease related development that occurs within parcel 070. 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).

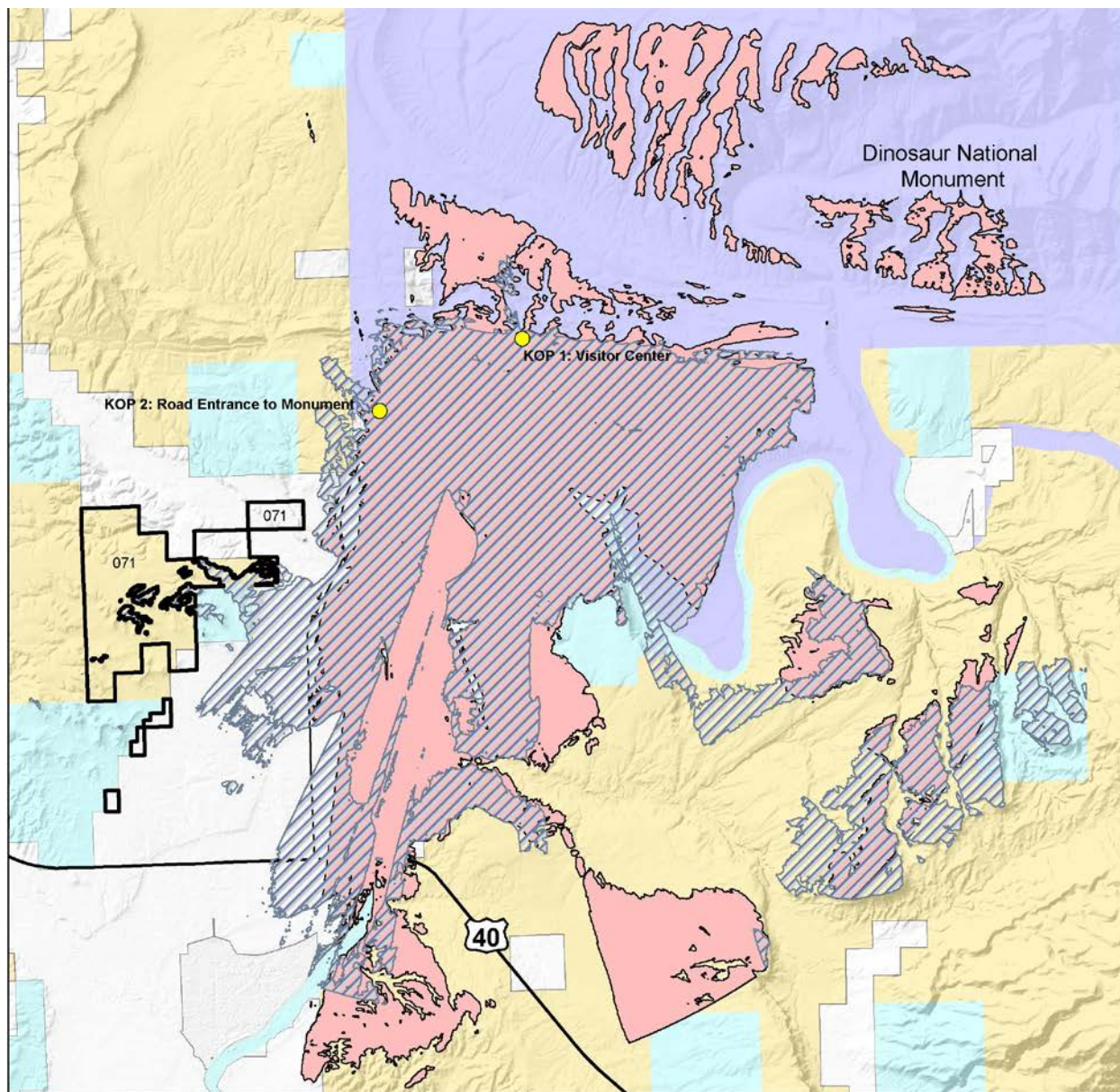
Parcel 071 is 1,208 acres. Total anticipated disturbance for Parcel 71 is 4 acres. Anticipated disturbance of 1 acre at the nearest point from KOP 1 would total 0.0003% field of vision intrusion to the average observer. Similarly the field of vision intrusion to the average observer for KOP 2 would be 0.0016%. Approximately 114 acres can be seen from KOP 1 (Visitor Center). Also, 69 acres of the parcel are on slopes greater than 40%, which are subject to stipulation **UT-S-96** (no surface occupancy (NSO)). If the 114 acres viewable from KOP 1 and 69 acres located on slopes greater from 40% were avoided, development could occur on the approximately² 1,025 remaining acres, or roughly 85% of the parcel, and would not have an effect on the view shed of Dinosaur National Monument. The methodology used to determine the area visible from KOPs was to set the KOP at 2 meters and identify anything visible within parcel 071 at 7.62 meters.

² The 114 acres and the 69 acres are not additive. They overlap to an undetermined degree.

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, use of lighting may be limited to that needed for safety. Dedicated use of the best available technology related to lighting would 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 and when needed; use of shielded lights to direct light downwards; use of warm light (avoid blue/white light); avoiding unnecessary flaring of gas; and when flaring is approved, evaluate the use of a visual screen or enclosed combustion chamber. Application of lease notice 148 would be sufficient for the leasing stage to notify the operator that additional measures may be necessary to reduce potential light impacts from future development. In addition, every attempt to minimize the disturbance footprint for any oil and gas 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.



Map 4-1: Viewshed Analysis of Parcel 071

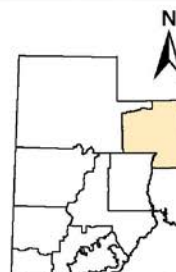
- Key Observation Points
 - ▭ Lease Parcel 071
 - ▨ Visible Viewshed from Visitor Center
 - ▨ Viewshed visible from DNM Entrance Road
- Land Status**
- Bureau of Land Management (BLM)
 - National Park Service (NPS)
 - Private
 - State



The viewshed from the Visitor Center shows that the planned disturbances will be visible from two KOPs: The DNM Visitor Center and the Entrance to Dinosaur National Monument. the viewshed from the DNR Entrances shows that additional KOPs will be impacted.

Viewshed Analysis is based on a 10km radius, with transmitter height set at 2m above ground and the receiver height at 7.62m (25ft)

0 0.5 1 2 Miles



Disclaimer: No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet NationalMap Accuracy Standards. These products were developed through digital means and may be updated without notification. ext

| Table 4-7: Visual Resources Stipulations and Notices | | |
|---|---|---|
| VRM Class | Lease Notice or Stipulation | Parcels |
| All | UT-S-168 – Controlled Surface Use Light and Sound | 071 |
| Class II | UT-S-159 - Controlled Surface Use – Visual Resource Management – VRM II | 022, 044, 069, 073, 078, 079, 083, 085, 086, 087 |
| All | UT-LN-115 – Light and Sound | All Parcels |
| All | UT-LN-148 Dinosaur National Monument – Dark Skies | 071 |

4.2.10 Wildlife: BLM Sensitive Species and Migratory Birds

4.2.10.1 Sensitive Species

4.2.10.1.1 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.

4.2.10.1.2 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. 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.

| Table 4-8: BLM Sensitive Species and Migratory Birds Potential Impacts. | | | |
|--|--|--------------------------------|---------------------------------|
| Species | Potential Impacts | Associated Stipulations | Associated Lease Notices |
| MAMMALS | | | |
| Townsend'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 |

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

4.2.10.2.1 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.

4.2.10.2 Impacts of Proposed Action Alternative

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).

4.2.10.3 White-tailed Prairie Dogs:

4.2.10.3.1 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.

4.2.10.3.2 Impacts of Proposed Action Alternative

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 being 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, Wright, Maxfield, & Brewerton, 2017). Research has

previously indicated that oil and gas development has impacted other species cohabiting the WTPD range including sage grouse [(Walker, Naugle, & Doherty, 2007) (Naugle, 2011) (Holloran, Fedy, & Dahlke, 2015)], pronghorn (Beckman, Murray, Seilder, & Berger, 1994), mule deer (Sawyer, Neilson, Lindzey, & McDonald, 2006)], and other sagebrush obligate passerine bird species [(Ingelfinger & Anderson, 2004), (Gilbert & Chalfoun, 2011), (Hethcoat & Chalfoun, 2015), and (Hersey, Wright, Maxfield, & Brewerton, 2017)]. Hersey et 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 (BFF) 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 where development might affect populations (Hersey, Wright, Maxfield, & Brewerton, 2017). 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 |

| 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 |
| Black-footed ferret | UT-S-299 | T&E- 02 | BFF PMZ:74, 75, 76, 77 Other: 55, 65, 67, 68, 72, 85, 86 |

4.2.10.4 Greater Sage-Grouse:

4.2.10.4.1 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.

4.2.10.4.2 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 above ambient conditions 2 hours prior and 2 hours after both sunrise and sunset.
 - 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 |

| Table 4-10: Applicable Lease Stipulations | | |
|--|--|---|
| Number | Lease Stipulations | Applicable Parcels |
| 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 |
| 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 Ambient Air Quality Standards (AAQS) in the Uinta Basin.
 - In the Uinta Basin, the ozone concentrations are highest during the winter period. In Class I and Class II areas outside the Uinta Basin study area, ozone concentrations are highest during the summer period.
 - During non-winter months in the Uinta Basin the model predicts that ozone may exceed the NAAQS and state AAQS; 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 (4th 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.
- NO₂, CO, SO₂, PM_{2.5}, and PM₁₀
 - 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 NO₂, CO, SO₂, PM_{2.5}, and PM₁₀ values are well below the NAAQS and state AAQS in the Uinta Basin.
 - The model-predicted PM_{2.5} and PM₁₀ 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 (AECOM, 2014).
 - 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 PM_{2.5} 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 Scenario 3, the annual PM_{2.5} impacts decrease in the Uinta Basin due to combustion control measures.
 - The 2021 scenarios generally have lower NO₂, CO, SO₂, PM_{2.5}, and PM₁₀ concentrations than the 2010 Typical Year scenario, except for within the Uinta Basin.
 - Under the 2021 scenarios, all assessment areas are within the Prevention of Significant Deterioration (PSD) increments for annual NO₂, 3-hour SO₂, annual SO₂, and annual PM₁₀.
 - 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 20th percentile best and worst visibility days between the 2021 Scenarios.
- Deposition and Acid Neutralizing Capacity
 - Results generally show a decrease in deposition for the 2021 Scenarios relative to the 2010 Typical Year.
 - The differences in estimated deposition between the 2021 Scenarios are generally very small.
 - Acid Neutralizing Capacity change at all seven sensitive lakes exceeds the 10 percent limit of acceptable change for all model scenarios.

It is anticipated that the impact to ambient air quality and air quality related values associated with the Proposed Action would be indistinguishable from and dwarfed by the model and emission inventory scope and margin of error. The No Action alternative would not contribute 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 CO₂ in quantities that vary depending on the age, types, and conditions of the equipment as well as the targeted formation, locations of wells with respect to processing facilities and pipelines, and other site-specific factors.
- Fugitive CH₄ – CH₄ that escapes from wells (both gas and oil), oil storage, and various types of processing equipment. This is a major source of global CH₄ 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 CH₄ 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 CO₂ into the atmosphere. Fossil fuel combustion is the largest source of global CO₂.

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 units 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 VFO RMP (BLM 2008b). The past, present and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights (leases) and/or realty actions (for example, pipeline or road rights of way). The Proposed Action could result in the loss of wilderness characteristics within the units affected. Potential oil and gas development in the Hideout Canyon area 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 within 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 for 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 (BLM 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 | Purpose & Authorities for Consultation or Coordination | Findings & Conclusions |
|--|---|--|
| Utah State Historic Preservation Office | National Historic Preservation Action Section 106 (54 USC 300101 et seq.) | A letter was sent on March 7, 2017 to SHPO informing them of the proposed undertaking and initiate Section 106 consultation. SHPO responded on March 21, 2017. Consultation is ongoing. |
| 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 Forest Utah State Parks Dinosaur National Monument | National Historic Preservation Action Section 106 (54 USC 300101 et seq.) | 14 group were invited to participate in the Section 106 consultation process and seven groups opted to participate, including URARA, USAS, SUWA, Uintah County, Duchesne County, Ashley National Forest, and Utah State Park. A meeting was held on June 7, 2017 where all seven groups participated and the APE and timeline was discussed. Consultation is ongoing. |

| Name | Purpose & Authorities for Consultation or Coordination | Findings & Conclusions |
|---|---|---|
| U.S. Fish and Wildlife Service | Endangered Species Act Section 7 Consultation | Consultation on Oil and Gas leasing occurred in a State-wide programmatic BO in 2004 and 2008 as part of the RMP process. The BLM is coordinating with the FWS to ensure the previous consultations are still adequate. The BLM provided the USFWS with a notice that requested agreement from the USFWS that the Proposed Action (leasing): 1) does not exceed the impacts analyzed in the PRMP and BA/BO; and 2) would not exceed the effects determination in the BO (LAA) and our effects determination for this project (NLAA). In addition the BLM is conferencing on penstemon and consulting on yellow-billed cuckoo with the USFWS for this lease sale. That conferencing and consultation is ongoing. When or if disturbance is proposed for parcels (APD stage) that contain or affect ESA species, further evaluation and Section 7 consultation of these ESA species with the USFWS will occur as necessary. |
| Tribes Eastern Shoshone Tribe Ute Indian Tribe Ute Mountain Ute Tribe White Mesa Ute Tribe Santa Clara Pueblo Tribe Zia Pueblo Tribe Northwest Band Shoshone Goshute Indian Tribe Southern Ute Tribe Pueblo of Laguna Hopi Tribe Navajo Nation Pueblo of Jemez | Government to Government Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1531) and NHPA (54 USC 300101 et seq.) | Consultation letters were sent to 13 tribe's leaders and cultural resources specialists via certified mail on April 17, 2017. The Hopi Tribe responded on May 01 2017 request a copy of the cultural review when completed. The copy was provided. Consultation is ongoing. |
| Private land owners | Coordinated with as a leasing program partner. | April 18, 2017, letters were sent to all known private landowners potentially impacted by the proposed leasing. Phone responses have been received asking for more information. |

| Name | Purpose & Authorities for Consultation or Coordination | Findings & Conclusions |
|--|--|--|
| | | Comments were received during the comment period, and have been responded to in Appendix G. |
| Utah Public Lands Policy and Coordination Office | Coordinated with as a leasing program partner. | In February 2017 a letter providing notice of the lease sale, parcel locations and an invitation to attend parcel site-visits was transmitted to PLPCO. A response dated April 14, 2017 was received expressing support for the project. |
| National Park Service | Coordinated with as a leasing program partner. | <p>In February 2017 a letter providing notice of the lease sale, parcel locations, and invitation to attend parcel site-visits was transmitted to Salt Lake City Office of the NPS, who forwarded the information to the Dinosaur National Monument (DNM).</p> <p>DNM responded on May 1, 2017 provided scoping comments concerned with air quality, viewsheds, night skies, visitor experience (noise), water quality, and T&E fish concerns. A joint BLM/NPS field review was held on May 12, 2017.</p> <p>On August 22, 2017, the DNM submitted comments on the EA. Ongoing concerns were expressed with parcels 69, 70, and 71. The comments were considered and a new lease notice was added to Parcel 071. Parcel 69 was deferred from the sale pending further coordination with the Monument. Parcel 70 was removed from the sale because the nomination incorrectly identified the surface owner.</p> |
| U.S. Forest Service | Coordinated with as a leasing program partner. | <p>In February 2017 a letter providing notice of the lease sale, parcel locations, and invitation to attend parcel site-visits was transmitted to U.S. F.S.</p> <p>In the Section 106 meeting, the Forest representative indicated that access to the parcels adjacent to their south unit may need to occur from the adjacent forest due to topography. They indicated that permits would need to be obtained before surface use of Forest Service lands could occur. Two new lease notices have been added to parcels 22, 23, and 24 as a result of this consultation.</p> |
| Utah Division of Wildlife Resources | Coordinated with as a leasing program partner. | In February 2017 a letter providing notice of the lease sale, parcel locations, and invitation to attend parcel site-visits was transmitted to UDWR. The EA was provided to UDWR for review. No comments were received. |
| Utah School and Institutional Trust Lands Administration | Coordinated with as a leasing program partner. | In February 2017 a letter providing notice of the lease sale, parcel locations, and invitation to attend parcel site-visits was transmitted to SITLA. The EA was provided to SITLA for |

| Name | Purpose & Authorities for Consultation or Coordination | Findings & Conclusions |
|--|---|---|
| | | review. No comments were received. |
| Utah State Parks: Steinaker | Coordinated with as an adjacent land manager. | The Utah State Parks are participants in the Section 106 consultation process. In addition, the EA was provided to the Park for review and comment. No response was received. |
| Utah State Parks: Red Fleet | Coordinated with as an adjacent land manager. | The Utah State Parks are participants in the Section 106 consultation process. In addition, the EA was provided to the Park for review and comment. No response was received. |
| Bureau of Reclamation | Coordinated with as an adjacent land owner | The EA was provided to the BOR for review and comment. No response was received. |
| Ouray National Wildlife Refuge | Coordinated with as an adjacent land manager | The EA was provided to the Refuge for review and comment. A discussion was held with the Refuge on August 29. Clarification on the Colorado River Wildlife Management Area Conservation Easements was provided by the Refuge during that discussion. A new lease notice was attached to parcels 44 and 54 as a result of this coordination. |
| Bureau of Land Management White River Field Office | Coordinated with as an adjacent land owner | The EA was provided to the WRFO for review and comment. On August 15, 2017 they communicated that no concerns were identified. |
| J.R. Simplot Company | Coordinated with as a mill site claim owner. | Information was provided during the public comment period regarding Simplot's mill site claims that overlap parcel 49. Parcel 49 has been deferred pending clarification of the mutual compatibility of the mill site claims and the proposed lease. |

5.2 LIST OF PREPARERS AND PARTICIPANTS

INTERDISCIPLINARY REVIEW

Please refer to Appendix E to see the interdisciplinary review.

List of Preparers

| 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 | Migratory Birds, Special Status Animal Species, Wildlife (Aquatic & Terrestrial), |

| Name | Title | Responsible for the following Section(s) of this EA |
|------|---------------------------------------|---|
| | Planning and Environmental Specialist | |

5.2 PUBLIC INVOLVEMENT

Public Comment Period

A public comment period was held June 24, 2017 through July 24, 2017. The BLM received 12,976 form letters of two different styles. These form letters requested deferral of leases near Dinosaur National Monument and within areas with wilderness characteristics. The BLM also received letters from 30 agencies, organizations, and individuals that contained one or more substantive comments. The comments have been summarized and responses were provided in Appendix E.

CHAPTER 6 – REFERENCES, ACRONYMS, AND APPENDICES

6.1 REFERENCES CITED

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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 |
| BSU | Biologically Significant Unit |
| 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 |
| MBTA | Migratory Bird Treaty Act |
| NAAQS | National and Utah Ambient Air Quality Standards |
| NEPA | National Environmental Policy Act |
| NI | Not Impacted |
| NP | Not Present |

| TABLE 6-1: ACRONYMS | |
|----------------------------|---|
| Acronym | Meaning |
| 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 |
| USFS | U.S. Forest Service |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| VRM | Visual Resource Management |

| TABLE 6-1: ACRONYMS | |
|----------------------------|-----------------------|
| Acronym | Meaning |
| 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 | <p>Stipulations</p> <p>H3120: Endangered Species Act and Cultural Resources Stipulations</p> <p>UT-S-01: Air Quality</p> <p>UT-S-21: No Surface Occupancy Lears Canyon ACEC</p> <p>UT-S-96: No Surface Occupancy – Fragile Soil/Slopes Greater than 40%</p> <p>UT-S-99: Controlled Surface Use – Fragile Soil/Slopes</p> <p>UT-S-100: Controlled Surface Use – Fragile Soil/Slopes (21%-40%)</p> <p>UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves</p> <p>UT-S-159: Controlled Surface Use – Visual Resources – VRM II</p> <p>UT-S-205: TL – Greater Sage-Grouse Brood Rearing and Nesting</p> <p>UT-S-207: CSU – Greater Sage-Grouse (Structures)</p> <p>UT-S-261: TL-Raptor Buffers</p> <p>UT-S-347 GRSG: No Surface Occupancy – Greater Sage-Grouse PHMA</p> <p>UT-S-348 GRSG: Controlled Surface Use/NSO – Disturbance Cap</p> <p>UT-S-349 GRSG: Controlled Surface Use/NSO - Density Limitation</p> <p>UT-S-350 GRSG: Timing Limitation/Controlled Surface Use – Breeding Season Noise Limitations</p> <p>UT-S-352 GRSG: Controlled Surface Use – Tall Structures</p> <p>UT-S-353 GRSG: Timing Limitation – Greater Sage-Grouse Breeding, Nesting, and Early Brood Rearing</p> <p>UT-S-354 GRSG: Timing Limitation – Greater Sage-Grouse Brood Rearing</p> <p>UT-S-355 GRSG: Timing Limitation – Greater Sage-Grouse Winter Habitat</p> <p>Notices</p> <p>T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin</p> <p>UT-LN-45: Migratory Birds</p> <p>UT-LN-49: Utah Sensitive Species</p> <p>UT-LN-51: Special Status Plants: Not Federally Listed</p> <p>UT-LN-68: Notification & Consultation Regarding Cultural Resources</p> <p>UT-LN-72: High Potential Paleontological Resources</p> <p>UT-LN-96: Air Quality Mitigation Measures</p> <p>UT-LN-99: Regional Ozone Formation Controls</p> <p>UT-LN-102: Air Quality Analysis</p> <p>UT-LN-115: Light and Sound</p> <p>UT-LN-128: Floodplain Management</p> <p>UT-LN-129: Greater Sage-Grouse-Disturbance Cap</p> <p>UT-LN-130: Greater Sage-Grouse Density Limitation</p> <p>UT-LN-131: Greater Sage-Grouse- Net Conservation Gain</p> <p>UT-LN-132: Greater Sage-Grouse- Required Design Features</p> <p>UT-LN-133: Greater Sage-Grouse- Buffer</p> <p>UT-LN-151: Ashley National Forest Access Restrictions</p> <p>UT-LN-152: Potential Adjacent Landowner Access Restrictions</p> |
| 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 Duchesne County, Utah Vernal Field Office | <p>Stipulations</p> <p>H-3120: Endangered Species Act and Cultural Resources Stipulations</p> <p>UT-S-01: Air Quality</p> <p>UT-S-96: No Surface Occupancy - Fragile Soils/slopes Greater than 40 %</p> <p>UT-S-99: Controlled Surface Use - Fragile Soils/Slopes</p> <p>UT-S-100: Controlled Surface Use - Fragile Soil/Slopes (21%-40%)</p> <p>UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Waster Reserves</p> <p>UT-S-205: TL – Greater Sage-Grouse Brood Rearing and Nesting</p> <p>UT-S-207: CSU – Greater Sage-Grouse (Structures)</p> <p>UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat</p> |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|---------------------|--|---|
| | | <p> 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 </p> <p> <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-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: Floodplain Management UT-LN-129: Greater Sage-Grouse-Disturbance Cap UT-LN-130: Greater Sage-Grouse Density Limitation UT-LN-131: Greater Sage-Grouse - Net Conservation Gain UT-LN-132: Greater Sage-Grouse - Required Design Features UT-LN-133: Greater Sage-Grouse- Buffer UT-LN-151: Ashley National Forest Access Restrictions UT-LN-152: Potential Adjacent Landowner Access Restrictions </p> |
| UT1217 – 024 | <p>T. 11 S., R. 14 E., Salt Lake</p> <p>Sec. 8: All.</p> <p>258.40 Acres</p> <p>Duchesne County, Utah</p> <p>Vernal Field Office</p> | <p> <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-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 </p> <p> <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 </p> |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|--------------|--|---|
| | | 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: Floodplain Management UT-LN-129: Greater Sage-Grouse-Disturbance Cap UT-LN-130: Greater Sage-Grouse Density Limitation UT-LN-131: Greater Sage-Grouse - Net Conservation Gain UT-LN-132: Greater Sage-Grouse - Required Design Features UT-LN-133: Greater Sage-Grouse – Buffer UT-LN-151: Ashley National Forest Access Restrictions UT-LN-152: Potential Adjacent Landowner Access Restrictions |
| 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-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves 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 (<i>Spiranthes Diluvialis</i>) 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: Floodplain Management 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 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-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 |

| 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: Floodplain Management |
| 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 | <u>Stipulations</u> 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-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 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: Floodplain Management |
| UT1217 – 029 | T. 10 S., R. 15 E., Salt Lake Sec. 28: SENE, NESE. 80.00 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-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-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 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: Floodplain Management |
| UT1217 – 030 | T. 10 S., R. 15 E., Salt Lake | <u>Stipulations</u> H-3120: Endangered Species Act and Cultural Resources Stipulations UT-S-01: Air Quality |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|----------------------|--|--|
| | Sec. 33: Lots 1-4; Sec. 34: Lots 1-4, NWN, SENW; Sec. 35: All. 1,020.76 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-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 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: Floodplain Management 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 | <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-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 (<i>Sclerocactus Brevispinus</i>) and Uinta Basin hookless cactus [<i>Sclerocactus Glaucus</i> (<i>Brevispinus</i> and <i>Wetlandicus</i>)] T&E-21: Shrubby reed-mustard (<i>Schoenocrambe Suffrutescens</i>) 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: Floodplain Management 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. | <u>Stipulations</u> H-3120: Endangered Species Act and Cultural Resources Stipulations UT-S-01: Air Quality |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|---------------------|--|---|
| | 320.0 Acres Duchesne County, Utah Vernal Field Office | <p>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-247: TL-Crucial Elk Calving and Deer Fawning Habitat UT-S-261: TL-Raptor Buffers UT-S-317: Unit Joinder – Gate Canyon II (UTU90523X)</p> <p><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-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: Floodplain Management</p> |
| 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 | <p><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-247: TL-Crucial Elk Calving and Deer Fawning Habitat UT-S-261: TL-Raptor Buffers</p> <p><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-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: Floodplain Management UT-LN-131: Greater Sage-Grouse - Net Conservation Gain UT-LN-132: Greater Sage-Grouse- Required Design Features</p> |
| UT1217 – 033 | T. 10 S., R. 16 E., Salt Lake | <p><u>Stipulations</u> H-3120: Endangered Species Act and Cultural Resources Stipulations</p> |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|---------------------|--|--|
| | Sec. 1: All; Sec. 10: SENE, E2SW, SE; Secs. 11 and 12: All. 2,199.60 Acres Duchesne County, Utah 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-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-22: Ute Ladies'-Tresses (<i>Spiranthes Diluvialis</i>) 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: Floodplain Management 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 | <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-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 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: Floodplain Management 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 | <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 |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|---------------------|--|---|
| | Duchesne County, Utah Vernal Field Office | <p>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-247: TL-Crucial Elk Calving and Deer Fawning Habitat UT-S-261: TL-Raptor Buffers</p> <p><u>Notices</u> 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-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: Floodplain Management UT-LN-131: Greater Sage-Grouse - Net Conservation Gain UT-LN-132: Greater Sage-Grouse- Required Design Features</p> |
| 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 | <p><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-247: TL-Crucial Elk Calving and Deer Fawning Habitat UT-S-261: TL-Raptor Buffers</p> <p><u>Notices</u> 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-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: Floodplain Management</p> |
| UT1217 – 037 | T. 10 S., R. 16 E., Salt Lake Sec. 35: SENE, SESE. 80.00 Acres Duchesne County, Utah Vernal Field Office | <p><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-247: TL-Crucial Elk Calving and Deer Fawning Habitat UT-S-261: TL-Raptor Buffers</p> <p><u>Notices</u> T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin</p> |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | 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: Floodplain Management 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. 1,434.48 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-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 (<i>Sclerocactus Brevispinus</i>) and Uinta Basin hookless cactus [<i>Sclerocactus Glaucus</i> (<i>Brevispinus</i> and <i>Wetlandicus</i>)] T&E-21: Shrubby Reed - Mustard (<i>Schoenocrambe Suffrutescens</i>) 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 (<i>Penstemon Grahamii</i>) 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: Floodplain Management UT-LN-131: Greater Sage-Grouse - Net Conservation Gain UT-LN-132: Greater Sage-Grouse- Required Design Features UT-LN-154: White River Beardtongue (<i>Penstemon Scariosus</i> Var. <i>Albifluvis</i>) |
| UT1217 – 039 | T. 11 S., R. 16 E., Salt Lake Sec. 6: Lots 1-7, S2NE, SENW; Sec. 7: All. 853.78 Acres Duchesne County, Utah Vernal Field Office | <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 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 |
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| | | <p>UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat UT-S-261: TL - Raptor Buffers</p> <p><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)] 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: Floodplain Management UT-LN-131: Greater Sage-Grouse - Net Conservation Gain UT-LN-132: Greater Sage-Grouse- Required Design Features</p> |
| UT1217 – 040 | <p>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</p> | <p><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 UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves UT-S-218: Controlled Surface Use – White-tailed Prairie Dog UT-S-261: TL-Raptor Buffers</p> <p><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-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: Floodplain Management</p> |
| UT1217 – 041 | <p>T. 10 S., R. 17 E., Salt Lake Sec. 30: Lot 4; Sec. 31: Lots 1-4, E2NW, E2SW. 359.20 Acres Duchesne County, Utah Vernal Field Office</p> | <p><u>Stipulations</u> 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-247: TL-Crucial Elk Calving and Deer Fawning Habitat UT-S-261: TL - Raptor Buffers</p> <p><u>Notices</u></p> |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | 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-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: Floodplain Management 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 | <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 UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves 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 (<i>Sclerocactus Brevispinus</i>) and Uinta Basin hookless cactus [<i>Sclerocactus Glaucus</i> (<i>Brevispinus</i> and <i>Wetlandicus</i>)] 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: Floodplain Management |
| UT1217 – 044 | T. 9 S., R. 19 E., Salt Lake Sec. 14: Lots 1-3, NW, N2SW; Sec. 15: All. 952.05 Acres Uintah County, Utah Vernal Field Office | <u>Stipulations</u> H-3120: Endangered Species Act and Cultural Resources Stipulation UT-S-01: Air Quality UT-S-11: No Surface Occupancy - Pariette Wetlands ACEC, 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-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 <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 (<i>Sclerocactus Brevispinus</i>) and Uinta Basin hookless cactus [<i>Sclerocactus Glaucus</i> (<i>Brevispinus</i> and <i>Wetlandicus</i>)] |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | T&E-22: Ute Ladies'-Tresses (<i>Spiranthes Diluvialis</i>) 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-113: Western Yellow-Billed Cuckoo UT-LN-115: Light and Sound UT-LN-128: Floodplain Management UT-LN-155: Colorado River Wildlife Management Area Conservation Easement |
| 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 | <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 UT-S-123: No Surfaces Occupancy– Riparian, Floodplains, and Public Water Reserves UT-S-261: TL - Raptor Buffers UT-S-316: Material Site Rights-of-Way <u>Notices</u> T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin T&E-22: Ute Ladies'-Tresses (<i>Spiranthes Diluvialis</i>) 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 UT-LN-99: Regional Ozone Formation Controls UT-LN-102: Air Quality Analysis UT-LN-115: Light and Sound UT-LN-128: Floodplain Management |
| 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 | <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 UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves 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 (<i>Spiranthes Diluvialis</i>) 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 (<i>Astragalus Equisolensis</i>) |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | 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 | <u>Stipulations</u> 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-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 <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 (<i>Spiranthes Diluvialis</i>) 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-85 Tar Sands Area UT-LN-89: Horseshoe Milkvetch (<i>Astragalus Equisolensis</i>) 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: Floodplain Management UT-LN-131: Greater Sage-Grouse - Net Conservation Gain UT-LN-132: Greater Sage-Grouse- Required Design Features UT-LN-133: Greater Sage-Grouse- Buffer UT-LN-155: Colorado River Wildlife Management Area Conservation Easement |
| 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 | <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 UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves 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 <u>Notices</u> 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-12 Pariette Cactus (<i>Sclerocactus Brevispinus</i>) and Uinta Basin hookless cactus [<i>Sclerocactus Glaucus</i> (<i>Brevispinus</i> and <i>Wetlandicus</i>)] T&E-22: Ute Ladies'-Tresses (<i>Spiranthes Diluvialis</i>) UT-LN-25: White-tailed and Gunnison Prairie Dog UT-LN-45: Migratory Birds |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | 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 (<i>Astragalus Equisolensis</i>) 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: Floodplain Management UT-LN-152: Potential Adjacent Landowner Access Restrictions |
| UT1217 – 056 | T. 12 S., R. 21 E., Salt Lake Sec. 28: All. 640.00 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-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-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 <u>Notices</u> T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin T&E-05: Listed Plant Species T&E-20: Clay reed-mustard (<i>Schoenocrambe Argillacea</i>) T&E-21: Shrubby reed-mustard (<i>Schoenocrambe Suffrutescens</i>) T&E-22: Ute Ladies'-Tresses (<i>Spiranthes Diluvialis</i>) 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-113: Western Yellow-Billed Cuckoo UT-LN-115: Light and Sound UT-LN-128: Floodplain Management UT-LN-131: Greater Sage-Grouse - Net Conservation Gain UT-LN-132: Greater Sage-Grouse- Required Design Features UT-LN-154: White River Beardtongue (<i>Penstemon Scariosus</i> Var. <i>Albifluvis</i>) |
| UT1217 – 057 | T. 3 S., R. 22 E., Salt Lake Sec. 17: E2. 320.00 Acres Uintah County, Utah Vernal Field Office | <u>Stipulations</u> 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-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 |
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| | | <p>UT-S-230: TL-Crucial Deer and Elk Winter Range UT-S -231: CSU – Crucial Deer Winter Range UT-S-261: TL-Raptor Buffers</p> <p><u>Notices</u> 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-56: Drinking Water Source Protection Zone 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:Floodplain Management</p> |
| UT1217 – 058 | <p>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</p> | <p><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-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 UT-S-355 GRSG: Timing Limitation - Greater Sage-Grouse Winter habitat</p> <p><u>Notices</u> 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-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: Floodplain Management 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</p> |
| UT1217 – 059 | <p>T. 3 S., R. 22 E., Salt Lake</p> | <p><u>Stipulations</u> H-3120: Endangered Species Act and Cultural Resources Stipulations</p> |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | <p>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</p> | <p>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-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 UT-S-355 GRSG: Timing Limitation - Greater Sage-Grouse Winter habitat</p> <p><u>Notices</u> 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-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: Floodplain Management 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</p> |
| UT1217 – 060 | <p>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</p> | <p><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-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</p> <p><u>Notices</u></p> |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | 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-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: Floodplain Management 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 | <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-230: TL-Crucial Deer and Elk Winter Range UT-S-261: TL-Raptor Buffers <u>Notices</u> 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-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: Floodplain Management |
| 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 | <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 UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves 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 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 <u>Notices</u> T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | <p> 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 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: Floodplain Management 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 </p> |
| UT1217 – 063 | <p>T. 4 S., R. 22 E., Salt Lake</p> <p>Sec. 34: E2, E2NW;</p> <p>Sec. 35: All. 1,040.00 Acres</p> <p>Uintah County, Utah</p> <p>Vernal Field Office</p> | <p><u>Stipulations</u></p> <p>H-3120: Endangered Species Act and Cultural Resources Stipulation</p> <p>UT-S-01 Air Quality</p> <p>UT-S-96 No Surface Occupancy - Fragile Soils/slopes Greater than 40 %</p> <p>UT-S-99 Controlled Surface Use - Fragile Soils/Slopes</p> <p>UT-S-100 Controlled Surface Use - Fragile Soil/Slopes (21%-40%)</p> <p>UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves</p> <p>UT-S-261: TL-Raptor Buffers</p> <p><u>Notices</u></p> <p>T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin</p> <p>T&E-05: Listed Plant Species</p> <p>T&E-22: Ute Ladies'-Tresses (<i>Spiranthes Diluvialis</i>)</p> <p>UT-LN-25: White-tailed and Gunnison Prairie Dog</p> <p>UT-LN-45: Migratory Birds</p> <p>UT-LN-49: Utah Sensitive Species</p> <p>UT-LN-51 Special Status Plants - Not Federally Listed</p> <p>UT-LN-68: Notification & Consultation Regarding Cultural Resources</p> <p>UT-LN-72: High Potential Paleontological Resources</p> <p>UT-LN-83 Site Row</p> <p>UT-LN-89 Horseshoe Milkvetch (<i>Astragalus Equisolensis</i>)</p> <p>UT-LN-96 Air Quality Mitigation Measures</p> <p>UT-LN-99 Regional Ozone Formation Controls</p> <p>UT-LN-102 Air Quality Analysis</p> <p>UT-LN-113: Western Yellow-Billed Cuckoo</p> <p>UT-LN-115 Light and Sound</p> <p>UT-LN-128: Floodplain Management</p> |
| UT1217 – 064 | <p>T. 5 S., R. 22 E., Salt Lake</p> <p>Sec. 1: All;</p> <p>Sec. 11: NENE, S2NE, SE;</p> <p>Sec. 12: W2NW, SENW, SW, W2SE, SESE.</p> <p>1,321.60 Acres</p> <p>Uintah County, Utah</p> <p>Vernal Field Office</p> | <p><u>Stipulations</u></p> <p>H-3120: Endangered Species Act and Cultural Resources Stipulations</p> <p>UT-S-01 Air Quality</p> <p>UT-S-96: No Surface Occupancy - Fragile Soils/slopes Greater than 40 %</p> <p>UT-S-99 Controlled Surface Use - Fragile Soils/Slopes</p> <p>UT-S-100: Controlled Surface Use - Fragile Soil/Slopes (21%-40%)</p> <p>UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves</p> <p>UT-S-247: TL-Crucial Elk Calving and Deer Fawning Habitat</p> <p>UT-S-261: TL-Raptor Buffers</p> <p><u>Notices</u></p> <p>T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin</p> <p>UT-LN-25: White-tailed and Gunnison Prairie Dog</p> |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | 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 (<i>Astragalus Equisolensis</i>) 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 Floodplain Management |
| 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 | <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-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 <u>Notices</u> 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 (<i>Spiranthes Diluvialis</i>) 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 (<i>Astragalus Equisolensis</i>) 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: Floodplain Management |
| UT1217 – 066 | T. 6 S., R. 22 E., Salt Lake Sec. 17: SWNE, W2. 360.00 Acres Uintah County, Utah Vernal Field Office | <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 UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves 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 <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 (<i>Spiranthes Diluvialis</i>) UT-LN-25: White-tailed and Gunnison Prairie Dog UT-LN-45: Migratory Birds UT-LN-49: Utah Sensitive Species |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | 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 (<i>Astragalus Equisolensis</i>) 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: Floodplain Management |
| 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 | <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-261: TL-Raptor Buffers <u>Notices</u> T&E-02: Black footed Ferret 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-68: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources UT-LN-89 Horseshoe Milkvetch (<i>Astragalus Equisolensis</i>) 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: Floodplain Management |
| 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 | <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 UT-S-123 No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves UT-S-261: TL-Raptor Buffers <u>Notices</u> 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-12: Pariette Cactus (<i>Sclerocactus Brevispinus</i>) and Uinta Basin hookless cactus [<i>Sclerocactus Glaucus</i> (<i>Brevispinus</i> and <i>Wetlandicus</i>)] 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 (<i>Astragalus Equisolensis</i>) UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-102: Air Quality Analysis |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | UT-LN-115: Light and Sound UT-LN-128: Floodplain Management |
| 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 | <u>Stipulations</u> 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-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 <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 (<i>Spiranthes Diluvialis</i>) 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 (<i>Astragalus Equisolensis</i>) 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-128: Floodplain Management UT-LN-148: Dinosaur National Monument – Dark Skies UT-LN-149: Units of the National Park Service – Air Quality and Related Values UT-LN-150: Units of the National Park Service – Scenic Viewshed |
| 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 | <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 UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves UT-S-261: TL-Raptor Buffers <u>Notices</u> 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 (<i>Spiranthes Diluvialis</i>) 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 (<i>Astragalus Equisolensis</i>) UT-LN-96: Air Quality Mitigation Measures |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
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| | | UT-LN-99 Regional Ozone Formation Controls UT-LN-102: Air Quality Analysis UT-LN-115: Light and Sound UT-LN-128: Floodplain Management |
| 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 | <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-218: CSU-White-Tailed Prairie Dog UT-S-261: TL-Raptor Buffers UT-S-299: CSU/TL-Black Footed Ferret PMZ <u>Notices</u> T&E-02: Black footed Ferret 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-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: Floodplain Management 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 | <u>Stipulations</u> 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-218: CSU-White-Tailed Prairie Dog UT-S-261: TL-Raptor Buffers UT-S-299: CSU/TL-Black Footed Ferret PMZ <u>Notices</u> T&E-02: Black footed Ferret 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-68: Notification & Consultation Regarding Cultural Resources UT-LN-72: High Potential Paleontological Resources UT-LN-83 Site Rows UT-LN-89 Horseshoe Milkvetch (<i>Astragalus Equisolensis</i>) 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 |
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| | | UT-LN-128: Floodplain Management 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 | <u>Stipulations</u> 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-218: CSU-White-Tailed Prairie Dog UT-S-261: TL-Raptor Buffers UT-S-299: CSU/TL-Black Footed Ferret PMZ <u>Notices</u> T&E-02: Black footed Ferret 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-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: Floodplain Management 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 | <u>Stipulations</u> 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-218: CSU-White-Tailed Prairie Dog UT-S-261: TL-Raptor Buffers UT-S-299: CSU/TL-Black Footed Ferret PMZ <u>Notices</u> 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-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-113: Western Yellow-Billed Cuckoo UT-LN-115: Light and Sound |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|---------------------|--|---|
| | | UT-LN-128: Floodplain Management 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 Secs. 33 and 34: All. 905.62 Acres Grand County 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-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 <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 (<i>Spiranthes Diluvialis</i>) UT-LN-45: Migratory Birds UT-LN-49: Utah Sensitive Species 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: Floodplain Management 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 | <u>Stipulations</u> 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-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 <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 (<i>Spiranthes Diluvialis</i>) UT-LN-45: Migratory Birds UT-LN-49: Utah Sensitive Species UT-LN-56: Drinking Water Source Protection Zone 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-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: Floodplain Management 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 | <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-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 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: Floodplain Management 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 | <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 UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves 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 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 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 |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|---------------------|--|---|
| | | UT-LN-115: Light and Sound UT-LN-128: Floodplain Management 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-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 (<i>Spiranthes Diluvialis</i>) 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 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: Floodplain Management 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 Uintah County, Utah Vernal Field Office | <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 UT-S-123: No Surface Occupancy – Riparian, Floodplains, and Public Water Reserves 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 <u>Notices</u> 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-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 |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|---------------------|--|--|
| | | UT-LN-115: Light and Sound UT-LN-128: Floodplain Management 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 | <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 Surfaces Occupancy – Riparian, Floodplains, and Public Water Reserves 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 <u>Notices</u> T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin 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 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: Floodplain Management 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 | <u>Stipulations</u> 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-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 <u>Notices</u> T&E-02: Black footed Ferret 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-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 |

| BLM Sale ID | Legal Description of Available Parcel | Lease Stipulations and Notices |
|---|--|--|
| | | UT-LN-128: Floodplain Management 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 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-261: TL-Raptor Buffers <u>Notices</u> 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-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: Floodplain Management UT-LN-131: Greater Sage-Grouse - Net Conservation Gain UT-LN-132: Greater Sage-Grouse- Required Design Features |

Appendix B - Recommend Parcels for Deferral

Parcels Deferred Before Public Comment Period

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 an ongoing 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 an ongoing Tar Sands Lease Sale

Parcels Deferred After Public Comment Period

UT1217 - 038

T. 11 S., R. 16 E., SLM

Sec. 13: SE;

Sec. 14: N2;

Sec. 15: N2.

800.00 Acres

Duchesne County, Utah

Vernal Field Office

This part of the parcel is being deferred due to the presence of special status plant species habitat that is the subject of ongoing litigation that may result in additional protections of individuals, populations, or habitat.

UT1217-049

T. 3 S., R. 21 E., SLM

Sec. 13: Lot 1, W2NE, SENE, NEWN, S2NW, SW, NWSE;

Sec. 24: W2NW, W2SW;

Sec. 25: W2NW, W2SW, SESW

840.16 Acres

Uintah County, Utah

Vernal Field Office

This parcel is being deferred to gather more information regarding the mutual compatibility of the existing mill site claims on the parcel and the proposed oil and gas lease.

UT1217 - 056

T. 12 S., R. 21 E., SLM

Sec. 17: W2;

Sec. 18: E2.

640.00 Acres

Uintah County, Utah

Vernal Field Office

This part of the parcel is being deferred due to the presence of special status plant species habitat that is the subject of ongoing litigation that may result in additional protections of individuals, populations, or habitat.

UT1217-069

T. 4., R. 23., 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

Uintah County, Utah

Vernal Field Office

This parcel is being deferred pending further coordination with Dinosaur National Monument regarding their comments which call into question the ability of the lease stipulations to protect resources of concern, and which will take additional time to resolve.

UT1217-070

T. 4 S., R. 23 E., SLM

Sec. 34 Lots 5-7

120.04 Acres

Uintah County, Utah

Vernal Field Office

This parcel is being removed from the list of lands to be considered for lease, because of incorrect split-estate contact information provided during the nomination.

UT1217 - 073

T. 16 S., R. 23 E., SLM

Sec. 12: E2, NESW, S2SW;

Sec. 13: N2NE, NW, N2SW.

760.00 Acres

Grand County, Utah

Vernal Field Office

This parcel is being deferred due to the presence of special status plant species habitat that is the subject of ongoing litigation that may result in additional protections of individuals, populations, or habitat.

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 | <p style="text-align: center;">AIR QUALITY</p> <p>All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower shall not emit more than 2 grams of NO_x per horsepower-hour.</p> <p>Exception: This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower.</p> <p>Modification: None</p> <p>Waiver: None</p> <p>AND</p> <p>All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p> |
| UT-S-11 | <p style="text-align: center;">NO SURFACE OCCUPANCY – PARIETTE WETLANDS ACEC</p> <p>No surface occupancy will be allowed within the Pariette Wetlands ACEC.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p> |
| UT-S-21 | <p style="text-align: center;">NO SURFACE OCCUPANCY – LEARS CANYON ACEC</p> <p>No surface occupancy for oil and gas leasing within 1,375 acres of the Lears Canyon ACEC to protect relict vegetation.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p> |
| UT-S-23 | <p style="text-align: center;">NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATIONS – NINE MILE CANYON ACEC</p> <p>No surface occupancy for oil and gas leasing within approximately 17,162 acres, and approximately 209 acres will be open to leasing subject to moderate constraints such as timing limitations and controlled surface use.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p> |

| NUMBER | UTAH LEASE STIPULATIONS |
|----------------|---|
| UT-S-53 | <p>NO SURFACE OCCUPANCY – DEVELOPED RECREATION SITES</p> <p>No surface disturbing activities, shooting of firearms or grazing will occur within developed recreation sites.</p> <p>Exception: An exception will be granted if the disturbance were related to recreational infrastructure support.</p> <p>Modification: None</p> <p>Waiver: None</p> |
| UT-S-96 | <p>NO SURFACE OCCUPANCY – FRAGILE SOILS/SLOPES GREATER THAN 40%</p> <p>No surface occupancy for slopes greater than 40 percent.</p> <p>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:</p> <ul style="list-style-type: none"> • An erosion control strategy; • GIS modeling; • Proper survey and design by a certified engineer. <p>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.</p> <p>Waiver: None</p> |
| UT-S-99 | <p>CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES</p> <p>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.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p> |

| NUMBER | UTAH LEASE STIPULATIONS |
|-----------------|---|
| UT-S-100 | <p>CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES (21%-40%)</p> <p>If surface-disturbing activities cannot be avoided on slopes from 21-40% a plan will be required. The plan will approved by BLM prior to construction and maintenance and include:</p> <ul style="list-style-type: none"> • An erosion control strategy; • GIS modeling; • Proper survey and design by a certified engineer. <p>Exception: None Modification: None Waiver: None</p> |
| UT-S-117 | <p>NO SURFACE OCCUPANCY – RIVER CORRIDORS: LOWER GREEN RIVER</p> <p>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.</p> <p>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.</p> <p>Modification: None Waiver: None</p> |
| UT-S-123 | <p>NO SURFACE OCCUPANCY – RIPARIAN, FLOODPLAINS, AND PUBLIC WATER RESERVES</p> <p>No new surface-disturbing activities are allowed within active flood plains, wetlands, public water reserves, or 100 meters of riparian areas. Keep construction of new stream crossings to a minimum.</p> <p>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.</p> <p>Modification: None Waiver: None</p> |
| UT-S-159 | <p>CONTROLLED SURFACE USE – VISUAL RESOURCES - VRM II</p> <p>Within VRM II areas, surface-disturbing activities will retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Any change to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.</p> <p>Exception: Exempted are recognized utility corridors.</p> <p>Modification: None Waiver: None</p> |

| NUMBER | UTAH LEASE STIPULATIONS |
|-----------------|---|
| UT-S-168 | <p align="center">CONTROLLED SURFACE USE – LIGHT AND SOUND: AREAS ADJACENT TO DINOSAUR NATIONAL MONUMENT</p> <p>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.</p> <p>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.</p> <p>Modification: None</p> <p>Waiver: None</p> |
| UT-S-174 | <p align="center">NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATIONS CULTURAL RESOURCES – UINTA FOOTHILLS AREA</p> <p>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.</p> <p>Exception: Permit excavation of cultural resources sites in NSO areas.</p> <p>Modification: None</p> <p>Waiver: None</p> |
| UT-S-175 | <p align="center">CONTROLLED SURFACE USE/TIMING LIMITATIONS CULTURAL RESOURCES – UPPER WILLOW CREEK AREA OF THE BOOK CLIFFS</p> <p>To preserve the unique representation of the Archaic period, the surface disturbing activities will be subject to timing and controlled surface use stipulations.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p> |

| NUMBER | UTAH LEASE STIPULATIONS |
|-----------------|---|
| UT-S-205 | <p align="center">TIMING LIMITATION – GREATER SAGE-GROUSE BROOD REARING AND NESTING</p> <p>No surface-disturbing activities within 2 miles of active Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) within brood rearing and nesting habitat from March 1 - June 15.</p> <p>Exception: None Modification: None Waiver: None</p> |
| UT-S-207 | <p align="center">CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (STRUCTURES)</p> <p>No permanent facilities or structures would be allowed within 2 miles Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) when possible.</p> <p>Exception: None Modification: None Waiver: None</p> |
| UT-S-218 | <p align="center">CONTROLLED SURFACE USE – WHITE-TAILED PRAIRIE DOG</p> <p>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.</p> <p>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 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.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if portions of the area does not include prairie dog habitat or <i>active</i> colonies are found outside current defined area, as determined by BLM.</p> <p>Waiver: May be granted if in the leasehold if it is determined that habitat no longer exists or has been destroyed.</p> |

| NUMBER | UTAH LEASE STIPULATIONS |
|----------|--|
| UT-S-230 | <p>TIMING LIMITATION – CRUCIAL DEER AND ELK WINTER RANGE No surface disturbing activities in deer and elk crucial winter range from December 1 - April 30.</p> <p>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.</p> <p>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.</p> <p>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.</p> |
| UT-S-231 | <p>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.</p> <p>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.</p> <p>Modification: None</p> <p>Waiver: None</p> |
| UT-S-247 | <p>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.</p> <p>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.</p> <p>Modification: None</p> <p>Waiver: None</p> |

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| UT-S-261 | <p style="text-align: center;">TIMING LIMITATION – RAPTOR BUFFERS</p> <p>Raptor management will be guided by the use of "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A), utilizing seasonal and spatial buffers, as well as mitigation, to maintain and enhance raptor nesting and foraging habitat, while allowing other resource uses.</p> <p>Exception: None</p> <p>Modification: Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the “<i>Raptor BMPs</i>”, would include the following:</p> <ol style="list-style-type: none"> 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. <p>Waiver: None</p> |
| UT-S-278 | <p style="text-align: center;">CONTROLLED SURFACE USE – BALD EAGLE WINTER ROOST</p> <p>Protect and restore cottonwood bottoms for bald eagle winter habitat along the Green and White Rivers, at Pelican Lake, and at the Cliff Creek Bald Eagle roost site, as well as any new roost sites discovered in the future.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p> |

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| <p>UT-S-299</p> | <p align="center">CONTROLLED SURFACE USE/TIMING LIMITATIONS – BLACK-FOOTED FERRET - PRIMARY MANAGEMENT ZONE AREA</p> <p>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.</p> <p>New power lines constructed through the PMZ will be raptor proof.</p> <p>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.</p> <p>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 July 15. The home ranges will be determined from data obtained from radio collared 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.</p> <p>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.</p> <p>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.</p> <p>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</p> |
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| | <p>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.</p> <p>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.</p> <p>Modification: None</p> <p>Waiver: None</p> |
| UT-S-316 | <p style="text-align: center;">MATERIAL SITE RIGHTS-OF-WAY:</p> <p>Lessee shall conduct operations in conformity with the following requirements:</p> <ol style="list-style-type: none"> 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 | <p style="text-align: center;">UNIT JOINDER</p> <p>The successful bidder will be required to join the Gate Canyon II Unit Agreement or show reason why a joinder should not be required.</p> |

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| <p>UT-S-347 GRSG</p> | <p>NO SURFACE OCCUPANCY - GREATER SAGE-GROUSE PRIORITY HABITAT MANAGEMENT AREAS*</p> <p>No surface occupancy within Greater Sage-Grouse Priority Habitat Management Areas (PHMA).</p> <p>Exception: The Authorized Officer with concurrence with the State Director, may grant an exception only where the proposed action:</p> <ul style="list-style-type: none"> 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. <p>The Authorized Officer may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed action satisfies (i) or (ii). Such finding shall initially be made by a team of one field biologist or other GRSG expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publically available at least quarterly.</p> <p>Modification: None</p> <p>Waiver: None</p> |
| <p>UT-S-348 GRSG</p> | <p>CONTROLLED SURFACE USE/NO SURFACE OCCUPANCY – DISTURBANCE CAP</p> <p>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.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p> <p>*This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> |

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| <p>UT-S-349 GRSG</p> | <p align="center">CONTROLLED SURFACE USE/NO SURFACE OCCUPANCY – DENSITY LIMITATION</p> <p>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.</p> <p>Exception: None Modification: None Waiver: None</p> <p>*This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> |
| <p>UT-S-350 GRSG</p> | <p align="center">TIMING LIMITATION/CONTROLLED SURFACE USE – BREEDING SEASON NOISE LIMITATIONS</p> <p>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 <u>first</u> 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.</p> <p>AND</p> <p>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.</p> <p>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</p> <p>*This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> |

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| UT-S-352 GRSG | <p style="text-align: center;">CONTROLLED SURFACE USE – TALL STRUCTURES*</p> <p>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.</p> <p>Exception: None Modification: None Waiver: None</p> <p>*This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> <p>**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.</p> |
| UT-S-353 GRSG | <p style="text-align: center;">TIMING LIMITATION – GREATER SAGE-GROUSE BREEDING, NESTING AND EARLY BROOD REARING*</p> <p>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.</p> <p>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</p> <p>*This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> |

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| UT-S-354 GRSG | <p style="text-align: center;">TIMING LIMITATION – GREATER SAGE-GROUSE BROOD-REARING</p> <p>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.</p> <p>Exception: None</p> <p>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.</p> <p>Waiver: None</p> <p>*This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> |
| UT-S-355 GRSG | <p style="text-align: center;">TIMING LIMITATION – GREATER SAGE-GROUSE WINTER HABITAT</p> <p>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.</p> <p>Exception: None</p> <p>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.</p> <p>Waiver: None</p> <p>*This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.</p> |

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| T&E-02 | <p style="text-align: center;">BLACK-FOOTED FERRET</p> <p>The Lessee/Operator is given notice that the lands in this lease may contain occupied black-footed ferret habitat, an endangered species under the Endangered Species Act classified as an experimental, nonessential population in the state of Utah. Avoidance and minimization measures that should be followed are included within the <i>Cooperative Plan for the Reintroduction and Management of Black-</i></p> |

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| | <p><i>Footed Ferrets in Coyote Basin, Uintah County, Utah</i> published by the Utah Division of Wildlife Resources in September, 1996. These measures may be updated based on the best available scientific data as it becomes available.</p> |
| T&E-03 | <p>ENDANGERED FISH OF THE UPPER COLORADO RIVER DRAINAGE BASIN</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain Critical Habitat for the Colorado River fish (bonytail, humpback chub, Colorado pike minnow, and razorback sucker) listed as endangered under the Endangered Species Act, or these parcels have watersheds that are tributary to designated habitat. Critical habitat was designated for the four endangered Colorado River fishes on March 21, 1994(59 FR 13374-13400). Designated critical habitat for all the endangered fishes includes those portions of the 100-year floodplain that contain primary constituent elements necessary for survival of the species. Avoidance or use restrictions may be placed on portions of the lease. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s). 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Avoid loss or disturbance of riparian habitats. 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable riparian habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 6. Conduct watershed analysis for leases in designated critical habitat and overlapping major tributaries in order to determine toxicity risk from permanent facilities. 7. Implement Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, Technical Note 423). 8. Drilling will not occur within 100 year floodplains of rivers or tributaries to rivers that contain listed fish species or critical habitat. 9. In areas adjacent to 100-year flood plains, particularly in systems prone to flash floods, analyze the risk for flash floods to impact facilities, and use closed loop drilling, and pipeline burial or suspension according to Appendix B (Hydrologic Considerations for Pipeline Crossing Stream Channels, |

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| | <p>Technical Note 423, to minimize the potential for equipment damage and resulting leaks or spills.</p> <p>Water depletions from <i>any</i> portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect or adversely modify the critical habitat of the four resident endangered fish species, and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletion amounts must be reported to BLM.</p> <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.</p> |
| T&E-05 | <p style="text-align: center;">LISTED PLANT SPECIES</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for federally listed plant species under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease</p> <ol style="list-style-type: none"> 1. Site inventories: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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. |

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| | <ol style="list-style-type: none"> 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. <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.</p> |
| T&E-06 | <p style="text-align: center;">MEXICAN SPOTTED OWL</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for Mexican spotted owl, a federally listed species. The Lessee/Operator is given notice that the lands in this lease contain Designated Critical Habitat for the Mexican spotted owl, a federally listed species. Critical habitat was designated for the Mexican spotted owl on August 31, 2004 (69 FR 53181-53298). Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs within or outside the owl nesting season.</p> <p>A <u>temporary</u> action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e. creation of a permanent structure.</p> <p>The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following:</p> |

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| | <ol style="list-style-type: none"> 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. <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities. b. If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC). c. Avoid drilling and permanent structures within 0.5 mi of suitable habitat unless surveyed and not occupied. d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5 mile buffer for suitable habitat, including canyon rims. e. Limit disturbances to and within suitable habitat by staying on approved routes. f. Limit new access routes created by the project. |

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| | <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.</p> |
| <p>T&E-12</p> | <p>PARIETTE CACTUS (SCLEROCACTUS BREVISPINUS) AND UINTA BASIN HOOKLESS CACTUS [SCLEROCACTUS GLAUCUS (BREVISPINUS AND WETLANDICUS)]</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for the Pariette cactus and Uinta Basin hookless cactus, under the Endangered Species Act (ESA). The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease.</p> <p>In order to minimize effects to the federally threatened Pariette cactus and Uinta Basin hookless cactus, the BLM in coordination with the USFWS, developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the ESA. For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Uinta Basin hookless cactus. Habitat descriptions can be found in the U.S. Fish and Wildlife Service’s 1990 Recovery Plan and Federal Register Notices for the Uinta Basin hookless cactus (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:</p> <ol style="list-style-type: none"> a. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> i. <i>Sclerocactus brevispinus</i> surveys should be conducted March 15th to June 30th, unless extended by the BLM |

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| | <ul style="list-style-type: none"> <ul style="list-style-type: none"> ii. <i>Sclerocactus wetlandicus</i> 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 <i>Sclerocactus brevispinus</i> and one year from the survey date for <i>Sclerocactus wetlandicus</i>. <p>b. Design project infrastructure to minimize impacts within suitable habitat² :</p> <ul style="list-style-type: none"> 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 or persist long-term in the habitat. <p>c. Within occupied habitat³ , project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:</p> <ul style="list-style-type: none"> 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 50 foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline crosses the habitat to ensure the pipelines don't move towards the population, 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, |

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| | <ul style="list-style-type: none"> 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. <p>d. Dust abatement will be employed in occupied <i>Sclerocactus</i> habitat within the project area and over the life of the project (initial construction through final reclamation).</p> <ul style="list-style-type: none"> a. Dust abatement will occur during the time of the year when <i>Sclerocactus</i> species are most vulnerable to dust- related impacts (March 1st through August 31st). <p>e. A qualified botanist will be on site during construction to monitor the surface disturbance activity and assist with implementation of applicable conservation measures (USFWS 2011).</p> <p>f. Project related vehicle travel on dirt roads within occupied <i>Sclerocactus</i> habitat will obey a 15 mile per hour speed limit in order to reduce fugitive dust during the time of the year when <i>Sclerocactus</i> species, pollinators, and associated habitat are most vulnerable to dust related impacts (March 1- August 31st). In addition:</p> <ul style="list-style-type: none"> a. Speed limit signs will be posted in restricted areas for project personnel. b. Signing will be posted to limit off-road travel in sensitive areas. <p>g. Re-initiation of Section 7 consultation with the USFWS will be sought immediately if any loss of plants or occupied habitat for the Pariette cactus and Uinta Basin hookless cactus is anticipated as a result of project activities.</p> <p>h. 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).</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.</p> |
| T&E-20 | CLAY REED - MUSTARD (<i>SCHOENCRAMBE ARGILLACEA</i>) |

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| | <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for clay reed-mustard under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease:</p> <p>In order to minimize effects to the federally threatened clay reed-mustard, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service) developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the Endangered Species Act (ESA). For the purposes of this document, the following terms are so defined: Potential habitat is 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:</p> <ul style="list-style-type: none"> a. 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. b. 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: <ul style="list-style-type: none"> 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 1 to June 5, 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), |

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| | <ul style="list-style-type: none"> 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. <p>c. Design project infrastructure to minimize impacts within suitable habitat²:</p> <ul style="list-style-type: none"> 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. 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. <p>d. Within occupied habitat³, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:</p> <ul style="list-style-type: none"> 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 will apply water for dust abatement to such areas from May 1st to June |

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| | <p>5th (flowering period); dust abatement applications will be comprised of water only,</p> <ul style="list-style-type: none"> 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., 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. Project related vehicle travel on dirt roads within occupied habitat will obey a 15 mile per hour speed limit in order to reduce fugitive dust during the time of the year when species, pollinators, and associated habitat are most vulnerable to dust related impacts (May 1- June 5th). In addition: <ul style="list-style-type: none"> m. Speed limit signs will be posted in restricted areas for project personnel. n. 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 or persist long-term in the habitat. e. 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 |

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| | <p>thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>f. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the clay reed-mustard is anticipated as a result of project activities.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p> |
| T&E-21 | <p>SHRUBBY REED - MUSTARD (<i>SCHOENOCRAMBE SUFFRUTESCENS</i>)</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for shrubby reed-mustard under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease.</p> <p>In order to minimize effects to the federally endangered shrubby reed-mustard, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service) developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the Endangered Species Act (ESA). For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain shrubby reed-mustard; habitat descriptions can be found in the Federal Register 52(193):37416-37420 and in the U.S. Fish and Wildlife Service's 1994 Utah Reed-Mustards Recovery Plan (http://www.fws.gov/endangered/wildlife.html). Occupied habitat is defined as areas currently or historically known to support shrubby reed-mustard; synonymous with "known habitat."</p> <p>The following avoidance and minimization measures should be included in the Plan of Development:</p> <ol style="list-style-type: none"> a. 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. b. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories: |

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| | <ul style="list-style-type: none"> 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. c. Design project infrastructure to minimize impacts within suitable habitat: <ul style="list-style-type: none"> 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. d. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: <ul style="list-style-type: none"> a. Follow the above (3.) recommendations for project design within suitable habitats, b. Construction of roads will occur such that the edge of the right of way is at least 300' from any plant, c. Roads will be graveled within occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from April 15th to May 30th (flowering period); dust abatement applications will be comprised of water only, d. The edge of the well pad should be located at least 300 feet away from plants, e. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline |

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| | <p>crosses the white shale strata to ensure the pipelines don't move towards the population,</p> <ul style="list-style-type: none"> 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. l. 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 or persist long-term in the habitat. <p>e. 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.</p> <p>f. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the shrubby reed-mustard is anticipated as a result of project activities.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p> |

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| T&E-22 | <p>UTE LADIES'-TRESSSES (<i>SPIRANTHES DILUVIALIS</i>)</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for Ute ladies'-tresses under the Endangered Species Act (ESA). The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease. In order to minimize effects to the federally threatened Ute ladies'-tresses, the BLM in coordination with the USFWS, developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the ESA.</p> <p>Ute ladies'-tresses habitat is provided some protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Ute ladies'-tresses. Habitat descriptions can be found in Recovery Plans and Federal Register Notices for the species at 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:</p> <ul style="list-style-type: none"> <li>a) Pre-project habitat assessments will be completed across 100% of the project disturbance area, including areas where hydrology might be affected by project activities, within potential habitat prior to any ground disturbing activities to determine if suitable Ute ladies'-tresses habitat is present. <li>b) Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories: <ul style="list-style-type: none"> <li>a. Must be conducted by qualified individual(s) and according to BLM and USFWS accepted survey protocols, <li>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, <li>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 |

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| | <p>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),</p> <ul style="list-style-type: none"> 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 performed for three consecutive years for activities that will result in permanent surface disturbance. If three consecutive years of surveys cannot be performed before the project commences, suitable habitat will be considered occupied habitat. <p>c) Design project infrastructure to minimize direct or indirect impacts to suitable habitat both within and downstream of the project area:</p> <ul style="list-style-type: none"> 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 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 native species approved by USFWS and BLM botanists. <p>d) Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:</p> |

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| | <ul style="list-style-type: none"> e) Follow the above (#3) recommendations for project design within suitable habitats, f) 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, g) 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, h) Before and during construction, areas for avoidance should be visually identifiable in the field (e.g., flagging, temporary fencing, rebar, etc.), i) Where technically and economically feasible, use directional drilling or multiple wells from the same pad, j) Designs will avoid altering site hydrology and concentrating water flows or sediments into occupied habitat, k) 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 l) Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. m) 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. <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p> |
| UT-LN-16 | <p style="text-align: center;">PRONGHORN FAWNING HABITAT</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing antelope fawning habitat. Exploration, drilling and other development</p> |

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| | 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 | <p style="text-align: center;">WHITE-TAILED AND GUNNISON PRAIRIE DOG</p> <p>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.</p> |
| UT-LN-40 | <p style="text-align: center;">GOLDEN EAGLE HABITAT</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing Golden Eagle Habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect the Golden Eagle and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.</p> |
| UT-LN-45 | <p style="text-align: center;">MIGRATORY BIRD</p> <p>The lessee/operator is given notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within priority habitats. Surveys should focus on identified priority bird species in Utah. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations.</p> |
| UT-LN-49 | <p style="text-align: center;">UTAH SENSITIVE SPECIES</p> <p>The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, Migratory Bird Treaty Act and 43 CFR 3101.1-2.</p> |
| UT-LN-51 | <p style="text-align: center;">SPECIAL STATUS PLANTS: NOT FEDERALLY LISTED</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing special status plants, not federally listed, and their habitats. Modifications to the Surface Use Plan of Operations may be required in order to protect the special status plants and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.</p> |

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| UT-LN-56 | <p>DRINKING WATER SOURCE PROTECTION ZONE</p> <p>This lease (or a portion thereof) is within a public Drinking Water Source Protection zone. Before application for a permit to drill (APD) submittal or any proposed surface-disturbing activity, the lessee/operator must contact the public water system manager to determine any zoning ordinances, best management or pollution prevention measures, or physical controls that may be required within the protection zones. Drinking Water Source Protection plans are developed by the public water systems under the requirements of R309-600. Drinking Water Source Protection for Ground-Water Sources. (Utah Administrative Code). There may also be county ordinances in place to protect the source protection zones, as required by Section 19-4-113 of the Utah Code.</p> <p>Incorporated cities and towns may also protect their drinking water sources using Section 10-8-15 of the Utah Code. This part of the Code gives cities and towns the extraterritorial authority to enact ordinances to protect a source of drinking water ... "For 15 miles above the point from which it is taken and for a distance of 300 feet on each side of such stream..." Class I cities (greater than 100,000 population) are granted authority to protect their entire watersheds.</p> <p>Some public water sources qualify for monitoring waivers which reduce their monitoring requirements for pesticides and volatile organic chemicals (VOCs). Exploration, drilling, and production activities within Source Protection zone 3 could jeopardize these waivers, thus requiring increased monitoring. Contact the public water system to determine what effect your activities may have on their monitoring waivers. Please be aware of other State rules to protect surface and ground water: the Utah Division of Water Quality Rules R317 Water Quality Rules; and Rules of the Utah Division of Oil, Gas and Mining, Utah Oil and Gas Conservation Rules R649.</p> <p>At the time of development, drilling operators will additionally conform to the operational regulations in Onshore Oil & Gas Order No. 2 (which requires the protection and isolation of all usable quality waters, $\leq 10,000$ 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).</p> <p>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.</p> |

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| UT-LN-57 | <p style="text-align: center;">PUBLIC WATER RESERVE</p> <p>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.</p> |
| UT-LN-68 | <p style="text-align: center;">NOTIFICATION & CONSULTATION REGARDING CULTURAL RESOURCES</p> <p>The lease area may now or hereafter be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), the Archaeological Resources Protections Act (ARPA), the Native American Graves Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), other statutes and Executive Order 13007, and which may be of concern to Native American tribes, interested parties, and the State Historic Preservation Officer (SHPO). BLM will not approve any ground disturbing activities as part of future lease operations until it completes applicable requirements of the National Historic Preservation Act (NHPA), including the completion of any required procedure for notification and consultation with appropriate tribe(s) and/or the SHPO. BLM may require modifications to exploration and development proposals to further its conservation and management objectives on BLM-approved activities that are determine to affect or impact historic or cultural properties and/or resources.</p> |
| UT-LN-72 | <p style="text-align: center;">HIGH POTENTIAL PALEONTOLOGICAL RESOURCES</p> <p>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.</p> |
| UT-LN-83 | <p style="text-align: center;">SITE ROW</p> <p>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.</p> |
| UT-LN-85 | <p style="text-align: center;">TAR SANDS AREA</p> |

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| | <p>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.</p> <p>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.</p> |
| UT-LN-89 | <p>HORSESHOE MILKVETCH (<i>ASTRAGALUS EQUISOLENSIS</i>)</p> <p>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 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:</p> <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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 |

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| | <p>e. Will be valid until May 1st the following year.</p> <p>3. Design project infrastructure to minimize impacts within suitable habitat²:</p> <ul style="list-style-type: none"> 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. <p>4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:</p> <ul style="list-style-type: none"> 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 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. <p>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'</p> |

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| | <p>from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in coordination with the U.S. Fish and Wildlife Service.</p> |
| UT-LN-90 | <p style="text-align: center;">GRAHAM’S BEARDTONGUE (<i>PENSTEMON GRAHAMII</i>)</p> <p>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:</p> <ol style="list-style-type: none"> 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat¹ prior to any ground disturbing activities to determine if suitable Graham’s beardtongue habitat is present. 2. Within suitable habitat³, site inventories will be conducted to determine occupancy. Inventories: <ol style="list-style-type: none"> 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 habitat⁴ 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 1 to June 30th 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 for 3 years from the original survey date until the following year. 3. Design project infrastructure to minimize impacts within suitable habitat²: <ol style="list-style-type: none"> a. Reduce well pad size to the minimum needed, without compromising safety, |

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| | <ul style="list-style-type: none"> 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. <p>4. Within occupied habitat⁴, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:</p> <ul style="list-style-type: none"> 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 will apply water for dust abatement as needed to such areas from March 15th to October 15th (reproductive 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 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. <p>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</p> |

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| | <p>of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued conservation of the species.</p> |
| UT-LN-96 | <p style="text-align: center;">AIR QUALITY MITIGATION MEASURES</p> <p>The lessee is given notice that the Bureau of Land Management (BLM) in coordination with the U.S. Environmental Protection Agency and the Utah Department of Air Quality, among others, has developed the following air quality mitigation measures that may be applied to any development proposed on this lease. Integration of and adherence to these measures may help minimize adverse local or regional air quality impacts from oil and gas development (including but not limited to construction, drilling, and production) on regional ozone formation.</p> <ul style="list-style-type: none"> • All internal combustion equipment would be kept in good working order. • Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer. • Open burning of garbage or refuse would not occur at well sites or other facilities. • Drill rigs would be equipped with Tier II or better diesel engines. • Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater. • Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers. • During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible. • Well site telemetry would be utilized as feasible for production operations. • Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr for engines <300HP; and 1g NOx/bhp-hr for engines >300HP. <p>Additional site-specific measures may also be employed to avoid or minimize effects to local or regional air quality. These additional measures will be developed and implemented in coordination with the U.S. Environmental Protection Agency, the Utah Department of Air Quality, and other agencies with expertise or jurisdiction as appropriate based on the size of the project and magnitude of emissions.</p> |
| UT-LN-99 | REGIONAL OZONE FORMATION CONTROLS |

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| | <p>To mitigate any potential impact oil and gas development emissions may have on regional ozone formation, the following Best Management Practices (BMPs) would be required for any development projects:</p> <ul style="list-style-type: none"> • Tier II or better drilling rig engines • Stationary internal combustion engine standard of 2g NOx/bhp-hr for engines <300HP and 1g NOx/bhp-hr for engines >300HP • Low bleed or no bleed pneumatic pump valves • Dehydrator VOC emission controls to +95% efficiency • Tank VOC emission controls to +95% efficiency |
| UT-LN-102 | <p style="text-align: center;">AIR QUALITY ANALYSIS</p> <p>The lessee/operator is given notice that prior to project-specific approval, additional air quality analyses may be required to comply with the National Environmental Policy Act, Federal Land Policy Management Act, and/or other applicable laws and regulations. Analyses may include dispersion modeling and/or photochemical modeling for deposition and visibility impacts analysis, control equipment determinations, and/or emission inventory development. These analyses may result in the imposition of additional project-specific air quality control measures.</p> |
| UT-LN-113 | <p style="text-align: center;">WESTERN YELLOW-BILLED CUCKOO</p> <p>The Lessee/Operator is given notice that the lands in or adjacent to this parcel contain potentially suitable habitat that falls within the range for western yellow-billed cuckoo, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend upon whether the action is temporary or permanent, and whether it occurs within or outside the breeding and nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action could continue for more than one breeding season and/or cause a loss of habitat or displace western yellow-billed cuckoos through disturbances. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to, these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 1. Habitat suitability within, and within a 0.5-mile buffer, of the proposed project analysis area will be identified prior to lease development to identify potential survey needs. 2. If suitable or proposed critical habitat is present, protocol Breeding Season Surveys will be required within, and within 0.5-mile buffer, of the proposed project analysis area prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by permitted individual(s), and be conducted according to protocol. |

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| | <ol style="list-style-type: none"> 3. For all temporary actions that may impact cuckoo or suitable habitat: <ol style="list-style-type: none"> a. If action occurs entirely outside of the cuckoo breeding season (June 1 – Aug 31), and leaves no structure or habitat disturbance, action can proceed without a presence/absence survey. b. If action is proposed between June 1 and August 31, presence/absence surveys for cuckoo will be conducted prior to commencing activity. If cuckoo are detected, activity should be delayed until September 1. The cuckoo survey protocol requires four surveys across the breeding season to conclude absence, thus the survey cannot conclude absence of cuckoos until mid-August. c. Eliminate access routes created by the project through such means as raking out scars, revegetation, gating access points, etc. 4. For all permanent actions that may impact cuckoo or suitable habitat: <ol style="list-style-type: none"> a. Habitat suitability within and within a 0.5-mile buffer of the proposed project analysis area will be identified prior to lease development to identify potential survey needs. b. Protocol level surveys by permitted individuals will be conducted within, or within a 0.5-mile buffer, of the proposed project analysis area prior to commencing activities. c. Avoid drilling and permanent structures within 0.5 miles of suitable or proposed critical habitat unless absence is determined according to protocol level surveys conducted by permitted individual(s). d. During construction and operation phases of the project, ensure noise levels at the edge of suitable habitat do not exceed baseline conditions. Placement of permanent noise-generating facilities should be determined by a noise analysis. 5. Temporary or permanent actions will require monitoring throughout the duration of the project to ensure that western yellow-billed cuckoo or its habitat is not affected in a manner or to an extent not previously considered. Avoidance and minimization measures will be evaluated throughout the duration of the project. 6. Water produced as a by-product of drilling or pumping will be managed to ensure maintenance or enhancement of riparian habitat. 7. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 8. Ensure that water extraction or disposal practices do not result in change of hydrologic regime that would result in loss or degradation of riparian habitat. 9. Re-vegetate with native species, where possible, all areas of surface disturbance within riparian areas and/or adjacent uplands. |

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| | 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 | <p style="text-align: center;">LIGHT AND SOUND</p> <p>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.</p> |
| UT-LN-128 | <p style="text-align: center;">FLOODPLAIN MANAGEMENT</p> <p>The lessee/operator is given notice that, in accordance with Executive Order 11988, to avoid adverse impact to floodplains 1) facilities should be located outside the 100 year floodplain, or 2) would be minimized or mitigated by modification of surface use plans within floodplains present within the lease.</p> |
| UT-LN-129 | <p style="text-align: center;">GREATER SAGE-GROUSE – DISTURBANCE CAP</p> <p>Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent of 1) PHMA associated with a GRSG population area (referred to as biologically significant units {BSU} when coordinating across state lines) and 2) within the proposed project analysis area, on all lands (regardless of ownership) at each level. (See Appendix E of the GRSG Approved RMP Amendment for disturbance calculation instructions)</p> |
| UT-LN-130 | <p style="text-align: center;">GREATER SAGE-GROUSE – DENSITY LIMITATION</p> <p>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.</p> |
| UT-LN-131 | <p style="text-align: center;">GREATER SAGE-GROUSE – NET CONSERVATION GAIN</p> <p>In Priority and General Habitat Management Areas (PHMA and GHMA) all actions that result in habitat loss and degradation will require mitigation that provides a net conservation gain to the Greater Sage-Grouse (GRSG). Mitigation must account for any uncertainty associated with the effectiveness of the mitigation and will be achieved through avoiding, minimizing and compensating for impacts. Mitigation will be conducted according to the mitigation framework found in Appendix F in the Utah Approved Management Plan Amendment.</p> |

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| UT-LN-132 | <p align="center">GREATER SAGE-GROUSE – REQUIRED DESIGN FEATURES</p> <p>Apply the Required Design Features (RDF)* in Appendix C of the Utah Approved Management Plan Amendment when leasing within Priority and General Habitat Management Areas (PHMA and GHMA).</p> <p>*RDFs may not be required if it is demonstrated through the NEPA analysis that the RDF associated project/activity is:</p> <ul style="list-style-type: none"> • 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 | <p align="center">GREATER SAGE-GROUSE - BUFFER</p> <p>In Priority and General Habitat Management Areas (PHMA and GHMA), the BLM will apply the lek buffer-distances identified in the USGS Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Open File Report 2014-1239) in accordance with Appendix B, Applying Lek-Buffer Distances, consistent with valid and existing rights and applicable law in authorizing management actions.</p> |
| UT-LN-134 | <p align="center">GRAHAM’S BEARDTONGUE (Penstemon grahamii) & WHITE RIVER BEARDTONGUE (P. scariosus var. albifluvis) CONSERVATION AREA</p> <p>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.</p> |
| UT-LN-148 | <p align="center">DINOSAUR NATIONAL MONUMENT - DARK SKIES</p> <p>In addition to the measures identified in Appendix K (p. K-4) of the VFO RMP, the Authorized Officer, in coordination with the National Park Service, may minimize light pollution within the project area using the best management practices (BMP) such as:</p> <ul style="list-style-type: none"> • Light only where needed • Light only when needed (consider using sensors or timers) • Shield lights and direct them downwards (full cutoff preferred) • Select lamps with warmer colors (less blue light) • Use the minimum amount of light necessary |

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| | <ul style="list-style-type: none"> · Select the most energy efficient lamps and fixtures · Avoid unnecessary flaring of gas · If flaring of gas is approved, evaluate the use of a visual screen or enclosed combustion chamber ('combustor') to minimize sky glow, glare, and adverse visual effects on night sky viewing areas at Dinosaur National Monument. <p>Implementation of all the above BMPs would be subject to OSHA and FAA regulations.</p> |
| UT-LN-149 | <p align="center">UNITS OF THE NATIONAL PARK SERVICE - AIR QUALITY AND RELATED VALUES</p> <p>The Authorized Officer, in coordination with the National Park Service (NPS), the U.S. Environmental Protection Agency, and the Utah Department of Air Quality, may modify project specific air quality mitigation requirements in accordance with updated specifications to comply with the Clean Air Act, or as deemed necessary to ensure that the stipulation is sufficient to maintain air quality and protect air quality related values in nearby units of the NPS.</p> |
| UT-LN-150 | <p align="center">UNITS OF THE NATIONAL PARK SERVICE – SCENIC VIEWSHED</p> <p>The lessee/operator is given notice that parts of this lease are within the viewshed of popular scenic points within a unit of the National Park Service (NPS). Through site specific NEPA analysis, modifications to the Surface Use Plan of Operation, including relocating drillsites or other appropriate mitigation may be required, as deemed necessary by the BLM Authorized Officer, to minimize impacts to the scenic views from the NPS unit.</p> |
| UT-LN-151 | <p align="center">ASHLEY NATIONAL FOREST ACCESS RESTRICTIONS</p> <p>The lessee/operator is given notice that due to topography, access to the lease may require a right-of-way to cross or site a surface location upon lands managed by the Ashley National Forest (ANF). The Bureau of Land Management, and this lease, do not guarantee that the ANF, which has identified concerns with the existing and possible future roads impacting Cultural Resources, Sage Grouse habitat and leks, and inventoried roadless areas, would approve any access. If access is approved by ANF, the lessee/operator would have to adhere to all conditions and/or stipulations set in place by the ANF.</p> |
| UT-LN-152 | <p align="center">POTENTIAL ADJACENT LANDOWNER ACCESS RESTRICTIONS</p> <p>The lessee/operator is given notice that, due to topography, the lessee/operator may have to access the lease through lands that are not managed by the Bureau of Land Management. The lessee/operator would have to obtain permission from the surface owner to cross those lands. The Bureau of Land Management, and this lease, do not guarantee access across said lands. If the surface owner grants access, the lessee/operator would have to adhere to all conditions and/or stipulations set in place by the surface management entity.</p> |
| UT-LN-154 | <p align="center">WHITE RIVER BEARDTONGUE (<i>PENSTEMON SCARIOSUS</i> VAR. <i>ALBIFLUVIS</i>)</p> <p>In order to minimize effects to the federally proposed White River beardtongue, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and</p> |

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| | <p>Wildlife Service (Service) developed the following avoidance and minimization measures. The following avoidance and minimization measures should be included in the Plan of Development:</p> <ol style="list-style-type: none"> 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat¹ prior to any ground disturbing activities to determine if suitable White River beardtongue habitat is present. 1. Within suitable habitat³, site inventories will be conducted to determine occupancy. Inventories: <ol style="list-style-type: none"> 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 habitat⁴ 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 15 to July 30th 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 for 3 years from the original survey date. 2. Design project infrastructure to minimize impacts within suitable habitat²: <ol style="list-style-type: none"> 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. 3. Within occupied habitat⁴, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: <ol style="list-style-type: none"> 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, |

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| | <ul style="list-style-type: none"> c. Roads will be graveled within occupied habitat; the operator will apply water for dust abatement as needed to such areas from March 15th to October 15th (reproductive 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 50 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 April 15th through July 31st 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. <p>4. Occupied White River beardtongue habitats within 50' 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.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued conservation of the species.</p> |
| UT-LN-155 | <p style="text-align: center;">COLORADO RIVER WILDLIFE MANAGEMENT AREA CONSERVATION EASEMENT</p> <p>The lessee/operator is given notice that, due to the existence of a Colorado River Wildlife Management Area Conservation Easement between the private land owner(s) and the U.S. Fish and Wildlife Service, the lessee/operator may not be</p> |

| NUMBER | UTAH LEASE NOTICES |
|--------|--|
| | <p>able to access this lease from the private landowner's surface. Any development proposed on the private land may be subject to the terms of that Conservation Easement. The Bureau of Land Management, and this lease, do not guarantee access to the lands within the Conservation Easement.</p> |

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 | <u>Disturbance:</u> Using table 4.1 in the Technical Support Document (BLM, 2012), 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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 | <u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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. <u>Down Hole:</u> ~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 | <u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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. <u>Down Hole:</u> ~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 | <u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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. <u>Down Hole:</u> ~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 | <u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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. <u>Down Hole:</u> ~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 | <u>Disturbance:</u> The Gasco ROD (BLM, 2012b) allowed 1 well pad per 160 acres. It is assumed |

| 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. |
|---------------|---------------------|------------------------|------------------------------------|--|-------------------------------------|--|---|----------------------------------|----------------------------------|---------------------------------------|--------------------------------------|--|--------------------------------------|--|
| | | | | | | | | | | | | | | that only one well would be drilled on the pad until more production information is available. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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. <u>Down Hole:</u> 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 dividing the parcel's total acreage by the |

| 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. |
|---------------|---------------------|------------------------|------------------------------------|--|-------------------------------------|--|---|----------------------------------|----------------------------------|---------------------------------------|--------------------------------------|--|--------------------------------------|--|
| | | | | | | | | | | | | | | 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 | <p><u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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.</p> <p><u>Down Hole:</u> 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.</p> |
| 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 | <p><u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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.</p> <p><u>Down Hole:</u> 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.</p> |
| 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 | <p><u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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.</p> <p><u>Down Hole:</u> 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.</p> |

| 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 | <u>Disturbance:</u> The Gasco ROD (BLM, 2012b) 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| UT1217-052 | 1,794.16 | None* | 44 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| 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 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| UT1217-054 | 1,401.43 | None* | 35 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <p><u>Disturbance:</u> Using table 4.1 in the Technical Support Document, we added the total numbers of wells and divided it by the total</p> |

| 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> The QEP Greater Deadman Bench ROD 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. <u>Down Hole:</u> The 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| UT1217-059 | 903.32 | None* | 22 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| UT1217-060 | 1,080.00 | None* | 27 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| UT1217-061 | 144.64 | None* | 3 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <p><u>Disturbance:</u> Using table 4.1 in the Technical Support Document, we added the total</p> |

| 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. |
|---------------|---------------------|------------------------|------------------------------------|--|-------------------------------------|--|---|----------------------------------|----------------------------------|---------------------------------------|--------------------------------------|--|--------------------------------------|---|
| | | | | | | | | | | | | | | <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> The QEP Greater Deadman Bench ROD 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. <u>Down Hole:</u> 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 | <p><u>Disturbance:</u> The QEP Greater Deadman Bench ROD 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.</p> <p><u>Down Hole:</u> 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.</p> |
| UT1217-069 | 1,460.54 | None* | 36 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> Not within 2 miles of any historical producing wells. (2010-2016).</p> <p>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.</p> |
| UT1217-070 | 120.04 | None* | 3 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> Not within 2 miles of any historical producing wells. (2010-2016).</p> <p>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</p> |

| 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. |
| UT1217-071 | 1,175.42 | None* | 29 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| UT1217-072 | 1,861.16 | None* | 46 | 10 | 1 | 10 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 40 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| UT1217-073 | 760.00 | None* | 19 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |

| 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. |
|---------------|---------------------|------------------------|------------------------------------|--|-------------------------------------|--|---|----------------------------------|----------------------------------|---------------------------------------|--------------------------------------|--|--------------------------------------|---|
| UT1217-074 | 320.00 | 129-01 (80 acre) | 4 | 4 | 1 | 4 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 16 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| UT1217-075 | 720.00 | 129-01 (80 acre) | 9 | 5 | 1 | 5 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 20 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| 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 | <p><u>Disturbance:</u> 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.</p> <p><u>Down Hole:</u> 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.</p> |
| 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 | <p><u>Disturbance:</u> The West Bonanza EA Decision Record allowed 1 well pad per 80 or greater</p> |

| 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. |
|---------------|---------------------|------------------------|------------------------------------|--|-------------------------------------|--|---|----------------------------------|----------------------------------|---------------------------------------|--------------------------------------|--|--------------------------------------|--|
| | | | | | | | | | | | | | | acres. It is assumed that each well pad will have one well on it, until further production information is available. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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. |
| UT1217-083 | 1,920.00 | None* | 48 | 1 | 1 | 1 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 4 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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. |
| UT1217-086 | 1,920.00 | None* | 48 | 2 | 1 | 2 | Greater Uinta Basin TSD ² | 2 | 0.5 | 2 | 1 | 0 | 8 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | <u>Disturbance:</u> 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. <u>Down Hole:</u> 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 | -- |
| ¹ Assumed surface installation within the new or existing 30-foot road right of way, with no additional surface disturbance unless another acreage is indicated. ² Assumption from the Greater Uinta Basin Technical Support Document which averages 5 acres per well. Number derived from data in Table 4-1 by dividing total foreseeable construction disturbance by the total foreseeable new well pads. Pads, roads, and pipelines counted together in this estimate. (BLM, 2012) | | | | | | | | | | | | | | |

| 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. |
|---|---------------------|------------------------|------------------------------------|--|-------------------------------------|--|---|----------------------------------|----------------------------------|---------------------------------------|--------------------------------------|--|--------------------------------------|---|
| ³ Assumes the new road and pipeline construction divided evenly among Gasco Uinta Basin FEIS Agency Preferred Alternative’s 1,245 new large or small well pads. (BLM, 2012a) | | | | | | | | | | | | | | |
| ⁴ Assumptions for the well pad size, road and pipeline lengths and acreages based on the Gasco Uinta Basin FEIS Table 2-7. (BLM, 2012a) | | | | | | | | | | | | | | |
| ⁵ Although this parcel is located within the boundary of the Gasco Uinta Basin EIS, no development assumed in this Township and Range under any alternatives due to the area not being leased, or due to the leases belonging to other companies. (BLM, 2012a) | | | | | | | | | | | | | | |
| ⁶ Assumes co-location of roads and pipelines as well as new pipeline adjacent to existing roads consistent with the Monument Butte FEIS Agency Preferred Alternative assumptions. [BLM 2016a] | | | | | | | | | | | | | | |
| ⁷ Surface disturbance estimates derived from the Monument Butte FEIS Agency Preferred Alternative Table 2.7-1. (BLM, 2016a) | | | | | | | | | | | | | | |
| ⁸ Includes an additional 40-foot width for co-located pipelines, when compared to other pipeline estimates in other documents, consistent with the Gusher EA assumptions. [BLM 2008c] | | | | | | | | | | | | | | |
| ⁹ Assumptions for the single-well pad size, road and pipeline lengths and acreages based on the Gusher EA Table 2.4-1. (BLM, 2008c) | | | | | | | | | | | | | | |
| ¹⁰ Assumptions for the new well pad size, road and pipeline lengths and acreages based on the QEP Greater Deadman Bench EIS Table 2.3. (BLM, 2007a) (BLM, 2008) | | | | | | | | | | | | | | |
| ¹¹ The 60-foot road disturbance includes 30 feet for the road and 30 feet for the pipeline consistent with the assumptions in the West Bonanza EA. (BLM, 2006) | | | | | | | | | | | | | | |
| ¹² Assumptions for the single-well pad size, road and pipeline lengths and acreages based on the West Bonanza EA Section 2.2.1 construction estimates. (BLM, 2006) [BLM 2006] | | | | | | | | | | | | | | |

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 | <p>The BLM conducted an intensive literature and data review for the 64 parcels (BLM, 2017a). Previous survey conducted within the lease parcels resulted in 14121.92 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.</p> <p>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</p> | David Grant | 6/20/2017 |

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| | | <p>resources sensitive to visual and other indirect effects, such as rock art.</p> <p>The unique nature of lease sales in which the location of specific ground disturbing activities associated with future development are unknown and only speculative relies on existing survey and site information to make a determination. Existing survey coverage within the parcels combined with the extensive existing survey and site information available within the VFO is sufficient to make a reasonable assumption about possible site types and densities within the proposed lease parcels.</p> <p>The BLM maintains that that reasonably foreseeable development could occur within all the proposed parcels with a no adverse effect determination to historic properties. Consultation is ongoing.</p> | | |
| 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 | <p>Parcel 044 occurs within the Pariette Wetlands ACEC. Relevance and Importance (R&I) values include special status bird and plant habitat, and wetlands ecosystem.</p> <p>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.</p> <p>Parcel 022, occurs within the Lears Canyon ACEC. R&I values include relict vegetation.</p> <p>Parcel 025 occurs within the Nine Mile Canyon ACECACEC. R&I values include high value scenery, cultural resources, and special status species.</p> | 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 would 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 | David Gordon | 5/15/17 |

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| | | 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. | | |
| 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. The irrigated lands are privately owned, and the lessee/operator 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. .. | David Gordon | 5/22/17 |
| 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 | Portions of parcel 023 is located within the Sunnyside Special Tar Sands Area (STSA). 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 develop potential 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 | Dallas Nutt | 3/1/2017 |

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| | | 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. | | |
| NI | Geology / Minerals / Energy Production | The underground injection of 'fracking waste water' in Utah presents little potential for inducing seismic activity. The majority of fracking waste 'fluids' are recycled and reused for future frack jobs. There have been no reported earthquakes in Utah that were suspected of being produced (induced) from injecting fluids into oil and gas disposal wells. (Personal communication from Brad Rogers, Utah Division of Oil, Gas and Mining ("UDOGM"), August 10, 2015). This fluid is predominantly produced water with a high salt brine content. As stated above in order to analyze and predict the potential for earthquakes associated with oil and gas disposal wells three kinds of data will be necessary: (1) seismic data: high-quality, real-time earthquake locations, which require dense seismic instrumentation; (2) geologic data: hydrological parameters, orientation and magnitude of the stress field, and the location and orientation of known faults; and (3) industrial data: injection rates and downhole pressures sampled and reported frequently. This data is not currently available, with the exception of industrial injection data reported to UDOGM, with which to do the analysis. | Mike McKinley | 6/07/17 |
| 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. The analysis in the RMP EIS is adequate for this leasing stage. | 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 | Margo Roberts | 5/5/2017 |

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| | | <p>development with associated road and pipeline right-of-ways.</p> <p>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.</p> <p>Coordination with existing Right-of-Way holders in the proposed lease parcels would occur if their right-of-way would be affected. UT-LN-83 will be applied to the following parcels 025, 027, 028, 029, 030, 031A, 031B, 032, 033, 034, 035, 038, 039, 041, 045, 046, 049, 054, 055, 056, 057, 062, 063, 064, 068, 069, 070, 071, 072, 073, 074, 075, 076, 077, 078, 079, 080, 081, 082, 083, 084, 085, and 087 to protect existing authorizations.</p> <p>Parcel 45 overlaps Highway 121. The Utah State Department of Highways has unrestricted rights of ingress in that area, and has the right to any road-building materials in their material site rights of way. Application of Stipulation UT-S-316 is sufficient to protect these rights.</p> <p>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.</p> <p>Public Water Reserves (PWRs): Allow no new surface-disturbing activities within active flood plains, public water reserves, or 100 meters of riparian areas unless:</p> <ul style="list-style-type: none"> • There are no practical alternatives. • Impacts will be fully mitigated. • The action is designed to enhance the riparian resources. <p>A public water reserve is within Parcel 78 (sections 33 and 34) Stipulation 123 is sufficient to protect the resource, Lease Notice 57 will be applied to the parcel to inform the lessee of issue</p> | | |
| 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 | Stephanie Howard | 6/14/2017 |

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| | | <p>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.</p> <p>Lease notices 151 and 152 have been added to parcels 022, 023, and 024 to give notice that any access proposals that cross the adjacent Forest lands may be restricted by the Ashley National Forest.</p> <p>Lease notice 152 has been added to parcel 55 to give notice that any access proposals that cross the adjacent Refuge lands may be restricted by the Ouray Wildlife Refuge.</p> <p>Parcels 44 and 70 overlap a U.S. Fish and Wildlife Service Colorado River Wildlife Management Area Conservation Easement on Private lands. Parcel 54 is adjacent to a U.S. Fish and Wildlife Service Colorado River Wildlife Management Area Conservation Easement on Private lands. Lease Notice 155 has been applied to the parcels to give notice that any surface use proposals on private land may be restricted by the Conservation Easement.</p> | | |
| PI | Lands with Wilderness Characteristics | <p>Multiple proposed lease parcels occur within lands found to possess wilderness characteristics:</p> <p>Parcels 037, 038, and 041 occur partially or fully within the Badlands Cliffs Lands with Wilderness Characteristics inventory unit.</p> <p>Parcels 027, 028, 029, and 030 occur partially or fully within the Big Wash Lands with Wilderness Characteristics inventory unit.</p> <p>Parcels 022, 024, 025, and 032 occur partially or fully within the Currant Canyon Lands with Wilderness Characteristics inventory unit.</p> <p>Parcels 073, and 079 occur partially or fully within the Hideout Canyon Lands with Wilderness Characteristics inventory unit.</p> <p>Parcels 031A, 031B, 037, and 039 occur partially or fully within the Pete's Wash Lands with Wilderness Characteristics inventory unit.</p> | Rene' Arce | |

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| | | Parcels 034, 035, 036, and 037 occur partially or fully within Sheep Wash Lands with Wilderness Characteristics inventory unit. | | |
| 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 | <p>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.</p> <p>Paleontological surveys should be performed by licensed and permitted companies experienced in completing specialized surveys for exploration companies, with reports of research to accompany APD applications to the Vernal field office in Vernal, Utah.</p> | Dallas Nutt | 66/19/2017 |
| PI | Plants: BLM Sensitive | <p>Horseshoe milkvetch (<i>Astragalus equisolensis</i>) 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.</p> <p>Hamilton milkvetch (<i>Astragalus hamiltonii</i>) suitable or potential habitat: UT-1217-46, 47, 49, 52, 53, 54.</p> <p>Barneby's cryptantha (<i>Cryptantha barnebyi</i>) has suitable habitat in parcel 056.</p> <p>Graham's cryptantha (<i>Cryptantha grahamii</i>) 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.</p> <p>Huber pepperplant (<i>Lepidium huberi</i>) has been documented in parcel 85, per BLM GIS data review.</p> | Christine Cimiluca | 2/16/2017 |

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| | | <p>Suitable habitat is present in parcels 049, 080, 081, 082, 083, 084, 085, 086, and 087.</p> <p>Goodrich's blazingstar (<i>Mentzelia goodrichii</i>) has been documented in parcels 022 and 0230, per BLM GIS data review and suitable habitat exists in parcels 022, 023, and 024.</p> <p>Green River greenthread (<i>Thelesperma caespitosum</i>) has been identified in parcels 022, 023, and 024, per BLM GIS data review.</p> <p>Suitable habitat for sterile yucca (<i>Yucca sterilis</i>) may be present in the Project Area in all parcels.</p> <p>(BLM, 2017c)</p> | | |
| <p>NI -</p> <p>Clay reed-mustard,</p> <p>Shrubby reed-mustard,</p> <p>Uinta Basin hookless cactus,</p> <p>Ute ladies'-tresses</p> <p>PI -</p> <p>Graham's beard-tongue,</p> <p>White River beard tongue</p> | <p>Plants:</p> <p>Threatened, Endangered, Proposed, or Candidate</p> | <p>Clay reed-mustard (<i>Hesperidanthus argillacea</i>) potential habitat: UT-1217-056</p> <p>Shrubby reed-mustard (<i>Hesperidanthus suffrutescens</i>) potential habitat: UT-1217-031A, 031B, 038, 056.</p> <p>Uinta Basin hookless cactus (<i>Sclerocactus wetlandicus</i>) or Pariette cactus (<i>Sclerocactus brevispinus</i>) 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 <i>Sclerocactus wetlandicus</i> and <i>Sclerocactus brevispinus</i> Habitat, (USFWS, 2014).</p> <p>Suitable habitat for Ute ladies'-tresses (<i>Spiranthes diluvialis</i>) 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.</p> <p>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.</p> | Christine Cimiluca | 2/16/2017 |

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| | | <p>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.</p> <p>T&E-12 Pariette cactus (<i>Sclerocactus brevispinus</i>) and Uinta Basin hookless cactus (<i>Sclerocactus wetlandicus</i>) UT-1217-031A, 031B, 038, 039, 042, 044, 055, 068.</p> <p>T&E-20 Clay reed-mustard (<i>Hesperidanthus argillacea</i>/<i>Schoenocrambe argillacea</i>) UT-1217-056</p> <p>T&E 21 Shrubby reed-mustard (<i>Hesperidanthus suffrutescens</i>/<i>Schoenocrambe suffrutescens</i>) UT-1217-031A, 031B, 038, 056</p> <p>T&E-22 Ute ladies's-tresses [<i>Spiranthes diluvialis</i>] 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</p> <p>Graham's beardtongue (<i>Penstemon grahamii</i>) and White River beardtongue (<i>Penstemon scariosus</i> var. <i>albifluvis</i>) Core Conservation Area Unit 1 (Sand Wash): UT-1217-38. Graham's beardtongue plants have been documented near this parcel, per BLM GIS data review. The parcel was subsequently edited to remove all documented and modeled suitable habitat for the species, and the part of the parcel within the Unit 1 CCA was also removed. White River beardtongue plants have been documented in parcels 056 and 073, per BLM GIS data review. These parcels were also subsequently modified to exclude suitable habitat and documented populations of this species.</p> <p>UT-LN-90 Graham's beardtongue (<i>Penstemon grahamii</i>) UT-1217-038</p> <p>UT-LN-154: White River Beardtongue (<i>Penstemon Scariosus</i> Var. <i>Albifluvis</i>): UT-1217-038, 056</p> <p>UT-LN-134 Graham's beardtongue (<i>Penstemon grahamii</i>) and White River beardtongue (<i>Penstemon scariosus</i> var. <i>albifluvis</i>) Conservation Area UT-1217-038</p> <p>(BLM, 2017c)</p> | | |
| PI | Recreation | Parcel 046 occurs partially within the proposed Brough Reservoir Recreation site. | Rene' Arce | 5/19/2017 |

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| | | <p>Parcels 025, 031B, 039, and 038 occur partially or fully within the Nine Mile Special Recreation Management Area.</p> <p>Parcel 044 occurs fully within the proposed Pariette Camp Site.</p> <p>Parcel 049 occurs partially within the Red Mountain-Dry Fork Special Recreation Management Area.</p> <p>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.</p> <p>Parcel 49 occurs in close proximity to Steinkamp reservoir and associated Steinkamp State Park, as well as the Highway 191 Scenic byway. 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.</p> <p>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 to mitigate these impacts.</p> <p>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</p> | | |
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| | | <p>of the year when recreationists are likely not on the river.</p> <p>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.</p> <p>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.</p> <p>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 lease parcels impacts to the management of the State Park and recreationists due to oil and gas development would not be anticipated.</p> <p>Parcel 034 occurs within a designated special recreation use permit campsite for Second Nature wilderness therapy permittee. Potential impacts due to oil and gas development include interference with wilderness therapy operations, safety, and a reduced ability for the permittee 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.</p> | | |
| NI | Socio-Economics | No detailed analysis is required for this proposal. The socioeconomic impacts from oil and gas development throughout the Uinta Basin was disclosed in the VFO RMP EIS | 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. All parcels would have S-99, Controlled Surface Use attached to them. 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, 31A, 31B, 32, 33, 34, 35, | James Hereford II | 5/10/2017 |

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| | | <p>36, 37, 38, 39, 41, 49, 56, 63, 64 69, 71, 73, 74, 75, 76, 77, 78, and 79.</p> <p>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.</p> <p>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 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.</p> | | |
| PI | Visual Resources | <p>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.</p> <p>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.</p> <p>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</p> | Rene' Arce | 5/19/2017 |

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| | | <p>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.</p> <p>Parcel 71 occurs within the viewshed of Dinosaur National Monument key observation points. (BLM, 2017).</p> | | |
| 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/ Municipal Watershed / Drinking Water Source Protection | <p>Three parcels 057, 078 and 079, are within Drinking Water System Source Protection Zones. Lease Notice UT-LN-056 will be attached to those parcels</p> <p>EPA stated in the draft June 2015, <i>Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources</i> ("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</p> <p>...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.</p> | Mike McKinley | 06/07/2017 |
| 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 | David Gordon | 5/17/17 |

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| | | <p>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.</p> <p>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.</p> | | |
| NI | Water: Steams, Riparian, Wetlands, Floodplains | <p>Leasing of the parcels will not directly affect these resources. Through GIS analysis parcels 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 were identified as having being within riparian areas and or floodplains. However, since all parcels will have the following stipulation attached, impacts from development to those resources would be prevented. UT-S-123: NO SURFACE OCCUPANCY – RIPARIAN, FLOODPLAINS, AND PUBLIC WATER RESERVES</p> <p>In addition, the following Lease Notice would be added to all parcels to inform potential lessees of the requirements of Executive Order 13690: UT-LN-128: Federal Flood Risk Management Standard- parcels -</p> | Jerrad Goodell | 5/18/17 |
| NI | Water: Surface Water Quality | <p>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.</p> <p>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</p> | David Gordon | 5/17/17 |

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| | | <p>Stream Alteration Permit would be required, and would also require additional NEPA to look at those changes</p> <p>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 RMP are not anticipated to occur as a result of leasing the proposed parcels.</p> | | |
| NI | Water: Water Rights | <p>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.</p> | David Gordon | 5/17/17 |
| NI | Water: Waters of the U.S. | <p>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.</p> | David Gordon | 5/17/17 |
| NI | Wild Horses | <p>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.</p> | Dusty Carpenter | 5/17/17 |
| PI | Wildlife: Migratory Birds (including raptors) | <p>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. (BLM, 2017b)</p> <p>NI- Raptors- Timing stipulations UT-S-261, would be applied to all parcels. In addition, lease</p> | Natasha Hadden | 5/23/2017 |

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| | | <p>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. (BLM, 2017b)</p> <p>NI- Bald eagle winter roosting areas were identified in parcels: 44, 48, 55, 65, 66, and 69, per GIS review. However, stipulation UT-S-278 would be applied; Which would provide adequate protection and is consistent with the Vernal RMP. (BLM, 2017b)</p> | | |
| NI | Wildlife: Fish (designated or non-designated) | <p>While only parcels 43, 44, 54, 55, 65, and 70 contain 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.</p> | Jerrad Goodell | 5/18/17 |
| PI | Wildlife: Non-USFWS Designated | <p>PI Greater Sage-grouse- GRSG Priority Habitat (PHMA) within parcels: 22, 23, 24, 49, 58, 59, 62, 69</p> <p>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</p> <p>NI- 12,281 acres of mule deer crucial winter range occurs in parcels 49, 56, 57, 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-S-231 would be applied; therefore, the stipulations and notice would provide adequate protection and is consistent with the Vernal RMP. (BLM, 2017b)</p> <p>NI- 3,721 acres of mule deer crucial fawning</p> | Leah Lewis Natasha Hadden | 5/2/17 5/23/2017 |

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| | | <p>habitat occurs in parcels 23, 44, 52, 54, 55, 62, 64, 65, 66, 69, 71, 73, 78, and 79. However, stipulation UT-S-247 would be applied; therefore, the stipulation and notice would provide adequate protection and is consistent with the Vernal RMP. (BLM, 2017b)</p> <p>NI- 2,718 acres of elk crucial winter range occurs in parcels 49, 56, 57, 58, 59, 60, 61, and 62. However, stipulation UT-S-230 would be applied; therefore, the stipulation and notice would provide adequate protection and is consistent with the Vernal RMP. (BLM, 2017b)</p> <p>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 would be applied; therefore, the stipulation and notice would provide adequate protection and is consistent with the Vernal RMP. (BLM, 2017b)</p> <p>NI- No BLM crucial habitat was identified in the proposed lease sale parcels for pronghorn. According to UDWR GIS layers, there is 35,756 acres of pronghorn yearlong habitat in parcels 22, 23, 29, 30, 31A, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 44, 46, 47, 48, 52, 53, 54, 55, 65, 66, 67, 68, 72, 74, 75, 76, 77, 80, 81, 82, 83, 84, 85, 86, and 87. (BLM, 2017b)</p> <p>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 would be added to the appropriate parcels and lease notices UT-LN-25 and UT-LN-49 would be applied to the remaining parcels that contain white-tailed prairie dog habitat.</p> <p>NI - 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. (BLM, 2017b)</p> | | |
| NI | Wildlife: Threatened, Endangered, Proposed or Candidate | <p>Potential Mexican spotted owl (Threatened) habitat is identified for parcel: 25, 78, and 79, 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</p> | Natasha Hadden | 5/23/2017 |

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| | | <p>habitats. (BLM, 2017b)</p> <p>Proposed Critical Habitat for yellow-billed cuckoo (Threatened) is identified for parcels: 44, 52, 54, and 55 per GIS review. Also, per the habitat suitability model provided by UDWR for BLM, parcels that were identified for potential suitable YBCU habitat include: 46, 47, 56, 63, 64, 65, 66, 71, 77, and 81. However, stipulation H-3120 and lease notices UT-LN-113 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. (BLM, 2017b)</p> <p>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. Also, parcels: 55, 65, 67, 68, 72, 85, and 86 were added because of the importance of those areas to black-footed ferrets outside of the primary management zone, in coordination with USFWS and UDWR. However, stipulations UT-S-299 (only applies to the primary management zone area) 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. (BLM, 2017b)</p> <p>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.</p> | | |
| NI | Woodlands/Forestry | <p>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-</p> | David Palmer | 5/17/17 |

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| | | 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 2008a] are not anticipated to occur as a result of leasing the proposed parcels. | | |
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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



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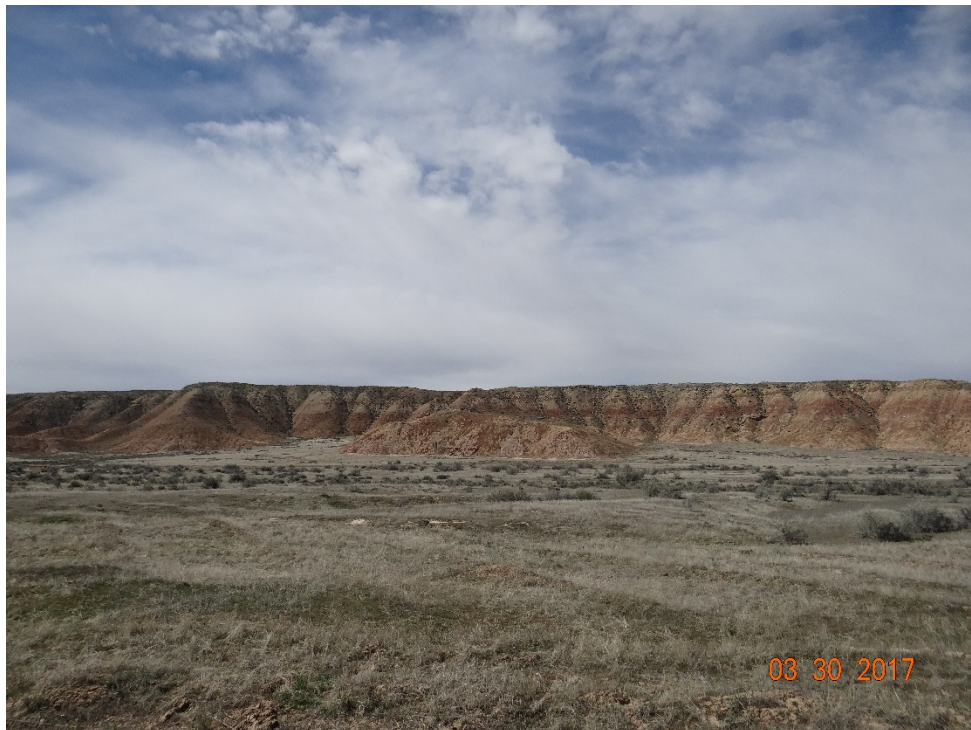
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UT1217-080



UT1217-081



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UT1217-086



UT1217-087



UT1217-103



Appendix G – Responses to Public Comments

The below comments are organized by commenter. However, in a few cases multiple individuals submitted the same or a similar comment. In those cases the comments were combined and were given a single response. The many commenters may or may not be recognized by name.

Natural Resources Defense Council, Southern Utah Wilderness Alliance, The Wilderness Society, and Utah Chapter of the Sierra Club

Comment 1: BLM is instructed in the lease sale context to consider a minimum of three alternatives. See generally BLM Instruction Memorandum No 2010-117 Oil and Gas, Planning, and National Environmental Policy Act (NEPA) May 17, 2010. Specifically IM 2010-117 requires BLM to analyze: 1) a no action alternative (no leasing), 2) a proposed leasing action (lease the parcels in conformance with the land use plan, and 3) any alternatives to the proposed action that may address unresolved resource conflicts. The Lease Sale EA analyzes two alternatives only.

Response 1: Thank you for this comment. The BLM determined that the Proposed Action (lease all parcels) and No Action (lease no parcels) alternatives encompassed the full range of alternatives. The BLM has the ability to select part of each considered alternative in the Decision Record (lease some parcels, not lease other parcels). Therefore, no additional alternatives were identified that would improve the range of alternatives or make it easier for BLM to respond to any identified unresolved conflicts. Therefore, no additional alternatives were considered in detail.

Comment 2: SUWA proposes the following reasonable, middle-ground alternatives for BLM's consideration in a revised Lease Sale EA: Defer from leasing parcels in sensitive areas and/or areas with unresolved resource conflicts such as lands with wilderness characteristics or the Nine Mile Canyon ACEC.

Response 2: This alternative is already within BLM's decision authority in the two alternatives analyzed in detail. See the response to your comment number 1. For example, if BLM's decision maker preferred to defer leasing in the ACECs, then the BLM would select in the Decision Record the Proposed Action for the parcels that are outside the ACEC and would select the No Action for the parcels within the ACEC.

Comment 3: SUWA proposes the following reasonable, middle-ground alternatives for BLM's consideration in a revised Lease Sale EA: Defer from leasing parcels within the Dinosaur National Monument viewshed.

Response 3: Please note that BLM determined that Parcel 70 should not have been considered because the nominator provided incorrect surface owner information. For the other parcels within the viewshed of the Dinosaur National Monument viewshed, this alternative is already within BLM's decision authority in the two alternatives analyzed in detail, as demonstrated by the deferral or partial deferral of several parcels as listed in Appendix B. Please see also the response to your comment 2.

Comment 4: SUWA proposes the following reasonable, middle-ground alternatives for BLM's consideration in a revised Lease Sale EA: An air quality alternative as proposed in the attached air quality review and report prepared by Ms. Megan Williams, an air quality expert. This alternative includes but is not limited to:

1. Fully assessing whether there will be unacceptable health risks associated with criteria and hazardous air pollutant impacts, significant cumulative visibility impacts, or significant deterioration of air quality.
2. Such an alternative should analyze:
 - a. Constraining impacts to an ozone concentration level lower than 70 ppb...to protect public health and the environment.
 - b. Constraining PM_{2.5} impacts to a level lower than 35 µg/m³...to protect public health and the environment.
 - c. An assessment of the maximum development scenario in order to determine if significant impacts could occur at the maximum development rate.
 - d. A comprehensive set of actions to address greenhouse gas, VOC and HAP emissions...and an alternative that would mandate these actions as a lease stipulation, APD best management practices, or conditions of approval.
 - e. Adopting the additional mitigation measures identified and discussed in Ms. Williams' comments.

Response 4: Leasing is an administrative action that does not authorize development to occur, so no emissions would occur as a result of this EA. The BLM is not required to speculate on the level of development that will occur nor analyze a worst-case scenario as a basis for requiring additional mitigation prior to any development even being proposed. However, the BLM has created a development scenario for analysis purposes so the decision may be informed as to the nature of future potential emissions. However, the development scenario does not guarantee that wells will be drilled at all, let alone at the reasonably foreseeable or maximum development rates identified in Appendix D. Should the parcels be leased, and should they be developed, a site-specific analysis of air quality impacts will be completed for the proposed development and will address compliance with the CAA. Enforcement of ambient air quality standards is the responsibility of the regulatory authorities responsible for the airshed--the State of Utah DEQ and the EPA.

Comment 5: While the Lease Sale EA identifies visual, noise and light as relevant impacts, it fails to take the next step and actually explore the likely impacts of the leasing decision to night skies and the soundscape of Dinosaur National Monument, as well as on the monument's scenic and other values. Instead the EA only generally acknowledges that noise and light pollution and visual impacts might affect the Monument, citing a stipulation designed to mitigate these effects. See EA at 61. It does not attempt to measures, quantify, or objectively define what these effects might look like, or evaluate whether they are significant, thus warranting preparation of an EIS. Nor does it examine, for example, the extent to which stipulations will successfully mitigate visual, noise, and sound impacts to the Monument. To satisfy NEPA, BLM must actually explore how development on the proposed leases would affect the soundscape, night skies, and visual setting within the Monument. This means answering key questions about impacts to the Monument resources, such as:

1. How would development on the proposed leases affect night sky visibility from key and population observation points, like the Split Mountain Campground?
2. How would flaring and other development affect the Monument's Sky Quality Index?
3. Would truck traffic to the parcels be audible from the Visitor Center? From the Dinosaur Quarry?
4. How will development affect ambient sound levels in the Monument?

Response 5: The initial Environmental Assessment (EA) proposed to lease parcels 069, 070, and 071, which are all located either adjacent to or nearby Dinosaur National Monument. Because parcel 069 has been deferred from this lease sale, and because parcel 71 has been removed from this lease sale, the EA now only analyzes potential impacts to visual resources, noise/sound, and night skies that could affect visitor experiences within Dinosaur National Monument from leasing parcel 071.

As stated in the EA, parcel 071 includes a controlled surface use (CSU) stipulation to minimize noise and light pollution using the best available technology to mitigate potential impacts to visitor experiences within Dinosaur National Monument. However, until there is a specific project proposal to develop and produce the mineral resources in parcel 071, the BLM is unable to specifically quantify and analyze the effects to soundscapes and night skies within Dinosaur National Monument. For example, the BLM currently cannot project whether flaring would be necessary or appropriate for this particular parcel because it is unknown whether the target resource would be oil or gas (the BLM would not authorize production flaring for a gas well, although the BLM would consider production flaring for an oil well). Also, given the size of parcel 071 (1,208 non-contiguous acres, which span across an approximate 2 by 3-mile area) the BLM cannot currently determine exactly where development would occur and whether the resulting truck traffic would be audible from locations within Dinosaur National Monument due to topography and potential distance. If the BLM receives an Application for Permit to Drill (APD) for parcel 071, such considerations will be made at that time in order to determine the most appropriate mitigation measures to minimize any potential noise and light pollution through the use of the CSU stipulation.

Comment 6: The Stiles Report recommended that parcel 101, which overlaps with parcel 69 in the current sale, should be "deferred" and "that the BLM and NPS reevaluate the merits of offering the parcel near the park for lease." The report also recognized that there was a need to "avoid repetitive requests for leases in inappropriate locations immediately adjacent to the Park, especially in the viewshed of the new planned center and entrance road.

Response 6: Please note that BLM has no mechanism to "avoid repetitive requests for leases" or otherwise prevent public expressions of interest in leasing in areas designated as available for leasing in the RMP. Any decision to close an area to leasing would require a plan amendment, which is outside the scope of this document. By including the parcel in this leasing EA, the BLM has been able to gather public input on the parcel. As a result, parcel 69 has been deferred from this sale pending further coordination with the Monument.

Comment 7: SUWA adopts and incorporates the scoping comments and associated viewshed map provided by the National Park Service regarding potential impacts to Dinosaur National Monument including, but not limited to, air quality, viewsheds, dark night skies, natural

soundscapes, and endangered, threatened, and sensitive species. Among other issues, NPS explained that ozone and visibility are of significant concern for Dinosaur National Monument, and required that BLM protect viewsheds because vistas within the Monument are fundamental to the visitor experience.

Response 7: The National Park Service scoping comments have been included in this comment response table as a result of this comment. Please refer to the Dinosaur National Monument Scoping Comments section of this Appendix for specific responses to those concerns.

Comment 8: SUWA provides an additional view shed map which depicts proposed parcels visible from popular areas within the Monument.

Response 8: The map provided by SUWA includes additional KOPs. BLM analyzed the viewshed from these and other KOPs. Both the BLM-provided maps and SUWA-provided map produce a very similar viewshed analysis. More importantly, these maps clearly demonstrate that within the proposed lease parcels, the majority of these parcels are not visible from popular areas within the monument meaning that there is a high probability that potential future development of these parcels would be screened from the view of popular areas within the monument by topography and vegetation. Furthermore, if, and at the time development plans were to be received within the proposed lease parcels, additional key observation points would likely be identified as part of a site specific viewshed analysis in order to identify potential adverse impacts to the Dinosaur National Monument viewshed.

Comment 9: In the EA, BLM only generally acknowledges the cumulative impact that oil and gas development is having on visitation and tourism to Dinosaur National Monument. See EA at 76-77. This analysis fall short of the hard look required by NEPA. As BLM described in the Moab Master Leasing Plan (BLM, 2016c), proximate oil and gas development is having a significant, quantifiable economic and social impact on Dinosaur National Monument and its surrounding communities: “Dinosaur National Monument has seen a decline in visitation of over 40 percent from 1999-2014 (1999 being the year in which Uinta County reversed years of declining oil and gas production); oil production increased over 358 percent during the same time period. During that time period, natural gas production increased over 339 percent.” See Moab MLP at 4-106. These are precisely the types of cumulative economic and social impacts that BLM must consider and address as part of this leasing decision. In the final EA, BLM must contemplate how its proposed action would contribute to the cumulative impact that oil and gas development in Uintah County is already having on Monument visitation and tourism.

Response 9: See the response to Friends of the Yampa and Public Lands Solutions Comment 1 and the response to The Coalition to Protect America’s National Parks Comment 9.

Comment 10: Until this sale, Utah BLM has deferred new leasing in Master Leasing Plan Areas until it completes the MLP. Here, however, the proposed action would offer new parcels in the area designated for the Vernal MLP, including parcels directly adjacent to Dinosaur National Monument. Lease Sale EA at 5. This undermines the very purpose of preparing a MLP for the area. In its assessment for the Vernal MLP, and in concluding that a MLP was required for the area, BLM found that “additional analysis or information is needed to address likely resource or cumulative impacts if oil and gas development were to occur.” BLM MLP Assessment at 3

(Nov. 2010). Among other outstanding and unresolved conflicts, BLM pointed to suspended oil and gas leases, air quality issues, and coordinating with the Park Service to manage lands around Dinosaur National Monument. To date, BLM has not addressed these issues through a new planning process or adequate NEPA analysis. By leasing within the Vernal MLP boundary, BLM would compromise its ability to guide future development through the careful planning of a MLP, in violation of NEPA. By leasing in the MLP area, BLM would cede its ability to guide oil and gas development at a landscape-level and retain only the limited discretion to guide development on a piecemeal, lease-by-lease basis within each individual drilling permit. To preserve its ability to conduct the more closely focused planning needed in the area, BLM should defer parcels nominated within the Vernal MLP area. Furthermore, given BLM's finding that "additional analysis...is needed to address likely resource or cumulative impacts", BLM must undertake a landscape-level assessment prior to the resumption of leasing in the Vernal MLP area.

Response 10: In preparing the Vernal MLP assessment, the BLM did not make a finding that an MLP is "required" to make a finding that cumulative impacts from leasing would exceed those already disclosed in the RMP EIS; in fact, it says that "by and large, the issues identified in the external proposals are addressed in the 2008 Vernal RMP." The BLM also did not commit to indefinitely deferring leasing within the MLP boundaries. The BLM is obligated to consider leasing parcels nominated by the public, and is currently analyzing parcels both within and without the MLP to determine if offering them for lease would be appropriate. The Vernal RMP conducted a cumulative (field-office-wide) leasing analysis and the Vernal RMP ROD made decisions about where and how leasing is appropriate. Also, the Vernal RMP considered Monument concerns, as demonstrated by the light/noise restriction stipulation and VRM II classification around the Monument. Please note that BLM does not have "limited discretion to guide development on a piecemeal, lease-by-lease basis within each individual drilling permit." BLM has the authority to require field development plans prior to development occurring, and does require such plans when appropriate as demonstrated by the latest plans completed: Monument Butte (BLM, 2016b), Gasco (2012) and Greater Natural Buttes EIS(BLM, 2012c)field development plans, and as further demonstrated by the ongoing Greater Chapita EIS field development plan (draft EIS pending 2017). However, any drilling near Dinosaur National Monument at this time would be considered exploratory drilling due to limited knowledge of the subsurface resource. Exploratory drilling may be conducted on a permit by permit basis.

Comment 11: BLM alleges to have conducted a Class I cultural inventory for the proposed lease sale. As Manual 8110 explains, a Class I inventory is not a mere records check. It is a detailed study consisting of all the elements described in Manual 8110.21.A3 and .A4. The preparation of this Class I inventory or literature review does not satisfy BLM's obligation to make a reasonable and good faith effort to identify cultural resources at risk from this undertaking. The Vernal field office has failed to make a reasonable and good faith effort here to identify historic properties. Four of the parcels in the lease sale (58, 60, 61, and 62 have never been previously surveyed. Another five parcels (31B, 38, 45, 57, and 59) have been surveyed less than 3%. BLM must conduct additional surveys in these parcels before leasing. Failing to do so violates the NHPA's requirements.

Response 11: Please note that portions of parcel 38 have been deferred from this lease sale. The BLM has conducted a Summary Report of Cultural Resources Inspection (BLM, 2017a) which

includes an intensive analysis and data review to demonstrate in part our reasonable and good faith identification effort to identify effects that this undertaking may have on historic properties. At no point in this report or in the EA does BLM claim to have completed a Class I-Existing Information Inventory, rather BLM incorporated *Paradigms and Perspectives: A Class I Overview of the Cultural Resources in the Uinta Basin and Tavaputs Plateau* (Spangler, 1995) into the analysis. Due to the unique nature of lease sales in which the location of specific ground disturbing activities are unknown and only speculative, the BLM relies on existing survey and site information. Previously conducted inventories have resulted in 14,121.92 acres within the proposed parcels being surveyed or 21.3% of the total acres within the parcels. In parcels with low survey coverage, large scale inventories of similar topographic complexity were used to determine whether reasonably foreseeable development could occur without adverse effects to historic properties. Existing survey coverage within the APE combined with the extensive existing survey and site information available within the VFO is sufficient to make a reasonable assumption about possible site types and densities within the proposed lease parcels.

For previous lease sales SUWA has argued for additional cultural resource surveys. IBLA (2008-264) responded to this argument by stating, “SUWA has not shown that BLM failed its duties under NHPA at the time of the lease sale. BLM engaged in the NHPA process during the land use planning phase by preparing an RMP, made meaningful efforts to consider information regarding individual lease sale parcels at the lease sale phase, and incorporated NHPA protective stipulations for individual parcels in the area. BLM has no duty under NHPA to do more at the lease sale stage. See *SUWA*, 177 IBLA 89, 97-100 (2009) (emphasis added).

Comment 12: BLM must make a determination whether the lease sale will have an adverse effect on cultural resources. It has not done so in the EA. By failing to provide sufficient information on cultural resources, BLM also violates NEPA’s requirement that agencies must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. Based on the information BLM does provide, it is clear that this lease sale may result in adverse effects to historic properties. BLM states that this lease sale has the potential to impact cultural resources in the lease area. Precisely because there may be adverse effects, BLM must continue to follow the processes set forth in 36 CFR 800.5-800.6 to consult about these effects.

Response 12: Based on our Analysis and Data Review the BLM determines that reasonably foreseeable development could occur within all parcels with a no adverse effect to historic properties. NHPA Section 106 consultation is ongoing. Prior to issuing any decision on the lease sale, the BLM will have completed its obligations in regards to compliance with the NHPA. The Environmental Assessment (EA) for this Proposed Action provides a summary of the cultural resources information provided in Summary Report of Cultural Resources Inspection (BLM, 2017a) to Section 106 consulting parties. This information has been provided to the public and citizens as part of the public review period for this EA. BLM has not made a decision regarding this action or undertaking at this time.

The BLM prepared a Summary Report of Cultural Resources Inspection (BLM, 2017a), which includes a literature review to complete and document the BLM’s reasonable and good faith identification for this undertaking in accordance with 36 C.F.R. § 800.4(b)(1). This document was created following the Advisory Council on Historic Preservation guidelines titled Meeting

the “Reasonable and Good Faith” Identification Standards in Section 106 Review (http://www.achp.gov/docs/reasonable_good_faith_identification.pdf). If a determination of no adverse effect is made by the BLM, then BLM would not proceed with resolution of adverse effects.

Comment 13: The lease sale EA does not consider a middle-ground alternative that avoids impacts to BLM identified lands with wilderness characteristics. This violates NEPA’s alternatives and hard look requirements as well as IM 2016-027 – BLM’s statewide guidance for analyzing and managing wilderness resources.

Response 13: The No Action alternative satisfies the requirements in IM-2016-027 to consider an alternative that is modified by appropriate protections, relocations, or design features to eliminate or considerably reduce the effects on wilderness characteristics. Please see also the response to your comment 2.

Comment 14: Further the Lease Sale EA proceeds under the incorrect assumption that BLM has no option but to offer parcels in BLM-identified LWC areas if the Vernal RMP designated those areas as open to oil and gas leasing and cannot consider managing such areas for the protection of their wilderness values. See EA at 56. In contrast IM 2016-027 states that BLM may reach a decision in an implementation level NEPA document to protect LWC even in areas where the land use planning decision does not emphasize the protection of lands with wilderness characteristics as a priority over other multiple uses, and BLM should implement measures to minimize impacts to lwc even when a LUP decision does not offer de facto protection of lwc in planning allocations. The EA must be corrected so as not to proceed under this incorrect assumption.

Response 14: Comment noted. BLM agrees that the agency retains discretion to protect lands with wilderness characteristics, even in areas where the land use planning decision does not emphasize the protection of lands with wilderness characteristics as a priority over other multiple uses. The EA was drafted under this understanding of IM-2016-027. The cited page incorporates into the EA’s Proposed Action wilderness characteristics analysis a summary from the Vernal RMP of impacts to wilderness characteristics that were anticipated from oil and gas development. The No Action alternative acknowledges that no loss of wilderness characteristics would occur if the parcels are not leased.

Comment 15: BLM is required to include an alternative to the proposed action that is modified by appropriate protections, relocations, or design features to eliminate or considerably reduce the effects on wilderness characteristics, if possible. See IM 2016-027 Attachment 2 at 5. BLM has made no such effort in the Lease Sale EA. Proposed leasing stipulations contain only the generic stipulations considered in the Vernal RMP – not stipulations modified or created to prepare LWC identified after completion of the Vernal RMP.

Response 15: The No Action alternative satisfies the requirements in IM-2016-027 to consider an alternative that is modified by appropriate protections, relocations, or design features to eliminate or considerably reduce the effects on wilderness characteristics.

Comment 16: The BLM committed to prepare comprehensive integrated activity plans for the Lears Canyon and Nine Mile Canyon ACECs. BLM has not prepared either activity plan. This makes the Lears Canyon and Nine Mile Canyon ACECs unresolved resource conflicts. As such BLM is required to consider in the EA an alternative which does not offer leases in either ACEC.

Response 16: The No Action alternative analyzes the impacts of not offering the parcels for sale. The BLM Planning Manual (1610) defines an Implementation Plan as follows: “a site-specific plan written to implement decisions made in a land use plan. An implementation plans usually selects and applies best management practices to meet land use plan objectives. Implementation plans are synonymous with “activity” plans.” The Vernal RMP stated that a Lears Canyon IAP would “address protection of relict vegetation” (ACEC-5). The Lears Canyon ACEC No Surface Occupancy stipulation is sufficient to prevent impacts to relict vegetation; therefore, a completed integrated activity plan is not necessary to proceed with the consideration of leasing within the Lears Canyon ACEC. The Vernal RMP does not specify what the Nine Mile Canyon ACEC IAP would address (ACEC-10), however the relevant and important values for Nine Mile Canyon ACEC are Nationally significant Fremont, Ute, Archaic rock art and structures, and special status plant habitat. Cultural resources are protected by law; in addition, none of the parcels are below the rim of the Canyon where the majority of the sites are found. For the special status species, the stipulations for ACEC controlled surface use, special status species protection, and slope no surface occupancy are sufficient to prevent or minimize impacts to special status species habitat.

Comment 17: BLM should not offer new oil and gas leases in either ACEC, such as parcels 22, 25, 31B, 38, or 39 until completion of the required management plan to ensure that future management options for these areas are not foreclosed or restricted including but not limited to, prohibiting oil and gas leasing and development.

Response 17: Please note that portions of parcel 38 have been removed from this lease sale. The management plan guiding management options for the ACEC is the Vernal RMP, as amended, which designated the ACECs as well as the leasing categories within them. There are no plans being considered that would potentially change the leasing categories.

Comment 18: IM 2010-117 requires BLM to evaluate whether oil and gas management decisions identified in the RMP (including lease stipulations) are still appropriate and provide adequate protection of resource values (including but not limited to biological, cultural, visual, and socioeconomic resource values). If the lease stipulations do not provide adequate resource protection, it may be necessary to develop new lease stipulations or revise existing ones. The new stipulations can be developed through either a plan amendment or plan maintenance. In the present case by not fulfilling its commitment to prepare the activity plans prior to offering the proposed lease parcels BLM has failed to give priority to the protection of each ACEC’s relevant and important values. This is a violation of FLPMA. Finally, there is no record evidence in the Lease Sale EA that BLM has monitored the effectiveness of each designated ACEC or evaluated whether existing leasing stipulations are appropriate in light of changed circumstances. Such information is required by IM 2010-117.

Response 18: Lease stipulations normally cannot be developed through plan maintenance. See the response to your comment 16 regarding the Activity Plans. Lack of an activity plan for the

ACEC is not a de facto determination for inadequate stipulations. Whether or not lease stipulations are adequate must be considered by evaluating the impacts to the specific relevant and important values within the ACEC. The commenter has not provided specific concerns that can be addressed here. Completion of RMP-required Activity Plans or Monitoring is outside the scope of this EA.

Comment 19: The Lease Sale EA did not bring forward for detailed analysis federally listed plant species because consultation for federally listed plant species has been conducted and thus no further analysis is required at this stage because FWS determined these lease notices will adequately protect the species at the time of development. EA at 199. The completed consultation to which BLM refers appears to be the consultation process for the Vernal RMP/ROD because for this lease sale BLM states that consultation is ongoing. The Biological Opinion for the Vernal ROD expressly states that it does not satisfy BLM's future obligations to comply with the ESA when reviewing site specific proposals. See Vernal ROD BiOp at 122.

Response 19: The act of leasing is not a site-specific surface disturbing proposal. Site-specific surface use applications or proposals would occur after the parcels are leased, when an applicant submits an Application for Permit to Drill (APD) in order to develop a lease. At that time, the site-specific proposal would be reviewed and Section 7 consultation under ESA would be initiated with FWS in order to address impacts to Federally listed species. At the lease stage we submit the lease parcels and applicable lease stipulations and notices for each T&E, proposed, and candidate species to the FWS for their review. This sometimes results in discussions with them regarding the species or parcels and we make adjustments (like adding lease notices to additional parcels) per their input.

For this lease sale specifically, the BLM is conferencing on penstemon and consulting on yellow-billed cuckoo with the USFWS. For any other plant and wildlife species listed under the ESA, the USFWS receives a notice about the species that occur in the lease sale parcels and the BLM requests agreement from the USFWS that the Proposed Action (leasing): 1) does not exceed the impacts analyzed in the PRMP and BA/BO and 2) would not exceed the effects determination in the BO (LAA) and our effects determination for this project (NLAA). When or if disturbance is proposed for parcels (APD stage) that contain or affect ESA species, further evaluation and Section 7 consultation of these ESA species with the USFWS will occur if necessary.

Comment 20: The Biological Opinion analyzed at most the general field office wide effects of oil and gas leasing and development to Clay reed-mustard, shrubby reed-mustard, Uinta Basin hookless cactus, and Pariette cactus and did not analyze site specific impacts to those species from the proposed oil and gas leases. Further, the Pariette cactus – *Sclerocactus brevispinus* – was listed as threatened on September 15, 2009, almost one year after the signing of the Vernal ROD. As such, the Biological Opinion for the Vernal ROD does not encompass this species.

Response 20: The act of leasing would have no direct or indirect impacts on Federally listed plant species because this act does not result in surface disturbing activities within the leased parcels. Development of the parcels, which may have the potential to impact Federally listed species, would occur only after the lessee submits an Application for Permit to Drill (APD) and

the BLM reviews the proposed project. This review would include Section 7 consultation under ESA with FWS if the proposed project has the potential to impact these species or their habitat.

Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) and Pariette cactus (*Sclerocactus brevispinus*) were originally listed as Threatened under ESA as part of the *Sclerocactus glaucus* complex. The original listing rule for *Sclerocactus glaucus* (44 FR 58868; October 11, 1979) included all hookless (straight central spines) *Sclerocactus* populations at the extreme periphery of the *Sclerocactus* distribution in western Colorado and northeastern Utah, and referred to them as *S. glaucus*). In subsequent years, further genetic and morphological research on *S. glaucus* supported separating the complex into three separate species, *S. glaucus*, *S. wetlandicus*, and *S. brevispinus*.

On September 18, 2007, the FWS published a 12-month finding (72 FR 53211) on *Sclerocactus brevispinus* (Pariette cactus). This finding reclassified *S. brevispinus* as a single species. *S. brevispinus* also remained listed as threatened as part of the *S. glaucus* complex at this time.

On September 15, 2009, the FWS announced the revised taxonomy of *Sclerocactus glaucus* under the ESA, and determined that *S. glaucus* (previously considered a complex), which had been listed as a threatened species, is actually three distinct species: Pariette cactus (*S. brevispinus*), Colorado hookless cactus (*S. glaucus*), and Uinta Basin hookless cactus (*S. wetlandicus*). At no time since the original listing of *S. glaucus* was Pariette cactus not protected under ESA.

The Section 7 consultation for the Vernal Field Office RMP did consider impacts to Pariette cactus as part of the *S. glaucus* complex. At that time, the common name of the complex was Uinta Basin hookless cactus. The changes to classification and nomenclature of these species over time are complex, and therefore, it may be unclear that this species was considered during the consultation process for the VFO RMP/ROD, hence the detailed response here.

Comment 21: There is no record evidence that BLM has ever analyzed the site-specific direct, indirect, or cumulative impacts to these federally listed species from the leasing and development of the parcels being considered in the EA. BLM routinely analyzes in its leasing environmental assessments the potential impacts to federally listed plant species (as well as special status plant species). BLM has not provided a reasoned explanation for why a different approach is warranted here.

Response 21: Analysis of impacts to wildlife and special status plant species from the act of leasing have been included in stand-alone specialist reports prepared by BLM's wildlife biologist and botanist. During preparation of the wildlife report (BLM, 2017b) the biologist determined, as reflected in the ID checklist, that potential impacts to two sensitive wildlife species, Greater Sage-grouse and White-tailed Prairie Dog, warranted inclusion in the EA to provide information necessary to make a reasoned decision and/or develop a Lease Notice. The analysis of federally listed plant species determined that Graham's beardtongue (*Penstemon grahamii*) and White River beardtongue (*Penstemon albifluvis*) warranted inclusion in the EA due to ongoing litigation and the current status of both species. Analysis of other species was not carried forward in the EA in an attempt to control the length of the EA because it was determined the information was not warranted to make an informed decision and had been sufficiently analyzed

in the RMP. Site-specific analysis of impacts to federally listed species occurring due to the act of development of a lease would occur once a parcel is leased and the lessee submits an APD.

Comment 22: The EA does not properly analyze impacts to Graham's or White River beardtongue or their habitat from the proposed oil and gas leasing and development. Instead the EA only lists the various lease notices and stipulations that will be attached to leases 38, 56, and 73, and does not address whether similar notices or stipulations should be attached to other proposed leases based on new information and data obtained by BLM since the Conservation Agreement for these species was set aside by a Federal court in Colorado.

Response 22: No development is proposed at this time, and no actions would be permitted to occur within the proposed parcels through the act of leasing. It is assumed that if a parcel is leased, then that lease would be developed. In order to develop a lease, a lessee must submit an APD with a site-specific development proposal. At this time, the BLM would analyze potential impacts to these species.

Parcel 73 has been deferred, and parcels 38 and 56 have been reduced to remove the areas that overlap known penstemon populations and Conservation Areas. The standard Endangered Species stipulation would be applied to all parcels, and the Graham's beardtongue lease notice UT-LN-90 (Graham beardtongue [*Penstemon grahamii*]) would be applied to all parcels that contain suitable or occupied habitat for this species, regardless of whether a conservation area has been established within the parcel. In addition, site-specific impacts to these species would be analyzed once APD's are submitted to the BLM by the lessee, and site-specific mitigation and conservation measures would be developed based on the VFO RMP/ROD, the Conservation Agreement for the two beardtongue species, and Section 7 consultation with FWS.

Comment 23: The EA does not conduct any direct or indirect analysis and expressly defers to the Vernal RMP for cumulative impact analysis to Graham's and White River beardtongue. The Vernal RMP is programmatic in nature and did not analyze the site specific impacts for the proposed leasing decision.

Response 23: Impacts to these species from the act of leasing are disclosed in 4.2.8 of the EA. The issuance of leases would not directly impact threatened, endangered, proposed, and candidate plant species on the nominated parcels, although the issuance of a lease does convey an expectation that the lease would be developed.

The cumulative impact area for threatened, endangered, proposed, and candidate plant species is the Vernal Planning Area, and the cumulative impacts section of the EA examines past, present and reasonably foreseeable future actions within this area that may impact these species. Because the act of leasing does not result in development on the ground, only the expectation of development, it is stated that the proposed act of leasing these parcels contributes to the disclosed cumulative impacts to these species by making the proposed parcels available for development. It is assumed that the parcels will be developed, but the extent of development is unknown until the lessee submits a site-specific proposal to the BLM. Please note that parcel 73 has been deferred, and parcels 38 and 56 have been reduced to remove the areas that overlap known penstemon populations and Conservation Areas.

Comment 24: There is no record evidence in the EA with regard to Graham's and White River beardtongue and their habitat that BLM analyzed the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions of the effects caused by the action or effects which are caused by the action and are later in time or farther removed in distance. For example the EA is silent as to impacts to habitat within established Conservation Agreement areas – other than broad statements that apply equally to all parcels in the species' habitat – and does not address how the proposed leasing decision could impact ongoing good-faith negotiations with regard to the legally inform Conservation Agreement. BLM provides only broad unhelpful statements and refers the reader to proposed lease notices and stipulations which relate more to mitigation than impact analysis.

Response 24: No direct or indirect impacts to these species or Conservation Areas established under the Conservation Agreement will occur through the act of leasing the parcels. Originally, only proposed parcel 38 intersected a Conservation Area (Unit 1). Approximately 40 acres of parcel 038 were located within the Unit 1 CCA, representing approximately 0.44 percent of the entire 9,151.3 acre area. However, in order to avoid impacts to Graham's or White River beardtongue and additional surface disturbance within Conservation Areas, this parcel was modified to remove mapped and modeled suitable habitat for these species, and the areas overlapping the Conservation Area were also removed from the parcel. Parcels 38 and 56 have been reduced, and parcel 73 has been deferred from this sale due to the presence of the beardtongues.

Comment 25: In the present case, BLM failed to follow its mitigation hierarchy (Department of Interior Part 600 DM 6 6.4B Public Land Policy Landscape-Scale Mitigation Policy (Oct 23, 2015)). BLM did not seek to first avoid impacts to sensitive areas from oil and gas leasing such as Dinosaur National Monument and the Lear's Canyon and Nine Mile Canyon ACECs. Instead, BLM ignored its obligation to avoid impacts and at most considered only minimizing impacts from oil and gas leasing and development. This approach is in violation of NEPA and inconsistent with BLM's guidance and policy instruction regarding minimization.

Response 25: In order to avoid impacts to ACECs and the Dinosaur National Monument, the BLM has analyzed the option of not leasing the parcels under the No Action alternative. For the Proposed Action, identified best management practices, lease stipulations and lease notices will also avoid or minimize impacts from oil and gas leasing and development.

Dinosaur National Monument Scoping Comments

Note: Although this May 21, 2017 letter was a scoping letter, it was adopted into the Natural Resources Defense Council, Southern Utah Wilderness Alliance, The Wilderness Society, and Utah Chapter of the Sierra Club July 23, 2017 public comment letter, so responses have been extracted and included here as a part of that letter.

Comment 1: Pristine air quality and nearly limitless views are an integral part of the visitor experience at DNM and are a necessary part of maintaining our view sheds and dark night skies. In recent years, wintertime ozone levels in the Uinta Basin have exceeded the NAAQS, and the area is likely to be designated as non-attainment in the future. Air quality studies have demonstrated that oil and gas activity in the Uinta Basin is a primary contributor to these wintertime ozone exceedances. Although emissions from an individual well or well pad may be

inconsequential, cumulative emissions from regional oil and gas operations can cause significant air quality and AQRV concerns. Pollutants of concern (both primary and secondary) from oil and gas operations include nitrogen oxides, particulate matter, sulfur dioxide, volatile organic compounds, ozone, greenhouse gases, and hazardous air pollutants. These pollutants can contribute to visibility degradation in national parks, adverse effects to human health which is a concern for park visitors and staff, and adverse ecosystem effects in parks from excess nitrogen and sulfur deposition and ozone impacts to vegetation. Ozone and visibility are of significant concern for DNM.

Response 1: The BLM is actively working with the Utah DEQ, the EPA and Utah State University to address air quality issues in the Uinta Basin. In addition to updating the BLM ARMS modeling to address cumulative, regional impacts, the BLM is assessing adaptive management measures with operators to address VOC emissions from existing sources, which are the primary contributors to the current ozone problem in the basin.

Comment 2: Scenic vistas from high elevation points within the monument provide dramatic views and a remote and far reaching landscape that includes montane peaks, high desert plateaus, entrenched canyons carved by the Yampa and Green Rivers, and expansive skies. These vistas are fundamental the visitor experience at the Monument. For lease parcels located within the view shed of the monument, we recommend mitigations to reduce view shed impacts, including painting infrastructure to match the surrounding environment, using the topography and landscape to create a visual buffer, and interim reclamation. In addition, nighttime activity and lighting should be reduced to the minimal amount possible. All development should be required to adhere to the design and mitigation standards as defined in the Gold Book.

Response 2: All mitigations recommended are standard practice for the BLM when permitting APDs. No APDs are being considered or approved within this leasing EA.

Comment 3: A detailed visual impact assessment should be included in the environmental analysis including potential changes in the visual landscape from important park viewpoints including Green River District Entrance Road, Quarry Exhibit Hall, Plug Hat and Escalante Overlooks.

Response 3: Leasing the proposed parcels adjacent to or within view of the mentioned important park viewpoints would not cause any direct change to the landscape. If development plans within the proposed lease parcels were to be submitted to the BLM in the future, site specific and detailed visual assessments would be produced in order to disclose any potential adverse impacts to the view shed in correlation with the Dinosaur National Monument. Visual impacts were conducted using the Quarry Visitor Center as Key Observation Point, and using the entrance to the park as a Key Observation Point. See section 4.2.9. A preliminary assessment from other areas was conducted, and it was determined that visibility of the leases was negligible from those points so they were not carried forward into the EA. This information is documented in a specialist report that is part of the administrative record for this project.

Comment 4: Because the proposed lease parcels would be located immediately adjacent to the Monument, surface disturbing activities within the foreground/middle ground distance zone as defined by BLM VRM system (up to 5 miles) would be significant.

Response 4: Comment noted. No surface disturbance activities will occur as a result of the Proposed Action of this EA because no permits are being authorized – this is a leasing action only. Significance determinations are not made in an EA, but are made when either a Finding of No Significant Impact or Finding of Significant Impact are signed at the end of the NEPA process.

Comment 5: Fugitive dust during construction and operations is also a concern for both air quality and visual resources. Given dry, windy conditions, windblown fugitive dust could reach a 50-mile radius of the lease sites, which would include DNM. We recommend monitoring and adaptive management of fugitive dust minimization measures to ensure minimal impacts on local and regional air quality and visual resources.

Response 5: Please note that no surface disturbance would be authorized through this EA. If the leases are issued, the lessee may submit an Application for Permit to Drill subject to the lease stipulations, which would then be reviewed through NEPA for environmental impacts and any necessary conditions of approval to reduce or eliminate impacts before approval/disapproval. Dust control is one of many measures included in Lease Notice 96, which has been applied to all parcels.

Comment 6: Lighting associated with the implementation of oil and gas leases has the potential to adversely impact the naturally dark skies of DNM. With a SQI sky glow value of 96 (on a scale of 1 to 100 with 100 being free of artificial sky glow), and given the DNM regularly hosted night sky program, and International Dark Sky Designation goal, DNM recommends the following BMPs to reduce impacts to dark night skies:

1. Light only where needed
2. Light only when needed (use sensors or timers)
3. Shield lights and direct them downwards (full cutoff preferred)
4. Select lamps with warmer colors (less blue light)
5. Use the minimum amount of light necessary
6. Select the most energy efficient lamps and fixtures
7. Avoid unnecessary flaring of gas at night
8. When flaring of gas is required, use a visual screen or enclosed combustion chamber (combustor) to prevent adverse visual effects on night sky viewing areas at DNM.

Additional useful recommendations can be found in the report *Oil field light can co-exist with Dark Skies* and an informative online webinar by the Society of Petroleum Engineers.

Response 6: No lighting is proposed as a part of this lease EA. However, should the lease be issued and later proposed for development, stipulation UT-S-168, attached to 71, would allow the BLM to minimize light impacts near the Monument. Many of the measures suggested are already included in the stipulation language.

In addition, the following lease notice has been developed and added to parcel 71 in response to request from the National Park Service.

THE AUTHORIZED OFFICER, IN COORDINATION WITH THE NATIONAL PARK SERVICE, MAY MINIMIZE LIGHT POLLUTION WITHIN THE PROJECT AREA USING THE BEST MANAGEMENT PRACTICES SUCH AS:

- LIGHT ONLY WHERE NEEDED*
- LIGHT ONLY WHEN NEEDED (CONSIDER USING SENSORS OR TIMERS)*
- SHIELD LIGHTS AND DIRECT THEM DOWNWARDS (FULL CUTOFF PREFERRED)*
- SELECT LAMPS WITH WARMER COLORS (LESS BLUE LIGHT)*
- USE THE MINIMUM AMOUNT OF LIGHT NECESSARY*
- SELECT THE MOST ENERGY EFFICIENT LAMPS AND FIXTURES*
- AVOID UNNECESSARY FLARING OF GAS AT NIGHT*
- IF FLARING OF GAS IS APPROVED, EVALUATE THE USE OF A VISUAL SCREEN OR ENCLOSED COMBUSTION CHAMBER ('COMBUSTOR') TO MINIMIZE SKY GLOW, GLARE, AND ADVERSE VISUAL EFFECTS ON NIGHT SKY VIEWING AREAS AT DINOSAUR NATIONAL MONUMENT..*

Comment 7: Recent acoustical data monitored at the Josie Bassett Morris cabin, a popular destination for visitors at the DNM, indicates a residual sound level (L90) of 36 dBA. The median natural ambient sound level (Lnat) was 39 dBA and the median existing sound level (L50) was 43 dBA. The proposed oil and gas leases could create significant noise from construction, operations, and traffic. Low frequency sounds (those typical of trucks, equipment and machinery) can propagate for large distances with very little atmospheric attenuation and could therefore be audible in otherwise quiet park environments. Because US 40 is lightly travelled (AADT volume of 1100 vehicles) there may be many times when traffic noise is not audible at Canyon Visitor's Center in Dinosaur Colorado. The Monument entrance road in Jensen Utah (SH 149) has a AADT of 870 vehicles for the same year. The development of the proposed oil and gas leases could create significant noise from construction and operational traffic that passes by the Canyon Visitor's Center or through the Residential area of Jensen and the Quarry Visitor's Center. Efforts to reduce noise from operation of the facility and ancillary equipment (e.g. power tools, construction equipment, and other associated machinery) should be implemented and noise reducing treatments (barriers, curtains, enclosures, silencers, mufflers, etc.) should be used where appropriate. All transportation vehicles should have appropriate mufflers in good working condition that meet or exceed the requirements of 40 CFR 205.

Response 7: No development is proposed as a part of this lease EA. However, should the lease be issued and later proposed for development, stipulation UT-S-168, attached to parcel 71 would allow the BLM to minimize noise impacts near the Monument.

Regarding truck traffic, the 2015AADT for SR 40 between 2500 S in Naples and SR 149 in Jensen to the DNM boundary, as reported by UDOT, is included in the following table:

| Road Segment | AADT 2015 ¹ | Single Truck Percent ² | Single Truck Amount | Combo Truck Percent ² | Combo Truck Amount |
|--|------------------------|-----------------------------------|---------------------|----------------------------------|--------------------|
| SR40 between 2500 S in Naples and SR 149 | 5,280 | 18 | 950.4 | 9 | 475.2 |
| SR 149 between SR 40 and DNM boundary | 870 | 18 | 156.6 | 13 | 113.1 |
| ¹ (UDOT, 2015a)] | | | | | |
| ² (UDOT, 2015b)[| | | | | |

The following vehicle activity are anticipated to be necessary to construct, drill, and complete a well (BLM, 2012c). These numbers are anticipated to be representative for any future development under this sale because the well depth in the Natural Buttes field, for which these numbers were generated, is 2,000 to 11,000 feet. The anticipated well depth near the DNM would be 2,000 to 7,000 feet (based on the depths of other wells drilled near the area).

| Phase | Heavy Truck Round Trips | Light Truck Round Trips | Total Traffic |
|--------------|-------------------------|-------------------------|---------------|
| Construction | 7 | 39 | 46 |
| Drilling | 81 | 93 | 174 |
| Completion | 187 | 39 | 226 |
| Total | 275 | 171 | 446 |

These numbers are estimated phase totals for a single well. Each phase would occur sequentially, and each would last a few days to a few weeks. As a result, these numbers cannot be directly compared to the existing traffic reports. However, a diesel truck that is 15 meters (50 feet) away, traveling at 50 mph typically registers at 85 dB, which is comparable to a food blender that is operating 3 feet away. Heavy traffic that is 90 meters (300 feet) away, typically registers at 60 dB, which is lower than a normal speech conversation that is occurring 3 feet away (65 dB) (Keep San Diego Moving, 2014). Doubling a road's traffic increases traffic noise by 3 dB, which is an increase that can be perceived by the human ear, but it takes a 10 dB increase sound twice as loud (ADOT, 2017). If traffic on SR 149 were to double for one or more days during the roughly two week drilling or completion period of a well it is not anticipated to result in a large increase in noise. In addition, no well traffic is anticipated to occur within 0.9 mile (1,448 meters) of the DNM border on SR 149 due to topography (cliffs on the north and west and river on the south and east). Although traffic would increase on SR 149 during the construction, drilling and completion phases of well development, this increase is not anticipated to result in a noticeable increase in traffic-related noise to DNM visitors due the distance between the DNM boundary and the probable location of that traffic.

Comment 8: Several parcels appear to be located on or adjacent to Brush Creek, approximately one mile upstream of its confluence with the Green River. Any surface disturbance in these parcels could potentially have effects on water quality in the Green River. Such effects could potentially have adverse impact on endangered fish (Colorado pikeminnow, razorback sucker, humpback chub, and bonytail). DNM specifically requests the evaluation of these endangered fish in the EA for all parcels located in or near Brush Creek.

Response 8: 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, attached stipulations, 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.

In light of existing knowledge regarding resource values on the subject leases, which is based upon the analysis in the VFO RMP [BLM2008a] resource specialist knowledge and lease site-visits, significant impacts beyond those already addressed in the Record of Decision for the VFO RMP are not anticipated to occur as a result of leasing the proposed parcels.

Comment 9: Due to the potential significant impacts to the resources and visitor experience at DNM, we respectfully request a deferral on parcels in areas that are immediately adjacent to the Monument boundary and the parcels visible from the Quarry Visitor Center and Exhibit Hall (parcels 69 and 70). In the event that deferral is not possible, we request stipulations of no surface occupancy be placed on the parcels and the best practice of using terrain to screen development, thereby protecting the view shed from the monument.

Response 9: Parcel 70 has been removed from consideration because the landowner was not properly identified. Parcel 69 has also been deferred from the sale. Please note that a deferral decision is not a “no leasing” decision. Any deferred parcels may be evaluated again in future NEPA documents. Also, all parcels considered in this EA are open for leasing subject to major or minor restrictions under the Vernal RMP. A plan amendment would be required to change a parcel to no surface occupancy if the RMP does not currently identify that parcel as being in the NSO leasing category. Please note that the portion of parcel 69 that is adjacent to the Monument is subject to NSO for steep slopes, as well as VRM II. Within VRM II areas, any surface-disturbing activities would 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. The use of terrain to screen development is inherent to compliance with a VRM III classification.

Dinosaur National Monument Public Comment Period Comments

Comment 1: Incorporate adaptive air resource stipulation modification criteria in consultation with the NPS and other air resource stakeholders to address nitrogen oxide (NO_x) emissions for parcels offered in the December 2017 lease sale. Specifically NSP Recommends the following language for air quality stipulation UT-S-01 Adaptive Modification Criteria, drawn from the Moab Planning Document:

Stipulation 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: THE AUTHORIZED OFFICER MAY MODIFY THE STATED REQUIREMENTS IN ACCORDANCE WITH UPDATED SPECIFICATIONS TO COMPLY WITH THE CLEAN AIR ACT, OR AS DEEMED NECESSARY TO ENSURE THAT THE STIPULATION IS SUFFICIENT TO MAINTAIN AIR QUALITY AND PROTECT AIR QUALITY RELATED VALUES IN NEARBY UNITS OF THE NATIONAL PARK SYSTEM.

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: THE AUTHORIZED OFFICER MAY MODIFY THE STATED REQUIREMENTS IN ACCORDANCE WITH UPDATED SPECIFICATIONS TO COMPLY WITH THE CLEAN AIR ACT, OR AS DEEMED NECESSARY TO ENSURE THAT THE STIPULATION IS SUFFICIENT TO MAINTAIN AIR QUALITY AND PROTECT AIR QUALITY RELATED VALUES IN NEARBY UNITS OF THE NATIONAL PARK SYSTEM.

Waiver: None

Response 1: Research on the wintertime ozone events has shown that targeting VOCs is actually more effective at reducing the potential for ozone formation than targeting NO_x. However, the Vernal BLM have been actively updating their air quality conditions of approval as scientific studies evolve our knowledge of the air quality situation in the Basin.

The stipulation recommended for change was specified by the Vernal RMP and cannot be changed without a plan amendment. However, the proposed language has been adopted into a new lease notice that will be attached to the parcels near the Monument. The new notice reads:

THE AUTHORIZED OFFICER, IN COORDINATION WITH THE NATIONAL PARK SERVICE, THE U.S. ENVIRONMENTAL PROTECTION AGENCY, AND THE UTAH DEPARTMENT OF AIR QUALITY, MAY MODIFY PROJECT SPECIFIC AIR QUALITY MITIGATION REQUIREMENTS IN ACCORDANCE WITH UPDATED SPECIFICATIONS TO COMPLY WITH THE CLEAN AIR ACT, OR AS DEEMED NECESSARY TO ENSURE THAT THE STIPULATION IS SUFFICIENT TO MAINTAIN AIR QUALITY AND PROTECT AIR QUALITY RELATED VALUES IN NEARBY UNITS OF THE NATIONAL PARK SYSTEM.

Please note that through FLPMA and NEPA, the BLM retains the authority to mitigate site-specific impacts of projects to resources of concern, including air quality, beyond the restrictions specifically imposed by lease stipulations.

Comment 2: Defer leasing parcels that are located adjacent to DNM's western and southern boundaries (69 and 70) to avoid potential impacts to DNM resources and values. In the event that deferral is not possible, we request stipulations of no surface occupancy be placed on parcels 69 and 70 and the best practice of using terrain to screen development, thereby protecting the viewshed of the Monument.

Response 2: Parcel 70 has been removed from the sale because the nominee provided incorrect split-estate contact information. Parcel 69 has been deferred as requested to enable further coordination with your office.

Comment 3: We suggest BLM develop adaptive air resource stipulations to protect sensitive DNM resources as development proceeds in the future. Air resource stipulations could represent a minimum acceptable practice or mitigation floor, or can be crafted with adequate modification criteria to allow adaptive and flexible approaches to changing circumstances. We believe this

would ensure that BLM retains the authority to implement air resource mitigation measures post leasing should subsequent development demonstrate the need to do so in the Uinta Basin.

Response 3: Stipulations can only be developed through a plan amendment, which is outside the scope of this document. However, through FLPMA and NEPA the BLM retains the authority to mitigate site-specific impacts of projects to resources of concern, including air quality, beyond the restrictions specifically imposed by lease stipulations. See also the response to your comment number 1.

Comment 4: We recommend that if subsequent development occurs as a result of this leasing decision, the protection of air resources and values in DNM should be analyzed and considered when making site-specific mitigation decisions which is consistent with BLM and other interagency policy. We would also like the opportunity to discuss appropriate mitigation measures to protect air quality at DNM in the future if/when development occurs.

Response 4: Future development is outside the scope of this EA; however, the BLM has discussed and will continue to discuss appropriate mitigation measures with the Monument whenever development is proposed near the Monument.

Comment 5: We request the addition of UT-S-159 (VRM Class II) to parcel 70.

Response 5: VRM stipulations are imposed by the RMP's VRM Classes, not by any subsequent inventories. Also, per BLM policy, VRM classes are only imposed on Federally owned land. Parcel 70 is entirely private surface and therefore does not and will not have a VRM class assigned to it. Surface use on private land is dictated by the private land owner agreement or the applicable bond. Also, parcel 70 has been removed from the sale because the nominee provided incorrect split-estate contact information.

Comment 6: We note in the EA that parcels 69, 70, and 71 are subject to stipulation UT-S-168. Since the lighting requirements are not explicitly listed in the stipulation, we respectfully request that the following Best Management Practices are included within the EA and attached to these parcels:

- Light only where needed
- Light only when needed consider using sensors or timers)
- Shield lights and direct them downwards (full cutoff preferred)
- Select lams with warmer colors (less blue light)
- Use the minimum amount of light necessary
- Select the most energy efficient lams and fixtures
- Avoid unnecessary flaring of gas at night
- When nighttime flaring of gas is required, use a visual screen or enclosed combustion chamber ('combustor') to minimize sky glow, glare, and adverse visual effects on night sky viewing areas at DNM.

Response 6: Parcel 70 has been removed from the sale, and parcel 69 has been deferred from the sale. The following lease notice has been developed and added to parcel 71 in response to this request.

THE AUTHORIZED OFFICER, IN COORDINATION WITH THE NATIONAL PARK SERVICE, MAY MINIMIZE LIGHT POLLUTION WITHIN THE PROJECT AREA USING THE BEST MANAGEMENT PRACTICES SUCH AS:

- LIGHT ONLY WHERE NEEDED*
- LIGHT ONLY WHEN NEEDED (CONSIDER USING SENSORS OR TIMERS)*
- SHIELD LIGHTS AND DIRECT THEM DOWNWARDS (FULL CUTOFF PREFERRED)*
- SELECT LAMPS WITH WARMER COLORS (LESS BLUE LIGHT)*
- USE THE MINIMUM AMOUNT OF LIGHT NECESSARY*
- SELECT THE MOST ENERGY EFFICIENT LAMPS AND FIXTURES*
- AVOID UNNECESSARY FLARING OF GAS AT NIGHT*
- IF FLARING OF GAS IS APPROVED, EVALUATE THE USE OF A VISUAL SCREEN OR ENCLOSED COMBUSTION CHAMBER ('COMBUSTOR') TO MINIMIZE SKY GLOW, GLARE, AND ADVERSE VISUAL EFFECTS ON NIGHT SKY VIEWING AREAS AT DINOSAUR NATIONAL MONUMENT.*

The flaring bullets have been changed to make them technically feasible. Flaring (after the well is put on production) is an activity that must be permitted, and once it is approved, it may occur whenever it is needed whether, day or night.

Comment 7: Dinosaur National Monument respectfully requests an evaluation of the four endangered fish in the final EA for parcel 071.

Response 7: The Vernal RMP is the document which identified where leasing may occur, and which determined where measures were necessary to protect endangered fish. It analyzed and consulted on the effects of leasing to the endangered fish. The stipulations identified by the RMP to protect the fish have been applied to this parcel. In light of existing knowledge regarding resource values on the subject leases, which is based upon the analysis in the VFO RMP [BLM2008a] resource specialist knowledge and lease site-visits, significant impacts beyond those already addressed in the Record of Decision for the VFO RMP are not anticipated to occur as a result of leasing the proposed parcels, therefore no additional analysis is necessary at this time. Confirmation of this determination is pending from the U.S. Fish and Wildlife Service.

Comment 8: We respectfully request that the EA note that parcel 69 is located approximately 3 miles west of the Quarry Visitor Center (KOP 1) and directly adjacent to the western boundary of the Monument.

Response 8: Distances between the parcel and the KOPs have been updated.

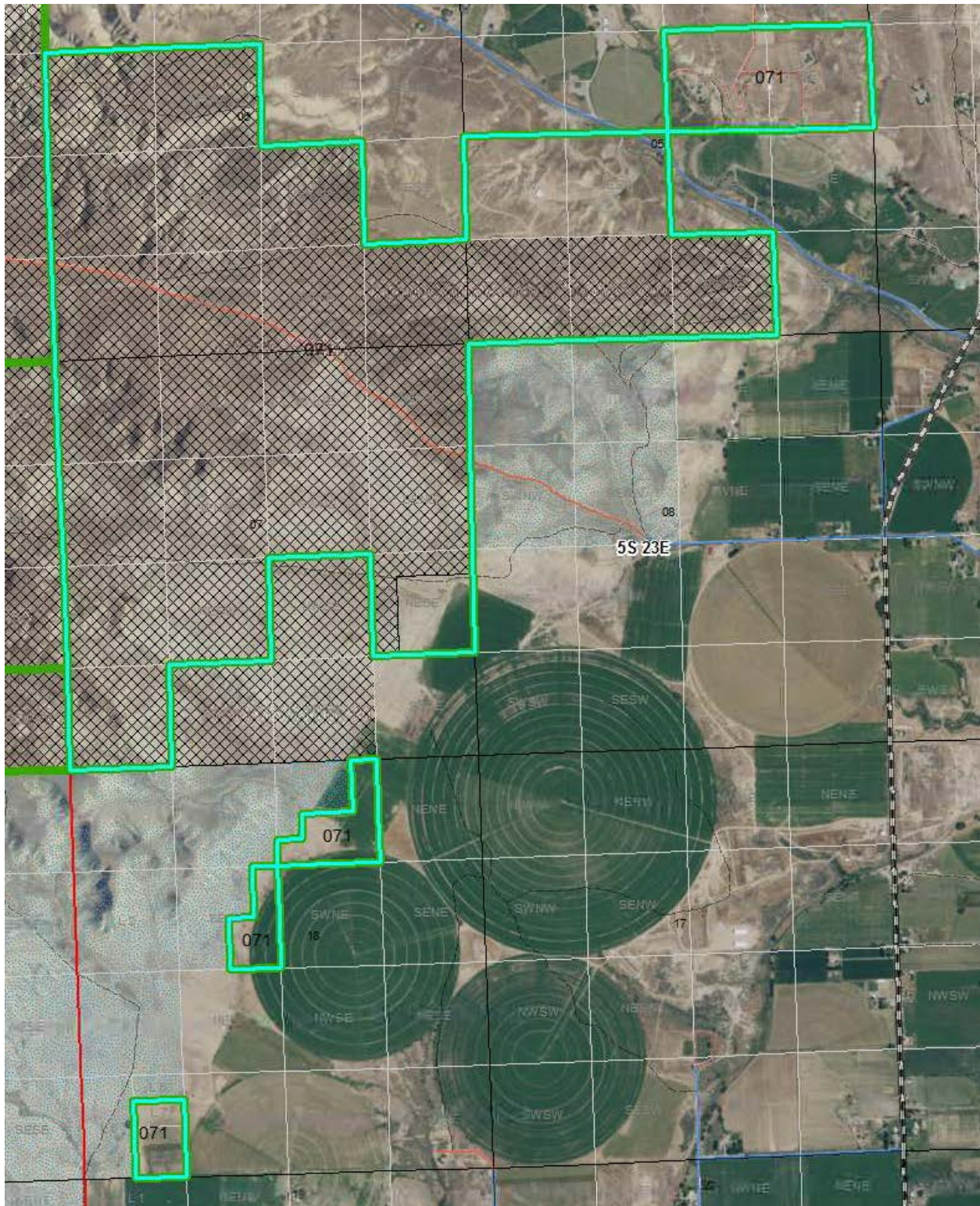
Comment 9: We respectfully request that the EA note that parcel 70 is located approximately 0.3 miles from the closest boundary and 0.95 miles from the Quarry Visitor.

Response 9: Distances between the parcel and the Monument have been updated.

Comment 10: We also ask for clarification on the private surface ownership of parcel 71.

Response 10: Approximately 235 acres, or 20%, of Parcel 71 is private surface. In the below figure, the BLM land is indicated by cross hatch, while the other surfaces within the teal-green

parcel boundary are privately owned, focused in the northeast and southern portions of the parcel.



Comment 11: We recommend revising lease notices 96, 99, and 102 to explicitly address potential impacts to DNM. See attachment 3 of our comment letter.

Response 11: These lease notices are designed to be applicable to the entire Vernal Field Office, so the recommended changes, which address concerns specific to the Monument, cannot be incorporated into them without causing confusion on parcels further away from the Monument. However, two new lease notices have been developed and incorporated that are specific to the DNM and addresses the intent of your proposed revisions. See the responses to your comments numbered 1 and 6.

National Parks Conservation Association

Comment 1: After reviewing the EA and documented concerns of the NPS, as well as reaching out to the Vernal community and other national park supporters, NPCA urges the BLM to defer nominated parcels 64, 65, 67, 69, 70, and 71, all of which lie within close proximity to DNM. Moving forward with leasing as proposed could have deleterious and potentially unsafe impacts not only to the park and its visitors, but also to the area's water, wildlife, air quality and cultural and paleontological heritage, among others.

Response 1: Parcel 70 has been removed from consideration because the private landowner was not properly identified. Parcel 69 has been deferred from the sale. The decision of whether or not to defer parcels 64, 65, 67, and 71 will be made after the analysis process is completed. However, please note that water, air, cultural and paleontological resources are protected and regulated by law. Any future development, if the leases are issued, would be subject to the applicable laws. The attached stipulations and notices are considered to be sufficient to protect wildlife resources as described in the wildlife sections of the EA. Please note that a deferral decision is not a "no leasing" decision, and that any deferred parcels may be evaluated again in future NEPA documents.

Comment 2: In 2016 the NPS Visitor Spending Effects Report showed that 304,312 visitors to DNM spent over \$18 million dollars in communities near the park. In turn, that spending supported nearly 250 jobs in the local area and has a cumulative benefit to the local economy of over \$20 million. From 2015 to 2017 alone, DNM generated more than \$1 million dollars in new local economic stimulus annually. As part of the larger national park's economy in Utah, DNM contributes to a \$1.3 billion dollar economic engine that is responsible for 11,000 jobs. Balanced oil and gas development in northeastern Utah is in the best interest of the state's conservation driven economy, and oil and gas development in the Uinta Basin that seeks to develop our nations' natural resources should move ahead in a safe and responsible manner.

Response 2: Comment noted. The BLM is committed to our multiple use mandate.

Comment 3: The proposal to lease land for oil and gas development within close proximity to DNM fails to account for the concerns raised by the NPS during scoping or provide adequate protections for DNM beyond stipulations or conditions of approval that have no public input and limited enforcement capability. Three of the parcels are adjacent to or lie in close proximity to the park's southern and western boundaries, nearly overlapping the park's entrance, the Green River, and within direct view of the Quarry Visitor Center and world famous Carnegie Fossil Quarry. Others are within direct view of the park, all conflicting with the park's ability to limit

dark sky interference, maintain compliant air quality, and preserve priceless natural values for future generations.

Response 3: See the responses to the DNM's scoping concerns in the Dinosaur National Monument Scoping Comments section of this Appendix. DNM scoping comments 1 through 6 address the Monument's concerns for visibility, dark sky, and air quality. Public input on the adequacy of leasing stipulations was solicited during the development of the Vernal RMP. That input resulted in the DNM light and noise stipulation. Further public input on adequacy of the impact analysis was solicited through this EA's comment period. This EA's analysis has been improved as a result of that public input. All lease stipulations are enforceable by the BLM.

Comment 4: We request a comprehensive analysis of current science and updated information that incorporates potential impacts to DNM and the regions' growing recreation economy. Ideally, this should be a process with stakeholder involvement such as a MLP that takes a focused look at where and how oil and gas development should proceed near a national park. Deferring these six leases now and taking the time to thoughtfully plan for oil and gas leasing near DNM is a common sense approach that can lead to less conflict and greater protection of DNM and its connected landscape, the tourism economy it supports, and northeastern Utah's rural heritage.

Response 4: The MLP request is beyond the scope of this EA's purpose and need and subsequent analysis. See also the response to Natural Resources Defense Council et al. Comment 10. The Vernal RMP, which dictates where and how leasing may occur, did account for DNM impacts, as evidenced by the stipulation restricting light and noise near the Monument. Site specific development, if proposed, would be analyzed in future NEPA documents. Finally, this comment does not identify the missing science or out of date information, so no further response is possible.

Comment 5: A portion of parcel 69 was part of the controversial 77 leases included in the Stiles Report. The recommendations of the Stiles Report, which NPCA continues to support, include increased consultation with the NPS, stakeholder involvement, and greater consideration of sensitive landscapes including those around national parks when making leasing decisions. The BLM has not addressed the broader findings of the Stiles Report and the potential impacts on DNM from oil and gas development on parcel 69. The eleven person expert commission charged with addressing the issues brought forth by the Stiles Report recommended that:

1. The BLM and NPS reevaluate the merits of offering the parcel near the park for lease;
2. Opportunities to avoid repetitive requests for leases in inappropriate locations immediately adjacent to the park, especially in the view shed of the new planned visitor center and entrance road, were readily apparent; and
3. The potential benefit of greater coordination and collaboration between the BLM and NPS was evident at the DNM.

The EA dismisses the NPS' request for deferral of leases within the view shed of the park and demonstrates the lack of consideration of NPS comments by finding that the impact to the environment would be negligible, when NPS explicitly states the contrary.

Response 5: Parcel 69 has been deferred from the sale pending further coordination with the Monument.

Comment 6: An additional outcome of the Stiles Report was IM 2010-117, which requires the preparation of MLPs to resolve resource conflicts in sensitive areas under certain criteria. The December 2017 lease sale conflicts with BLM management planning, which identified the Vernal MLP for lands near DNM. Concerns with leases near the Monument could be resolved through inclusive landscape level master lease planning or a similar process and could coordinate with stakeholders to resolve other potential conflicts on the landscape. The EA's lease-by-lease analysis fails to account for cumulative impacts of development, constricts stakeholder input, and undermines larger landscape level planning efforts contained within master lease planning. NPCA recommends that BLM defer the parcels around DNM until BLM/NPS can develop a coordinated strategy for leasing and development, consistent with or using the Dinosaur Trail MLP as a model for future development.

Response 6: Decisions on deferring additional parcels or lands not already listed in Appendix B will be made at the end of the NEPA process, when the impact analysis is completed. The MLP request is beyond the scope of this EA's purpose and need and subsequent analysis. See also the response to Natural Resources Defense Council et al. Comment 10. Please note that the Vernal RMP, which dictates where and how leasing may occur, did consider DNM concerns, as evidenced by the stipulation restricting light and noise near the Monument. Future development, if any, would be analyzed in additional NEPA documents since it is impossible to foretell an exact development scenario for a parcel that has not yet been leased because development methods and tools vary widely by company as well as by target (gas vs oil). To estimate and disclose potential impacts that may occur from future development, assumptions have been made for this analysis as described in Chapter 2 and Appendix D. These assumptions do not guarantee the leases will be issued, nor do they guarantee the right to drill the assumed number of wells. In addition, the leases, if issued, would be viable for a period of 10 years and only one producing well would need to be drilled on the lease at some point within the 10 year time period to hold the lease indefinitely. If no producing wells are drilled, then the lease will expire.

Comment 7: The EA addresses NPS concerns with inadequate stipulations and conditions of approval despite the NPS request in a letter dated May 1, 2017 that the BLM defer leases within Dinosaur's view shed and address the protection of the park's dark night skies, natural soundscapes, air quality-related matters, and endangered species in the EA. This limited solution violates the spirit of the 2014 cooperating agency agreement between the BLM, NPS, FWS, and Utah. We strongly encourage the BLM to account for, analyze and develop a broader landscape plan to adequately address impacts to the resources of DNM before leasing these and future oil and gas parcels near the monument.

Response 7: See the Dinosaur National Monument Scoping comments response in this Appendix for detailed responses to the NPS concerns. Please note that the Vernal RMP, which dictates where and how leasing may occur, did respond to DNM impacts and concerns, as evidenced by the stipulation restricting light and noise near the Monument.

Comment 8: The 2008 Vernal RMP fails to protect DNM from development. Specifically it does not close or prohibit surface disturbance on any of the lands near the Monument and

permits development near the Monument that is in conflict with NPS management priorities, and is inconsistent with cooperating agency agreement between BLM, Utah, FWS, and NPS. These points are also reflected in NPS comments regarding the Vernal RMP in 2008. The RMP failing to include NSO designation or any surface disturbance classification near DNM highlights the BLM's lack of analysis and development of a plan to avoid and effectively mitigate potential adverse impacts to the Monument.

Response 8: The BLM administered surface visible from the Monument access road was designated Class II for Visual Resource Management in the 2008 RMP. Class II designation severely restricts the visibility of development on the surface. See the responses to the Dinosaur National Monument scoping comments in this appendix.

Comment 9: Furthermore, new information must be considered and evaluated by the BLM before moving forward with leasing around the Monument. Notably, the BLM prepared a new visual resources inventory for the VFO in 2011 that still must be addressed within the EA or EIS including assessment and consultation of visual resource values around DNM. This inventory should account for the new Quarry Visitor Center and Exhibit Hall (completed in 2011) the most visited asset in the Monument and within the direct view of a number of parcels offered for development.

Response 9: The BLM's 2011 Visual Resource Inventory findings for the parcels are described in Chapter 3 for informational purposes. Please note that visual resource management is dictated by the Vernal RMP VRM classes, not by any subsequent inventories. The Quarry Visitor Center and Exhibit Hall were substantially completed by the time the BLM conducted their VRI, therefore, they were taken into account in the VRI. Please note that the VRI is for BLM land looking at the Monument, not for DNM land looking at BLM land.

Comment 10: The BLM uses lease stipulations as the primary solution to conflicts with view shed, noise and light pollution. The document includes a host of stipulations for each lease that would be attached to the APD. However, the APD stage requires little or no public input and postponing in the majority of decisions to the APD stage means the scope of development will be shaped after the lease is in the legal authority of the oil and operator, and after BLM has agreed to development of the resources, likely only reversible through litigation.

Response 10: Stipulations are not attached to an APD, they are attached to a lease. Stipulations are legally binding contractual requirements that the BLM and the lessee must abide by when considering proposed development upon the lease and under what terms and conditions. An APD is subject to additional public notification via the mandatory 30-day posting period of the APD/NOS itself, plus the site specific NEPA analysis. The site specific NEPA usually results in additional Conditions of Approval. Please note that issuance of a lease does not transfer ownership of or responsibility for the land or minerals to the lessee.

Comment 11: Using stipulations as a solution to visual resource conflicts within the view shed of the park is a shortsighted effort to truly mitigate the impacts of development. As an example, stipulations or COAs cannot mitigate the visual impact of a drilling derrick less than one mile from the Monument's visitor center nor can they control heavy truck traffic volume on public highway 149. It is important to note that the average derrick height for a rig operating in the

Uinta basin is 100 feet, or the equivalent of a 10 story building. Furthermore, stipulations would also permit heavy truck traffic operating 24 hours a day to service each well being developed with an average of 1400 heavy truck trips and 400 light truck trips per well based on EPA study.

Response 11: Note that parcel 70 has been removed from consideration. For the other parcels, issuance of the lease does not automatically permit development. If leased, any proposed development would be subject to additional site specific NEPA, and most VFO NEPA for oil and gas development results in additional site-specific conditions of approval. The rigs operating in the Vernal Field Office do have a derrick height of approximately 120 feet. The wells that have been drilled in and around the Monument are mostly shallow wells (ranging from 2,350 feet to 6,869 feet, with most in around 4,500 feet). The BLM is currently working on analyzing two APDs near the Monument that are proposed to be drilled to 3,000 feet with a truck mounted drilling rig, which will have a shorter mast height and fewer truck trips per well. Drilling near the DNM would be anticipated to occur 24-hours per day for a period of approximately 1 week. Rig derricks are lighted for safety reasons. However, given the topography of the area, and the parcel VRM II restriction, which means that development may not attract the attention of the casual observer, it is anticipated that visibility of drilling rigs from key observation points in the Monument could be minimized or avoided through proper siting. Regarding truck traffic, see the response to Dinosaur National Monument Scoping Comment 7.

Comment 12: NPCA is concerned with the level of and commitment to tribal consultation described within the EA. We note on page 81 that the primary tool of communication was invitation through submission of documents to the tribes. Submission of letters to tribal leaders may fulfill some minimal part of the obligation by the BLM but does not constitute meaningful consultation of the tribes on important Native American cultural resource issues in the spirit and intent of EO 13175. The lack of tribal inclusion in this document calls for additional outreach to tribal leaders to gain perspective on a host of issues both directly impacting the tribes and potentially sensitive cultural resources that could be destroyed or altered as a result of the proposed lease sale.

Response 12: The BLM initiated consultation with thirteen Native American Tribes who claim cultural affiliation to prehistoric cultures located within the VFO or have previously requested to be consulted on projects located within the administrative boundary of the VFO. Letters inviting the Tribes to participate in consultation regarding the lease sale were sent to Tribal leaders, as well as cultural resource staff on 04/13/2017. 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. The Hopi responded via letter wanting to comment on the cultural report for the proposed undertaking. A draft copy of the cultural report was sent via email to the Hopi on 06/26/2017, no response has been received. The BLM Green River District Manager, VFO Acting Field Manager, and VFO Archaeologist met with the Ute Business Committee on 5/24/2017 and discussed initial concerns with the Tribe. The VFO has scheduled another meeting with the Ute Business Committee to be held on 08/30/2017 to further discuss their concerns on this and other projects.

Comment 13: Parcel 69 notes a need to accurately determine cultural resource concern importance and how to treat the parcel with respect to Native American culture and tradition. This request by consulting parties in the EA for further examination reaffirms that BLM defer the parcel in question until an inclusive diverse perspective can provide insight into its value and meaning.

Response 13: The BLM will continue to reach out to seek information on the importance that this parcel and all other parcels have to Native American groups. The BLM has looked for and welcomes Native American insight into this and other projects. Tribal leaders and representatives were notified of the proposed undertaking via letter on 04/13/2017. The BLM will continue to reach out to tribal leaders and their representatives while consultation is ongoing. Further site specific consultation will take place as appropriate if development proposals are received (assuming the leases are issued). Parcel 69 has been deferred from the sale pending further coordination with the Monument.

Comment 14: NPCA firmly supports the NPS request for the evaluation of endangered fish in the EA for all parcels located in or near Brush Creek.

Response 14: 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, lease stipulations, 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 within the field office, (for example, Brush Creek, the White River and the Green River) at the site specific APD stage.

In light of existing knowledge regarding resource values on the subject leases, which is based upon the analysis in the VFO RMP [BLM2008a] resource specialist knowledge and lease site-visits, significant impacts beyond those already addressed in the Record of Decision for the VFO RMP are not anticipated to occur as a result of leasing the proposed parcels.

Comment 15: The EA circumvents their ethical duties to ensure protection of human health and its duty to consult NPS and all available science when undergoing an EA by stating that Uinta Basin is designated as unclassified/attainment by the EPA. Further, the EA dismisses NPS' direct concerns by determining impacts to the landscape are negligible despite NPS' written objects citing an array of impacts. The EA makes reference to the Class I air standing designation under EPA for wilderness and National Parks in the area, however does little in regard to mitigate for violations of these standards. The EA lists possible BMPs, with permissive statements that have no legally binding authority. Stringent preventative and mitigating air quality measures must be identified in partnership with the NPS and included in lease stipulations to ensure ongoing compliance with the CAA. Attaching lease notices for

ozone and air quality to the parcels is not enough protection when the sale of the leases is an irretrievable commitment of resources.

Response 15: The lease sale does not authorize development, so no emissions would occur. Should the parcels be leased and should development be proposed, a site specific analysis will be completed to evaluate air quality impacts of the Proposed Action. Depending on the level of development proposed, an EA or EIS would be prepared and appropriate mitigation measures would be applied if necessary to ensure compliance with the CAA and ambient air quality standards. The BLM is not required to prepare a speculative analysis of what development could occur and base mitigation decisions off of that. The BLM has prepared a reasonably foreseeable development scenario to identify the nature of potential future impacts for informed decision making. However, development activities are not certain at the leasing stage in time, space or density, all of which are important factors in completing a representative air quality analysis. Also, the reasonably foreseeable development scenario does not guarantee that development will occur at all. Even if the leases are issued and development is proposed, the methods of development, equipment used, and operator committed measures are also unknown at this leasing stage and further illustrate the speculative nature of analyzing impacts at the leasing stage when no development has been proposed. The EA has made no determination of negligible impacts – the determination of significance is reserved for the FONSI/FOSI document. Lease Notices are not meant to protect resources, but to inform the potential lessee of possible future restrictions upon development of the lease. Although the lease does convey a right to the lessee to develop, the said development must be conducted in compliance with all laws and regulations, including the Clean Air Act. The BLM notes that Dinosaur National Monument is a sensitive Class II airshed, not a Class I as implied in the comment.

Comment 16: It is not appropriate to wait until the APD stage to conduct an emission inventory and quantitatively analyze reasonably foreseeable impacts from development of these parcels. Otherwise it is almost inevitable that the impacts of each individual development project will be reviewed in piecemeal and dismissed, and the cumulative impact of all development will never be reviewed. Indeed, the current thresholds established under the Federal Air Quality Related Values Working Group applies to individual, not cumulative sources, and thus is neither adequate nor appropriate on its own as guidance for evaluating potential cumulative impacts to Class I or II resources.

Response 16: The BLM is working with Utah State University to update the ARMS modeling which will evaluate regional, cumulative impacts. Until such time as that modeling is complete, the existing ARMS modeling analysis provides a cumulative analysis of air quality impacts for the Basin. It is unknown at the leasing stage if development will occur, and the reasonably foreseeable development scenario included in this EA for analysis purposes is to disclose the nature of the impacts only, it does not guarantee that any development will occur. Air quality impacts will be analyzed at the time development is proposed and specific information is available to provide a meaningful and representative analysis of air quality impacts.

Comment 17: Clear air in DNM is essential to the exceptional views from Ruple Point Trail and Split Mountain Campground that offer panoramic vistas and views of the Milky Way galaxy with startling clarity. DNM's air cannot be further degraded. NPCA urges the VFO to honor the DOI joint agency MOU related to Air Quality Analysis and Mitigation for Federal Oil and Gas

Decisions to consult with NPS in order to address potential impacts to air quality as a result of the proposed lease sale and subsequent development and to act in a manner consistent with park resource protection by fully assessing potential impacts and planning for the avoidance of such impact or mitigation as necessary. NPCA requests the BLM work collaboratively with NPS to incorporate explicit region wide air quality mitigation measures to be applied to all future leasing in the VFO.

Response 17: The MOU is applicable to EIS level NEPA actions. There is no requirement for EA level analyses. Should the parcels be sold and subsequently developed, additional site-specific NEPA will be completed for the proposed action to evaluate impacts to all resources. Additional air quality analysis completed as part of that NEPA may result in the application of mitigation measures to address air quality impacts. The existing ARMS modeling analysis provides a cumulative analysis of air quality impacts for the Basin, evaluated the effectiveness of various control scenarios (mitigation measures), and was prepared with the cooperation of the National Park Service through the Air Resource Technical Advisory Group (RTAG). The ARMS is being updated, as described in the response to your comment 16. The BLM will continue to work with the RTAG to ensure the technical credibility of the data, methodology, projections, interpretations, and conclusions as well as the usefulness of the model (see the ARMS Project Impact Assessment Report section 1.4) [AECOM 2014].

Comment 18: The EA does not go far enough to mitigate or enforce methane emissions associated with oil and gas production near the Monument. It is well documented that methane pollution is also one of the most powerful contributors to global warming, one of the greatest threats facing our national parks.

Response 18: The BLM does not regulate methane emissions under the Clean Air Act. Such a requirement would be the purview of the State of Utah, or the EPA, via the NSPS regulations. Currently, there are no ambient standards or thresholds of significance for methane or GHG emissions. See also the response to Center for Biological Diversity comment 12, and Megan Williams comments 23, 24, and 25.

Comment 19: The EA fails to adequately acknowledge or analyze reasonably foreseeable impacts from oil and gas development on the quality of the recreation experience for visitors to DNM. Visitors accessing the heart of the Park's wilderness from Highway 149 are most likely to be seeking naturalness, solitude and primitive unconfined recreation. If the parcels near the entrance to the Monument are sold and developed, the visitor experience will be marred by heavy industrial truck traffic, obstruction of scenic views and increased background noise.

Response 19: The initial Environmental Assessment (EA) proposed to lease parcels 069, 070, and 071, which are all located either adjacent to or nearby Dinosaur National Monument. Because parcel 069 has now been deferred and parcel 70 has been removed from this lease sale, the EA now only analyzes potential impacts to visual resources, noise/sound, and night skies that could affect visitor experiences within Dinosaur National Monument from leasing parcel 071.

The EA analyzes reasonably foreseeable impacts to recreational experiences to visitors within Dinosaur National Monument based on the stated assumptions for development in the EA's Section 4.2.6. Please also refer to the following responses to comments in this appendix: (1)

Comment 5 regarding future mitigation measures for noise and sound pollution, as well as the BLM's current inability to determine whether such impacts to visitor experiences within Dinosaur National Monument would occur; (2) Dinosaur National Monument's scoping comments; and (3) Comment 21 regarding the viewshed analysis completed from Key Observation Points within Dinosaur National Monument.

Comment 20: NCPA is also concerned about potential negative impact to wildlife which park visitors come to see and sportsman rely upon for hunting and fishing. Impacts include habitat fragmentation from new roads and trucks, and degraded water quality. Species include elk, mule deer, antelope, mountain lions, peregrine falcons, and greater sage grouse.

Response 20: Parcel 70 is being removed from consideration from this lease sale. Analysis of impacts to wildlife species from the act of leasing have been included in stand-alone specialist reports prepared by BLM's wildlife biologist. During preparation of the wildlife report (BLM, 2017b) the biologist determined, as reflected in the ID checklist, that potential impacts to two sensitive wildlife species, Greater Sage-grouse and White-tailed Prairie Dog, warranted inclusion in the EA to provide information necessary to make a reasoned decision and/or develop a Lease Notice. Analysis of other species was not carried forward in the EA in an attempt to control the length of the EA because it was determined the information was not warranted to make an informed decision. This EA would not authorize development, it is a leasing proposal only. If the parcel is leased in the future, and if development is proposed, then additional site specific NEPA documentation would occur and additional conditions of approval may be imposed as appropriate to minimize or eliminate impacts.

Comment 21: The EA only assesses view sheds from key observation points, notably the Quarry Visitor Center, and omits evaluating view shed impacts from additional locations including the entrance to the Monument, any point on the entrance road, locations within the Monument with a clear sightline to parcels 65, 67, 69, 70, and 71, or from areas where heavy industrial traffic would be frequent in order to service drilling operations. The attention of the casual observer looking from vistas within the park or visitors approaching the park would be noticeably attracted to new roads and industrial activity juxtaposed against the high desert landscape. Visitor solitude and the wilderness experience could be compromised by potential oil and gas development within view of the park's wilderness areas. We urge the BLM to conduct a thorough view shed analysis from additional KOP's and develop an appropriate leasing plan that includes new stipulations to meet VRI objectives and protect the park's view shed before a lease is offered.

Response 21: The initial Environmental Assessment (EA) proposed to lease parcels 069, 070, and 071, which are all located either adjacent to or nearby Dinosaur National Monument. Because parcel 069 has been deferred, and parcel 070 has been removed from this lease sale, and because parcels 65 and 67 are located 8 and 12.5 miles from Dinosaur National Monument respectively, the EA now only analyzes potential impacts to visual resources that could affect visitor experiences within Dinosaur National Monument from leasing parcel 071.

For the final EA, the BLM completed viewshed analyses from two Key Observation Points (KOP) to determine the extent that parcel 071 would be visible from the Dinosaur National Monument's Visitor Center and Quarry (KOP 1) and the Monument's entrance station (KOP 2).

The BLM's rationale for not analyzing additional proposed KOPs is included in the *BLM Vernal Field Office's Preliminary Viewshed Analysis for the December 2017 Competitive Oil and Gas Lease Sale* (BLM, 2017). The viewshed analyses determined that 1.38% of parcel 071 would be visible from KOP 1, and that 0% of parcel 071 would be visible from KOP 2 (please refer to EA Map 4-1). Given that approximately 1,191 of 1,208 acres of parcel 071 would not be visible from the KOPs within Dinosaur National Monument, any future development and production facilities can easily be strategically located to ensure that they are not visible to visitors within Dinosaur National Monument. Additional information regarding the BLM's analysis of Visual Resources can be found in Sections 3.3.9 and 4.2.9.2 of the EA.

Although 91% of the Monument is managed as recommended wilderness, there is no statutory protection for lands outside of the recommended wilderness. According to a [2011 Congressional Research Service report](#), "The Wilderness Act is silent on the issue of buffer zones around wilderness areas to protect the designated areas. However, language in subsequent wilderness bills has prohibited buffer zones restricting uses and activities on federal lands around the wilderness areas. The first explicit language was enacted in 1980 in P.L. 96-550; § 105 states: Congress does not intend that the designation of wilderness areas ... lead to the creation of protective perimeters or buffer zones around each wilderness area. The fact that non-wilderness activities or uses can be seen or heard from areas within the wilderness shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area. Virtually identical language has been included in 30 other wilderness statutes enacted since 1980."

Comment 22: From national surveys more than 90% of visitors indicate that natural sounds are important reasons to visit a national park. The Dinosaur Foundation Document has listed degradation of natural soundscapes as a key issue for the park, particularly in reference to outside development from oil and gas. The BLM must thoroughly analyze and create more stringent enforcement measures regarding industrial oil and gas operations on the natural soundscape of DNM and ensure that development would not run counter to the park's soundscape management priorities before leasing parcels for oil and gas development.

Response 22: Coordination with the Park is ongoing. Stipulation 169 has been applied to the three parcels closest to the park, and includes requirements to minimize noise. See also the response to Dinosaur National Monument Scoping comment 7.

Comment 23: A 2007 visitor survey by Southern Utah University in Utah national parks found that 90% believed that some places need to be preserved especially for their nighttime visibility and 80% believed that communities near national parks should assist in maintaining dark skies. In addition, wildlife species such as greater sage grouse depend on natural patterns of light and dark for navigation, to cue behaviors, or hide from predators. Artificial lighting from oil and gas drilling and production can significantly impact these night sky resources. The more pristine the night skies the greater the perceptible impact from even small increases in light or air pollution.

Response 23: Coordination with the Park is ongoing. Stipulation 169 has been applied to the three parcels closest to the park, and includes requirements to minimize light. See also the response to Dinosaur National Monument Scoping comment 6.

Comment 24: The Colorado River is responsible for providing drinking water for 36+ million people and irrigation for farmland in an area where 15% of the nation's crops are grown. A 2013 study by the BOR found that there is not enough water in the Colorado River system to meet even current demand and climate change could decrease its flows by up to 30% by 2050. According to the Colorado Oil and Gas Association, a typical horizontal shale well requires a maximum of 600,000 gallons of water from drilling, a vertical or direction well requires 100,000-1,000,000 gallons of water, and a horizontal well requires 2-5 million gallons. Since the EA states that up to 127 wells could be drilled, it is likely that tens of millions of gallons of water will be needed for the drilling process. Regardless of the method deployed, the current process of leasing without environmental analysis of water resources only further exacerbates management challenges for DNM, BLM, FWS, and BOR. The BLM needs to conduct additional analysis to determine the impacts to Dinosaur, the Green and Yampa Rivers, and cumulative impact to the Colorado River system.

Response 24: The Proposed Action of leasing does not authorize water use. If the parcels are issued as leases, and development is later proposed, then additional NEPA would be conducted to determine the impacts of that proposal on present water resources, including depletion impacts. Please note that not all water used to drill wells in the Uinta Basin is depleting to the Colorado River system. Several operators in the Uinta Basin treat and use produced water from their producing wells to drill new wells, and other operators use the same water to drill multiple wells to minimize water consumption.

The Coalition to Protect America's National Parks

Comment 1: Because the NPS Organic Act mandates that the conservation of park resources take precedence over use, we believe that BLM should fully evaluate and minimize, to the extent practicable, the likely impacts to DNM resources and values that could foreseeably be caused by the proposed oil and gas leasing and future development. The resources and values at risk include air quality, water quality, visual resources including night skies, and soundscapes.

Response 1: Comment noted. No leasing is proposed within the NPS boundary. Impacts to resources adjacent to the park have been analyzed throughout chapters 3 and 4 of this EA.

Comment 2: The EA is tiered off the 2008 RMP and environmental impact statement. While the RMP covers many different impact topics, there is no meaningful discussion or analysis of obvious potential adverse impacts of mineral development activities near the Monument boundary, including the proposed leasing. Given this lack of analysis in the RMP, one would reasonably expect BLM to provide a more meaningful analysis of potential impacts in the EA.

Response 2: Please note that the EIS prepared for the Vernal RMP, which dictates where and how leasing may occur, did consider leasing impacts to DNM resources, as evidenced by the stipulation restricting light and noise near the Monument. See also the analysis in the RMP Final EIS sections 4.9.2.4 (impacts to minerals leasing/development from DNM protection), 4.12.2.7 (impacts to DNM recreation from minerals leasing/development) and 4.19.2.7 (impacts to DNM visuals from minerals leasing/development). The RMP is a leasing document, not a development document. However, a reasonably foreseeable development scenario was included in chapter 2 and Appendix D of this EA so that impacts could be approximated. If the parcels are issued as

leases, and if development is proposed, then site specific NEPA would be conducted to determine site specific impacts and any necessary additional conditions of approval.

Comment 3: BLM's approach to addressing NPS concerns seems superficial at best, lacking meaningful explanation of analysis, and fails to consider the standard range of options for preventing or minimizing adverse impacts to special resource areas, such as DNM, which should include avoidance. While it appears to be common practice for BLM to put off a detailed site analysis of potential impacts of oil and gas operations until after an application for permit to drill is filed, this approach is problematic when applied to specially protected resource areas such as DNM. Once a lease issued, an expectation is established that the lessee will be able to develop the site. At that point, "avoidance" of impacts is no longer an option, leaving only a lesser range of measures to reduce impacts.

Response 3: The No Action alternative includes the option to defer the parcels near the Monument, which is an avoidance alternative. The BLM cannot site specifically analyze development which has not yet been proposed, or is not yet even allowable, however the BLM did create a possible reasonably foreseeable development scenario to identify probable impacts for analysis purposes. Please note that development of a lease is subject to the lease's stipulations as well as site specific NEPA which typically results in additional conditions of approval.

Comment 4: BLM has decided to propose these parcels for lease since apparently BLM received expressions of interest in them. This decision is inconsistent with past precedent set by the Utah State Office in deferring parcels or acreage from the lease sale because they were either entirely or partially within the boundaries of areas designated for in-depth analysis as part of the proposed Vernal MLP.

Response 4: Please note that a deferral decision is not a "no leasing" decision. Any deferred parcels may be evaluated again in future NEPA documents. The BLM did not commit to indefinitely deferring leasing within the MLP boundaries. The BLM is obligated to consider leasing parcels nominated by the public, and is currently analyzing parcels both within and without the MLP to determine if offering them for lease would be appropriate.

Comment 5: Given the level of care that Moab and White River Field Offices have given to the protection of resources within units of the National Park System adjacent to proposed lease parcels (through the preparation of MLPs and plan amendments), it is especially troubling that the Vernal Field Office takes a much less cautious approach in its current proposal. In contrast to the plans cited, the EA and the 2008 RMP, provide a relative lack of comprehensive site planning, does not involve the NPS as a cooperating agency, and fail to adequately consider or mitigate the likely adverse impacts to park resources and visitor experience opportunities if mineral development were to proceed near the DNM boundary.

Response 5: Please note that the Vernal RMP, which dictates where and how leasing may occur, did consider leasing impacts to DNM resources, as evidenced by the stipulation restricting light and noise near the Monument. See also the analysis in the RMP Final EIS sections 4.9.2.4 (impacts to minerals leasing/development from DNM protection), 4.12.2.7 (impacts to DNM recreation from minerals leasing/development) and 4.19.2.7 (impacts to DNM visuals from

minerals leasing/development). The Proposed RMP/Final EIS considered a no leasing alternative adjacent to the DNM, but that alternative was not selected in the final Vernal RMP.

Comment 6: The intended Vernal MLP is barely mentioned in the EA, which provides negligible reference to and gives little consideration to the protection of natural and cultural resources and scenic qualities within DNM. As a result, the status of the MLP planning process is unclear. Will it be completed or not? There is inadequate explanation in the EA why BLM previously pre-emptively deferred leasing parcels within the intended MLP area, but has not done so in this case. And in general the analysis fails to take a hard look, as required under NEPA, at foreseeable adverse impacts to DNM resources.

Response 6: In preparing the Vernal MLP assessment, the BLM did not commit to indefinitely deferring leasing within the MLP boundaries. See also the response to Natural Resources Defense Council et al Comment 10. The BLM is obligated to consider leasing parcels nominated by the public, and is currently analyzing parcels both within and without the MLP to determine if offering them for lease would be appropriate. See the responses to the DNM scoping letter for information about the foreseeable adverse impacts to DNM resources.

Comment 7: We object to the proposal and contend that the resources and visitor experience opportunities on the Utah side of DNM deserve the same level of care and consideration provided by BLM on the Colorado side under the Dinosaur Trail MLP. We urge BLM to defer leasing parcels 69, 70, and 71 until a more comprehensive plan, such as an RMP amendment and EIS is prepared.

Response 7: Your objection and deferral request is noted. The BLM does not agree with your position that a RMP amendment is required for the reasons stated in the response to your comment number 5.

Comment 8: Because of the distances involved, we believe that potential adverse impacts to DNM resources from oil and gas development of parcels 65, 67, and 72 can be adequately minimized through the use of appropriate stipulations and by requiring (not as recommended or voluntary measures) that operators use the BLM-prescribed best management practices to minimize impacts.

Response 8: Thank you for your comment. The stipulations to be applied to those parcels are listed in Appendix A. Use of best management practices is standard practice for the Vernal Field Office.

Comment 9: We believe BLM's conclusion that there is no socioeconomic impact due to the small size of the project is not valid, particularly in regard to parcels 69-71, and clearly BLM has not adequately explained or supported its conclusion. Furthermore, while the 2008 RMP provided a general discussion of potential socioeconomic impacts of mineral development, it is dated and there is no discussion or specificity in the RMP regarding potential adverse impacts to the local recreation/tourism economy, including the portion of that economy driven by visitation to DNM, if parcels immediately adjacent to the Monument were to be leased and developed as is proposed in the EA. A significant concern is that the BLM has not analyzed or weighed the relative benefits vs. the adverse impacts of leasing in deciding which parcels to propose for sale.

In fact, based on maps provided with the EA, the economic benefit of leasing parcels 69-71 is highly questionable compared to the potential adverse impacts to DNM resources and visitor experience opportunities. Specifically, the EPCA (Energy Conservation and Policy Act) total oil density and total gas density maps indicate that parcels 69-71 are located in the lowest density (least productive) areas for both oil and gas production, meaning the likelihood of beneficial production of oil and gas on these parcels is relatively low. On the other hand, the parcels are located directly within the view shed of DNM's Quarry Visitor Center where the probability of adverse impacts is highest. The potential economic value and job creation of developing oil and gas operations on these low density parcels is insignificant compared to the economic benefits already being generated by park visitor spending at DNM. In 2016 DNM attracted over 304,000 visitors, which resulted in \$18.1 million in total economic output in the local communities. If BLM believes leasing parcels 69-71 is justified from a cost benefit perspective then it needs to do a much better job of explaining and justifying its point of view.

Response 9: Please note that parcel 69 has been deferred and parcel 70 has been removed from the sale. Regarding parcel 71, the BLM has never maintained that the leasing of any parcel in the sale is justified from a cost benefit perspective. The BLM is considering the relevant impacts of leasing parcels that were nominated through the Expression of Interest process. Regarding the economic benefit of park visitor spending, the Vernal RMP does acknowledge that 300,000 people visit the Monument yearly (see Section 4.23.12), and that it creates a beneficial effect on the tourism economy. Although the RMP acknowledges that Uintah County's largest industry is Oil/Gas/Mining/Government Services (Table 3.14.1), it also acknowledges that Uintah County received \$76 million in 2003 from Traveler Spending (Table 3.14.5).

As the EPCA indicates, the currently known production potential for the area is low although the mineral potential report prepared for the Vernal RMP deemed the potential to be moderate to high. Leasing the parcels does not change that. Development would not occur in the absence of production. The most likely scenario is that one well would be drilled on each parcel, no profitable resources would be discovered, the well would be plugged, the surface disturbance associated with the well sites would be reclaimed, and the lease would expire. If the lease is not held by production in paying quantities prior to the end of the primary term, the lease would terminate automatically. These scenarios are substantiated by the lack of producing wells within 5 miles of the Monument. All wells drilled previously within 5 miles of the monument are currently plugged and abandoned. This level of activity is not expected to result in substantial socioeconomic impacts, either due to adverse effects to tourism or positive impacts from money spent in the community incidental to drilling activities. However, should the wells produce, it is possible that the parcels would be developed further, and "the potential economic value and job creation of developing oil and gas operations" would be expected to offset any adverse socioeconomic impacts from possible decreased Monument visitation due to visitor's objections to the development. Thus, no detailed socioeconomic analysis was deemed necessary for the leasing EA.

See also the responses to Friends of the Yampa and Public Lands Solutions Comment 1, and Public Lands Solutions Comment 2.

Comment 10: Section 1.4.1 mentions that parcels 69-71 are adjacent to DNM but does not discuss whether the proposed leasing actually conforms to the 1986 DNM General Management

Plan/Development Concept Plan/Land Protection Plan. In essence, the proposed leasing of parcels immediately adjacent to the DNM boundary and others that are visible from the Quarry Visitor Center is clearly in conflict with purpose and management objectives of DNM.

Response 10: The 1986 DNM General Management Plan/Development Concept Plan/Land Protection Plan defines management of Monument Lands, not BLM-administered or other lands outside the Monument Boundary. No leases are proposed on or beneath DNM managed lands. The BLM lands adjacent to the DNM boundary are subject to the decisions in the Vernal RMP.

Comment 11: The EA fails to mention the NPS Organic Act in Section 1.6 which provides the statutory requirements for the protection of resources and values located within DNM adjacent to Parcels 69-71.

Response 11: No leases are proposed within the DNM boundary, therefore the NPS Organic Act does not apply.

Comment 12: The EA also fails to mention in section 1.6 or conform to DNM's General Management Plan, which establishes management objectives for the Monument including for the protection of park resources and values.

Response 12: The 1986 DNM General Management Plan/Development Concept Plan/Land Protection Plan defines management of Monument Lands, not BLM-administered or other lands outside the Monument Boundary. No leases are proposed within the DNM boundary, therefore the DNM General Management Plan does not apply.

Comment 13: Given that the EA offers only the alternatives of leasing or not leasing ALL parcels, the EA fails to provide a range of reasonable alternatives.

Response 13: There are no additional alternatives identified by the BLM or the public that would improve the range of alternatives. In the Decision Record, the BLM may elect to select either alternative as described, or portions of the Proposed Action (lease some of the parcels) and portions of the No Action (defer some of the parcels).

Comment 14: The basis for the low estimate of actual wells per parcel (3 total for 69-71) compared to potential (up to 68 total for 69-71) is not well explained or justified in the EA. Presumably it is because those three parcels are located almost entirely within low density areas for oil and gas, however BLM does not state as much. Nor does BLM explain or justify why even one well on each of these parcels is appropriate given the likelihood of low oil and gas production vs potentially significant adverse impacts.

Response 14: See the "Considerations and Rationale" column in Appendix D. The BLM determined that "The 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." It is assumed that the lessee would purchase the lease for the purpose of exploring (drilling) to determine if payable quantities of oil and gas lie under it. But, given the low potential for discovery, the wells would likely be dry. Therefore, the BLM assumed that the reasonably foreseeable development in that area is one well per parcel. The

terms of a lease require that the lease be held by production in paying quantities prior to the end of the primary term or the lease would expire. Therefore, one well capable of production in paying quantities is necessary to hold each lease. See also Appendix D for additional considerations behind the assumed development.

Comment 15: The EA indicates that since hydraulic fracturing technology is not used on ALL wells drilled in the VFO, the environmental impacts of HF would not be evaluated in the EA and such analysis would be deferred until the APD stage. This approach fails to disclose how much fracking may be allowed and fails to quantify or analyze the serious potential for the significant adverse environmental impacts that HF is known to cause. We are particularly concerned about the unanalyzed potential for significant water pollution of rivers and streams down gradient of potential well sites in parcels 69-71.

Response 15: Parcel 69 has been deferred from this sale. Parcel 70 has been removed from this sale. Analysis of hydraulic fracturing is included in this EA (Section 2.2.2) for all remaining parcels. The RFD includes all reasonably foreseeable development technologies that may be used, and thus, this EA considers the impacts of all reasonably foreseeable oil and gas development regardless of the specific technologies used, including hydraulic fracturing. Further analysis of hydraulic fracturing would occur at the APD stage if development of a specific well includes the use of hydraulic fracturing. See Section 2.2.2 and Appendix E, Interdisciplinary Team Checklist: Water: Groundwater Quality/ Municipal Watershed / Drinking Water Source Protection.

Comment 16: In the case of DNM, the vast majority of the monument's 300,000+ visitors per year go the Quarry Visitor Center area during their visit. As a result, any adverse impacts from leasing and development of parcels 69-71 are likely to be observable from the park entry road and/or visitor center area, and will inevitably adversely impact the experience of hundreds of thousands of people. Given the close proximity of the three lease parcels to the park and the special requirements under the NPS Organic Act for the protection of park resources and values, it would have been appropriate to include a section on Dinosaur National Monument Resources as its own issue topic. Other than a subsection on visual resources at DNM, there is little, if any, evidence in the EA that BLM has actually considered potential impacts to park resources or park visitors or seriously factored NPS resource concerns into the planning process.

Response 16: Parcel 69 has been deferred from this sale, and parcel 70 has been removed from this sale. The DNM has many resources including but not limited to air, recreation, wildlife, water, and plants. To include a section specific to DNM would result in duplication of analysis since all these resources were already considered and analyzed as appropriate (see chapters 3 and 4 and Appendix E). Therefore, for the remaining parcels the BLM elected to not include a section in the EA specific to DNM resources. See the response to your comment number 5 for sections in the Vernal Proposed RMP/Final EIS that discuss DNM related concerns that were considered before the Vernal RMP was signed

Comment 17: The EA fails to quantify or estimate cumulative air quality impacts from the proposed leasing or explain how increasing oil and gas production in this area is justifiable given the current air quality problems which leads us to conclude that the analysis is inadequate. Any

additional contribution by the proposed oil and gas activities to the deterioration of air quality in DNM, which seems inevitable, is unacceptable.

Response 17: Leasing is an administrative action that does not authorize development to occur. Although a reasonably foreseeable development scenario is included to disclose the nature of the potential impacts of any future development, this EA does not guarantee that any future development of any issued leases will be requested or authorized. Should the parcels be leased, and should they be proposed for development, a site-specific analysis of air quality impacts will be completed that will address compliance with the CAA. The BLM is not required to speculate on the level of development that will occur nor analyze a speculative development scenario as a basis for requiring additional mitigation prior to any development even being proposed. Enforcement of ambient air quality standards is the responsibility of the regulatory authorities responsible for the airshed--the State of Utah DEQ and the EPA.

Comment 18: In this case because the proposed lease parcels 69-71 would be located immediately adjacent to the Monument, surface disturbing activities within the foreground/middle ground distance zone as defined by BLM Visual Resource Management System (up to 5 miles) would be significant. However, the potential impacts are neither disclosed nor analyzed. We therefore urge BLM to permanently close parcels 69-71 to leasing, or at least defer leasing these parcels until a more thorough planning process, such as an RMP amendment, is undertaken.

Response 18: Comment noted. Parcel 69 has been deferred from this sale and parcel 70 has been removed from this sale. For the remaining parcels, no surface disturbance activities will occur as a result of the Proposed Action of this EA because no permits are being authorized – this is a leasing action only. Significance determinations are not made in an EA, but are made when either a Finding of No Significant Impact or Finding of Significant Impact are signed at the end of the NEPA process. The BLM administered surface visible from the Monument access road was designated Class II for Visual Resource Management in the 2008 RMP. Class II designation severely restricts the development of the surface. The Vernal RMP designates parcels 69 to 71 as being open to leasing subject to major or minor constraints. Therefore, a plan amendment would be required to close these parcels to leasing. A plan amendment is outside the scope of this document. Please note that the EIS behind the Vernal RMP did analyze a range of management options for leasing near the DNM including no surface occupancy and open subject to standard stipulations.

Comment 19: For lease parcels 65, 67, and 72, which are located at a distance but still within the view shed of the Monument, we recommend visual mitigation measures such as use of BLM standard environmental colors and interim reclamation be applied. Any development of these parcels should be REQUIRED to adhere to the design and mitigation standards as defined in Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, the Gold Book, developed by the BLM and USFS.

Response 19: There is no lease stipulation requiring development occur in accordance with Gold Book standards. However, it is standard practice in the VFO to require standard environmental colors and interim reclamation whenever possible (for example, some facilities or equipment paint colors are regulated by OSHA). Please note that no surface disturbing activities will be

authorized as a result of this EA. If the leases are issued and if development is proposed, then additional NEPA would be completed that would determine what conditions of approval would be necessary and appropriate to reduce or eliminate impacts to resources of concern.

Comment 20: The Coalition typically recommends the following best management practices (BMPs) to reduce impacts to naturally dark night skies;

- Light only where needed
- Light only when needed (use sensors or timers)
- Shield lights and direct them downwards (full cut-off preferred)
- Select lamps with warmer colors (less blue light)
- Use the minimum amount of light necessary
- Select the most energy efficient lamps and fixtures and
- Avoid unnecessary flaring of gas at night. When flaring of gas is required, use a visual screen or enclosed combustion chamber (combustor) to prevent adverse visual effects on night sky viewing areas at DNM.

Such measures would be appropriate for parcels 65, 67, and 72, however again we recommend that parcels 69-71 adjacent to DNM not be leased.

Response 20: Parcel 69 has been deferred from this sale pending further coordination with the Monument. Parcel 70 has been removed from this sale. For the remaining parcels, no lighting is proposed as a part of this lease EA. However, should the leases be issued and later proposed for development, additional NEPA would be completed to determine the conditions of approval necessary to minimize or avoid light impacts. These practices can be considered at the time of development as appropriate. Only parcels 69-71 have lease stipulations requiring such practices as dictated by the Vernal RMP. Many of the measures suggested are already included in the stipulation language.

In addition, the following lease notice has been developed and added to parcel 71 in response to request from the National Park Service.

THE AUTHORIZED OFFICER, IN COORDINATION WITH THE NATIONAL PARK SERVICE, MAY MINIMIZE LIGHT POLLUTION WITHIN THE PROJECT AREA USING THE BEST MANAGEMENT PRACTICES SUCH AS:

- *LIGHT ONLY WHERE NEEDED*
- *LIGHT ONLY WHEN NEEDED (CONSIDER USING SENSORS OR TIMERS)*
- *SHIELD LIGHTS AND DIRECT THEM DOWNWARDS (FULL CUTOFF PREFERRED)*
- *SELECT LAMPS WITH WARMER COLORS (LESS BLUE LIGHT)*
- *USE THE MINIMUM AMOUNT OF LIGHT NECESSARY*
- *SELECT THE MOST ENERGY EFFICIENT LAMPS AND FIXTURES*
- *AVOID UNNECESSARY FLARING OF GAS AT NIGHT*
- *IF FLARING OF GAS IS APPROVED, EVALUATE THE USE OF A VISUAL SCREEN OR ENCLOSED COMBUSTION CHAMBER ('COMBUSTOR') TO MINIMIZE SKY GLOW, GLARE, AND ADVERSE VISUAL EFFECTS ON NIGHT SKY VIEWING AREAS AT DINOSAUR NATIONAL MONUMENT.*

Comment 21: It is unclear, based on the EA, if protection of natural soundscapes is policy concern of BLM, such protection is clearly a concern of the NPS. Recent acoustical data

monitored at the Josie Bassett Morris cabin, a popular destination for visitors at the DNM, indicates a residual sound level (L90) of 36 dBA. The median natural ambient sound level (Lnat) was 39 dBA and the median existing sound level (L50) was 43 dBA. The proposed oil and gas leases could create significant noise from construction, operations, and traffic. Low frequency sounds (those typical of trucks, equipment and machinery) can propagate for large distances with very little atmospheric attenuation and could therefore be audible in otherwise quiet park environments. Furthermore, various studies demonstrate that increase in human-caused noise can negatively affect mating, nesting, predation, and other behaviors in a variety of wildlife species. And other studies show noise levels can affect the experience of park visitors and lead to a variety of social, psychological, and physiological changes. However, such impacts to DNM resources are not evaluated in the EA.

Response 21: The Vernal RMP has two decisions that identify DNM as a noise sensitive area, and require noise reduction to minimize impacts to the DNM. See RMP decisions REC-18 and MIN-5. Impacts to wildlife and recreation resources from potential future development associated with leasing, including from resultant noise, are discussed in Chapter 4 of this EA.

Comment 22: The potential adverse impacts to water quality in the vicinity of DNM is high given the topography of the parcels, the erodible nature of the soils and rock types, the proximity of streams and rivers downslope of the sites. For example, the proposed oil and gas activities could cause erosion, run-off, or spills that pose significant adverse impacts to the water quality of Brush Creek and ultimately to the Green River. These potential impacts should be disclosed and fully assessed in an appropriate NEPA analysis.

Response 22: All parcels have stipulation 99 attached to them to protect fragile soils. This was determined to be sufficient for the leasing stage to protect the resource. See the “Soils” and “Water: Surface Water Quality” sections of Appendix E. Please note that no surface disturbing activities will be authorized as a result of this EA. If the leases are issued and if development is proposed, then additional NEPA would be completed that would determine what conditions of approval would be necessary and appropriate to reduce or eliminate impacts to resources of concern.

Comment 23: Several parcels appear to be located on or adjacent to Brush Creek, approximately one mile upstream of its confluence with the Green River. Any surface disturbance in these parcels could potentially have effects on water quality in Brush Creek and the Green River. Such effects could potentially have adverse impacts on endangered fish (Colorado pikeminnow, razorback sucker, humpback chub and bonytail). These potential impacts should be disclosed and fully assessed in an appropriate NEPA analysis.

Response 23: All parcels that overlap Brush Creek’s 100-year floodplain include stipulation 123 which restricts development in those areas. Also, these parcels all contain stipulation 99 which restricts disturbance to fragile soils. This was determined to be sufficient for the leasing stage to protect the resource. See the “Soils” and “Water: Streams, Riparian, Wetlands, and Floodplains” sections of Appendix E. Please note that no surface disturbing activities will be authorized as a result of this EA. If the leases are issued and if development is proposed, then additional NEPA would be completed that would determine what conditions of approval would be necessary and appropriate to reduce or eliminate impacts to resources of concern. Lease notice T&E -03

Endangered Fish of the Upper Colorado River Drainage Basin has been applied to all parcels to notify potential lessees that restrictions may be necessary to protect those species. See the “Wildlife: Fish” section of Appendix E.

Comment 24: Because of the importance of Brush Creek as native fish habitat, the Coalition recommends that NSO stipulations be imposed for all proposed lease sites within and up gradient of the Brush Creek drainage.

Response 24: See the response to your comment 23.

Green Pasture International DBA Escalante Ranch

Comment 1: The preliminary EA neglects to mention or recognize that proposed lease parcel number 70 is directly across the Green River from a Historical Marker and visitor pullout. The impact of surface activity on visitors to that historical site has not been accounted for in the Preliminary EA.

Response 1: Parcel 70 has been removed from consideration in this lease sale.

Comment 2: Escalante Ranch, the surface owner of parcel 70 is perhaps the most severely impacted private landowner, and there was not notice or consultation of any kind with Escalante Ranch in the evaluation of the proposed parcels. Absent that critical responsibility to participate and consult with the surface owner, parcel number 70 should be withdrawn.

Response 2: Parcel 70 has been removed from consideration in this lease sale.

Comment 3: Virtually all of the impact of recovery of oil or gas from parcel 70 can be mitigated and eliminated simply by prohibiting any surface disturbance on parcel 70 and requiring all surface operations to take place on BLM land a short distance away from the parcel at a location out of the view of the DNM.

Response 3: Please note that Parcel 70 has been removed from consideration from the lease sale. The nearest BLM-administered land is approximately 2 miles away from parcel 70. Given the likely shallow production horizon of any well(s) that would be proposed on parcel 70 (as evidenced by other wells drilled in the area that range from 2,300 feet to 6,700 feet in depth), a directional reach from BLM-administered lands is anticipated to be technically or economically impossible.

Comment 4: The proposed lease potentially overlaps 565 acres of irrigated farmland which will be heavily impacted. 565 acres of quality alfalfa production, in a year at today’s market price, equals potentially over \$600,000 of revenue yearly for this business. There is also an addition 375 acres that irrigation systems make access roads impassable to the proposed lease site. Should these irrigation systems need to be turned off, altered, or managed differently, it would have devastating impacts on revenue as well. Not to mention the loss of benefits from our past investments, seed, planting, fertilizers, irrigation equipment, and future site plans.

Response 4: Parcel 70 has been removed from the lease sale.

Comment 5: The ranch derives substantial revenue from wildlife photography, guided hunting trips, and the rental of our quite scenic vacation home. If the proposed oil and gas lease is developed this will impact additional revenue, which will completely diminish our guest experience, as well as other visitors to the area that enjoy the DNM and many of the other scenic and recreation activities of the area.

Response 5: Parcel 70 has been removed from the lease sale.

Comment 6: This proposed lease borders and overlaps a conservation easement established for endangered fish species.

Response 6: Parcel 70 has been removed from the lease sale. No conflict with the conservation easement remains for this parcel. The conservation Easement one of several Conservation Easements in the Colorado River Wildlife Management Area (WMA). In the process of researching parcel 70's easement, it was discovered that the private land on parcel 44 also contains a Conservation Easement for the WMA. A lease notice has been applied to that parcel notifying the lessee of potential future restrictions associated with that Conservation Easement. Similarly parcel 54 is just outside another WMA Conservation Easement, however no impact to it is anticipated since the parcel does not overlap the private land Easement.

Comment 7: This proposed lease borders the Green River, one of the major rivers of the west. It covers wetlands containing a variety of birds, migrating waterfowl, elk, mule deer, and pronghorn antelope, as well as a variety of upland game birds, plants, and other related wildlife in the area.

Response 7: The impacts to the Green River, wetlands, and wildlife were analyzed as disclosed in Appendix E and Chapters 3 and 4. Parcel 70 has been removed from the lease sale.

Comment 8: Human activity is presently controlled and managed as part of the Ranch operation. The mere presence of people, vehicles, and equipment in the area at the wrong time will cause the wildlife to leave. If an accident or spill were to ever occur the damage would be catastrophic in this area. This property is maintained and managed to protect and preserve endangered species and wildlife like no other place in the world. Restrictions and limitations on the property are in place and enforced for its owners, employees, and all who access the property. Traffic and exposure of our facilities to persons not under our control will cause unreasonable extra expenses to the ranch. Some of our roads are impassable at times due to irrigation systems blocking the roads. To our understanding no stipulations have been mentioned or established to protect the surface rights holder, cultivated fields, irrigation equipment, our future development of the proposed lease area, buildings, hay stack yards, employee's housing, storage facilities, shops, and wildlife, which will all be exposed to public access we are unable to control. There is no public access to this proposed lease. The ranch would be required to expend additional money to monitor traffic and people on the ranch with no business purpose.

Response 8: Please note that parcel 70 has been removed from this lease sale. The issuance of a lease with split-estate surface, such as in the case of parcel 70, does not allow surface disturbance to occur without an agreement with the surface owner, or appropriate bonding if the lessee/operator demonstrates that a good faith effort to reach an agreement with the surface

owner has failed. The surface owner agreement would address the terms by which the lessee/operator would access the lease, including addressing the need for the installation of any gates to control access by the lessee/operator and the BLM (access necessary to conduct inspections of operations) and it would not open the area to public access. Facilities may be designed to minimize interruption of ranch operations. All of these are beyond the scope of this EA because no drilling or surface disturbance would be allowed under this EA's decision.

Comment 9: Several recent public surveys have reaffirmed the high value that Utah citizens place on green spaces provided by agriculture. To unnecessarily destroy the Escalante Ranch business and the green spaces that it provides is not reasonably necessary to develop the minerals under that land.

Response 9: Comment noted. See the response to your comment 8.

Ashley National Forest

Comment 1: Because of steep topography, the obvious way to access these lease parcels would be from adjacent lands managed by the Ashley National Forest. However, as shown on Figure 3-2 on page 39 of the EA, the portions of these parcels adjacent to National Forest are mapped as priority habitat for sage grouse. Since lease areas within priority habitat would be stipulated by the BLM as no surface occupancy, no roads could be constructed across the NSO areas to the reach the adjacent forest lands, so although lease access may need to be through the South Unit, the lease stipulations for priority habitat would likely preclude BLM from approving such access. And, as shown on Figure 3-2, Forest Service lands adjacent to the lease parcels 22, 23, and 24 are mapped as Anthro Mountain sage grouse habitat. The 2015 USFS Greater Sage Grouse ROD, applicable to Utah, mandated that Anthro Mountain sage grouse habitat be stipulated as no surface occupancy for new oil and gs leases.

Response 1: This comment is correct in that no surface occupancy stipulations could preclude lease road access to the southern portion of the lease. A Lease Notice will be added to the parcels to notify potential lessees of the issue.

Comment 2: Although there are existing Forest Service roads in close proximity to parcels 22, 23, and 24, some of those roads pass through Anthro Mountain sage grouse habitat, pass close to several sage grouse leks, or are within Forest Service inventoried Roadless. These sage grouse and inventoried Roadless concerns would add restrictions or preclude upgrading or industrial use (e.g., heavy truck traffic) of those existing roads). See pages 152-154 of the 2015 USFS Greater Sage Grouse ROD, Specially GRSG-M-FML-ST-081-Standard).

Response 2: Any access necessary through the South Unit would have to be approved by the Ashley National Forest (ANF) and would be subject to ANF's permit stipulations. The BLM has no jurisdiction over the Forest's surface. A lease notice has been developed for these parcels that notifies any potential bidders that access to the lease via the South Unit will likely be restricted due to ANF roadless, sage grouse, and cultural resource management decisions.

Comment 3: We recommend that the adjacent Anthro Mountain sage grouse habitat be acknowledged and stipulated as no surface occupancy for lease parcels 22, 23, and 24.

Response 3: Parcels 22, 23, and 24 do contain no surface occupancy stipulations for Greater Sage-Grouse PHMA.

Comment 4: We also recommend that the specialist checklist on page 207 of the EA be updated to acknowledge and include the Anthro Mountain sage grouse habitat for parcels 22, 23, and 24.

Response 4: Maps 3-1 through 3-3 already contain information about the Anthro Mountain sage grouse habitat for parcels 22, 23, and 24. The ID team checklist deals with multiple PHMA areas, so they are not singled out by name.

Comment 5: On other topics, we note that a document called Greater Uinta Basin Technical Support Document BLM 2012 is cited on page 9 of the EA. However that document is not described or included in the list of references cited on page 83.

Response 5: The document has been added to the References section of the EA.

Simplot

Comment 1: The proposed lease parcel number 49 overlaps a number of active unpatented millsite claims Simplot holds in T3S R21 E Sec. 13 S2, Sec 24. These claims will be used in connection with our mining operation which is conducted on patented mining claims and private land owned by Simplot. See the map showing the proposed oil and gas lease parcels overlapping Simplot's active millsite claims together with a list of the BLM serial numbers associated with Simplot's affected claims. These claims are crucial to our future mining operations. We are concerned that development of the oil and gas lease may not be compatible with the activity Simplot will be conducting in connection with its millsite claims. Certain activity such as the pooling of oil and gas reserves for extraction off the millsite claims may be compatible. However, any development, construction, or exploration under an oil and gas lease on the millsite claim will likely interfere with Simplot's operations and may significantly escalate the risks to the environment and public safety. For these reasons, we request the BLM include conditions specifying that any construction or exploration on any portion of any proposed oil and gas lease that overlaps the Simplot claims shall be prohibited without Simplot's prior written consent. This condition shall not affect the leaseholders' rights to pool the resource provided the resource is extracted from locations off Simplot's millsite claims.

Response 1: Parcel 49 has been deferred from the lease sale pending further investigation of this issue.

Ron Wackowski

Comment 1: One parcel is a backdrop for tourists taking pictures at the monument entrance sign.

Response 1: If this comment is referring to Parcel 070, it has been removed from consideration from the lease sale.

Donna Heim

Comment 1: Have you considered the risk of drilling near the largest caldera/volcano in the world? Just as drilling and fracking in and around Oklahoma has created so much seismic

activity there in recent years, the same will hold true for increased drilling and fracking near Yellowstone. Geological studies indicate that this giant erupts around every 500,000 years, and another eruption is long overdue. Geologic disruptions in neighboring states may enough stresses to pass that tipping point. When the eruption occurs it will bury much of the US under 1-30 feet of volcanic ash, as any Yellowstone park ranger can tell you.

Response 1: The project area is approximately 300 miles south of Yellowstone National Park. No impact is anticipated.

Public Lands Solutions and Friends of the Yampa

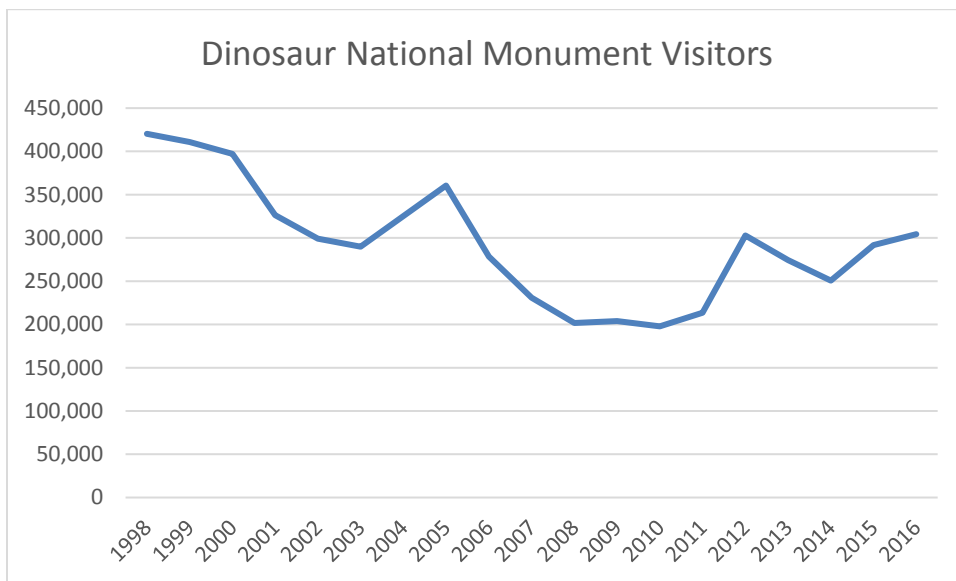
Comment 1: Our concerns include, but are not limited to: air and water quality, preservation of dark night skies in the area, monument viewsheds, natural soundscapes free of industrial noise, and a potential further decline of visitation to the park. A recent BLM analysis indicates that “Dinosaur National Monument has seen a decline in visitation of over 40 percent from 1999-2014 (1999 being the year in which Uinta County reversed years of declining oil and gas production); oil production increased over 358 percent during the same time period. During that time period, natural gas production increased over 339 percent.”

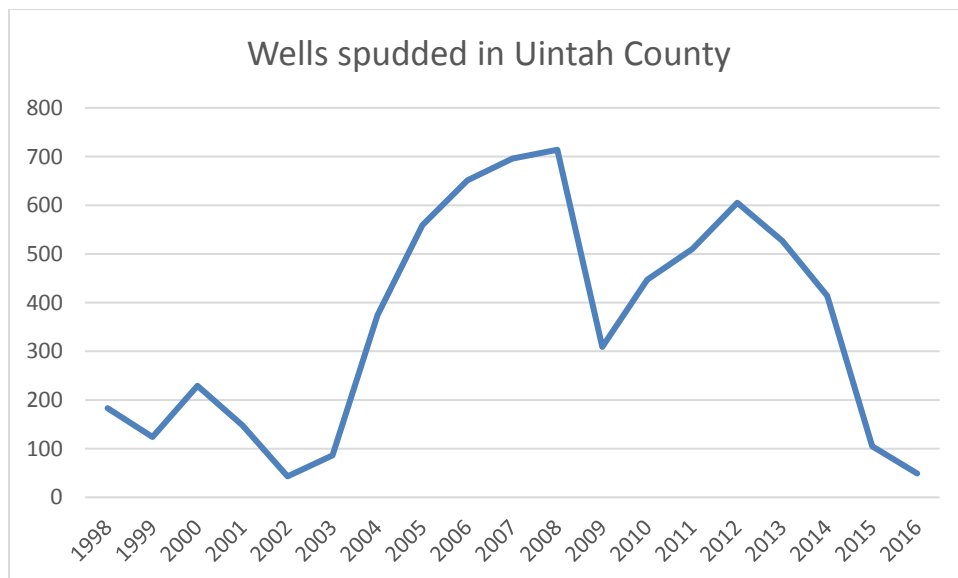
Response 1: The Moab MLP text has no source, so Vernal pulled the spud data for Uintah County for 1998 through 2016 (UDOGM, Data Research Center Wells Spudded Report, 2017, Query parameters: "Spud Date" "between" "01/01/1999,12/31/2016", 2017b)and compared it to the NPS DNM Visitor reports (NPS, 2017a). The following table contains the raw data:

| Year | DNM Visitation (rounded to the nearest thousand) | Wells spudded in Uintah County |
|------|--|---|
| 1998 | 420 | 183 |
| 1999 | 411 | 124 |
| 2000 | 397 | 229 |
| 2001 | 326 | 148 |
| 2002 | 299 | 43 |
| 2003 | 290 | 86 |
| 2004 | 325 | 374 |
| 2005 | 361 | 559 |
| 2006 | 278 | 651 |
| 2007 | 231 | 696 |
| 2008 | 202 | 714 |
| 2009 | 204 | 309 |
| 2010 | 198 | 447 |
| 2011 | 214 | 510 |
| 2012 | 303 | 605 |
| 2013 | 274 | 527 |
| 2014 | 251 | 414 |

| Year | DNM Visitation (rounded to the nearest thousand) | Wells spudded in Uintah County |
|------|--|---|
| 2015 | 292 | 105 |
| 2016 | 304 | 49 |

Comparing the trends shows no trend correlation between the two sets of numbers as demonstrated in the following graph. Although the drop in attendance seen between 2005 and 2012 may be interpreted as being related to the spike in development between 2005-and 2008, it also directly corresponds with the condemning and subsequent closure of the Quarry Exhibit Hall on July 12, 2006 (Barker, 2017), and the rededication of the replacement building on October 4, 2011 (Repanshek, 2011). The Exhibit Hall was built in 1957 to showcase 1,500 fossilized dinosaur bones in situ and was/is the most popular attraction in the Monument. Therefore, the “cause and effect” determination of Moab MLP EIS quotation appears to be unsupportable.





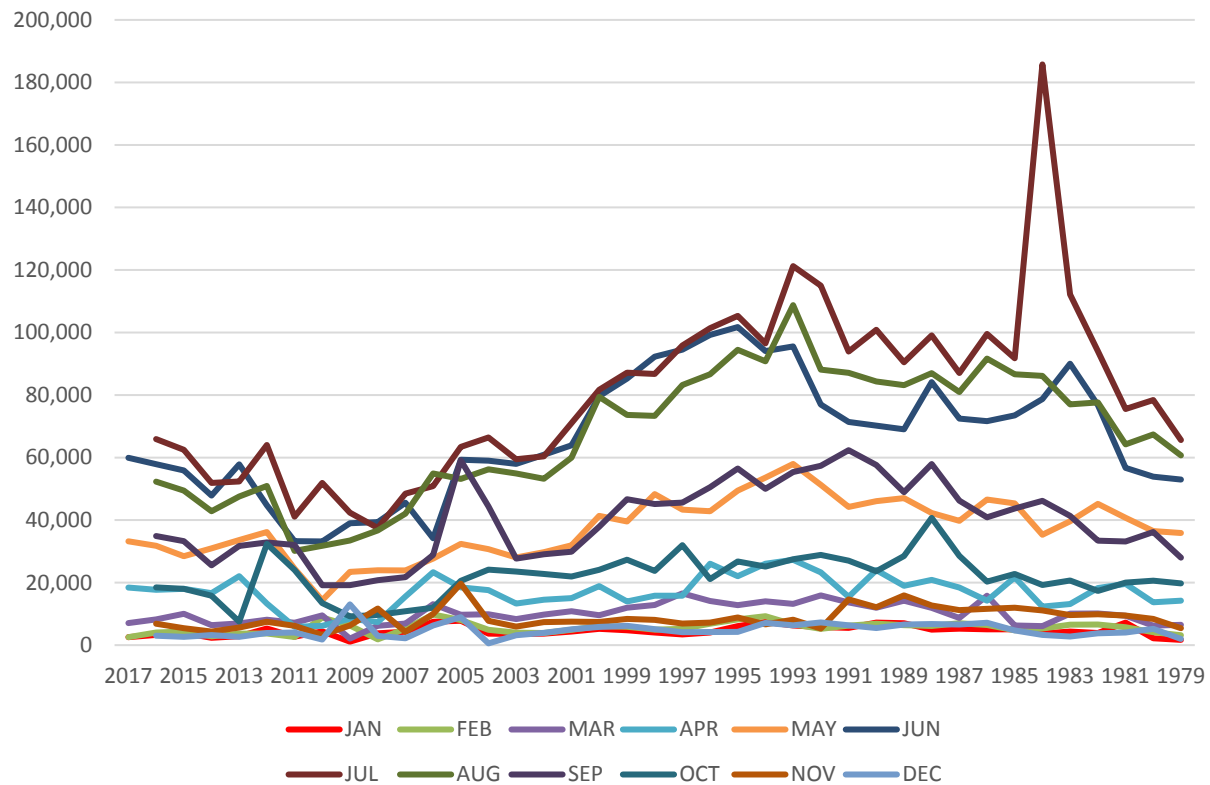
Public Lands Solutions

Comment 2: Air quality issues make it nearly impossible for a destination to compete for visitor dollars or investments from other industries who will then in turn have trouble recruiting employees. It is well known that oil and gas activity in the Uinta Basin has led to wintertime ozone levels around DNM exceeding NAAQS. These leases will further impair the regions air quality and ability to attract diverse business investments.

Response 2: The BLM is working cooperatively with the State of Utah, DEQ and EPA Region 8 to address air quality issues in the Uinta Basin. The existing ARMS modeling analysis provides a cumulative analysis of air quality impacts for the Basin, evaluated the effectiveness of various control scenarios (mitigation measures), and was prepared with the cooperation of the National Park Service through the Air Resource Technical Advisory Group (RTAG). The BLM is working with Utah State University to update the ARMS modeling, and will continue to work with the RTAG to ensure the technical credibility of the data, methodology, projections, interpretations, and conclusions as well as the usefulness of the model (see the October 2014 ARMS Project Impact Assessment Report section 1.4) [AECOM 2014]. Until such time as that modeling is complete, the existing ARMS modeling analysis provides a cumulative analysis of air quality impacts for the Basin. It is unknown at the leasing stage if development will occur, and the reasonably foreseeable development scenario included in this EA for analysis purposes is to disclose the nature of the impacts only, it does not guarantee that any development will occur.

Visitation impacts due to air quality concerns is not anticipated to be an issue. The below graph and raw data contains and displays NSP reported visitation data by month (NPS, 2017b)[. The highest visitation to Dinosaur National Monument occurs during the summer months (May through September). Visitation is lowest during January and February, which are the most common months for the monitored ozone exceedances. March, which may have ozone events, does see a moderate amount of visitation. However, the ozone issue was first observed in the Basin in 2009 and DNM visitation trended upward since that year, increasing from 204,000 visitors in 2009 to 304,000 in 2016. See the DNM Visitor graph and data in the response to Friends of the Yampa and Public Lands Solutions Comment 1.

Dinosaur National Monument Visitation by Month



| Year | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| 2017 | 2,559 | 2,570 | 7,040 | 18,418 | 33,226 | 59,940 | | | | | | | 123,753 |
| 2016 | 3,291 | 4,053 | 8,228 | 17,708 | 31,767 | 57,884 | 65,900 | 52,276 | 34,888 | 18,453 | 6,868 | 2,996 | 304,312 |
| 2015 | 3,868 | 4,354 | 10,001 | 17,996 | 28,446 | 55,878 | 62,506 | 49,448 | 33,266 | 17,986 | 5,417 | 2,633 | 291,799 |
| 2014 | 2,354 | 2,788 | 6,387 | 16,618 | 30,977 | 47,855 | 51,907 | 42,811 | 25,519 | 15,809 | 4,366 | 3,234 | 250,625 |
| 2013 | 2,872 | 3,668 | 6,962 | 22,040 | 33,616 | 57,814 | 52,366 | 47,522 | 31,700 | 7,503 | 5,633 | 2,665 | 274,361 |
| 2012 | 5,304 | 3,706 | 8,110 | 13,304 | 36,202 | 44,729 | 64,031 | 50,899 | 32,848 | 32,367 | 7,487 | 3,871 | 302,858 |
| 2011 | 2,686 | 2,600 | 7,139 | 5,859 | 24,442 | 33,272 | 41,111 | 30,148 | 32,047 | 24,028 | 6,188 | 4,039 | 213,559 |
| 2010 | 4,410 | 8,801 | 9,526 | 6,200 | 14,361 | 33,171 | 51,901 | 31,796 | 19,160 | 13,430 | 3,252 | 1,804 | 197,812 |
| 2009 | 1,112 | 6,273 | 2,091 | 8,419 | 23,435 | 38,981 | 42,348 | 33,449 | 19,208 | 9,194 | 6,312 | 13,040 | 203,862 |
| 2008 | 3,773 | 1,852 | 6,173 | 7,387 | 23,940 | 39,340 | 37,482 | 36,675 | 20,765 | 9,651 | 11,700 | 2,986 | 201,724 |
| 2007 | 4,267 | 5,201 | 6,895 | 15,561 | 23,904 | 45,569 | 48,453 | 42,077 | 21,724 | 10,828 | 4,244 | 2,191 | 230,914 |
| 2006 | 7,446 | 9,802 | 13,072 | 23,317 | 27,672 | 34,206 | 50,881 | 54,922 | 28,873 | 11,984 | 9,995 | 6,303 | 278,473 |
| 2005 | 7,810 | 8,018 | 9,725 | 18,453 | 32,380 | 59,330 | 63,381 | 53,166 | 59,132 | 20,562 | 19,655 | 8,972 | 360,584 |
| 2004 | 3,684 | 4,888 | 9,870 | 17,593 | 30,680 | 59,025 | 66,422 | 56,243 | 44,368 | 24,155 | 7,787 | 564 | 325,279 |
| 2003 | 3,565 | 3,962 | 8,330 | 13,308 | 28,015 | 57,975 | 59,458 | 54,900 | 27,704 | 23,558 | 5,924 | 3,150 | 289,849 |
| 2002 | 3,661 | 3,865 | 9,792 | 14,509 | 29,708 | 60,912 | 60,368 | 53,200 | 29,071 | 22,748 | 7,361 | 3,947 | 299,142 |
| 2001 | 4,319 | 4,893 | 10,827 | 15,023 | 31,931 | 63,938 | 71,029 | 59,978 | 29,898 | 21,968 | 7,529 | 5,040 | 326,373 |
| 2000 | 5,215 | 6,089 | 9,557 | 18,857 | 41,344 | 79,640 | 81,664 | 79,449 | 37,857 | 24,124 | 7,426 | 5,847 | 397,069 |

| Year | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Total |
|------|-------|-------|--------|--------|--------|---------|---------|---------|--------|--------|--------|-------|---------|
| 1999 | 4,747 | 5,857 | 11,946 | 13,976 | 39,569 | 85,286 | 87,166 | 73,649 | 46,690 | 27,322 | 8,361 | 6,173 | 410,742 |
| 1998 | 4,026 | 4,960 | 12,830 | 15,783 | 48,297 | 92,284 | 86,742 | 73,360 | 45,130 | 23,718 | 8,065 | 5,100 | 420,295 |
| 1997 | 3,436 | 5,211 | 16,550 | 15,818 | 43,342 | 94,519 | 95,875 | 83,219 | 45,610 | 31,967 | 6,916 | 4,161 | 446,624 |
| 1996 | 4,040 | 6,833 | 14,141 | 26,034 | 42,843 | 99,215 | 101,402 | 86,619 | 50,492 | 21,151 | 7,188 | 4,175 | 464,133 |
| 1995 | 6,081 | 8,232 | 12,778 | 22,065 | 49,458 | 101,745 | 105,339 | 94,494 | 56,496 | 26,754 | 8,838 | 4,229 | 496,509 |
| 1994 | 7,436 | 9,241 | 14,035 | 26,035 | 53,590 | 94,052 | 96,498 | 90,811 | 50,004 | 25,136 | 6,630 | 7,108 | 480,576 |
| 1993 | 6,295 | 6,633 | 13,211 | 27,289 | 57,959 | 95,559 | 121,225 | 108,757 | 55,375 | 27,477 | 8,137 | 6,357 | 534,274 |
| 1992 | 5,798 | 5,200 | 15,886 | 23,295 | 51,276 | 76,980 | 115,002 | 88,132 | 57,390 | 28,874 | 5,305 | 7,274 | 480,412 |
| 1991 | 5,510 | 6,231 | 13,647 | 15,452 | 44,188 | 71,404 | 93,932 | 87,096 | 62,359 | 27,000 | 14,634 | 6,328 | 447,781 |
| 1990 | 7,197 | 6,833 | 11,981 | 23,993 | 46,057 | 70,229 | 100,861 | 84,341 | 57,625 | 23,629 | 12,142 | 5,480 | 450,368 |
| 1989 | 7,019 | 6,394 | 14,224 | 18,982 | 47,027 | 69,023 | 90,491 | 83,174 | 48,918 | 28,521 | 15,924 | 6,606 | 436,303 |
| 1988 | 4,969 | 6,121 | 11,927 | 20,890 | 42,249 | 84,148 | 99,094 | 87,001 | 57,919 | 40,697 | 12,694 | 6,743 | 474,452 |
| 1987 | 5,241 | 7,004 | 8,678 | 18,407 | 39,785 | 72,445 | 87,034 | 80,939 | 46,192 | 28,558 | 11,197 | 6,609 | 412,089 |
| 1986 | 5,039 | 6,448 | 15,830 | 14,226 | 46,569 | 71,659 | 99,541 | 91,636 | 40,870 | 20,300 | 11,596 | 7,177 | 430,891 |
| 1985 | 5,059 | 4,775 | 6,307 | 21,698 | 45,361 | 73,496 | 91,765 | 86,617 | 43,700 | 22,757 | 11,946 | 4,706 | 418,187 |
| 1984 | 3,730 | 5,291 | 6,108 | 12,309 | 35,302 | 78,720 | 185,758 | 86,139 | 46,144 | 19,254 | 11,124 | 3,261 | 493,140 |
| 1983 | 4,367 | 6,565 | 10,079 | 13,122 | 39,610 | 90,042 | 112,175 | 77,037 | 41,338 | 20,658 | 9,609 | 2,773 | 427,375 |
| 1982 | 3,901 | 6,578 | 10,124 | 18,276 | 45,203 | 76,777 | 94,014 | 77,656 | 33,391 | 17,358 | 9,870 | 3,790 | 396,938 |
| 1981 | 7,206 | 5,703 | 9,411 | 19,584 | 40,751 | 56,701 | 75,525 | 64,220 | 33,135 | 20,027 | 9,465 | 4,056 | 345,784 |
| 1980 | 2,213 | 4,140 | 6,218 | 13,684 | 36,482 | 53,864 | 78,387 | 67,388 | 36,201 | 20,595 | 8,387 | 5,222 | 332,781 |
| 1979 | 1,704 | 3,172 | 6,498 | 14,214 | 35,850 | 52,953 | 65,606 | 60,718 | 27,997 | 19,733 | 5,423 | 1,969 | 295,837 |

Comment 3: Development along the Green River and Brush Creek parcels will threaten local water quality and the recreational opportunities these waters support such as fishing and rafting. Water quality issues are likely to affect the ability of the region to attract diverse industries going forward.

Response 3: All parcels that overlap Green River and Brush Creek's 100-year floodplain include stipulation 123 which restricts development in those areas. Also, these parcels all contain stipulation 99 which restricts disturbance to fragile soils. This was determined to be sufficient for the leasing stage to protect the resource. See the soils section of Appendix E. Please note that no surface disturbing activities will be authorized as a result of this EA. If the leases are issued and if development is proposed, then additional NEPA would be completed that would determine what conditions of approval would be necessary and appropriate to reduce or eliminate impacts to resources of concern.

Comment 4: Flaring and artificial lighting from oil and gas development will compromise the DNM's dark night skies, which are now almost entirely free of artificial light. For visitors from urban areas, night skies are a key attraction, and degrading this aspect of the outdoor experience will make the region less competitive in tourism markets.

Response 4: Proposed parcels adjacent to the Dinosaur National Monument would be leased with stipulation: UT-S-168 Controlled Surface Use – Light and Sound: Areas adjacent to

Dinosaur National Monument, which would provide mitigation measures and reduce the potential negative impacts to dark night skies and soundscape. See also the response to Dinosaur National Monument Scoping Comments 6.

Comment 5: Development of these leases will be visible from important park viewpoints including the Green River District Entrance Road, Quarry Exhibit Hall, the Plug Hat and Escalante Overlooks. Construction noise and operational traffic will be audible from the Canyon Visitor's Center, the Quarry Visitor's Center, the Monument entrance road in Jensen, UT, and other key sites. High quality views and quiet landscapes are primary reasons that many people visit particular areas to recreate, and impeding these key values further degrades the outdoor experience, making it harder and harder for Uinta County to compete with other outdoor communities.

Response 5: Leasing the proposed parcels adjacent to or within view of the mentioned important park viewpoints would not cause any direct change to the landscape. If development plans within the proposed lease parcels were to be submitted to the BLM in the future, site specific and detailed visual assessments would be produced in order to disclose any potential adverse impacts to the view shed in correlation with the Dinosaur National Monument. Proposed parcels adjacent to the Dinosaur National Monument would be leased with stipulation: UT-S-168 Controlled Surface Use – Light and Sound: Areas adjacent to Dinosaur National Monument, which would provide mitigation measures and reduce the potential negative impacts to dark night skies and soundscape. Visual impacts were conducted using the Quarry Visitor Center as Key Observation Point, and using the entrance to the park as a Key Observation Point. See section 4.2.9. A preliminary assessment from other areas was conducted, and it was determined that visibility of the leases was negligible from those points, so they were not carried forward into the EA. This information is documented in a specialist report that is part of the administrative record for this project. See the response to Dinosaur National Monument Scoping Comments 7 for additional information about noise impacts.

Sonya Popelka

Comment 1: I'd like to recommend that the BLM Vernal Field Office only consider opening the highest producing areas for potential oil and gas lease bids as we look to develop alternative energy sources.

Response 1: Comment noted. The BLM's Vernal RMP decided which areas are open for leasing, and it did consider production potential before the decision was made (see the Proposed RMP/Final EIS section 4.1.2).

Comment 2: I recommend that the BLM permanently withdraw all parcels that fall into the lowest EPCA total oil and gas densities, especially the parcels nearest to Dinosaur National Monument, Red Fleet, and Steinaker State Parks, and Ouray National Wildlife Refuge, all of which are located within the lowest possible OG densities and due to the potential negative impacts on the ecologic health of park areas and adverse impacts to the visitor experience, especially in air and water quality and scenic values.

Response 2: See the response to your comment number 1. See the Dinosaur National Monument Scoping Comment responses for information on visitor experience and resource values.

Comment 3: I would like to see the following parcels permanently removed from oil and gas leasing options because their potential for producing economic benefit to the community is greater if they are undeveloped for oil and gas production and managed for the ecological scenic and recreational qualities instead.

Response 3: See the response to The Coalition to Protect America's National Parks Comment 9.

Colorado Crane Conservation Coalition, and many individual commenters

Comment 1: Your oil and gas development proposal does not take into account the impact of such development on the community of Greater Sandhill Cranes that use parcel 70, located on the Escalante Ranch in Jensen Utah, as an important stop on their spring and fall migrations. Parcel 70 is critical to the success of their migration and subsequent breeding because they consume grain left over from the season's crop in order to rebuild the energy needed to complete the migration. The cranes feed in the grain field in Parcel 70 as well as other adjacent agricultural fields and use nearby Green River sandbars as loafing and critical night roosting sites. Crane numbers are highest in the fall (late August-November) and spring (mid February-April). It is estimated that 10 percent of the entire flock of the Greater Rocky Mountain Sandhill Cranes (approximately 1,500 birds) use this parcel as a refueling stop on their migrations.

Response 1: Parcel 70 has been removed from consideration in this lease sale.

Comment 2: Greater Sandhill cranes are a tier 1 species of Greater Conservation need in Colorado. In Utah, 37% of all Greater Sandhill cranes counted in 2016 were found on the Escalante Ranch.

Response 2: Parcel 70 has been removed from consideration in this lease sale.

Comment 3: Your wildlife biologists should conduct further studies, during a spring or fall migration, in order to observe the importance of this tiny portion of the proposed action to these cranes.

Response 3: Comment noted. All parcels were visited by an interdisciplinary team. BLM biologists frequently assist the Utah Division of Wildlife in their wildlife counts and surveys.

Comment 4: Parcel 70 should be removed from this lease proposal. At the very least, calendar restrictions should be imposed on any oil and gas activities so that the area remains undisturbed during the spring and fall migrations.

Response 4: Parcel 70 has been removed from consideration in this lease sale.

Comment 5: According to Dr. Rod Drewian, retired North American crane expert from University of Idaho, the Jensen UT area is likely of greater year round importance to the Rocky Mountain population of greater sandhill cranes than previously thought, as individuals are

documented during winter bird counts, indicating a small population of cranes winter here (year round population).

Response 5: Parcel 70 has been removed from consideration in this lease sale.

Comment 6: I personally have observed these birds for the last two years, as I live across the Green River from the Escalante Ranch. Beginning in late August/early September I watch daily cranes fly into the fields of the Escalante Ranch from all around Jensen in the late afternoon/early evening to feed and display before dropping down onto the exposed sandbars of the adjacent Green River for safe night roosting. In September 2016 I performed at least 8 informal counts from the county road adjacent to the Escalante Ranch and estimate a count of 15000 individuals in mid-September. The attached September 2016 Survey of the Rocky Mountain Population of Greater Sandhill Cranes report supports my observation as 1230 individuals were counted here in September 2016 by Utah Division of Wildlife Resources staff.

Response 6: Parcel 70 is being removed from consideration in this lease sale.

Comment 7: As people have moved into prime habitat areas, much of the nesting habitat became unsuitable because of either direct or indirect human disturbance during the incubation and chick rearing periods resulting in nest abandonment and loss of young.

Response 7: Parcel 70 has been removed from consideration in this lease sale.

Comment 8: Sandhill cranes are known to nest in Stewart Lake State Wildlife Area located immediately south of Jensen along the Green River and may nest near parcel 70. Approximately 0.5 miles south of the southern border of parcel 70 there is a wetlands site immediately east of the Green River which is approximately 225 acres and supports suitable crane nesting habitat. This wetland has sufficient emergent vegetation and open water, which would be suitable for crane roosting and nesting. No information is currently available to us regarding sandhill crane nesting in this wetland area. The wetland immediately south of Parcel 70 should be included in the EA discussion and sandhill crane use of the habitat during migration and the nesting season should be included in the EA discussion.

Response 8: Parcel 70 has been removed from consideration in this lease sale.

Comment 9: The development of mineral resources in 70 is likely to have a significant impact to the migration corridor of the cranes. It would adversely impact cranes during the time drilling of wells would be occurring and during regular well site maintenance after the completion of wells. Impacts would include decreased availability of waste grains that the cranes utilize as a part of their daily diet during migration. Impact would negatively affect immature (chicks of the year) who are building strength for the migration to winter ranges in Colorado and New Mexico. The primary impact would be displacement of cranes due to disturbance and decreased use of foraging habitat and secure roosting sites that are essential to the cranes. Other impacts would include fragmentation of habitat noise disturbance, and increased human activity including vehicular traffic and presence of personnel associated with well production.

Response 9: Parcel 70 has been removed from consideration in this lease sale.

Comment 10: We don't know the locations of night roosting sites along the Green River within several miles upstream and downstream of 70. Information and a discussion of roosting sites should be included in the EA and addressed in mitigation stipulations, if parcel 70 is not withdrawn from the sale.

Response 10: Parcel 70 has been removed from consideration in this lease sale.

Comment 11: If parcel 70 is included in the proposed sale, specific development practices that would mitigate impacts to cranes should be included in stipulations that would maximize the protection of sandhill cranes that utilize the habitat in the lease area.

1. No site development (drilling, fracturing, pipelines, road construction, etc.) during the migration period for sandhill cranes. This would include August through November and mid February through April.
2. Locate the well site on the far east side of the parcel as far away from the river as possible.
3. Conduct crane nesting surveys along the river and the wetland south of 70 prior to project development.
4. Apply Utah Lease Notices for sandhill cranes like the Migratory Bird notice UT-LN-45.

Response 11: Parcel 70 has been removed from consideration in this lease sale. this lease sale. Migratory Bird notice 45 does include sandhill cranes, which is a migratory species

Comment 12: The BLM and Utah DWR should initiate annual sandhill crane monitoring programs in the area. This would provide information if other mineral parcels are considered in the future in this area.

Response 12: This is outside of the scope of this EA. Parcel 70 has been removed from consideration in this lease sale.

Dan Johnson

Comment 1: Research has revealed that these sites are rich with cultural artifacts and relics of the Fremont culture and earlier native peoples. Some researchers studying these sites near the Green River in this area have proposed that these locales are globally significant, being one of the few places on the planet where archaeologists can show the transition from a hunter/gather to an agrarian based society.

Response 1: Prior to any ground disturbing activities associated with future undertakings that may result from the leasing of these parcels, Class III cultural inventories will be conducted. Historic properties associated with the Fremont or any other cultural group identified during these inventories will be protected in accordance with existing federal laws and regulations.

Emily Spencer

Comment 1: The proximity of the parcel to DNM. The parcel is in direct line of sight and approximately 1 mile from the Monument Visitor Center. In section 3.3.9, Visual Resources the document states that parcel 70 is located approximately 2 miles south of the Center. According to the measurements I have taken using ArcGIS, the parcel is less than one mile at the parcel's

closest (NW corner) point and 1.5 miles at the farthest point (SW corner) from the Quarry visitor center.

Response 1: The previous EA's distance was based on the distance from the parcel's mass center point to the Visitor Center. The current EA's distance has been updated to reflect the distance from the nearest edge. Note that parcel 70 has been removed from consideration in this lease sale.

Comment 2: In section 3.3.1 it states that two year round air quality stations are used to make a NAAQS compliance determination for ozone. I would like to point out that there is a third station in the Uinta Basin that is also certified as a Federal Reference Monitor in Jensen UT in Dinosaur National Monument AQS Site ID 49-047-1002. This station is operated year round as well and has detected numerous ozone exceedances in winter months as recently as February 2017. Why is this station not included in the air quality analysis? I request that the data from this site be incorporated into the air quality affected environment for this and all future oil and gas lease sale documents.

Response 2: There are a number of monitors in the Basin and most have recorded ozone exceedances. The two monitors included were chosen because: most monitors are showing exceedances in the wintertime; the two monitors have been certified federal reference monitors for the longest amount of time; and they are located in the heart of the oil/gas field near the lowest point in the Basin. Therefore, the data used in this EA from the two monitors was determined to be representative and sufficient for disclosure and analysis purposes. The BLM will consider expanding the monitoring site data in future documents as necessary to adequately characterize the affected environment.

Comment 3: Where is the surface and ground water quality analysis? How are parcels adjacent to the Green River, one of the largest perennial western rivers in the west, not subject to a thorough surface and ground water quality description and impact analysis, particularly when the Green River is designated Critical habitat for four federally endangered fish species? There is important spawning habitat for the federally listed razorback sucker between Split Mountain in DNM and the Green River Bridge in Jensen. In 2015 juvenile bonytail chub, another federally listed species, were found in the back channels of the Green River in Stewart Lake which is now recognized as important nursery habitat for fish species of concern. I request surface and groundwater analysis be performed for parcels along the green river 54, 55, 65, 66, and 70. I also request a buffer of at least one mile from perennial lotic systems be applied to all parcels in this and future lease sales to protect surface and ground water quality and aquatic species.

Response 3: Parcel 70 has been removed from consideration. All remaining parcels that overlap Green River's 100-year floodplain include stipulation 123 which restricts development in those areas. Also, these parcels all contain stipulation 99 which restricts disturbance to fragile soils. This was determined to be sufficient for the leasing stage to protect the resource. See the soils and water sections of Appendix E. Please note that no surface disturbing activities will be authorized as a result of this EA. If the leases are issued and if development is proposed, then additional NEPA would be completed that would determine what conditions of approval would be necessary and appropriate to reduce or eliminate impacts to resources of concern. Buffers are surface restrictions which, for the leasing stage, are set by the Vernal RMP. To implement a one

mile buffer from perennial lotic systems would require a plan amendment. This is outside the scope of this EA. Lease notice T&E -03 Endangered Fish of the Upper Colorado River Drainage Basin has been applied to all parcels to notify potential lessees that restrictions may be necessary to protect those species. See the “Wildlife: Fish” section of Appendix E.

Comment 4: I also request the permanent withdrawal of parcels 69 and 71 from this and future lease sales on account of their proximity to the western boundary and main public entrance to DNM. Anticipated wells for these parcels is one out of a potential maximum of 36/29 respectively, based on BLM’s own historical production data for the immediate area. Simply put, these wells have a low likelihood to be producers and have the potential to have adverse impacts to viewsheds of a unit of the NPS and to known archaeological and paleontological resources.

Response 4: The Vernal RMP designates parcels 69 to 71 as being open to leasing subject to major or minor constraints. Therefore, a plan amendment would be required to close these parcels to leasing. A plan amendment is outside the scope of this document. However, surface use restrictions have been applied as dictated by the Vernal RMP. See the stipulations in Appendix A.

Cordell J Roy

Comment 1: Without a doubt there would be impacts to the visitor experience at Dinosaur from oil and gas development of these and potentially other similar parcels in the vicinity of 69, 70, and 71. It is not just a matter of visual impacts of being able to observe oil and gas operations from a particular Key Observation Point. Oil and gas operations comprise a significant industrialization of a remote and rural landscape adjacent to a National Monument. Operators cannot mitigate for hundreds of large trucks carrying tremendous amounts of drilling and operations related equipment and hauling of product that impact narrow country roads and the unsuspecting visitor traffic they encounter. The odors of a wellfield are a substantial negative industrial impact – visitors should not be subjected to a foul order experience when visiting the Quarry Wall or other attractions at Dinosaur. Fugitive dust is a nuisance, and palliative applications notwithstanding, there would still be dust from the operations. Emissions from wellfields in the Uinta Basin continues to be an air quality issue and another wellfield would be contributory to that problem affecting the region as well as the National Monument. A wellfield is noisy, its impacts to natural sound would be long lasting and significant. The night sky of the National Monument would be adversely affected by wellfield development.

Response 1: Parcel 69 has been deferred, and parcel 70 has been removed from consideration in this sale. See the responses to the Dinosaur National Monument Scoping Comments, the National Parks Conservation Association comments, and the Coalition to Protect America’s National Parks comments. Oil field odors are typically those associated with equipment operations, such as engine exhaust. Due to the distance between allowable development areas of the remaining parcels and the most visited areas of the Monument, odors are not expected to be an issue due to dispersal. If this comment is concerned with odors from produced water disposal ponds, such a proposal is not included in and would not be authorized through this EA. The BLM has no pond applications in their office or foreseeable at this time, and there are presently no ponds authorized or existing on Vernal Field Office BLM land.

Clayton Johnson

Comment 1: Appendix F (onsite lease photos is appreciated but in the future, please identify a photo point and a view direction for reference. In the above regard, as someone familiar with some of these lease areas, I note that several of the site photos could, intentionally or not, be deceptive. For example 71 is a view more or less east along the sunshine bench road, within a lease area that includes approximately the SW half of Section 6, T5S R23E. The Sunshine Bench road runs southeasterly on top of the bench, down in the S2SW of Section 6. Most of the land area within this proposed lease, further north and east, drops off into Brush Creek, a scenic little canyon farm and residential area, which looks vastly different than the terrain shown in the photo. A well location along the Sunshine Bench Road as depicted in the photo is unlikely to impact residents of DNM visitors who frequently use the Brush Creek Road. A well location further northeast within this lease, overlooking or within Brush Creek canyon, would impact residents and visitors. Other examples include several leases with boundaries shown at or within the Green River floodplain for which the photos show no sign of the river/riparian. Again, well location would be the essence of any problem, but the photos don't adequately illuminate the potential for impacts. I realize that in some cases, multiple photos from several photo points, might be necessary to accurately characterize the lease proposal. Digital photos are cheap and easy and would improve the understanding of lease proposals.

Response 1: No deception was intended through the use of the photos. Each photo was taken at the place the interdisciplinary team visited the parcel. The purpose of the photos is to prove the team visited the parcel and to give the reader an idea of the general landscape of the parcel. The photos are not to provide possible viewshed impacts which are more effectively disclosed through Geographic Information System analysis at the time that development is proposed. Nor are photos necessary to identify sensitive resources such as riparian areas and floodplains and assess the impacts to them. However, although it is not necessary for the Decision Maker to rely on the photos to make a reasoned decision between alternatives, the BLM recognizes that meta data is a necessary component of a photo used for official purposes and will make that information available in the future.

Comment 2: I note that one of your photos (70) is a good job of characterizing that proposed lease area and the Green River from within the DNM south of the Visitor Center.

Response 2: Thank you for your comment.

Comment 3: Proposed lease 69 borders the DNM boundary in sections 28 and 33. Although this area is some distance from the Dinosaur Visitor Center, the boundary here is only about ¼ mile west of Orchid Draw, a quite scenic little draw and hiking area. Any well location in sections 28 or 33 would need careful consideration to avoid visual impacts to the VRM Class III area.

Response 3: Parcel 069 has been deferred from this lease sale.

Comment 4: Proposed lease 70 development would have obvious visual impacts to the experience of DNM visitors, not just at the Visitor center but along more than three miles of the south facing slope within DNM including rock art sites. Most DNM visitation occurs spring to fall, but there are some winter visitors including campers. During the winters (late fall through early spring) game animals and other wildlife depend on the proposed lease area and surrounds.

Since this proposed lease is within the area of the Jensen Circle of the annual Audubon Christmas Bird Count, I know firsthand the variety of wildlife depending in winter on the DNM/Green River/Escalante Ranch area. In addition to deer, elk and antelope, bald eagles, waterfowl, and other bird species winter on the Escalante Ranch. In some years, vast flocks of sandhill cranes spend the winter here. Thus development of this proposed lease at any time of year would impact the DNM experience and potentially impact wildlife including waterfowl/migratory birds during a stressful part of the year. For the above reasons I believe this lease should be withdrawn from the sale. I have a personal interest in this, we live nearby and frequent the monument throughout the year, chiefly for birdwatching, photography, rock art, scenery, hiking and canoeing.

Response 4: Parcel 70 has been removed from consideration in this sale because the private surface owner was not appropriately identified.

Comment 5: Given that parts of the USA are already experiencing repeated flooding at and beyond 100 year flood levels, I suggest it would be wise to proactively base management where possible on 500 year floodplains rather than 100 year floodplains.

Response 5: Comment noted. No surface occupancy restrictions are based on the Vernal RMP, which designates the 100-year floodplain as the no surface occupancy area. The BLM cannot impose a 500-year floodplain as a no surface occupancy area without a plan amendment, which is outside the scope of this EA. However, this EA would not authorize development, it is a leasing proposal only. If the parcel is leased, and if development is proposed, then additional site specific NEPA documentation would occur and additional conditions of approval may be imposed as appropriate to minimize or eliminate impacts.

Comment 6: Parcel 44 includes a high water channel of the Green River on its east boundary. Is this a GIS/map overlay error or is the lease boundary actually in the river? Your photo appears to have been taken from nearly river level in section 14, infrastructure in this location would be highly visible from the river. Will your stipulation UT-S-117 in force below Ouray negate using the pictured location for infrastructure? A special concern not addressed for this lease is river recreation.

Response 6: Parcel 44's eastern boundary does overlap the river. Stipulation 117 does restrict surface disturbance on the 100-year floodplain of the Green River. The pictures are taken at the point the parcel was accessed by the interdisciplinary team and do not reflect speculation on where future development may or may not occur. River recreation impacts from parcel 44 are addressed in Appendix E under the recreation section.

Comment 7: Parcel 54 is private land adjacent to the river. The photo is presumably facing east. My main concern here is river recreation. I cannot identify the point from which your photo was taken, but it appears that infrastructure close to the rim shown would be visible for a long way from the river, when examining any proposed well locations, please try to avoid having infrastructure visible from river level.

Response 7: Comment noted. The pictures are taken at the point the parcel was accessed by the interdisciplinary team conducting the parcel onsite inspection and do not reflect speculation on

where future development may or may not occur. River recreation impacts from parcel 54 are addressed in Appendix E under the recreation section. The BLM has no jurisdiction over private land, so if the lease is issued and if development is proposed the company would have to negotiate a surface use agreement with the private land owner or provide adequate bonding before surface disturbance could occur or facilities could be constructed.

Comment 8: Parcel 55 is an example of my photo concern. Your photo has no indication of the Green River, which should be visible to the north, west, and south from the section 20 portion. Was the photo taken in section 20 or in sections 14-15? Your lease area/map overlay suggests that the south edge of 55 in section 20 would be visible from the river for some distance. When examining any proposed well locations, please try to avoid having infrastructure visible from river level.

Response 8: See the response to your comment 7. River recreation impacts from parcel 55 are addressed in Appendix E under the recreation section. The photo was taken in section 15.

Comment 9: Parcel 65 photo is taken from a main highway which in no way represents the complex terrain and features present within the lease area. From your lease area/map overlay it appears that only very careful siting would prevent infrastructure/development in section 15 or in the SW of section 14 from impacting the river visually and/or physically. I realize the situation may not appear this grim on the ground, but surely the purpose of maps and photos in an EA is to accurately convey the situation? When examining any proposed well locations, please try to avoid having infrastructure visible from river level.

Response 9: See the response to your comments number 1 and 7. River recreation impacts from parcel 65 are addressed in Appendix E under the recreation section.

Comment 10: River recreation does occur along the entire length of the Green River including below DNM and above Ouray, albeit some river segments do not currently receive as much visitation as others. The history of river recreation suggests it would be wise to consider water recreation any time a navigable stream or river is involved. I suggest that you should be thinking in terms of UT-S-117 like stipulations everywhere along the Green River.

Response 10: The application of stipulation 117 is dictated by the Vernal RMP and applies as indicated in Appendix A. Application of this stipulation to all parcels along the Green River would require a plan amendment and is outside the scope of this EA.

Comment 11: Potential ACEC conflict. Parcel 85 section 25 is adjacent on the east to a Colorado ACEC (Raven Ridge, administered by the WRFO). This EA discusses ACECs in Section 3.3.2. I don't see the Raven Ridge ACEC mentioned in the EA. It seems unlikely that the values and concerns which drive designation and management of an ACEC would simply terminate at an invisible state boundary. Raven Ridge is a SE/NW trending, lengthy, elevated landform quite different from the surrounding flats. Habitat that can be very important in this harsh dry, country. It appears to be one of the few places in Northern Utah to find Scott's oriole, for instance. I would expect that Raven Ridge is important habitat for both local wildlife and endemic plant populations. I note you intend to coordinate with WRFO. Did you reach out to potentially concerned Colorado publics? I note both two small parcels of apparently private land

in Section 25 and a state section 36 in the mix here. Have you coordinated with the State of Utah and the landowner?

Response 11: ACECs terminate at their designated boundaries. The Raven Ridge ACEC was designated to protect sensitive plant species and paleontological resources, the impacts to which were considered in this EA. Resources present have been addressed regardless of ACEC designation. The private land in section 25 is not part of the parcel 85 so no coordination took place with the landowner. The state section 36 is not part of the parcel 85. We have coordinated with the State of Utah about the lease sale. A map was sent to WRFO on 8/8/2017 requesting any concerns or information. The Colorado public had the opportunity to respond to the lease sale during the comment period. We know that the Colorado public was reached because we received comments from the Colorado Crane Conservation Coalition.

Comment 12: At a minimum exclude from the lease a wildlife corridor through sections 23 and 25, allowing a continuity of undisturbed wildlife and plant habitat/access along this ridge and into the “breaks” to the northwest.

Response 12: Designation of a wildlife corridor as no surface occupancy or closed to leasing would require a plan amendment which is outside the scope of this document. Impacts to wildlife have been considered as described in Appendix E and Chapters 3 and 4.

Comment 13: Proposed lease 49 is east across highway 44 from Steinaker Reservoir and State Park. The EA identifies 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. The EA fails to mention that Highway 44 between Vernal and Flaming Gorge is a Scenic Byway which draws visitors from around the world, and includes in this area the “Drive through the Ages” interpretive geological route, which highlights the age, nature, and fossils of the various geologic formations visible from the highway. Considering the above, I suggest that the visual impact of development on either the 10 acre or the 30 acre parcels mentioned would be considerably greater than stated in the EA.

Response 13: Parcel 49 has been deferred from this sale so BLM can further investigate the compatibility of the existing mill site claims and the proposed lease. The existence of the scenic byway is disclosed in Appendix E, in the recreation section.

Comment 14: Personal experience in various phases of the leasing/development process indicates that once a lease is obtained, considerable pressure can be brought to bear during lease development in selection of the actual location/access footprint, and the adjust (loosen) various stipulations through exceptions, modifications, and waivers. That process is not always subject to public scrutiny. I strongly urge you to resist such efforts, especially along the length of the Green River, and especially where an activity might impact the riparian zone, the 500 year floodplain or visuals as viewed from the river.

Response 14: All APDs are posted for public review for 30-days prior to approval. All APDs are subject to additional NEPA. If a stipulation contains exception, modification, or waiver criteria, and application of those criteria is possible and proposed by the company, then that proposal would be analyzed in the site specific NEPA. Stipulations that do not contain

exception, modification, or waiver criteria cannot be excepted, modified, or waived regardless of “pressure”. Exception, modification or waiver criteria, if any, are disclosed for each stipulation in Appendix C.

Comment 15: As page 201 implicitly recognizes, water based recreation is occurring along the Green River. Flat water recreationists depend on and enjoy river segments that lack rapids, lurking rocks and the like, like the Green River between Split Mountain and Desolation Canyon. Since these forms of river use are unregulated, usage is quiet and often goes unnoticed. BLM management should include more consideration of the importance of the Green River and be informed by the new forms of watercraft, such as paddleboards, rapidly gaining popularity.

Response 15: Comment noted. Appendix E recognizes the use of the Green River for water based recreation.

Comment 16: The persons/organizations consulted do not include any river runners or watersports spokespersons. I finally found a couple of brief references to river floating in Appendix E. I suggest that in future EAs the BLM seek consultation with river runners and watersports folks along with everyone else.

Response 16: The BLM consultation authority is dictated by law. The purpose of the public comment period is to reach out to those who technically cannot be “consulted”, as well as the general public, to ensure their concerns and opinions are heard and considered. Several river recreation based companies and river recreation focused individuals provided comments on the EA. Substantive comments have been addressed in this appendix.

Herm Hoops

Comment 1: Horse packing outfitters have to assure their use of noxious weed free forage brought into federally managed areas. In some cases they are required to remove manure to prevent the spread of noxious weeds. How will the individual vehicles entering the area be checked to see they are not introducing or spreading noxious or exotic species?

Response 1: The leasing proposal would not result in surface disturbance or the spread or introduction of noxious weeds. If the leases are issued, any future development proposals would be reviewed on a site specific basis through the NEPA process to determine what measures are necessary to prevent or control weeds. It is standard BLM practice to require the control of weeds, including permitting of any herbicide users and use areas.

Comment 2: Thousands of people swim, bath and use the river as a source of culinary water on river tips. While water filters remove giardia bacteria, they do not remove petroleum related products or other harmful chemicals. There is no adequate warning system in place to advise people on the river that an incident has occurred.

Response 2: Comment noted. This issue is outside of the scope of this EA. The BLM and state of Utah do have spill reporting and spill response plan requirements which any future development would be required to abide by on a site-specific basis.

Comment 3: The area within the DNM boundary, adjacent to the leases, is loaded with archaeological sites and petroglyphs. The drilling vibrations and heavy traffic is sure to damage or destroy some of these sites. In addition, more access and people, without agency oversight, will lead to vandalism and looting of archaeological resources.

Response 3: Parcel 069, which is adjacent to the Monument, has been deferred from this lease sale. Parcel 70 has been removed from this sale. The closest remaining parcel is parcel 71. See Dinosaur National Monument Scoping Comments 7 regarding truck traffic.

Comment 4: A new Interior Department report says more than half the public lands leased to oil and gas companies are sitting idle while the industry and congressional critics are clamoring to open more federal swaths for exploration. Rent on federal oil and gas leases is \$2.50 per acre per year. At current low oil prices the American taxpayer will be a loser from these leases. A recent federal oil and gas lease auction was a bit of a bust with only two parcels fetching the \$2-an-acre minimum. LT Land Group LLC of Salt Lake City bid \$25 an acre for one. International Petroleum bid \$9 per acre for the other.

Response 4: The BLM is required to respond to valid expressions of interest in oil and gas leasing submitted and to hold quarterly oil and gas lease sales regardless of the number of undeveloped leases or low oil and gas prices.

Comment 5: BLM and Utah lack the personnel to adequately monitor the increased use of the area by drill crews that do not fully understand the implications of their actions. What mitigation is proposed to limit the effect of litter, industrial debris and jetsam, or unauthorized looting of archaeological sites?

Response 5: No surface use would occur as a result of this. However, if the leases are issued and development is proposed, site specific conditions of approval for surface use would be developed through NEPA to minimize or eliminate impacts. All applications for permit to drill are subject to a regular monitoring schedule. Prior to any ground disturbing activities associated with future undertakings that may result from the leasing of these parcels, Class III cultural inventories will be conducted. Historic properties associated with the Fremont or any other cultural group identified during these inventories will be protected in accordance with existing federal laws and regulations

Comment 6: In the past the BLM has been sensitive in permitting drilling activities so close to National Parks and Monuments. Given the fact that DNM is the scene of the most significant conservation battle of the past Century (Echo Park Dam) it is ironic these leases are being approved for allocation within a Wilderness Study Area and within the very apparent viewshed of the most heavily visited section of the Monument. Yet at the same time the Colorado BLM has instituted a protected viewshed on the Colorado side of the Dinosaur National Monument.

Response 6: There are no Wilderness Study Areas present within the boundaries of any of the leases proposed. Impacts to the viewshed from DNM have been disclosed in chapters 3 and 4. The VRM II and Dinosaur National Monument Noise and Light stipulations will both protect the viewshed of the Monument. See also the responses to the Dinosaur National Monument Scoping Comments.

Comment 7: The Green River through this area has been found eligible to be a Wild and Scenic River. This means it must be managed in the interim in order to protect its values, as if it is a wild and scenic river until a decision has been made on the suitability of the river. The proposed developments will affect the nature of the river visually in sound and in the nature of the experience and is inconsistent with wild and scenic river legislation.

Response 7: The Middle Green River eligible segment (between the Utah/Colorado border and the Uintah and Ouray Reservation) was determined by the Vernal RMP to not be suitable for Wild and Scenic River designation, therefore no further management for suitability is necessary. The Lower Green River eligible segment (between the Uintah and Ouray Reservation and Desolation Canyon) was determined by the Vernal RMP to be suitable for Wild and Scenic River designation. Stipulation 117 was imposed on the only parcel that overlaps this segment to protect its eligibility for designation.

Parsons Behle and Latimer

Comment 1: The purpose and need for the sale is to 1) respond to expressions of interest submitted by the public, 2) comply with federal statutes, and 3) promote development of domestic oil and gas resources from federal public lands. Only offering for lease each of the 64 parcels identified in the Proposed Action will satisfy these objectives.

Response 1: Comment noted. The Decision Record typically includes a description of how the selected alternative meets the purpose and need of the project.

Comment 2: The statement of purpose and need actually reads “The purpose and need of the *Proposed Action* is to respond to...”. We believe this is a mistake that should be corrected in the final EA. As defined in the Draft EA, the term proposed action relates to the offering for lease of 64 parcels. It is not the proposed action that BLM is analyzing in the draft EA, instead the proposed action is one of the alternatives that is being analyzed. The reason the EA is being undertaken is not to advance the proposed action but rather to analyze which parcels to offer for competitive lease in compliance with the requirements of the Mineral Leasing Act.

Response 2: This correction has been made.

Comment 3: In order to fulfill FLPMA’s objective of orderly, consistent and informed public decision-making, management decisions for land uses must be guided by the governing RMP. After a 6 year cooperative planning process, the VFO adopted the 2008 RMP and affirmatively determined that each of the 64 parcels included in the proposed action are appropriate for oil and gas leasing, and applied area-specific stipulations to minimize resource conflicts. We are encouraged that BLM is contemplating offering each parcel for lease consistent with the VFO RMP. This is the kind of predictable and transparent decision-making that is contemplated by Section 202 of FLPMA, 43 USC 1711 which requires that management decisions be guided by the governing RMP and BLM IM 2010-110 which makes clear that all Field Offices are expected to follow their respective approved land use plans in offering for sale parcels with expressions of interest and fluid mineral leasing allocation decisions are made at the planning stage. We note, however, than any post-draft EA deferrals of the parcels would be inconsistent with these mandates and would be tantamount to ad hoc land use planning in contravention of

FLPMA's objective on ensuring that the RMP provides a "rational, consistently applied set of regulations and procedures.

Response 3: Deferring a parcel from the current sale is not a no leasing decision. Deferrals can be made at the discretion of the BLM if new information shows that existing protections are inadequate until the new information is adequately accounted for or a land use plan amendment changes the availability of the land for leasing. Parcel 49 has been deferred pending further investigation into the mutual compatibility of the existing phosphate mill site claims and the proposed lease. All of parcel 73, and portions of parcels 38 and 56 have been deferred due to the presence of penstemon habitat, which is the subject of ongoing litigation. Parcel 70 has been removed from consideration because the nominator provided incorrect information as to the identity of the surface owner. This error that was not discovered until after the preliminary EA was published for comment. However, should the parcel be re-nominated with the correct information, the BLM would consider it for leasing.

Comment 4: Several of the parcels analyzed in the Draft EA contain habitat for plant and animal species listed under the ESA. This does not prevent the leasing of any parcels. The VFO RMP contains detailed stipulations protecting ESA species and habitat which have been applied to the parcels containing those species. In addition, prior to surface disturbing activity on a leasehold, an additional review of the proposed development and its potential impacts on ESA species will occur. Therefore it is appropriate to offer each of these parcels for lease in the December 2017 lease sale.

Response 4: Thank you for your comment.

Comment 5: Although several of the parcels analyzed in the Draft EA partially contain areas of critical environmental concern, application of the management prescriptions identified for these ACECs will protect the unique characteristics of these lands.

Response 5: Thank you for your comment. Any parcels that overlap ACECs contain stipulations consistent with the Vernal RMP for those ACECs.

Comment 6: The majority of the lands with wilderness characteristics at issue here were inventoried after finalization of the Vernal RMP and therefore have not been analyzed in a land use plan. However, this fact does not justify deferral of these parcels. While these lands may not have lwc specific stipulations in the VFO RMP, the application of other stipulations not specific to lwc will reduce impacts. Indeed, the majority of the parcels containing lwc would be offered with significant stipulations. For example, Parcels 37 and 38 partially contain the Badlands Cliffs inventory unit but have no surface occupancy stipulations for the Nine Mile Canyon ACEC, riparian areas and water reserves, slopes greater than 40% and VRM Class I. Numerous additional proscriptive stipulations are also attached to these parcels including controlled surface use and timing limitations. Similarly parcels 22, 24, 25, and 32 contain portions of the Currant Canyon inventory unit, and have numerous NSO stipulations attached. Additionally, BLM is under no obligation to ensure that each and every portion of an lwc permanently maintains its wilderness characteristics. FLPMA only requires that wilderness characteristics be considered equally with all other resources. Therefore, even if there were no stipulations in place to protect these areas, offering them for lease would still be proper under the

governing land use plan. However, this is extremely unlikely to occur given that the draft EA's estimate that of the 74,145 acres contained in the 6 lwc units applicable here, only 110.5 acres are anticipated to be disturbed.

Response 6: Thank you for your comment. The BLM agrees that new inventories do not automatically trigger land use plan amendments.

National Outdoor Leadership School

Comment 1: We are concerned that the proposed leases (44, 52, 54, 55, 65, 66, 69, 70, and 71) will have a detrimental impact on the river experience and on NOLS' ability to run courses from our Vernal location, from which we access the area defined by the VFO RMP as the Middle Green River for flatwater canoeing student courses. NOLS strives to provide a wilderness experience for students. The experience of spending extended periods of time in undisturbed natural setting and places of solitude makes our programs unique and offers students opportunities for growth and learning. Our education model is fundamentally dependent on wilderness experience. The success of NOLS operations and the greater river recreation industry depends upon the continuing viability of this portion of the Green River as a natural and wild operating area. Our clientele anticipate natural quiet, dark skies, a natural landscape, and diverse wildlife. Over the past twenty years, the wilderness experience offered by this portion of the river has been impaired by encroaching energy development. NOLS instructors recount instances of students unable to sleep due to noise from well pads and traffic. Continued development on and near the river will further degrade this experience. NOLS courses also visit DNM, which serves as the conclusion of our whitewater boating courses. The proposed leases on and very near the boundary and entrance to DNM would, if developed, greatly impact NOLS students and other visitors' experience. In our view in the balance of development and conservation necessary for multiple use land management, the parcels surrounding the National Monument, and especially its entrance are inappropriate for industrial development. In light of these concerns we ask that BLM defer parcels 44, 52, 54, 55, 65, 66, 69, 70, and 71 pending further analysis of their suitability for oil and gas development. Should VFO move forward with leasing these parcels, NOLS requests a NSO stipulation for either the entire parcel or for the portion of the parcel that would exclude the possibility of visually or audibly perceiving drilling or normal well operations from the river or floodplains as sufficient measures to protect the quality of river experience. The NSO stipulations used for the lower green river (UT-S-117 or 199) would likely provide adequate protections for river recreation and to protect the remaining primitive and scenic qualities of the river and the opportunity for solitude and quiet recreation, all of which are critical to NOSL operations on this portion of the river. NOLS believes it is possible to have energy development while preserving the river experience for our students and other river users.

Response 1: Note: Parcel 69 has been deferred and parcel 70 has been removed from consideration in this lease sale. No surface disturbance activities will occur as a result of the Proposed Action of this EA because no permits are being authorized – this is a leasing action only. Deferral is not a no-leasing decision – it just postpones leasing until additional information can be considered. The Vernal RMP designates the parcels of concern as being open to leasing subject to major or minor constraints. Therefore, a plan amendment would be required to institute no surface occupancy on the entire parcels. A plan amendment is outside the scope of

this document. The BLM notes that other stipulations are in place on those parcels that will protect the river include a NSO for the river 100-year floodplain, as well as NSO and CSU restrictions for steep slopes, which are commonly found on either side of the river in this area.

Comment 2: The EA fails to analyze leasing effects on recreation, especially river recreation on the Green River despite the PI classification. The EA provides only a brief analysis of potential impacts to SRMAs and no analysis of impacts to river recreation or the Green River as a recreation resource. The Upper, Middle, and Lower sections of the Green River are all major recreation resources in the Vernal RMP. The middle section, despite receiving lower use than the upper and lower sections, likely sees as much or more recreation use than the SRMAs considered. The cumulative impacts of energy development should be thoroughly analyzed.

Response 2: The Vernal RMP identified the lands surrounding the Green River as being open to leasing subject to minor or major restrictions. The major restrictions include NSO on the 100-year floodplain of the river. The action of leasing the proposed lease parcels would not cause a direct adverse impacts on river recreation along the Green River. In the future, if parcels were to be leased and development plans were submitted to the BLM for permitting, a site specific analysis of impacts to river recreation would take place in order to disclose any potential adverse impacts to river related recreation along the Green River.

Comment 3: The Middle Green River provides unique river recreation opportunities in the VFO. The flatwater sections of the Middle Green are especially well suited for canoeing, kayaking, stand up paddle boarding, rafting, and tubing, most of which provide opportunities for quiet, solitude and exercise for physical and mental health, wilderness experiences, wildlife viewing, fishing, and hunting. Notably non-commercial recreation users don't need permits to float this section of the river, unlike much of the Upper and Lower Green, and it is very friendly to novice river recreationists making this a valuable resource to local and regional residents. See the RMP goals and objectives for recreational resources.

Response 3: Thank you for your comment.

Comment 4: NOLS believes the parcels on lwc lands inventoried after the RMP should be removed from consideration until the lwc inventory can be properly analyzed in the RMP framework for whether they are appropriate areas for oil and gas leasing. Alternatively a NSO stipulation should be attached to prevent haphazard loss of wilderness characteristics without consideration in the context of the greater landscape. See the RMP goals and objectives for wilderness characteristics.

Response 4: No surface disturbance activities will occur as a result of the Proposed Action of this EA because no permits are being authorized – this is a leasing action only. Deferral is not a no-leasing decision – it just postpones leasing until additional information can be considered. Decisions on deferral of parcels not listed in Appendix B will be made at the end of the NEPA process, when the impact analysis is completed. The Vernal RMP designates the parcels of concern as being open to leasing subject to major or minor constraints. Therefore a plan amendment would be required to institute no surface occupancy on the entire parcels. A plan amendment is outside the scope of this document.

Patty McCourt

Comment 1: The idea of interfering with the views of the majestic geological features of the Scenic Byway (parcel 49) including Red Mountain and interfering with the major destinations of Vernal's tourism industry is not acceptable.

Response 1: Parcel 49 has been deferred.

Comment 2: Parcel 69 is near the annual Utah Department of Natural Resources Eagle Days location.

Response 2: Parcel 69 has been deferred.

Altitude Cycle, OARS, Oneway Boatworks, Holiday River Expeditions, ARTA River Trips, Eagle Outdoor Sports, Split Mountain Garden Center

Comment 1: We are concerned that BLM is not taking into account the long term impacts of oil and gas leasing near DNM. The current downturn in oil and gas prices and resulting job losses remind us that diversification would be wise. Uintah County has access to a wide variety of recreation assets. Oil and gas leasing, which is completely insensitive to other land uses will inhibit investment in both visitor services and other new business. If there is a chance that areas around Dinosaur will be industrialized with roads and infrastructure of all types the quality of the outdoor experience will suffer, and so will the County's changes of true diversification. In particular we are concerned with the following leases: near the Visitor Center, Exhibit Hall and Fossil Discovery Trail (63, 64, 69, 70 and 71), within 10 miles of the Monument (58, 59, 60, 63, 64, 69, 70, and 71), within 18 to 28 miles of the Monument and also visible from the Visitor Center (65, 67, and 72). We are troubled by how close the proposed leases are to DNM and the lack of protections to address impacts on the Monument and its scenic viewshed. We urge you to reject these parcels.

Response 1: Comment noted. Parcel 69 has been deferred and parcel 70 has been removed from considered in this lease sale. The Vernal RMP designates the parcels of concern as being open to leasing subject to major or minor constraints. Therefore a plan amendment would be required to close the parcels to leasing. A plan amendment is outside the scope of this document. Deferral is not a no-leasing decision – it just postpones leasing until additional information can be considered. Decisions on deferral will be made at the end of the NEPA process, when the impact analysis is completed.

Utah Rock Art Research Association

Comment 1: Our current concerns center on several proposed lease sale parcels which have little to no survey information: 57, 58, 59, and 60. The locations of these parcels in areas relatively close to Steinaker Reservoir suggest the possibility of cultural resources including rock art.

Response 1: The intensive Analysis and Data Review conducted by the BLM VFO identified no known rock art sites within the proposed APE. Consultation with our consulting parties also identified no additional sites within the APE.

Comment 2: Also several parcels southeast of Jensen, in areas of known lithic fields concern URARA: parcels 80 through 87. We will complete our comments after the scheduled cultural consultant meeting through the NHPA Section 106 process.

Response 2: Prior to any ground disturbing activities associated with any future undertakings that may result from the leasing of these parcels, Class III cultural survey will be conducted. Sites eligible to the National Register of Historic Places, including the lithic sites located in parcels 80-87, will be protected in accordance with existing federal laws and regulations.

International Mountain Bicycling Association and Northeastern Utah Mountain Bikers

Comment 1: Before the BLM permits any new commercial leases for oil and gas extraction, we recommend that the research is made public which demonstrates extraction technologies will not cause unnecessary harm to the area natural resources, and that it will indeed provide long term benefits outweighing the negative environmental impacts.

Response 1: Thank you for your comment. The BLM does not claim that no impacts will occur, or that economic values associated with this leasing project will out weight them. In accordance with NEPA we have disclosed the environmental impacts, and will make an informed decision based on that disclosure and other legal and policy requirements. As no specific research was cited, no further response is possible.

Comment 2: Maintaining a quality setting even beyond the trail features and design is of critical importance since the effects and impacts of the adjacent management actions being assessed in these EAs could override any and all future trail design value. If oil and gas development is not managed in a way that balances the value of the mineral resources with the value of the recreational experiences then the BLM will have effectively cut the access out of the multiuse mandate management equation. Therefore we urge the BLM to thoughtfully assess the value of the recreational amenities and the public enjoyment of the land for present and future generations on par with the need and/or desire for development of the mineral resources so as to actively manage the resource development activities in a way that purposefully protects the settings and therefore the experiences of the public recreation. It is imperative to manage recreation and other uses in the most fiscally prudent manner possible so that existing assets are valued, retained, and emphasized in a manner that maximizes their public value and minimizes the ongoing management burden.

Response 2: Thank you for your comment. BLM prepared the Vernal RMP, which dictates where and how oil and gas leasing and other uses may occur, with our multiple use mandate in mind.

Comment 3: The existing EA does not include McCoy Flats trail complex in the list of recreation sites analyzed. McCoy Flats has been shown to be one of the most visited recreation sites in the VFO by BLM traffic counters. Visitation numbers have increased each year. In addition, McCoy Flats is listed by the BLM as one of the Top 20 mountain biking sites on BLM lands. There are at least two parcels near the McCoy Flats complex, and we would like the potential impacts addressed specifically for this site. We are also concerned about visual resource impacts and increased noise impacts that might degrade the user experience.

Response 3: McCoy Flats trail impacts as they pertain to the leasing action of this document are acknowledged in Appendix E, the recreation section. Leasing would not, by itself, authorize any ground disturbances, the action of leasing parcels would not cause any direct negative effects to the McCoy flats recreation area. If leasing were to occur and oil and gas development plans were submitted to the BLM for permitting, a site specific analysis of potential impacts to proposed development would be developed in order to disclose any potential adverse impacts to recreation within the McCoy Flats area, more specifically the McCoy Flats mountain biking complex. Please note that Parcel 052 is over a mile away from the nearest mountain bike trail with plenty of topography to screen any potential future oil and gas development.

Comment 4: Retail Sale Trail is 6.1 miles in length and popular with intermediate riders as it can be ridden as a loop, offering scenic views and a moderately challenging experience. We recommend that all extraction infrastructure is located at least 2,500 feet from any point on this trail in order to maintain the current experience that it offers and to avoid visual resources and noise impacts. We would also like stipulations to include the best available technology to reduce noise from any potential well infrastructure.

Response 4: Comment noted. Approximately 0.2 mile of Retail Sale Trail overlaps with the northeast corner of parcel 53. This portion of the trail is in or near the bottom of an ephemeral wash. To implement a 2,500 feet buffer from any trail would require a plan amendment. This is outside the scope of this EA. No well facilities will occur as a result of the Proposed Action of this EA because no permits are being authorized – this is a leasing action only. If the parcel is leased, and if development is proposed, then that proposal would be analyzed in site specific NEPA to determine its impacts to the McCoy Flat complex, including noise and visual impacts, and any necessary conditions of approval to minimize or eliminate impacts. The area is managed as VRM Class III, where surface-disturbing activities would partially retain the existing character of the landscape. The allowable level of change would be moderate, may attract attention, but should not dominate the view of a 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.

Comment 4: Slippery When Wet Trail is 5 miles long and is connected to the larger stacked-loop trail system at McCoy Flats. This trail offers a more technically challenging experience for advanced riders and we request that there is no impact to the existing trail from any infrastructure.

Response 5: Comment noted. Approximately 0.3 mile of Slippery When Wet Trail overlaps with the north edge of parcel 53. This portion of the trail follows the edge of a small mesa. To close this trail to surface disturbing activities would require a plan amendment. This is outside the scope of this EA. No well facilities will occur as a result of the Proposed Action of this EA because no permits are being authorized – this is a leasing action only. If the parcel is leased, and if development is proposed, then that proposal would be analyzed in site specific NEPA to determine its impacts to the McCoy Flat complex, including noise and visual impacts, and any necessary conditions of approval to minimize or eliminate impacts. The area is managed as VRM Class III, where surface-disturbing activities would partially retain the existing character of the landscape. The allowable level of change would be moderate, may attract attention, but should not dominate the view of a 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.

Comment 6: The 2008 Vernal RMP stipulates that there shall be no surface occupancy on developed recreation sites. We consider the McCoy Flats Trail Complex as a whole as a developed site, since the trails have seen considerable BLM and NUMB investment of time and resources in the creation, development and maintenance.

Response 6: Comment noted. The Vernal RMP developed recreation site NSO was based on GIS data that specified the developed and potential recreation sites to which that stipulation applies. The sites total 5,000 acres of campground and interpretive exhibits. McCoy Flats was not included in that GIS data so the NSO does not apply.

Frank Biggs

Comment 1: Please reconsider leasing and developing parcels 52, 53, and 54. These parcels are in the McCoy Flats Mountain Biking recreation area. Please try to select alternate locations for future well sites that may damage recreational areas, businesses, green spaces, wildlife habitat, agricultural lands, national parks, and monuments.

Response 1: Parcels 53 and 54 are over a mile away from the McCoy Flats trails, and are unlikely to affect the trails due to distance and topography. Please refer to the responses to the comments from International Mountain Bicycling Association and Northeastern Utah Mountain Bikers for a discussion of parcel 52. Deferral is not a no-leasing decision – it just postpones leasing until additional information can be considered a plan amendment would be required to close the area to leasing. This is outside the scope of this EA. No well facilities will occur as a result of the Proposed Action of this EA because no permits are being authorized – this is a leasing action only. If the parcel is leased, and if development is proposed, then that proposal would be analyzed in site specific NEPA to determine its impacts and any necessary conditions of approval to minimize or eliminate impacts.

Duchesne County

Comment 1: Page 1 paragraph 2 this paragraph implies that only natural gas resources are likely to be found on these parcels. Need to add some wording about crude oil here, of which Utah also is significant source in the nation? Also, insert a period at the end of paragraph.

Response 1: The paragraph has been revised to reflect the fact that Utah produces both oil and gas.

Comment 2: Section 1.4.1 does not seem to mention compliance with the general plans/resource management plans of Duchesne County and Uintah County. Perhaps insert a new paragraph 7 at this location to address compliance with county plans?

Response 2: The requested information has been added.

Comment 3: Page 1 paragraph 1 was external scoping conducted with “landowners” or with “stakeholders”? Were the affected counties included in the list of those who received external scoping notices?

Response 3: Scoping was conducted with landowners. The counties were not sent external scoping notices.

Comment 4: Page 8 end of top bulleted list: Should the Duchesne and Uintah County general plans be included in this list of statutes, regulations, policies or other plans?

Response 4: The County Plans have been added to section 1.4.1. It is not necessary to also include them in section 1.6.

Comment 5: Page 19 Nine Mile Canyon ACEC. Please emphasize here that none of the proposed lease areas are actually located in the canyon.

Response 5: That is correct. None of the parcels are located below the rim of Nine Mile Canyon.

Comment 6: Page 31 DNM paragraph 2 it appears that Parcel #069 is erroneously listed as #071 twice in this paragraph?

Response 6: The statement in question referred to parcel 070, since the entire parcel occurs entirely within private land. This has been corrected in the EA. Parcel 70 has been removed from consideration in the sale.

Comment 7: Pages 36-37 table 3-13 it may be easier for the reader to find parcels in this table if they were organized in numerical order.

Response 7: Comment noted. However this table was organized to list the parcels meeting the prioritization factors outlined in IM 2016-143 in descending order. Parcels meeting the most factors are at the top of the table. No change to the document.

Comment 8: Pages 41 and 78 the acronym BSU's does not appear in the list of acronyms in Section 6.2 (Page 89).

Response 8: The acronym has been added to the list. It stands for Biologically Significant Unit.

Comment 9: Page 48 5th bullet. Multi-chamber COMBUSTORS

Response 9: This correction has been made.

Comment 10: Page 48 last bullet...reduce the amount of dust FROM the pads

Response 10: This correction has been made.

Comment 11: Page 49 Nine Mile Canyon ACEC Please emphasize here that none of the proposed lease areas are located below the canyon rim.

Response 11: The information has been added to Table 3-3 and section 4.2.2.

Comment 12: Page 50 last paragraph...a trail MARKER

Response 12: This correction has been made.

Comment 13: Page 53 paragraph 1_“Using the RFD of in Appendix D,...” Need to delete the “of” or the “in” above.

Response 13: This correction has been made.

Comment 14: Page 53 paragraphs 4-5. The end uses of fossil fuels potentially extracted from these lease areas is mentioned in each paragraph and seems repetitious.

Response 14: The sentences have been edited.

Comment 15: Page 54 paragraph 2 if SC is Social Cost, then what is SCC? (In last line of paragraph).

Response 15: The acronym has been edited to remove the extra C.

Comment 16: Page 65 paragraph 6 “Thus, the listing of the WTPD is currently BEING reviewed...”

Response 16: This correction has been made

Comment 17: Page 67 paragraph (e) “...to manage noise at or below 10 decibels”

Does this mean 10 decibels above background noise levels? 10 decibels is the sound of a pin drop. 30 decibels is the sound of a whisper.

Response 17: The requirements is 10 decibels above ambient conditions during dusk and dawn. See the actual language in the Utah ARMPA page 2-10.

Comment 18: Page 70 last ozone bullet point “...where the ozone concentrations are already highest?” probably not meant to be in the form of a question.

Response 18: This correction has been made.

Comment 19: Page 76-77 bottom of 76, top of 77, need a map number or location of map for the KOP 2 at DNM.

Response 19: The KOP 2 discussion has been updated, and a map showing KOP 2 has been inserted.

Comment 20: page 81 last line “List of Prepares” should be List of Preparers

Response 20: This correction has been made.

Wild Earth Guardians

Comment 1: The BLM ignores the state of Utah’s actual measurements of ozone levels in Duchesne and Uintah Counties and the state’s recommendation to designate both as

nonattainment under the Clean Air Act. The EPA is scheduled to take action on the States recommendation this coming October, officially designating the Uinta Basin as nonattainment. The BLM's omission of this information is in violation of NEPA's requirement to analyze the cumulative impacts from other agencies past actions and reasonably foreseeable future actions. The failure to appropriately analyze and assess the impacts of reasonably foreseeable development of the proposed leases to air quality and specifically ground level ozone concentrations also means that approval of the proposed leasing would fail to protect public health and welfare from any actual or potential adverse effect notwithstanding attainment and maintenance of all National Ambient Air Quality Standards.

Response 1: Since development is not being authorized in the lease sale EA no emissions will occur, therefore air quality impacts cannot be evaluated to determine compliance with the NAAQS. There will be no environmental impacts that result from the action of leasing parcels. Upon designation of the Basin as nonattainment (pending October 2017), both the State of Utah and the BLM will have additional but distinct requirements for addressing nonattainment in the Basin. If the parcels are leased and development is proposed, additional NEPA analysis will be required and will evaluate the proposed action for compliance with ambient air quality standards and any additional requirements that result from the nonattainment designation. Section 3.3.1 acknowledges the Governor's recommendation and the pending EPA designation. Cumulative impacts were incorporated from the BLM's ARMS model (section 4.3.2.1). This model accounted for reasonably foreseeable oil and gas development through 2021 using standard modeling methodology for projecting emission inventories into the future.

Comment 2: On the matter of FLPMA compliance with applicable pollution control laws, it is concerning that the underlying RMP fails to address the fact that the Uinta Basin is out of attainment with the ozone NAAQS and that the BLM has not proposed to undertake any revision or amendment to the RMP to address ozone violations in the Basin. BLM must amend or revisit the Vernal RMP so as to protect air quality consistent with FLPMA and must do so before moving forward with any additional leasing in the Uinta Basin. The BLM LUP Handbook underscores the need for BLM to amend or Revise RMPs for new data to serve as a useful guide for resource management. Here the inevitable designation of the Uinta Basin as a nonattainment area and the existence of violations of the ozone NAAQS confirms that the RMP does not conform with air quality standards, BLM needs a new policy for air quality, more intensive air quality impacts are occurring that previously were known, and this is all new data with major bearing on RMP decision. The BLM cannot move forward with leasing until the RMP is amended.

Response 2: An RMP is a planning/management level document that does not authorize oil and gas development to occur without subsequent NEPA analysis. The BLM's policies do not require a RMP amendment every time a new regulation or standard is implemented or revised. The BLM also does not need to revise their plan in order to implement or comply with new laws. The BLM addresses the current conditions and regulatory environment in every NEPA document and implements additional mitigation if warranted as demonstrate through an impacts analysis for actual proposed development.

Comment 3: The BLM's failure to discuss or acknowledge the lease sales occurring within Utah and across the border in Colorado and in other neighboring Rocky Mountain states is a clear

violation of NEPA. Not only has the agency failed to appropriately analyze and assess reasonably foreseeable greenhouse gas emissions from cumulative and similar leasing actions, the agency has failed to demonstrate that the climate impacts will not be significant and that an EIS is not warranted.

Response 3: Development activities at the leasing stage are not certain and the BLM is not required to quantitatively assess impacts at the leasing stage or evaluate a maximum development scenario that would likely never materialize. The BLM did include a reasonably foreseeable development scenario to disclose the nature of potential future impacts, however, it does not guarantee that development will be proposed or authorized in the future. If the leases are sold and development is proposed, a site-specific analysis will be completed as part of the subsequent NEPA review. While GHG emissions can be quantified and put into a reasonable context, there is no ambient standard or significance threshold for determining if significant impacts would result based only on the quantification of the emissions alone.

This EA's cumulative impact assessment relied on the ARMS model which used three modeling domains. The course (largest) domain was a 36-km horizontal grid centered on the Continental United States. A more refined 12-km domain was centered on Utah and encompassed all or parts of Wyoming, Montana, Idaho, Oregon, Nevada, California, Arizona, New Mexico, Mexico, Oklahoma, Nebraska, Texas, and North and South Dakotas. The third, most refined, 4-km domain was centered on Utah and also encompassed parts of Idaho, Wyoming, Nevada, Arizona, New Mexico, and Colorado. See the Utah Arms Modeling Project Impact Assessment Report section 2.1 and Figure 2-1 [AECOM 2014].

The emission inventory included point sources, area sources, and on-road and non-road mobile sources, as well as fugitive dust, ammonia, biogenic, fire, and emissions outside the U.S., such as Mexico, Canada, and offshore sources, and particular care was given to develop a comprehensive oil and emission inventory in the project area and surround region. See the Utah Arms Modeling Project Impact Assessment Report section 2.5.

The model examined a base oil and gas emission year of 2010, and also an emission inventory for the future maximum emissions year of 2021. See the Utah Arms Modeling Project Impact Assessment Report section 1.3 including page 1-5's discussion of the Future Year Runs.

Comment 4: Clearly, the social cost of carbon provides a useful, valid, and meaningful tool for assessing the climate consequences of the proposed leasing, and the BLM's failure to fully explain its decision not to use this tool is wholly inappropriate under NEPA. While we do not suggest that a comprehensive cost-benefit analysis is required, the agency must provide some explanation for its dismissal of the social cost of carbon beyond its conclusory statement that it "would not be useful" or "instructive." EA at 54.

Response 4: The BLM finds that including monetary estimates of the Social Cost of Carbon (SCC) in its NEPA analysis for this Proposed Action would be of limited use in analyzing and selecting between alternatives.

1. The SCC reflects the monetary cost incurred by the emission of one additional metric ton of carbon dioxide. The Proposed Action would not result in any direct emissions, and

although indirect emissions are estimated for the EA's future development scenario, there is no guarantee in this EA that, if the parcels are leased, development will occur at all, let alone as forecast in the reasonably foreseeable development scenario, due to changes in commodity price, supply and demand, regulatory controls, and development technology. Additional NEPA analysis would be necessary if future development is proposed.

2. Also, the NEPA analysis for this Proposed Action does not include monetary estimates of any benefits or costs for any resources. Unlike rulemaking, project-level NEPA analysis does not require a cost-benefit analysis, although CEQ NEPA regulations allow agencies to use it in NEPA analyses in certain circumstances (40 CFR § 1502.23). The CEQ regulation states (in part), "...for the purposes of complying with the Act, the weighing of the merits and drawbacks of various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are important qualitative considerations." No socioeconomic analysis was included in the EA as per the Interdisciplinary Checklist (Appendix E).

Please note that the example document cited by the commenter was a 2011 document from Montana. Montana has not been analyzing social cost of carbon in their more recent leasing documents.

Comment 5: One of the proposed leases is directly adjacent to the Dinosaur National Monument (069) and four others are in close proximity to the entrance to the Monument (063, 064, 070, 071). In the EA, the BLM does acknowledge that three of these parcels are visible from the road used to access Dinosaur National Monument and that these leases could impact the viewshed of visitors. But, the BLM's actual analysis of the viewshed impacts lacks clarity and fails to fully analyze the cumulative impacts of the leases on the night skies of Dinosaur National Monument.

For example, the BLM's affected environment discussion in Section 3.3.9 and its viewshed analysis in Section 4.2.9 misleadingly fails to disclose the actual proximity of these leases. Instead, the BLM notes that the parcels occur in "close proximity to the Dinosaur National Monument," that "Parcel 071 is located approximately 5 miles southwest" of the Monument's visitor center, and that development "may be within the line-of-sight from key observation points (KOP) of the Monument." EA at 31, 61. These statements are misleading and do not fully disclose the direct proximity of the five parcels identified above.

Response 5: Parcel 69 has been deferred from the sale. Parcel 70 has been removed from the sale. See the viewshed map 4-1 which has been added to the EA. It shows the visibility potential for Parcel 71. Although parcels 63 and 74 are not included on the map, they west and northwest of parcel 71, so they will not be visible from the Key Observation Points. The distances in the Public Comment EA version were based on distance between the Monument and the mass center of the parcels. The distances have been adjusted in the EA to reflect the parcels nearest point from KOP's. Field of vision intrusion percentages have been updated to reflect the new distances from KOP's.

Comment 6: More importantly, the BLM fails to fully disclose the importance of the Monument as "one of the darkest places remaining in the United States." Nat'l Park Serv. Stargazing, <https://www.nps.gov/dino/planyourvist/stargazing.htm>, or otherwise discuss the cumulative impacts of light pollution to the park from the existing development and the new leases in Utah

and across the border in Colorado. The BLM's failure to analyze the true impacts to a key feature Dinosaur National Monument is misleading at best, and incompetent at worst.

Response 6: Analysis of visual resources includes dark night skies which can be found in sections 4.2.9, and 4.3.2.9. Dark night skies has been added specifically to Chapter 3. Proposed parcels adjacent to the Dinosaur National Monument would be leased with stipulation: UT-S-168 "Controlled Surface Use – Light and Sound: Areas adjacent to Dinosaur National Monument", which would provide mitigation measures and reduce the potential negative impacts to dark night skies and soundscape. Please note that no surface use would be authorized through this EA, so no light impacts would occur under this EA. If the leases are issued, the lessee may submit an Application for Permit to Drill subject to the lease stipulations, which would then be reviewed through NEPA for environmental impacts and any necessary conditions of approval to reduce or eliminate impacts before approval/disapproval.

Supplemental Comment 1: On August 2, 2017, the EPA announced its withdrawal of a one-year extension of the states' obligations to promulgate initial area designations in compliance with the 2015 National Ambient Air Quality Standards for ozone. See Exhibit 1, EPA, Withdrawal of Extension Deadline for Promulgating Designations for the 2015 Ozone National Ambient Air Quality Standards (Aug. 2, 2017), available at https://www.epa.gov/sites/production/files/2017-08/documents/ozone_extension_withdrawal_august_2_2017.pdf; see also, EPA News Releases: EPA Continues to Work With States on 2015 Ozone Designations (Aug. 2, 2017), available at <https://www.epa.gov/newsreleases/epa-continues-work-states-2015-ozone-designations>. Due to this announcement, the EPA will now take action on the state of Utah's recommendation to designate Uinta and Duchesne Counties as in nonattainment with the 2015 ozone standard. EPA will very likely approve this recommendation. This determination will then trigger the BLM's obligation to undertake a "conformity" analysis before approving any new oil and gas leasing in Uinta and Duchesne Counties as required by the Clean Air Act. See 42 U.S.C. § 7506(c)(1). Guardians expects that the BLM will fully comply with these obligations before approving the December 2017 lease sale because the EPA's ultimate approval of nonattainment is a reasonably foreseeable action under the National Environmental Policy Act.

Supplemental Response 1: Since the nonattainment designation nor the classification of the region has been made, it is not a reasonably foreseeable event that can be evaluated at present. If the designation occurs prior to the leasing EA being finalized, that change will be reflected in the "Affected Environment" section of the EA. The act of leasing will not result in any emissions, therefore a conformity analysis/determination is not applicable at the leasing stage and only required when development is proposed and emissions can be accurately quantified. Furthermore, the General Conformity regulations assign a 12-month grace period after a nonattainment designation has been made before Federal agencies must comply with the requirements. If the leases are issued and the lessee submits an Application for Permit to Drill or a Plan of Development, the proposed action would then be subject to NEPA review for environmental impacts and compliance with the CAA General Conformity requirements at that time.

Center for Biological Diversity

Comment 1: The exploration and development of these parcels likely involves highly controversial and severely harmful extraction methods, including horizontal drilling and

hydraulic fracturing (or “fracking”). BLM has not taken any look at the impacts that are likely to result from such extraction methods.

BLM failed to provide any analysis of the type, extent, or source of emissions from unconventional oil and gas extraction methods, such as fracking: instead BLM arbitrarily and capriciously restricted its analysis to conventional oil and gas. The rapid expansion of unconventional oil and gas extraction makes the impacts associated with fracking foreseeable.

The EA should incorporate a literature review of the harmful effects of each of these chemicals known to be used in fracking and other unconventional oil and gas extraction methods. Without knowing the effects of each chemical, the EA cannot accurately project the true impact of unconventional oil and gas extraction.

Response 1: Analysis of hydraulic fracturing is included in this EA. The RFD includes all reasonably foreseeable development technologies that may be used, and thus, this EA considers the impacts of all reasonably foreseeable oil and gas development regardless of the specific technologies used, including hydraulic fracturing. Emissions anticipated per well for development (including HF) are disclosed in Table 4-1. Further analysis of hydraulic fracturing would occur at the APD stage as appropriate. See Section 2.2.2 and Appendix E, Interdisciplinary Team Checklist: Water: Groundwater Quality/ Municipal Watershed / Drinking Water Source Protection. Horizontal drilling is uncommon in the Vernal Field Office.

Comment 2: We insist that BLM defer the proposed December 2017 Sale pending a programmatic review of all federal fossil fuel leasing which must consider “no leasing” and “no fracking” plan amendments including an alternative that bans new hydraulic fracturing and other unconventional well stimulation activities, and require strict controls on natural gas emissions and leakage.

Response 2: This comment is outside of the scope of this EA. This EA does not authorize any well drilling including hydraulic fracturing. However, this EA did identify a reasonably foreseeable development scenario should the leases be issued, and this EA does consider a “no leasing” and a “no fracking” alternative within the scope of the subject parcels. See the No Action alternative.

Comment 3: We insist that BLM defer leasing of parcels containing endangered, threatened, and sensitive species and habitat, including parcels adjacent to the Green River and its tributaries, parcels containing endangered plants, and parcels within greater sage-grouse and black-footed ferret habitat.

Response 3: Deferral is not a no-leasing decision – it just postpones leasing until additional information can be considered. This alternative is contained within the No Action alternative. Please note that the Proposed Action alternative contains many stipulations and notices designed to protect both special status and listed species. See Appendices A and C.

Comment 4: Should BLM proceed with the sale, BLM must initiate consultation with the Fish and Wildlife Service, as required by the Endangered Species Act (“ESA”)

Response 4: The BLM is conferencing on penstemon and consulting on yellow-billed cuckoo with the USFWS for this lease sale. For any other plants and wildlife species listed under the ESA, the USFWS receives a notice about the species that occur in the lease sale parcels and the BLM requests agreement from the USFWS that the Proposed Action (leasing): 1) does not exceed the impacts analyzed in the PRMP and BA/BO and 2) would not exceed the effects determination in the BO (LAA) and our effects determination for this project (NLAA). When or if disturbance is proposed for parcels (APD stage) that contain or affect ESA species, further evaluation and Section 7 consultation of these ESA species with the USFWS will occur if necessary.

Comment 5: Should BLM proceed with the sale, BLM must prepare a full EIS for the proposed lease sale in consideration of significant unexamined impacts from the consequences of leasing.

Response 5: A determination of the significance of the potential impacts will be made when the Decision Record is signed. If it is determined that significant impacts are likely, then an EIS will be prepared. No unexamined impacts are identified in this comment so no further response is possible.

Comment 6: BLM failed to analyze air quality impacts from new development in conjunction with the existing air quality landscape for the lease parcels. BLM must analyze increased emissions from foreseeable oil and gas development for these lease parcels in order to prevent further degradation of local air quality, respiratory illnesses, premature deaths, hospital visits, as well as missed school and work days.

Response 6: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The air emissions were disclosed on a per well basis in section 4.2.1.2 of this EA. The scenario does not guarantee that development will be proposed or approved. Should the parcels be developed in the future, a site-specific analysis will be completed as part of the NEPA review that will address the increase in emissions, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards. See the response to Wild Earth Guardians comment 3 regarding a cumulative analysis of air emissions.

Comment 7: The EA also acknowledges that the air emissions from future oil and gas development in the Uinta Basin could significantly increase based on the Reasonably Foreseeable Development Scenario (RFDS) and current monitoring data, but provides absolutely no mitigation plan or additional analysis as to the impact these increased emission will have on meeting the NAAQS in the future, especially on the future ozone non-attainment areas in the Uinta Basin

Response 7: New development has not been proposed as part of the lease sale. A reasonable foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be developed in the future, a site-specific analysis will be completed as part of the NEPA review that will address the increase in emissions, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be

required to ensure compliance with ambient air quality standards. The pending nonattainment designation for the Basin (October 2017) will impact the regulatory requirements the BLM must address as well as state requirements to bring the area back into attainment. These will be important considerations for future NEPA analysis and cannot be addressed at this time since neither the designation nor classification of the Basin has been made. It is out of the scope of this EA to mitigate cumulative actions. See the response to Wild Earth Guardian's comment 3 regarding a cumulative analysis of air emissions.

Comment 8: The EA does not adequately consider the impact of increased oil and gas development, triggered by additional leasing, on the formation of air pollutants in the Uinta Basin. The BMPs and voluntary air quality programs from oil and natural gas development and operations listed in the EA are inadequate to address the current and anticipated violations of national and state health standards for ozone and PM_{2.5}. Failure to identify adequate mitigation measures in a NEPA document violates NEPA's requirement that the agency identify mitigation measures, and consider all reasonable alternatives.

Response 8: The act of leasing will not result in any emissions, so no mitigation is necessary. New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be developed in the future, a site-specific analysis will be completed as part of the NEPA review that will address the increase in emissions, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards. The pending nonattainment designation for the Basin (October 2017) will impact the regulatory requirements the BLM must address as well as state requirements to bring the area back into attainment. These will be important considerations for future NEPA analysis and cannot be addressed at this time since the designation has not been made. Stipulations and notices have been attached to the parcels to inform the lessee that future restrictions or conditions of approval may be necessary to address anticipated air quality impacts from any proposed development. No additional alternatives were identified by the BLM or any commenters.

Comment 9: BLM also deems it "impossible" to accurately quantify future emissions and assign significance to these anticipated air quality impacts because of the "variation in operator emission control technologies" implemented at the construction and development stage of the well pad. Contrary to BLM's unsupported reasoning, forecasting air quality impacts from the leasing and resource management of fossil fuel development is required by well established law.

BLM must review both (a) the foreseeable site-specific emissions sources from the proposed lease parcels and (b) the sources of air emissions from existing, permitted, and other lease sources and analyze how increased emissions from future oil and gas development will impact, cause or contribute to exceedances of the NAAQS.

BLM can readily identify oil and gas volume estimates for lease parcels by utilizing their own EPCA Phase III spatial data and overlaying the lease parcel boundary map provided in the lease sale notice. For the December Vernal/Price 2017 lease sale, this simple colocation yields and estimated oil volume of 2.307494 mmbbl and estimated gas volume of 161.249167 bcf that could

stem from development of these lease parcels. Estimating emissions from production of oil and gas wells per volume produced can be readily calculated using a number of EPA emissions inventory calculation tools. The type, quantity and future impact of additional air emissions from this new potential development can and must be analyzed in conjunction with the existing air quality landscape in this region.

Response 9: The BLM is not required to speculate on a level of development that could occur if the parcels are leased nor quantify and analyze a worst-case emissions scenario. The BLM has “forecast” the reasonably foreseeable future development as well as the anticipated emissions from that future development (on a per well basis) to disclose the nature of future impacts if development occurs. See section 2.2, Appendix D, and section 4.2.1.2. The scenario does not guarantee that development will be proposed or approved. By stating that the numbers cannot be accurate, the BLM was just trying to disclose that the numbers being used are a conservative assumption for analysis purposes. Development is not a certainty at the leasing stage due to variations in economics as well as formation production potential, and the future regulatory environment could be prohibitive to development in the Basin, or at the very least, limit the level of development that could occur.

The administrative action of leasing does not authorize development without further site-specific NEPA review, so identifying the estimated volume of oil or gas that could result from EPCA Phase III spatial data overlaid by the parcels is not representative or accurate of the level of development that may occur in the Basin or reflect the regulatory environment at the time development is proposed. However, the BLM has included in the EA a “type, quantity, and future impact” cumulative analysis that projects cumulative emissions for three domains centered on Utah through 2021. See the response to Wild Earth Guardians comment 3. This cumulative analysis was prepared using standard emission inventory preparation and modeling methodology, publically available emission data for the entire domains, and a collaborative process with other area Federal Land Managers through the RTAG to ensure quality and useful results.

Comment 10: BLM attempts to quantify emissions per well based on the RFDS in the EA. However, placing unsupported air emissions values in a table without comparing these values to the current air quality landscape and federally-enforceable air quality standards cuts the analysis off prematurely. BLM assigns no significance to these values and provides no real mitigation measures as discussed above. For example, the EA estimates that 16.4 tons/year of NO_x and 9.0 tons/year of VOCs could be emitted per well based on the RFDS for this lease sale. The RFDS also estimates that 135 wells could be developed on the lease parcels. Therefore, an additional 2,214 tons/year of NO_x and 1,215 tons/year of VOCs (NO_x plus VOCs = ozone precursors) will be emitted into the regional airshed because of this lease sale. Any additional amount of ozone emitted in a region struggling to meet basic health-based air quality standards must be classified as significant. Yet BLM conducts no such analysis and fails to provide assurances that the additional ozone emissions will not cause or contribute to violations of the NAAQS.

Response 10: The act of leasing will not result in any emissions, so no mitigation is necessary. New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or

that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the NEPA review and will address the increase in emissions, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards. The pending nonattainment designation for the Basin (October 2017) will impact the regulatory requirements the BLM must address as well as state requirements to bring the area back into attainment. These will be important considerations for future NEPA analysis and cannot be addressed at this time since the designation has not been made.

Comment 11: Recent EAs for BLM oil and gas lease sales in western states have acknowledged that “direct” greenhouse gas emissions will be emitted during the development and production phases of new oil and gas wells. GHGs emitted during the well development phase come from sources including construction, surface disturbance, and well stimulation. During the production phase, GHGs come from well operation and maintenance, including EOR and secondary recovery techniques, and vents and fugitive emissions. This EA fails to acknowledge and adequately report direct GHG emissions. Instead, in a brief paragraph entitled “indirect greenhouse gas emissions,” The EA provides a vague, uncited statement that a single operational well produces 1,192 CO₂e per year and a single drill rig produces 2,305 tons CO₂e per year, presumably as estimates of development and production emissions, without providing the basis or citation for these values and what they include. Given the numerous sources of GHGs during development and production, it is likely that these values underestimate the direct GHG emissions that would result from the lease sale. Furthermore, the EA should analyze cumulative total direct GHG emissions that would be produced over the lifetime of the wells, rather than simply reporting GHGs emission per year.

Response 11: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review and will address the increase in emissions including GHGs, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards. Regarding the CO₂e estimates, that section of the EA has been revised to incorporate the numbers from the Monument Butte EIS.

Comment 12: The EA fails to quantify the fugitive and non-fugitive CH₄ emissions that would come from the wells.

Response 12: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. This scenario included an estimate of CO₂e emissions, including methane, as well as a qualitative analysis of the impacts of CH₄. See section 4.2.4. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required

NEPA review and will address the increase in emissions including GHGs, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards. Currently, there are no ambient standards or thresholds of significance for methane or GHG emissions. Existing regulations such as OOOO and OOOOa will result in a decrease of methane emissions along with reducing VOC emissions.

Comment 13: The EA also fails to quantify the indirect downstream emissions from the end-use combustion of oil and gas produced by the wells. The EA provides average cumulative production estimates over the lifetime of wells in the region, and then provides emissions factors, but fails to report the total downstream emissions that would result from the 135 wells projected by the RFD scenario. Based on the EA's values, downstream emissions from 135 projected wells would equal ~ 4.5 million metric tons of CO₂ (e.g. 24,120 bbl oil per well * 0.43 metric tons CO₂/bbl * 135 wells + 421,302 MCF gas * 0.054717 metric tons CO₂/MCF * 135 wells). Furthermore, the EA must provide estimates of the indirect methane and N₂O emissions that would be produced from combustion of oil and gas.

Response 13: Downstream greenhouse gas emissions are estimated in section 4.2.4. New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review and will address the increase in emissions including GHGs, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards. It is unknown at the time of leasing whether parcels will yield productive wells or whether those wells will be developed for oil or natural gas recovery. Regarding the CO₂e estimates, that section of the EA has been revised to incorporate the numbers from the Monument Butte EIS (table 4.2.1.4.1-1) which calculated greenhouse gas emissions of CO₂, CH₄, and NO₂.

Comment 14: Finally, the EA states that it is not possible to assign a "significance" value or impact to the GHG emissions estimates. However, the more than 4.5 million metric tons of CO₂ that would result from the lease sale is clearly significant in the scope of national, state, and local level commitments to implementing rapid GHG emissions reductions. As detailed below, the estimated downstream CO₂ emissions that would result from the lease sale comprise a measurable ~0.012 percent of the remaining U.S. carbon budget for staying well below 2°C, which is also clearly significant.

In the context of this lease sale, the more than 4.5 million metric tons of CO₂ that would be emitted comprises 0.012% of the remaining U.S. carbon budget of 38GtCO₂ for a 50% chance of returning global average temperature rise to 1.5°C by 2100. This is measurable and significant.

Response 14: Development has not been authorized in the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology over time).

Should development be proposed, GHGs emissions and climate change impacts will be assessed as part of the NEPA required to evaluate the proposed development activities. The United States does not have a carbon budget, nor are there any ambient standards or thresholds for determining significance or national or state (Utah) commitments to implement GHG reductions.

Significance determinations are not made in an EA, they are reserved for the Finding of No Significant Impact or Finding of Significant Impact.

Comment 15: Inadequate analysis of climate change impacts also violates NEPA. NEPA requires “reasonable forecasting,” which includes the consideration of “reasonably foreseeable future actions... even if they are not specific proposals” That BLM cannot “accurately” calculate the total emissions expected from full development is not a rational basis for cutting off its analysis.

Although the 2016 CEQ guidance has been “withdrawn for further considerations,” the underlying requirement to consider climate change impacts under NEPA, including indirect and cumulative combustion impacts foreseeably resulting from fossil fuels leasing decisions, has not changed. See S. Fork Band.

Response 15: See the response to your comment numbers 9 and 13. The Final CEQ Guidance has been rescinded. GHGs and climate change have been addressed in the EA to the extent possible. The BLM is not required to speculate for the purposes of NEPA and retains discretion to apply a rule of reason in determining the appropriate level of analysis to include based on the potential impact of the Proposed Action.

Comment 16: All proposed sale parcels have the potential to impact the four Colorado River endangered Fish species (bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker) through water depletions resulting from oil and gas development. In particular, parcels UT-052, UT-054, UT-065, UT-066, and UT-070 contain or immediately abut designated critical habitat for the Colorado pikeminnow and razorback sucker.

In its 2008 Biological Opinion for the Vernal Resource Management Plan, the Fish and Wildlife Service re-confirmed its long-standing opinion that all depletions jeopardize the continued existence of the four listed fish.

As specified in the Vernal RMP BiOp, BLM must initiate consultation on the proposed lease sale on a project-specific basis. Significant new information regarding progress under the Recovery Program and climate change effects on Green and Colorado River flows requires independent reevaluation of the effects of water depletions on the four endangered fish. The Recovery Program’s 2015 Assessment of Sufficient Progress under the Upper Colorado River Endangered Fish Recovery Program indicates that Colorado pikeminnow are in decline and failing to meet recovery goals in the Green River Subbasin that will be affected by the proposed action.

Response 16: Leasing would not, by itself, authorize any water usage, which could contribute to depletion from the Green River Basin. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. 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. Additionally 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. See also the response to your comment number 4.

Comment 17: BLM must also consider, and consult on, foreseeable water quality impacts from oil and gas development and the resulting wells, pipelines pits, and soil disturbance.

Response 17: 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.

In light of existing knowledge regarding resource values on the subject leases, which is based upon the analysis in the VFO RMP [BLM 2008a] resource specialist knowledge and lease site-visits, significant impacts beyond those already addressed in the Record of Decision for the VFO RMP are not anticipated to occur as a result of leasing the proposed parcels. See also the response to your comment number 4.

Comment 18: In addition, neither the 2008 VFO RMP nor the Draft EAs have considered the impacts of climate change on these water resources, such as the decline in the stream flows. This is a significant omission, as numerous climate change models show anthropogenic climate change is profoundly impacting the Colorado River in ways that are altering temperature, streamflow, decreasing snowpack, and declining runoff and streamflow. Modeling studies project that these changes will only worsen, including continued declines in streamflow and intensification of drought. Climate change is likely to have significant effects on the endangered fish and the Colorado River ecosystem, and the effect of climate change on future flow regimes and water temperatures must be taken into account in the consultation process and considering the sufficiency of the existing Recovery Program.

Response 18: A determination on the sufficiency of the existing Recovery Program for the endangered Colorado River fish is outside of the scope of this EA and outside of the jurisdiction of the BLM. Regarding the adequacy of the consultation for this EA, see the response to your comment number 4. If any impacts are anticipated that are outside the scope of the previous consultation, the FWS will identify them and consultation will be reinitiated. Development has not been authorized in the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario

does not guarantee that development will be proposed or approved, or that the projected depletions will occur.

Comment 19: On September 1, 2016, BLM's Washington, D.C. office issued Instruction Memorandum 2016-143, Implementation of Greater Sage-Grouse Resource Management Plan Revisions or Amendments – Oil & Gas Leasing and Development Sequential Prioritization (September 1, 2016) ("IM 2016-143"). The BLM's proposed decision to lease the parcels listed above does not conform to the agency's [Vernal] RMP, as amended by the GRSG amendments and the [Utah] ROD, because the leasing EA (a) does not consider site-specific impacts to Greater Sage-Grouse and (b) does not prioritize leasing outside of Priority and General Habitat Management Areas. IM 2016-143's purpose is to provide consistency across the agency when leasing decisions impact Greater Sage-Grouse habitat. It provides a "prioritization sequence" for BLM state offices to follow when choosing to lease areas near or in Greater Sage-Grouse habitats.

BLM's own guidance is clear that the prioritization sequence and relevant factors must be considered for parcels both within and adjacent to Greater Sage-Grouse habitat. Although this lease sale's EA repeatedly states that a prioritization sequence took place, it offers no evidence that these individual factors were considered, not how BLM can reconcile the requirement to avoid the most sensitive sage-grouse habitat with its proposed action in this lease sale.

Response 19: Prioritization of Greater Sage-Grouse Priority Habitat Management Areas (PHMA), as required by IM 2016-143, was analyzed and addressed within the EA in Section 3.3.10. This IM and Section 3.3.10 of the EA states, it "is not intended to direct the Authorized Officer to wait for all lands outside of GRSG habitat areas to be leased or developed before allowing leasing within the next habitat area (PHMA, for example)." Consideration of the prioritization factors are presented in Table 3-13 and Map 3-1 of this EA. Further cumulative analysis to PHMA is presented in Section 4.3.2.10.

Comment 20: BLM must take a hard look at the effects of well pads, roads, and other ground disturbance on the Uinta Basin hookless cactus and other listed plant species, including effects on their pollinators and effects extending beyond the 300 foot buffer proposed in lease sale stipulations. In addition, BLM must consult with the Fish and Wildlife Service, using best available scientific information, to determine whether the proposed action will jeopardize the continued existence of these species.

Response 20: . For this EA, the USFWS receives a notice about the species that occur in the lease sale parcels and the BLM requests agreement from the USFWS that the Proposed Action (leasing): 1) does not exceed the impacts analyzed in the PRMP and BA/BO and 2) would not exceed the effects determination in the BO (LAA) and our effects determination for this project (NLAA). No development of parcels is permitted through the act of leasing. If parcels are leased, a lessee would need to submit an Application for Permit to Drill (APD) with a site-specific proposal to develop a lease. When or if disturbance is proposed for parcels (APD stage) that contain or affect ESA species, further evaluation and Section 7 consultation of these ESA species with the USFWS will occur if necessary.

Comment 21: The Fish and Wildlife Service previously propose these two beardtongues for listing under the Endangered Species Act, then withdrew the proposed listing largely in reliance on a conservation agreement among various state and federal entities. Last month, however, the U.S. District Court vacated the Service's decision to withdraw the listing, based on improper reliance on uncertain and/or ineffective conservation measures. Therefore, the BLM should defer from leasing parcels [38, 56, 73], each of which overlaps Graham's beardtongue and/or White River beardtongue habitat. The Conservation Agreement for those species relied on in the Lease Sale EA was recently invalidated by the United States District Court for the District of Colorado.

Rather than immediately set-aside the Conservation Agreement and order FWS to re-consider listing the species as threatened or endangered under the ESA, the court ordered the parties "to meet in person and discuss whether the Conservation Agreement may be modified in a manner satisfactory to Plaintiffs. However, the court's decision had an immediate effect on BLM's leasing decision at issue which, at least in part, is based on management decisions made in the Conservation Agreement for Graham's and White River beardtongues. Therefore, BLM should defer from leasing all parcels in Graham's White River beardtongue habitat until either a modified Conservation Agreement is prepared or FWS reexamines whether the species should be listed as threatened or endangered under the ESA.

Response 21: The court ruling did not invalidate the Conservation Agreement; it vacated the FWS decision to forgo listing of the two species under ESA because the agreement in its current form does not offer sufficient protection to these species. The multi-party Agreement is still in place, and the BLM has continued to fulfill its obligations under the Agreement while the parties discuss revisions. Due to the court ruling, the two species revert to proposed for listing status under the ESA, and the BLM will address these species accordingly. However, all of parcel 73 and portions of parcels 38 and 56 that overlap with the beardtongues' habitat have been deferred from this sale pending the outcome of the Agreement revision discussion.

Comment 22: The current Conservation Agreement for the two candidate beardtongues seeks "to identify, avoid, minimize, and mitigate potential threats to Graham's and White River beardtongues and their habitats, and to promote the species' long-term persistence, thereby preventing the need for listing either species." Conservation Agreement at 1. To achieve this goal, the Conservation Agreement establishes the following objectives:

- Minimize and mitigate direct, indirect, and cumulative threats to both species.
- Establish conservation areas that protect occupied and unoccupied habitat.
- Promote stable or increasing populations within identified conservation areas and across the range of the two species
- Investigate and demonstrate successful ecological restoration methods for transplanting and repopulating self-sustaining Graham's and White River beardtongue plant populations and community associates ... and pollinators following surface disturbance.

The Vernal EA fails to take a hard look at any of these four objectives. The management strategy for these conservation areas is set forth in twenty-nine "conservation actions" including the following:

- A maximum of 5% new surface disturbance for Graham's beardtongue and 2.5% new surface disturbance for White River beardtongue will be allowed per conservation unit from the date this Agreement is signed.
- Ground-disturbing activities will avoid Graham's and White River plants by 300 feet both inside and outside designated conservation areas.

The Vernal EA makes cursory acknowledgement that three parcels will impact the candidate beardtongues, Vernal EA at 59, but does not meet the Agreement's management strategy. It does not minimize or mitigate the direct, indirect, and cumulative impacts to the species. Instead, it postpones any and all meaningful analysis to some unknown date and applies unenforceable Lease Notices to lease parcels which are found to contain either species' habitat.

BLM cannot assure that the leasing of additional land in proposed conservation areas will not violate the 5% or 2.5% maximum new surface disturbance threshold. Moreover, leasing these parcels is a direct violation of the Conservation Agreement's stated objective to "[p]romote stable or increasing populations within identified conservation areas and across the range of the two species."

Response 22: All of parcel 73 and portions of parcels 38 and 56 that overlap with the beardtongues' habitat have been deferred from this sale pending the outcome of the Agreement revision discussion.

Office of the Governor

Comment 1: The unemployment rate in Duchesne and Uintah counties is currently 5.9 percent and 6.6 percent respectively, some of the highest unemployment rates in the state. A successful lease sale of all 64 parcels would have a tremendous, positive impact on relieving the counties' high unemployment while creating stable, high-wage jobs.

Response 1: Comment noted.

Comment 2: Included in this lease sale are three parcels near Dinosaur National Monument. The State requests BLM re-evaluate parcels 069, 070, and 071 to determine whether there is a better choice of leasing category. As the parcels are near the boundary of Dinosaur National Monument, the State wishes to ensure leasing of these parcels does not impact visual resources or cause light or sound disturbances within the National Monument. Even though the EA includes lease stipulations and notices for all three parcels that could sufficiently mitigate impacts from oil and gas drilling within the parcels, the State encourages BLM to provide a thoughtful review of these parcels to ensure energy developments can successfully coexist with outdoor recreation.

Response 2: Parcel 70 has been removed from consideration in the lease sale. Parcel 69 has been deferred pending further coordination with the Monument. Changing leasing category for parcels 69 or 71 would require a plan amendment, which is outside the scope of this EA. The EIS behind the Vernal RMP did analyze a range of management options for leasing near the DNM including no surface occupancy and open subject to standard stipulations. Please note that under the Vernal RMP the portion of parcel 69 that is adjacent to the Monument is subject to NSO for steep slopes, as well as VRM II. Within VRM II areas, any surface-disturbing activities

would 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. The use of terrain to screen development is inherent to compliance with a VRM III classification. See the response to the Dinosaur National Monument Scoping Comments letter.

Megan Williams

Comment 1: BLM must put forth an alternative that ensures no significant air quality impacts and full compliance with the CAA. This would include one that fully assesses whether there will be unacceptable health risks associated with criteria and hazardous air pollutant impacts, significant cumulative visibility impacts, or significant deterioration of air quality.

Response 1: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology over time). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including GHGs, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. Significance determinations are not made in an EA, they are reserved for the Finding of No Significant Impact or Finding of Significant Impact.

Comment 2: BLM must also include additional mitigation measures that ensure no significant impacts.

Response 2: All air quality mitigation identified by the Vernal RMP is incorporated as stipulations and notices. No direct emissions will occur as a result of the Proposed Action. Indirect impacts from future well development, if the leases are issued, would be analyzed in site specific documents so that appropriate conditions of approval could be identified and incorporated. See the response to comment 1.

Comment 3: The EA does not include a detailed air quality dispersion modeling assessment of the direct impacts of the proposed action alternative on compliance with NAAQS, on whether there will be significant deterioration of air quality and on whether there will be significant visibility impacts. Instead, the EA relies on the Air Resource Management Strategy Modeling Protocol (ARMS) analysis, which predicts significant ozone and PM_{2.5} impacts throughout the Uinta Basin based on current and future development scenarios and does not ensure prevention of significant deterioration of air quality.

Response 3: New development is not a part of the lease sale, so no emissions will occur. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology over time). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the

increase in emissions including GHGs, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. PSD review and enforcing compliance with air quality standards and regulations is the purview of the regulatory authorities responsible for the airshed—the Utah DEQ and the EPA.

Comment 4: In its comments on the modeling protocol for the Uinta Basin Air Quality Study the EPA stated that the BLM “has an obligation under NEPA to fully consider the reasonably foreseeable developments including proposed tar sands and oil shale activities that are likely in the next several decades, as well as the expansion of existing oil and gas operations regardless of whether or not an application for drilling has been submitted to your office.” Thus, the EPA does not support the BLM’s approach of waiting until receiving project-specific request before fully assessing air quality impacts.

Response 4: The BLM Utah ARMS modeling analysis, which is currently in the process of being updated, is a cumulative regional assessment that includes reasonably foreseeable development in the regional modeling assessment. See the response to Wild Earth Guardians comment 3.

Comment 5: The 2008 update to the Vernal Field Office Resource Management Plan (RMP) includes monitoring and mitigation requirements, which must be fully incorporated in the EA for leasing. And more broadly, the management plan includes air quality goals, objectives and management decisions which must be applied to any proposed leasing in the Vernal Field Office. Given that the RMP objectives and goals are vague, non-binding and therefore unenforceable, it is important that any future leasing in these areas incorporate all of the specific and enforceable mitigation measures previously established in project-specific development in the areas (e.g., in the Gasco FEIS, etc.) through the cooperative adaptive management process that is ongoing in the Uinta Basin.

Response 5: All air quality stipulations and notices from the Vernal RMP have been applied to all parcels. New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review and will address the increase in emissions including GHGs, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The BLM Utah ARMS modeling analysis, which is currently in the process of being updated, is a cumulative regional assessment that includes reasonably foreseeable development in the regional modeling assessment. The BLM will cooperatively work with the RTAG to ensure the technical credibility of the data, methodology, projections, interpretations, and conclusions as well as the usefulness of the model (see the ARMS Project Impact Assessment Report section 1.4) [AECOM 2014].

Comment 6: Given that the ambient background concentrations of several important pollutants in the area are at or exceed the NAAQS and leave little to no room for additional growth in

emissions, it is imperative that the BLM ensure that the proposed lease sale does not contribute to any exceedances of the NAAQS.

Based on the recent monitoring data from the planning area, background concentrations of ozone are already at a level of concern with respect to health impacts. The EA discloses a 2015 design value for Uintah County of 79 ppb, which appears to be based on data from the Ouray monitor. In fact the most recent EPA design values for the Roosevelt (75 ppb) and Myton (74 ppb) monitors in Duchesne County and for the Vernal (76 ppb) and Redwash (71 ppb) monitors in Uintah County also exceed 70 ppb. Monitors in the area have recorded numerous high values. Essentially, there is no room for growth in emissions that contribute to these harmful levels of ozone pollution in the area – namely, NO_x and VOC emissions. Yet, the proposed leasing acknowledges that there will be increases in NO_x and VOC emissions from approving the proposed action. Even if the estimated ozone precursor emissions increases are relatively small, as indicated in the EA, the BLM must demonstrate as part of the EA that these emissions increases will not threaten the impacted area's compliance with the ozone NAAQS.

Response 6: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including GHGs, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. Furthermore, pending a nonattainment designation for the Basin, the BLM will be subject to CAA General Conformity requirements for Federal actions in nonattainment areas which will limit emissions and development that can be authorized.

Comment 7: Even ozone concentrations at levels as low as 60 ppb can be considered harmful to human health and the BLM must consider this when evaluating the air impacts from the proposed lease development, including by considering, in detail, an alternative in the EA pursuant to NEPA that would constrain impacts to a level lower than 70 ppb, regardless of EPA's current standard, as the BLM has a duty – independent of the CAA- to protect public health and the environment.

Response 7: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The pending nonattainment designation for the Basin will require the BLM to comply with CAA General Conformity requirements for Federal actions in nonattainment areas which will limit emissions and development that can be authorized.

Comment 8: According to the 2012 Uinta Basin Winter Ozone and Air Quality Study, the current best estimate is that VOC controls are particularly important in reducing ozone

production in the Basin. An emissions inventory developed for the study indicates that oil and gas operations were responsible for 98-99% of VOC emissions emitted from sources within the Basin that were considered in the inventory. These studies indicate a need for close scrutiny of any additional ozone precursor emissions in the area, and particularly emissions of VOC.

Response 8: New development has not been proposed as part of the lease sale. A development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review and that will address the increase in emissions including, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The BLM is actively working with the Utah DEQ, the EPA and Utah State University to address air quality issues in the Uinta Basin.

Comment 9: Some of the proposed leasing parcels in the EA are located within the Gasco development area in the Desolation Canyon region. BLM states repeatedly in its response to comments for the FEIS that “[t]he analysis does show that existing air quality, *with the possible exception of ozone*, [emphasis added] will meet the NAAQS”. The ozone modeling adapted from the UBAQS study for the Gasco EIS showed incremental increases in ozone concentrations due to the Gasco development. It is also worth noting that the background ozone concentration for the Gasco FEIS was determined to be 117 ppb, or 156% of the NAAQS. Clearly there are significant impacts to ozone concentrations from the oil and gas development already ongoing and approved in the area of the proposed leasing and BLM cannot continue to open up more lands for leasing until the agency demonstrates that the existing and future development will not contribute to continued ozone exceedances in the region.

Response 9: This EA relies on the ARMS model for cumulative impact analysis, which is the latest ozone model for the Uinta Basin. See the response to Wild Earth Guardians comment 3 for a description of that model’s inputs, and section 4.3.2.1 for a summary of its results. New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review and that will address the increase in emissions including, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The BLM is actively working with the Utah DEQ, the EPA and Utah State University to address air quality issues in the Uinta Basin.

Comment 10: BLM needs to take a comprehensive, coordinated, and consistent approach to the air quality issues in the Uinta Basin and should seriously consider offsetting any further development with reductions in existing sources of air pollution.

Response 10: The Uinta Basin is complicated management area. There are approximately six Federal agencies, one Tribe, and the State of Utah who manage land in the Uinta Basin, and there are two air-managing agencies in the Basin. The BLM is actively working with the Utah DEQ,

the EPA and Utah State University to address air quality issues in the Uinta Basin. The BLM is also working cooperatively with the RTAG (made up of representatives from the other land managers) to ensure the technical credibility of the data, methodology, projections, interpretations, and conclusions as well as the usefulness of the ARMS model update to Federal Land Managers (see the October 2014 ARMS Project Impact Assessment Report section 1.4) [AECOM 2014].

Comment 11: When determining compliance with the 1-hour NO₂ NAAQS, the BLM should add the overall highest hourly monitored representative background concentration to the modeled design value that is based on the form of the standard (i.e., the 98th percentile of the annual distribution of daily maximum 1-hour concentrations averaged across the number of years modeled). There are several Federal Reference Method monitors collecting NO₂ data near the proposed leasing area. Recent 1-hour average maximum concentrations of NO₂ have been monitored as high as 95 ppb in Vernal in 2016. The Gasco EIS relied on modeling of 1-hour NO₂ impacts from the Greater Natural Buttes FEIS, which showed exceedances of the NAAQS. According to the modeling analysis relied upon for the Gasco EIS, a background concentration of 27 ppb – which is lower than all but six of the recently monitored levels in the area – would result in total concentrations that exceed the NAAQS modeling scenario in the Greater Natural Buttes FEIS.

Response 11: NO₂ was analyzed and disclosed in sections 4.2.1. New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The pending nonattainment designation for the Basin will require the BLM to comply with CAA General Conformity requirements for Federal actions in nonattainment areas, which will limit emissions and development that can be authorized.

Comment 12: Since the time of the Vernal RMP update, monitors in the Uinta Basin have recorded numerous exceedances of the 24-hour average PM_{2.5} NAAQS, despite the BLM's statement to the contrary. Specifically, the monitor in Roosevelt recorded maximum 24-hour average PM_{2.5} concentrations of: 53.8 µg/m³ in 2012; 41.7 µg/m³ in 2013; 35.2 µg/m³ in 2014; 46.7 µg/m³ in 2015; and 40.6 µg/m³ in 2017. The monitor in Ouray recorded a maximum 24-hour average PM_{2.5} concentration of 45.9 µg/m³ in 2012, 32 µg/m³ in 2013 and 34.3 µg/m³ in 2014 (note, no data are available for 2015-2017 from the Ouray monitor). All of these concentrations exceed the 24-hour average PM_{2.5} NAAQS of 35 µg/m³. According to EPA guidance, demonstrating compliance with the 24-hour PM_{2.5} NAAQS requires the 98th percentile monitored background value be added to the average of the 1st highest modeled 24-hour average concentration of the five meteorological years modeled. The most recent 98th percentile monitored concentration at the Roosevelt monitor, recorded in 2017, is 32.3 µg/m³ or 92% of the NAAQS. The 19 µg/m³ background concentration in the EA does not appear to be representative of current concentrations observed in the Basin.

Response 12: Background concentrations are based on EPA's monitored design values, not model predictions or maximum monitored emissions. The 2014-2016 PM_{2.5} Design Value for the Vernal monitor is 22 µg/m³. The EA has been corrected to include this updated value. Similarly, the 2016 98th percentile for the Roosevelt monitor is 23 µg/m³ PM_{2.5}. Monitors are often influenced by exceptional events, such as wildfires in the summer. Until such events are evaluated by the EPA, current year monitoring data is not considered validated for purposes of assessing regulatory compliance. The BLM will continue to update monitoring data in future NEPA documents with the most recent design value concentrations available.

Comment 13: BLM should assess potential visibility impacts from the proposed lease sale in the EA when considered along with all other sources that contribute to visibility impacts in these Class I areas. Since NEPA and FLPMA's implementing regulations require that the BLM provide for compliance with all CAA requirements, the BLM must not authorize the development of the proposed leases if it will contribute to adverse impacts to visibility in Class I areas. BLM, therefore, cannot allow for any increase in emissions that would contribute to changes in visibility – even if the changes, when considered in isolation, are insignificant – at any location where significant cumulative impacts are predicted.

Response 13: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The revised BLM ARMS modeling will evaluate cumulative, regional impacts as well as evaluate visibility impacts at Class I areas. The existing ARMS model's predictions for visibility are incorporated into section 4.3.2.1. It is considered sufficient to cover this proposal including any foreseeable future development because it analyzed a base year of 2010 and projected and analyzed oil and gas impacts into 2021.

Comment 14: The EA presents 'anticipated emissions' from development of the proposed leases assuming a reasonably foreseeable development (RFD) scenario of 135 wells. Based on the development assumptions provided in Appendix D of the EA, 135 wells are 'anticipated' but the maximum number of wells possible totals 1,654 wells. BLM must provide an assessment of the maximum development scenario in order to determine if significant impacts could occur at the maximum development rate. Alternatively, the BLM must include an enforceable measure in the subsequent EIS or FONSI that well development is limited to 135 wells if that is the basis for the conclusion that no significant impacts will occur from the proposed action alternative.

Response 14: The reasonably foreseeable development scenario of 135 is an estimate for analysis purposes. This scenario does not either guarantee a lease will be issued nor does it guarantee 135 wells will be drilled if one or more of the leases are issued. New development has not been proposed as part of the lease sale. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review and will address the increase in emissions, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with

ambient air quality standards and the CAA. The pending nonattainment designation for the Basin will require the BLM to comply with CAA General Conformity requirements for Federal actions in nonattainment areas which will limit emissions and development that can be authorized. The maximum wells count of 1,654 is considered by the BLM to be a worst case maximum level of potential development for the parcels offered, but is not representative of development that will likely occur since parcels may not be leased and development may not result in productive wells. There is no requirement for the BLM to speculate on a level of development or analyze a maximum development scenario.

Comment 15: The limited information on the inventory assumptions that are included in the EA may result in an underestimate of emissions from the proposed lease development. BLM does not provide any detailed information (e.g., assumptions, sources, etc.) for the per-well emissions estimates in the EA; the estimates appear to be the same inventory proposed for previous lease sales. It's not clear if the estimates include all potential emissions sources, e.g., fugitive emissions from well sites and compressor station, fugitive emission from well workovers (EA at 12), emissions associated with tanker truck activities that would occur to transport produced oil (EA at 11), etc. It's also not clear if the estimates assume reasonable development factors, e.g., construction activity duration, drilling/completion/testing duration times (including assumptions about directional drilling), etc. BLM must ensure that actual development occurs within the assumed constraints or, alternatively, should establish timeframes that do not result in significant impacts to air quality. These timeframes would need to be based on modeled demonstrations that emissions from these activities over the assumed timeframes are insignificant.

Response 15: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The analysis will be representative of actual development that is proposed. This is exactly why the BLM does not attempt at the leasing stage to make site specific assumptions regarding the level of development or timeframes for activities such as construction, drilling and completion that are critical to accurately depicting emission estimates and profiles for modeling. The emissions in the EA are conservative estimates for informational purposes only, taken from past analyses, and are not intended to represent actual emissions of future development activities.

Comment 16: The VOC emission estimate of 9 tons per year per well from the proposed action alternative may greatly underestimate emissions. The many fugitive VOC emissions sources from the oil and gas industry –e.g., from well cleanup operations (liquids unloading), well completion operations, pneumatic devices, storage tanks, dehydrator units, etc. – are difficult to quantify accurately and have been found, recently, to be greatly underestimated. In reality, the many VOC emissions sources in the oil and gas industry are subject to operator error (e.g., if a tank hatch is inadvertently left open), which may result in significant emissions from these sources. Operating practices may account for the discrepancy seen between the bottom-up emissions inventories developed for the Denver-Julesburg basin and the top-down NOAA estimates based on ambient measurements that reported significantly higher emissions.

Response 16: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The analysis will be representative of actual development that is proposed. The BLM does not attempt at the leasing stage to make site specific assumptions regarding the level of development that will occur or timeframes for activities such as construction, drilling and completion that are critical to accurately depicting emission estimates and profiles for modeling. The emissions in the EA are conservative estimates for informational purposes only, taken from past analyses, and not intended to represent emissions for future development activities.

Comment 17: BLM should ensure that the inventory does not overstate emission reductions from the application of current regulations. Specifically, the EA analysis relies on several lease stipulations and lease notices, such as the Air Quality Lease Stipulation for 2008 RMPs (UT-S-01), the Air Quality Lease Notice mitigation measures for Vernal and Price (UT-LN-96), and the Best Management Practices applicable to regional ozone formation controls (UT-LN-99). These control measures rely on certain control efficiencies and/or operating practices. However, no consideration is given to the effectiveness of the regulations for assumed controls and operating practices in the inventory. Invariably control measures are never 100% effective due to factors such as equipment down-time, upsets and decreases in control efficiency over time. BLM should adjust the inventory to account for a realistic rule effectiveness estimated for the assumed regulatory controls.

Response 17: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The analysis will be representative of actual development that is proposed. The BLM does not attempt at the leasing stage to make site specific assumptions regarding the level of development or timeframes for activities such as construction, drilling and completion that are critical to accurately depicting emission estimates and profiles for modeling. The emissions in the EA conservative are for informational purposes only, taken from past analyses, and not intended to represent emissions for future development activities.

Comment 18: BLM's HAP assessment must be a cumulative one, not just an analysis of the incremental risk associated with the proposed oil and gas leasing, which would be imposed on top of existing health risks in the area. This is of greatest concern where new well could be drilled in close proximity to existing wells (e.g., where the proposed leasing blocks overlap with other large oil and gas development areas, such as the Gasco project area). Since existing wells are typically not as well controlled as, new production activities would be, the HAP assessment should include the full suite of Mobile Source Air Toxics (MSAT), methanol, chlorinated

solvents used on site, carbonyl compounds used in flaring and diesel particulate matter and should include construction activities as well as production.

Response 18: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. HAP emissions are variable and very dependent on the scale of development and particular sources (well pads, compressor stations, tanks, dehyds, separators) and what level of control those sources have. Without a plan of development or proposed action, it is not reasonably foreseeable to complete a HAPs analysis at the leasing stage. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. If modeling is conducted for future development, a HAPs analysis will be included as part of the near-field modeling. The analysis will be representative of actual development that is proposed. The emissions estimates in the EA are for informational purposes only, taken from past analyses, and not intended to represent emissions for future development activities. For further information regarding HAP emissions from oil and gas development, refer to the Monument Buttes EIS [BLM 2016a] Table 4.2.1.4.1-1. The estimate in that EIS is for 5,750 oil and gas wells.

Comment 19 The Gasco EIS evaluated short-term and long-term impacts from numerous HAPs, including methanol, chlorinated solvents and acrolein. The Gasco EIS analysis found elevated cancer risk for acetaldehyde, 1,3-butadiene, and ethylene dibromide. The Gasco EIS also reported acrolein emissions that exceeded the acute Reference Exposure Level (REL) and the Reference Concentration for Chronic Inhalation (RfC). BLM must include a comprehensive analysis of HAP impacts and propose mitigations to address any significant health impacts from the proposed leasing development, prior to leasing.

Response 19: See the response to your Comment 18

Comment 20: Relying on ARMS means that the predicted impacts, as well as the shortcomings, of that analysis must be considered in this EA. The model performance evaluation of ozone indicated a negative model bias during winter, meaning actual concentrations could be even higher than what was predicted in the model. In addition to the model performance evaluation showing underestimation bias in the wintertime, ozone impacts may also be underestimated due to underestimated emissions inputs. Based on findings from a recent study of VOC emissions from oil and gas sources along Colorado's Front Range, emission inventories may under-predict fugitive emissions from oil and gas sources.

Response 20: Comment noted. The model shows exceedences of the NAAQS, consistent with area monitoring, so it was determined sufficient for the purposes of this analysis. The BLM is actively working with the Utah DEQ, the EPA and Utah State University to address air quality issues in the Uinta Basin, including updating the BLM ARMS modeling.

Comment 21: Even though an analysis of individual projects may show small incremental impacts when considered alone, when the impacts from all the existing and proposed sources are

added together, the effects on ozone and PM_{2.5} levels in the region can be substantial. Based on the BLM's ARMS analysis showing future potential exceedances of air quality standards, the BLM must conduct an EIS and develop an alternative that includes sufficient and enforceable mitigation measures to ensure no exceedances of CAA requirements will occur from development of the proposed lease sale.

Response 21: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The analysis will be representative of actual development that is proposed. The BLM is actively working with the Utah DEQ, the EPA and Utah State University to address air quality issues in the Uinta Basin.

Comment 22: BLM must complete an analysis to determine how much of the incremental amount of air pollution allowed in clean air areas (i.e., PSD increment) has already been consumed in the affected area and how much additional increment consumption will occur due to the proposed action. PSD increments are not mentioned in the EA except for the discussion of the ARMS analysis results which the BLM reported showed 'exceedances' of the PM_{2.5} PSD increment in future years for most assessment areas. It's not clear that this conclusion is based on a detailed increment consumption analysis, or if the BLM is comparing the modeled cumulative impacts from all sources to the allowable PSD increments. PM_{2.5}, PM₁₀, and NO₂ impacts must be evaluated with a proper increment consumption analysis – one that includes all increment-affecting sources in the impacted area – and compared to the applicable annual average and 24-hour average increments for these pollutants through the impacted area.

Response 22: The State of Utah DEQ is responsible for PSD review in the Basin. The BLM does not evaluate PSD increment consumption for regulatory purposes, only for informational and disclosure purposes. New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved. Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review and that will address the increase in emissions including, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA.

Comment 23: The BLM should assess mitigation measures for reducing impacts from methane emissions prior to the development stage. BLM has completed such an analysis to consider potential climate change impacts from future oil and gas development in other states such as Montana, North Dakota, and South Dakota. EPA requested that the Gasco Uinta Basin Natural Gas Development Project DEIS, which overlaps with parcels in the proposed lease sale ES, perform an analysis of reasonable alternatives that includes an assessment of potential means to mitigate project-related greenhouse gas emissions. Specifically, EPA suggested analyzing a

“GHG-reducing alternative” that would include measures that could be taken to reduce GHG emissions, including consideration of specific measures from BLM’s Supplemental Information Report for the eight EAs in Montana, North Dakota, and South Dakota and EPA’s GasSTAR technologies. These measures should be considered and an alternative pursuant to NEPA in this EA.

Response 23: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. This scenario included an estimate of CO_{2e} emissions, including methane, as well a qualitative analysis of the impacts of CH₄. See section 4.2.4. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review and will address the increase in emissions including GHGs, the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards. The BLM is not a regulatory agency for methane emissions. Such a requirement would be the purview of the State of Utah, or the EPA, via the NSPS regulations. Currently, there are no ambient standards or thresholds of significance for methane or GHG emissions. Existing regulations such as OOOO and OOOOa will result in a decrease of methane emissions along with reducing VOC emissions.

Comment 24: BLM should also consider mitigating methane emissions from the proposed development to help address ozone levels in the impacted area. There are numerous existing control technologies for oil and gas emission sources that achieve cost-effective reductions in methane emissions, including: Well Cleanup Operations (Liquid Unloading), Well Completions, Compressors, Pneumatic Devices, Dehydrator Units, Storage Tanks, Enhanced Operating and Maintenance Practices for Pipelines, and Leak Detection Program.

Response 24: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. This scenario included an estimate of CO_{2e} emissions, including methane, as well a qualitative analysis of the impacts of CH₄. See section 4.2.4. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The BLM is actively working with the Utah DEQ, the EPA and Utah State University to address air quality issues in the Uinta Basin.

Comment 25: BLM should consider LDAR, aimed at reducing fugitive methane emissions, and achieving significant VOC and HAP co-benefits, as additional measures for the proposed action.

Response 25: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or

approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The attached least notices and stipulations, as well as any future NEPA review, are sufficient to allow for the implementation of LDAR as necessary.

Comment 26: BLM should include a comprehensive set of actions to address greenhouse gas, VOC and HAP emission and consider these actions in an alternative in the EA – an alternative that would mandate these actions as a lease stipulation, APD best management practices or conditions of approval.

Response 26: See the responses to your comments 11-13, 16, 18, and 19.

Comment 27: It's unclear if application of lease notice UT-LN-96 (Air Quality Mitigation Measures) would also be applied to each lease; the notice is listed in Appendix A under each proposed leasing parcel but there is no mention of the application of the lease notice elsewhere in the EA.

Response 27: The lease notice would be applicable to any parcel where development occurs. The EA has been corrected to match Appendix A.

Comment 28: In addition to making the above measures enforceable requirements, BLM should also require implementation of the ozone-related mitigation measures assessed for the ARMS analysis that were most effective in reducing future year ozone levels – i.e., Scenario 2.

Response 28: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The attached least notices and stipulations, as well as any future NEPA review, are sufficient to allow for the implementation of additional ozone-related mitigation measures as necessary.

Comment 29: EPA has made the following recommendations to BLM for additional mitigation measures when expressing concern with predicted ozone and PM impacts: it would be appropriate to have the company include EPA's Natural Gas Star BMPs for ozone reduction. These BMPs would include avoiding the use of high-bleed pneumatic devices, as these valves will release VOCs and methane, and the installation of lash tank separators on proposed dehydration systems and produced water separators. In addition, consideration should be given to use lower NO_x emitting drill rigs engines (Tier III or Tier IV) and centralized condensate collection systems to reduce mobile source emissions. These control measures may include

combustion source emission control, additional road dust abatement and control, or other means as long as those measures are protective of the region's cultural resources.

Response 29: Several of the BMPs are already a requirement either through current regulation or existing BLM stipulations and COAs. New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The attached least notices and stipulations, as well as any future NEPA review, are sufficient to allow for the implementation of additional ozone- and PM-related mitigation measures as necessary.

Comment 30: Further minimization of impacts could be achieved through implementation of additional measures. Widespread elevated ozone concentrations in the region and visibility concerns in nearby Class I and sensitive Class II areas indicate the need for maximizing NO_x reductions. This could be achieved through field electrification, requirement of Tier 4 drill rigs as soon as they become available (and Tier 3 engines in the interim, which are available now) as well as Tier 2 or better construction equipment, and centralization of well pad production facilities.

Response 30: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The attached least notices and stipulations, as well as any future NEPA review, are sufficient to allow for the implementation of additional ozone- and visibility-related mitigation measures as necessary.

Comment 31: Concerns about ozone impacts and climate change warrant addressing fugitive VOC and methane emissions through implementation of all available technologies and practices to reduce emissions. In particular, BLM should require advanced leak detection and repair protocols, the use of plunger lifts and "smart" well monitoring, high-efficiency (i.e., minimum of 98% VOC destruction efficiency) flares coupled with auto-igniters and surveillance systems, the use of "green completion" practices that provide for the capture rather than combustion of saleable or otherwise usable gas, the use of no bleed devices where possible and the use of pump-down techniques during pipeline maintenance activities.

Response 31: Several of the measures mentioned in the comment are already required by the State of Utah or required by OOOO and OOOOa regulations. New development has not been

proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The attached least notices and stipulations, as well as any future NEPA review, are sufficient to allow for the implementation of additional ozone- or climate change-related mitigation measures as necessary.

Comment 32: BLM should also consider the latest mitigation information and recommendations from the Uinta Basin winter air quality study, as it develops a mitigation plan. Specifically, the interim findings suggest the use of targeted control strategies for ozone, as follows: [T]he reactivity of the VOC mixture can affect the optimal ozone control strategy, and it may be possible to reduce ozone levels more effectively by identifying targeted control strategies for high reactivity VOC, such as aromatic, aldehyde, and alkene species.

Response 32: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The attached least notices and stipulations, as well as any future NEPA review, are sufficient to allow for the implementation of additional ozone-related mitigation measures as necessary.

Comment 33: Adaptive management Strategy/Ozone Action Plan in the Gasco ROD would apply to development of these parcels. BLM cannot approve further development in this area unless and until enhanced ozone adaptive management strategies have been prepared and evaluated and enhanced ozone mitigation measures are attached as COAs.

Response 33: The Gasco EIS and ROD analyzed and made decisions related to well development, not leasing. New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The applicability of any overarching field development NEPA COAs will also be determined at that time. The attached least notices and stipulations, as well as any

future NEPA review, are sufficient to allow for the implementation of additional mitigation measures as necessary.

Comment 34: BLM cannot forego implementing mitigation required by its own actions (e.g., the ROD Adaptive Management Strategy/Ozone Action Plan requirements for the Gasco FEIS) under the assumption that future potential reductions may result from another agency's actions - e.g., from implementation of EPA's 2015 ozone NAAQS (especially considering the fact that EPA recently delayed action on area designations for one year) or from EPA's New Source Performance Standards for the Oil and Natural Gas Sector (which are currently being reviewed by the EPA and for which the Agency has proposed a 2-year stay for some of the standards, including leak detection requirements).

Response 34: See the response to your comment 33.

Comment 35: BLM should also consider a requirement as part of a proposed air quality alternative that operators curtail un-essential activities that contribute to VOC and NO_x emissions on days with predicted meteorological conditions conducive to ozone formation (e.g., reduce truck trips during wintertime inversion episodes)

Response 35: New development has not been proposed as part of the lease sale. A reasonably foreseeable development scenario was prepared for this EA to disclose the nature of any future development impacts. The scenario does not guarantee that development will be proposed or approved, or that the projected emissions will occur (given changes in regulation and technology). Should the parcels be leased and developed in the future, a site-specific analysis will be completed as part of the required NEPA review that will address the increase in emissions including the regulatory requirements at the time development is proposed, as well as mitigation measures which may be required to ensure compliance with ambient air quality standards and the CAA. The attached least notices and stipulations, as well as any future NEPA review, are sufficient to allow for the implementation of additional ozone-related mitigation measures, such as an ozone event action plan, as necessary.

Comment 36: BLM should also consider adopting a requirement in the air quality alternative that would allow for operators to offset any increases in VOC and NO_x emissions from the proposed development by a 1.2-to-1 ratio by implementing additional mitigation measures at other operations it conducts in the Uinta Basin, effectively reducing emissions of these pollutants in the Basin by a minimum of 1.2 units for every unit of emissions from the development of the proposed lease sale parcels.

Response 36: The BLM does not have authority to require emission offsets until the Basin is designated nonattainment and General Conformity requirements become applicable. Since the lease sale does not authorize development to occur and there is no certainty if or when development would occur, it is not reasonable to require mitigation or offsets at the leasing stage.