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

January 2020

March 2020 Competitive Oil and Gas Lease Sale
DOI-BLM-UT-0000-2020-0001-OTHER NEPA -EA

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Chapter 1 Purpose & Need

1.1 Project Location and Legal Description

The preliminary parcel list contained 25 parcels covering 32,713.76 acres for the March 2020 Competitive Oil and Gas Lease Sale (lease sale) and are located on public lands administered by the Bureau of Land Management's (BLM) Vernal Field Office (VFO) as described in Appendix A. The legal descriptions of the nominated parcels are in Appendix A – Parcel List with Stipulations and Notices.

1.2 Introduction

The Utah State Office (UTSO) has prepared this environmental assessment (EA) to disclose and analyze the environmental consequences for the selling of parcels and subsequent lease issuance to successful bidders from the lease sale. This EA is an issue-base, site specific analysis of potential impacts that could result from the implementation of a proposed action or alternative to the proposed action. The EA assists the BLM in project planning and ensures compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant impacts could result from the analyzed actions.[1] This EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of Finding of No Significant Impact (FONSI). If the decision maker determines this project has significant impacts following the analysis in the EA, then an EIS would be prepared. If not, a Decision Record (DR) may be signed for the EA approving the selected alternative, either the proposed action or another alternative. A DR, including a FONSI statement, for this EA would document the reasons why implementation of the selected alternative would not result in significant environmental impacts (effects) beyond those already addressed in the governing land use plan (LUP) as amended (section 1.6).

1.3 Background

This EA analyzes 25 public-nominated parcels comprising of 32,713.76 acres for the lease sale that are under the administration of the BLM. The 25 parcels are determined to be open to leasing for oil and gas development under the applicable plans. The mineral rights for these parcels are owned by the federal government and administered by the BLM. The legal descriptions of the nominated parcels are in Appendix A – Parcel List with Stipulations and Notices.

During the land use planning process, the BLM decides which public lands and minerals are open for leasing and under what terms and conditions. In accord with Resource Management Plans (RMPs), lands can be deemed open to leasing under standard terms and conditions, closed to leasing, or open under special operating constraints identified as lease stipulations at the lease stage. Lease stipulations are used to mitigate potential impacts to resources. Any surface management of non- BLM administered land overlaying federal minerals is determined by the BLM in consultation with the appropriate surface management agency or the private surface owner.

The Mineral Leasing Act of 1920 (MLA), as amended [30 U.S.C. 181 et seq.], and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA), require the BLM UTSO to conduct quarterly, competitive lease sales to offer available oil and gas lease parcels in Utah. Expressions of Interest (EOI)

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

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

In the process of this lease sale, the UTSO compiled a list of lands nominated by the public, legally available for leasing, and sent a preliminary parcel list to the appropriate District Office where the parcels are located. Field Office staff reviewed the legal descriptions of the parcels to determine if they are in areas open to leasing under the relevant LUPs, ensures appropriate stipulations have been applied and identify any special resource conditions of which potential bidders should be made aware. Standard lease terms also 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.

Once the Field Office completed the interdisciplinary parcel review (IDPR), the BLM determined that preparation of an EA was necessary for considering the public nominated parcels for the lease sale. This EA and an unsigned FONSI are made available to the public, along with the list of available parcels and stipulations and notices, for a 30-day public comment period on the BLM's NEPA Register[2] (also known as ePlanning). The UTSO Oil and Gas Leasing webpage[3] is also updated and maintained for the lease sale. Additional information regarding the BLM's leasing process is also made available for public review and reference. At the end of the public comment period, the BLM analyzes and incorporates the comments, where appropriate, into the EA and/or parcel list. The final parcel list with stipulations and notices is made available to the public through a Notice of Competitive Lease Sale (NCLS), which starts a 30-day protest period, and includes the revised EA and unsigned FONSI. If any changes to the parcels or stipulations/notices result from the protests, an erratum to the NCLS would be posted to the BLM website and on NEPA Register to notify the public of the change, prior to the lease sale. The parcels would be available for sale at an online auction held by the BLM, tentatively scheduled for March 10, 2019.

If the parcel is not purchased at the lease sale by through the competitive bidding process, it may still be leased non-competitively within two years after the initial offering at the minimum bid cost. Parcels obtained non-competitively may be re-parceled by combining or deleting other previously offered lands. Mineral estate that is not leased within a two-year period after an initial offering will no longer be available and must go through another separate competitive lease sale process prior to being leased.

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

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

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[2] The NEPA Register is a BLM environmental information internet site and can be accessed online at: https://bit.ly/2Z5PlYd

[3] UTSO Oil and Gas Leasing program webpage can be accessed at: http://go.usa.gov/xXk8c

[4] Additional Information regarding the BLM's oil and gas management program can be accessed online at: https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/

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

Standard lease terms provide for reasonable measures to minimize adverse impacts to specific resource values, land uses, or users. 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 Clean Water Act, Clean Air Act, Endangered Species Act, National Historic Preservation Act, and Federal Land Policy and Management Act, which are applicable to all actions on federal lands, including split estate. Also included in all leases are two mandatory stipulations for the statutory protection of cultural resources and threatened or endangered species (Handbook H-3120-1).

Once 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 (S) (43 CFR 3101.1-2) and lease notices (LN) (43 CFR 3101.1-3). 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.

1.4 Purpose and Need

The purpose of this action is for the UTSO to respond to the public nominations as EOIs for oil and gas leasing on specific federal mineral estate through a competitive leasing process and either lease or defer from leasing, pending additional information. The need for the Proposed Action is established by the BLM's responsibility under the MLA of 1920, as amended, the Mining and Minerals Policy Act of 1970 as amended, the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act) as amended, and Federal Land Policy and Management Act of 1976 as amended. For the March 2020 Lease Sale, all parcels were nominated by the public. 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.

1.5 Decision to be Made

Following the completion of the NEPA process the BLM would determine whether or not to lease the nominated parcels and, if so, under what lease terms and conditions (stipulations and/or notices). In order to make an informed decision, the BLM is using this EA to identify the environmental impacts of the Proposed Action and its alternatives.

1.6 Plan Conformance Review

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

<u>Statutes (As Amended)</u>

- Federal Land Policy and Management Act of 1976 (FLMPA)
- Mineral Leasing Act of 1920 (MSA)
- Mining and Minerals Policy Act of 1970 (MMPA)

- Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA)
- National Historic Preservation Act of 1966 (NHPA)
- Bald and Golden Eagle Protection Act of 1962 (BGEPA)
- Endangered Species Act of 1973 (ESA)
- Migratory Bird Treaty Act of 1918 (MBTA)
- Clean Water Act of 1972 (CWA)

Regulations

- 40 CFR Part 93 Subpart E
- 43 CFR 1600
- 43 CFR 3100
- 40 CFR 1500 – 1508
- 40 CFR 104
- 36 CFR 800
- 36CFR 60.4

Manuals[5]

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

Handbooks[6]

- Competitive Leasing Handbook (H-3120-1)

Policies/Instruction Memoranda (IM)[7]

- Updating Oil and Gas Leasing Reform – Land Use Planning and Lease Parcel Reviews (WO IM 2018-034)
- Directional Drilling into Federal Mineral Estate from Well Pads on Non-Federal Locations (WO IM 2018-014)
- Oil and Gas Leasing Program NEPA Procedures Pursuant to Leasing Reform (UT IM 2014-006)
- Utah Riparian Management Policy (2006)
- Utah's Standards for Rangeland Health (1997)
- Utah BLM Drinking Water Source Protection Zone (2010)
- Secretarial Order 3355 Streamlining NEPA (2017)

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

- Secretarial Memorandum August 6, 2018, Streamlining Environmental Assessments
- Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development (BLM UT IM 2010–055)
- BLM Utah Guidance for Lands with Wilderness Characteristics Resource (UT IM 2016-027)
- Updated BLM Sensitive Species Lists for Utah (UT IM 2019-005)
- September 2019 Memorandum from Utah Deputy State Director, Lands and Minerals regarding Preliminary List of Lands for Consideration in the March 2020 Competitive Oil and Gas Lease Sale
- Guidance for Utah BLM to Meet Responsibilities under the Migratory Bird Treaty Act and Executive Order 13186 (UT IM 2017–007)

Agreements

- MOU Among the United States Department of Agriculture, the United States Department of Interior and the United States Environmental Protection Agency Regarding Air Quality Analysis and Mitigation for Federal Oil and Gas Decisions through the NEPA Process (2011)
- State Protocol Agreement Between the Utah State Director of the Bureau of Land Management and the Utah State Historic Preservation Officer Regarding the Manner in which the BLM Will Meet its Responsibilities Under the National Historic Preservation Act and the National Programmatic Agreement Among the BLM, the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers (2001)
- MOU between the USDI BLM and USFWS to Promote the Conservation and Management of Migratory Birds (April 2010)

State of Utah Plans/Rules

- Utah Wildlife Action Plan (2015)
- The Utah Oil and Gas Conservation Act (1955)
- The Utah Oil and Gas Conservation General Rules
- The State of Utah Resource Management Plan (State of Utah 2018)

BLM Activity Plans/Strategies/Practices

- T&E Habitat Management Plan (BLM 1990)
- Utah Air Resource Management Strategy (BLM 2018)
- Air Resource Management Program Strategy 2015-2020 (BLM 2015)
- Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, The Gold Book (USDI and USDA 2007)
- Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds
- Utah Partners in Flight Avian Conservation Strategy Version 2.0 (Parrish et al., 2002)
- Birds of Conservation Concern 2002 (USFWS 2008)

BLM Land Use Plans

- Vernal Field Office Record of Decision and Approved RMP as amended, October 2008 (Vernal RMP), Vernal (BLM 2008)
- Vernal Field Office FEIS, August 2008, Vernal (BLM 2008)
- 2015 Utah Greater Sage-Grouse Approved Resource Management Plan/FEIS (BLM, Forest Service 2015)
- 2015 Record of Decision and Approved RMP Amendments for the Great Basin Region, Including the Greater Sage-Grouse Sub-Regions of Idaho, Southwestern Montana, Nevada, Northeaster California, Oregon and Utah. (BLM 2015)
- 2015 Oil and Gas Reasonably Foreseeable Development Scenario for Greater Sage-Grouse Occupied Habitat in Utah Sub-region (BLM 2015)
- 2018 Utah Greater Sage-Grouse RMP Amendment/FEIS (BLM 2018)

The alternatives described below are in conformance with the governing LUPs (as amended). Pursuant to 40 CFR 1508.28 and 1502.21, this EA is tiered to and incorporates by reference the information and analysis contained in the current RMPs and RMP Amendments and their EIS. Specifically, proposed actions align with the following BLM Land Use Plans within the designated Field Office boundaries (43 CFR 1610.5, BLM 1617.3).

Green River District

Vernal Field Office RMP, October 2008, as amended

The RMP designated approximately 1,727,200 acres of federal mineral estate open for continued oil and gas development and leasing (see RMP decisions Min 6 to Min 14 on pages 98 through 99). 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 (see RMP Appendices K. L, and R). 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. 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 (ACEC).

Utah Greater Sage-Grouse

Utah Greater Sage-Grouse Approved Resource Management Plan Amendment (ARMPA), Approved March 2015

The ROD prepared for the 2015 ARMPA (DOI-BLM-UT-9100-2013-EIS) implemented greater sage-grouse management goals and objectives, including amending leasing categories for managing the mineral estate. The Proposed Action is in conformance with the minerals decisions of the Utah Greater Sage-Grouse (ROD/RMP) (BLM 2015), including Minerals Resources, Fluid Minerals Objective MR-01 which directs prioritization of leasing outside of Greater sage-grouse habitat (see Appendix D). Leasing actions are specifically provided for in those planning decisions (Management Actions for Minerals Resources). Under the Proposed Action, parcels to be offered would be leased subject to stipulations

prescribed by the RMP (2015 RMP Appendix G). Specific management actions for Utah's BLMs programs in the 2015 ARMPA are contained in the ROD Attachment 4.

1.7 Relationship to Statutes, Regulations, Policies or Other Plans

The alternatives described below are also consistent with the LUPs decisions related to the management of the following resources/uses, including but not limited to: fire/fuels, geology/mineral resources, invasive species/noxious weeds, lands, livestock grazing, recreation, socio economics, travel/transportation, soil/vegetation, visual resources, and forestry. Other NEPA documents and relevant studies that are applicable to this analysis include:

- Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development 2008 Phase III Inventory-Onshore United States
- 2007 Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Record of Decision (BLM 2007)
- 2008 Vernal Field Office ROD and approved RMP as amended (BLM 2008)
- 2008 Vernal Field Office FEIS (BLM 2008)
- Biological Opinion for the Vernal RMP (USFWS 2008)
- 2015 Utah Greater Sage-Grouse ROD and ARMPA (BLM 2015)
- 2018 Utah Greater Sage-Grouse RMP Amendments/FEIS (BLM 2018)
- 2017 Vernal Field Office Invasive Plant Management Plan (BLM-UT-G010-2016-011-EA) (BLM 2017)
- March 2020 Lease Sale Cultural Resources Report (Utah SHPO Case No. U19BL0818) (BLM 2019)
- 2012 McCoy Flats Trail System (DOI-BLM-UT-G010-2012-0057-EA) (BLM 2012)

In order to reduce redundant paperwork and analysis in the NEPA process (*See* 40 CFR 1502.20 and 1502.21) the previous documents and their associated information or analysis are hereby incorporated by reference. The attached IDPR Checklist, Appendix D – Interdisciplinary Parcel Review Team Checklist was also developed after consideration of these documents and their contents.

1.8 Issues Identified

Identification of issues, concerns, and potential impacts that require detailed analysis was accomplished through internal review/discussion. The UTSO sent letters/ memorandum to the following stakeholders: the National Park Service (NPS), the United States Fish and Wildlife Service (USFWS), the United States Forest Service (USFS), the State of Utah's Public Lands Policy Coordination Office (PLPCO), Division of Wildlife Resources (UDWR), and the School Institutional Trust Lands Administration (SITLA) to notify them of the pending lease sale, and solicit comments and concerns on the preliminary parcel list. The BLM also provided GIS shapefiles depicting the proposed sale parcels to contacts within the NPS and UDWR. Consultation and coordination efforts are summarized in Chapter 4, Table 17.

The UTSO received the March 2020 lease sale parcel nomination list on September 3, 2019.

Internal scoping was initiated on September 20, 2019 when the nominated lease parcels for the March 2020 competitive oil and gas lease sale were presented to the Interdisciplinary (ID) Team. Resource specialists on the ID teams helped identify the following issues through coordination, and meetings.

The key issues identified through the scoping process were developed using the guidelines set forth in section 8.3.3 of the BLM NEPA Handbook and EA are summarized in Table 1 and Table 2, below.

Table 1. Issues Identified for Detailed Analysis

Issue	Issue Statement	Impact Indicator
Air Quality	What quantity of air pollutants would be produced based on the reasonably foreseeable development (RFD) scenario? How would air pollutant emissions from subsequent development of leased parcels affect air quality?	Tons per year of PM-10, PM-2.5, NO_X, SO_2, CO, VOCs, HAPs.
Greenhouse Gas/Climate Change	What quantity of greenhouse gas emissions (GHG) would be generated from subsequent oil and gas development of leased parcels based upon the RFD scenario? How do these amounts compare to other sources of GHGs?	Metric tons (MT) or million metric tons (MMT) per year of carbon dioxide equivalents (CO2eq)

1.9 Issue Statement Rationale for Not Further Discussing in Detail in the EA[8]

Where resources are present but not determined to be impacted or resources are determined not to be present, a rationale for not considering them further is provided in the Interdisciplinary Parcel Review Team (IDPRT) checklist (Appendix D – Interdisciplinary Parcel Review Team Checklist), and in the external coordination as described in Table 17. Table 2 highlights key issues evaluated and not discussed in further detail in this EA for the resources the BLM commonly receives public comments and/or interests. The analysis within an EA must focus on significant environmental issues (40 CFR 1500.1, 43 CFR 1502.2(b), 40 CFR 1502.15, 40 CFR 1501.7(a)(2), 40 CFR 1501.7(a)(3), and 40 CFR 1502.1), and have not been decided by law, regulation, or previous decisions.

Issues not included in further detail have been determined that additional analyses are not required. These issues have either been previously analyzed within a FEIS and/or EA or have Required Design Features (RDFs) that are implemented by law, regulation, or previous decisions (i.e., RMP ROD, EA decision, or EIS decision) (BLM 2015, BLM 2015, BLM 2008, DOI-BLM 2007). Refer to section 1.6 and 1.7 for a complete list of applicable regulations, policies, or RMPs. Impacts to the resource have also been reduced through design features, best management practices, mitigation requirements, stipulations, and lease notices. The issues not included in further detail are described below in Table 2.

[8] Refer to the IDPRT checklist (Appendix D – Interdisciplinary Parcel Review Team Checklist) for the complete rational for resources identified for analysis and resources not considered for further detailed analyses.

Table 2. Issues not included in Further Detail in the Environmental Assessment

Issue	Rationale for Not Further Discussing in Detail in the EA
T&E Species	The parcels involved in the March 2020 lease sale were analyzed individually for occurrence of federally listed species, in coordination with the USFWS. The Threatened and Endangered Species Act Stipulation is applied across all lease parcels, and states that if any parcel is found to contain plants, animals or their habitats determined to be threatened, endangered or special status species, the BLM may recommend modifications to exploration and development proposals to further its conservation and management objective. Under this stipulation, the BLM may also require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species, or result in destruction or adverse modification of a designated or proposed critical habitat. As appropriate, BLM attaches stipulations or notices to the lease which give notice to the lessor/operator of potential for occurrence of federally listed species, and measures that may be required to mitigate impacts. Additional details may be found in Appendix D The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation.
BLM Sensitive Species (Wildlife and Plants)	The Federal Land Policy and Management Act of 1976, Section 102.8, requires environmental resources to be managed to provide food and habitat for fish and wildlife. The Sikes Act instructs agencies to develop, maintain, and coordinate programs for the conservation and rehabilitation of wildlife, fish and game (16 U.S.C. 670*et seq*., section 670h). The DOI Manual 632 and BLM Manual 6840 requires conservation of special status species and the ecosystems upon which they depend on BLM-administered lands. BLM special status species are those listed or proposed for listing under the ESA, and species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. Instructional Memorandum No. UT IM-2019-005 provides the plant and wildlife Species lists for BLM-administered public lands in Utah and these species have been evaluated for potential impacts from the proposed lease sale, as documented by the checklist found in Appendix D of this EA. The Utah BLM has several lease notices that protect sensitive species statewide (see UT-LN-49 Utah Sensitive Species in Appendix A of this document) or on a species-specific basis (for example, see UT-LN-89 (Horseshoe Milkvetch (*Astragalus Equisolensis*)). For the March 2020 lease sale, the BLM analysis of potential for impacts to sensitive wildlife and plants or their habitat, and determined that application of the UT-LN-49: Utah Sensitive Species to all parcels in the sale will notify the lessee/operator 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, and that modifications to the Surface Use Plan of Operations

Issue	Rationale for Not Further Discussing in Detail in the EA
	may be required to protect these resources from surface disturbing activities. In addition, due to potential for listed plant species, the implementation of T&E-05: Listed Plant Species will add an additional layer of protection. Specific parcels have been identified as having occurrence, or potential occurrence of several species of plants or animals that may require modification of surface use plans to avoid disruptive or harmful activities. In addition, multiple parcels contained sensitive habitat for game species such as elk, mule deer or pronghorn antelope. Lease notices specified by parcel in Appendices A and D of this EA identify those species to make the operator aware of possible additional action. Justification for stipulations and lease notices applied by parcel is discussed in detail in Appendix D of this EA. Leasing of the proposed leases would not, by itself, authorize any ground disturbance; however, the proposed lease sale has the potential to impact habitat through future oil and gas development. Although site-specific effects cannot be analyzed until an exploration or development application is received, attachments of stipulations and notices to leases will assure the opportunity to make adjustments, such as design modifications, at the site specific level when an Application for Permit to Drill is received, to address specific wildlife and plant resources.
Migratory Birds	The Migratory Bird Treaty Act (MBTA) protects migratory birds; Instructional Memorandum No. 2008-050 requires the BLM to Address the potential effects of the project son migratory bird populations and their habitat, and implement best management practices to avoid or minimize the possibility of impacts, through such measures as timing limitations during nesting seasons, surveys for bird nests, and monitoring (https://www.blm.gov/policy/im-2008-050). The Utah BLM has several lease notices that implement this policy during lease sales, ranging from those applied statewide (UT-LN-45: Migratory Birds, found in Appendix B of this document) to more narrow groups of taxa (see UT-LN-43 Raptors). In addition, several migratory birds have been designated as BLM Sensitive Species, and these may have additional protections through notices to potential buyers of potential for occurrence on a given parcel (see UT-LN-49). For the March 2020 lease sale, the BLM analysis of potential for occurrence indicated that application of the following lease notices was appropriate for every parcel in the sale, UT-LN-43 Raptors, and UT-LN-45: Migratory Birds. UT-LN-43 provides that raptor habitat exists in a given parcel, and that surveys will be required to identify any nesting birds. UT-LN-45 gives prospective buyers 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. Based on these surveys, buffers and timing limitations may be applied. In combination these lease notices provide mitigation measures which will mitigate impacts to migratory birds, by allowing the

Issue	Rationale for Not Further Discussing in Detail in the EA
	opportunity to make adjustments, such as design modifications, at the site-specific level when an Application for Permit to Drill is received.
Greater Sage-Grouse	The Vernal Field Office Resource Management Plan analyzed the effects of leasing and developing oil and gas resources on sage-grouse and other sensitive wildlife species. In 2015, the BLM approved the Utah Greater Sage-Grouse Approved Resource Management Plan Amendment (ARMPA). The ARMPA identifies priority and general habitat management areas (PHMA and GHMA, respectively) across Utah, and provides measures to minimize impacts to PHMA and GHMA where they cannot be avoided. Further analysis of modifications proposed to the 2015 ARMPA are provided in the 2018 FEIS, with associated decisions not yet implemented (BLM 2018). Greater sage-grouse inhabit sagebrush plains, foothills, and mountain valleys. Greater sage-grouse are a sagebrush obligate species, therefore require quality sagebrush habitat, especially for brood rearing and wintering habitat. All parcels except parcels 022, 023, 024, and 025 have potential to contain greater sage-grouse habitat. All PHMA located within the parcels identified for the March 2020 lease sale is designated as no surface occupancy (NSO), minimizing potential for direct impacts to the species. In addition, known leks located outside of PHMA are protected through stipulations and notices designed to incorporate management practices to minimize indirect impacts. Where stipulations allow for requests for exceptions or modifications, these would be granted only in situations which would not have direct, indirect or cumulative effects or would provide clear conservation gains to the species. Where an exception or modification may be granted for a single stipulation, other stipulations and notices would remain in effect, providing multiple layers of protection. Collectively the stipulations and notices will minimize impacts to the species to the degree that no additional detailed analysis in this EA is necessary. Appendix C includes maps illustrating the location of March 2020 parcels in relation to PHMA and GHMA. Appendix A provides specific stipulations and notices applied by parcel. A discussion of the BLM's analysis and actions taken to protect this habitat through stipulations and notices is included in Appendix D, Interdisciplinary Parcel Review Team Checklist.
Paleontology	Fossils uncovered during ground disturbing activities would be protected owing to the standard discovery requirements. Additionally, should a parcel be located in an area that has high potential for paleontological resources, COAs would be applied at the APD stage. The proponent may be required to do pre-constructional surveys and/or have a paleontologist onsite for any surface disturbing activities. The proponent is required to notify the BLM of any discoveries they come across during construction following the APD stage.

Issue	Rationale for Not Further Discussing in Detail in the EA
Lands With Wilderness Characteristics	Parcels 026 and 027 intersect the Sweet Water lands with wilderness characteristics inventory area (IA). The 2008 RMP/ROD decision did not choose to protect the wilderness characteristics of Sweet Water IA because of its high potential for oil and gas development. This decision is consistent with policy, Manual 6320, released since then. Refer to A.1.g. (page 9) that in making the final planning decision regarding management of lands with wilderness characteristics, consider both the resources that would be forgone or adversely affected, and the resources that would benefit under each alternative (BLM 2012).
Cultural Resources	The BLM has conducted a literature search using survey and site information from the CURES geodatabase, Preservation Pro, DAM, GLO maps, and Field Office records to identify currently known sites within the lease parcels, and to determine whether these sites could be avoided or mitigated through standard archaeological practices at the APD stage. The Cultural Resources and Tribal Consultation Stipulation (H 3120-1) is applied across all lease parcels. This stipulation states that the lease area may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 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 (e.g., State Historic Preservation Officer (SHPO) and tribal consultation) 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. Moreover, prior to granting APDs on Federal surface or split-estate lands, cultural resource inventories are required.
Riparian/ Wetlands/ Floodplains	Resource Management plans for each office affected by the March 2020 lease sale analyzed the effects of leasing and developing oil and gas resources on water resources and associated features. Leasing of parcels would not directly affect these resources. Current regulations such as Onshore Order #1, Onshore Order #2, Onshore Order #7, 43 CFR 3162.3-3, section 404 of the 1972 Clean Water Act as amended, and 1974 Safe Drinking Water Act as amended, 1968 Floodplain Regulation Act as amended provide additional protection to water resources. BMPs, SOPs, and site-specific mitigation may be applied at the APD stage as COAs. Applying the following stipulations to parcels as needed will minimize potential impacts to wetland and riparian resources. UT-LN-53— Riparian Areas states no surface use or otherwise disruptive activity allowed within 100 meters of riparian areas.

Issue	Rationale for Not Further Discussing in Detail in the EA
	UT-S-386—NSO: Water Resources mandates no surface occupancy within 100-year floodplains, and within 500 feet of intermittent and perennial streams, rivers, riparian area, wetlands, water wells, and springs. UT-S-387—NSO: Ephemeral Streams and states no surface occupancy allowed within 100 feet of ephemeral streams. UT-LN-128— Floodplains Management mandates avoiding adverse impacts to floodplains. With these stipulations and other site-specific mitigation practices, no additional analysis is required in this EA.
Hydrology/ Surface and Groundwater Resources	Potential site-specific impacts relating to future authorizations will be reviewed and possibly analyzed in detailed when an APD is received. Prior to approving an APD, Hydrologic and Engineering reviews would be conducted on all proposed down-hole activities, including hydraulic fracturing (if proposed). All appropriate regulatory and mitigation measures would be included in the approved APDs and all potential impacts would be identified and addressed during the site-specific NEPA process. Groundwater: Groundwater quality protection for oil and gas leasing, exploration and development are outlined in Instruction Memorandum (IM) No. UT 2010-055: Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development-Utah BLM. The purpose of this IM is to clarify the process for the protection of usable ground water zones (≤ 10,000 mg/L as defined in Onshore Oil and Gas Order No. 2) associated with oil and gas exploration and development activities. All potential usable water aquifers would be cased and cemented. Well casings would be pressure tested to ensure integrity. The lease parcels are not within nor do they contain any Sole Source Aquifers or Public Drinking Water Source Protection Zones. The requirements for oil and gas drilling operations are described in Onshore Oil and Gas Order (OO) No. 2 and the requirements for disposal of produced water from oil and gas activities are contained in OO No. 7. Adherence to these regulatory requirements will adequately mitigate impacts from the Proposed Action to groundwater resources. Specific to groundwater protection, OO #2 requires that the proposed casing, cementing and abandonment programs shall be conducted as approved to protect and/or isolate all usable water zones and requires pressure testing the casing string. Known water bearing zones would be protected by drilling requirements and, with proper practices, contamination of ground water resources is highly unlikely. As a result, groundwater resources would not be impacted to the degree that would require detailed analysis in the EA.

Issue	Rationale for Not Further Discussing in Detail in the EA
	Surface water: The lessee/operator would submit an APD when oil and gas exploration and development activities are proposed. The APD would be subject to site specific NEPA review and analysis. An approved APD is subject to standard operation procedures (SOP) required by regulation, stipulations attached to the lease, best management practices (BMP) included in the APD submission, and conditions of approval (COA) developed during the NEPA analysis and documentation process. These SOPS, BMPs and COAs mitigate impacts to water resources from oil and gas exploration and development activities. Standard operating procedures including interim and final reclamation are required and site specific APD approvals would provide mitigation for potential direct and indirect impacts to surface water quality. To protect water resources BLM proposes to apply the following stipulations and lease notices as needed: Stipulation UT-S-128, UT-S-386, UT-S-387, UT-LN-128 and UT-LN-53. The SOPs, BMPs, COAs and stipulations will adequately mitigate impacts from the Proposed Action to surface water resources. Surface water resources will not be impacted to the degree that will require detailed analysis in the EA.

1.10 Public Comment Period

The preliminary EA and the unsigned FONSI is subject to a public comment period, which was held from December 3, 2019 through January 3, 2020. (Appendix H – Comments and Responses). The BLM received seven comments on the lease sale (refer to section 4.3). A 30-day protest period will be held from January 23 to February 24, 2020.

Chapter 2 Description of Alternatives

2.1 Introduction

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

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

Leasing is an administrative action that does not directly cause environmental consequences. However, leasing is considered to be an irretrievable commitment of resources because the BLM generally cannot deny all surface use of a lease unless the lease is issued with a no surface occupancy (NSO) stipulation. Potential oil and gas exploration and production activities, committed to in a lease sale, could impact other resources and uses in the planning area. Direct, indirect, or cumulative effects to resources and uses could result from future levels of lease exploration or development, however these future levels are uncertain and undetermined.

2.2 Analysis Assumptions

2.2.1 Reasonably Foreseeable Development Scenario

The Reasonably Foreseeable Development Scenario (RFDS) is a planning tool to provide a reasonable estimate of what oil and gas exploration and development activities might be proposed, should a decision be made to lease the area. The RFDS is a 20-year forward-looking estimation of oil and gas exploration and development that is exclusive of other concerns that might compete for use of land in a multiple-use scenario.

Although at this time the BLM does not know when, where, or if future well sites or roads might be proposed on any leased parcel. Should a lease be issued, site specific analysis of individual wells or roads would occur when a lease holder submits an APD.

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

- Approval of Notice of Intent to Conduct Geophysical Exploration to Federal Oil and Gas Lessee on Split Estate (WO IM 2009-121)
- Cultural Resources Requirements for Split Estate Oil & Gas Development (WO IM-2009-027)
- Split Estate Report to Congress--Implementation of Fluid Mineral Leasing and Land Use Planning Recommendations (WO IM 2007-165)
- Permitting Oil & Gas on Split Estate Lands (WO IM 2003-131)
- Legal Responsibilities on Split Estate Lands (WO IM 1989-201)
- Directional Drilling into Federal Mineral Estate from Well Pads on Non-Federal Locations (WO IM 2018-014).

Management provisions would adhere to the Gold Book best management practices (United States Department of the Interior and United States Department of Agriculture 2007). In general, activities are anticipated to take place as described in Appendix G – Reasonably Foreseeable Development of Leases

Scenario. This appendix provides a general discussion of possible post-leasing RFDS activities. All of these activities would require additional NEPA review when a lease holder submits an APD.

The United States Government Accountability Office (GAO) completed a detailed data review of approximately 47,925 federal onshore oil and gas leases issued from 1987 through 1996 (GAO 2008). The GAO found that only 6 percent (2,904 leases) of the leases issued were drilled during the 10-year lease term, and about 5 percent (2,386 leases) of the leases produced oil and gas by 2007.

BLM Utah issued 10.7 percent (5,127) of the total federal onshore oil and gas leases (47,925) analyzed in the GAO report. Of those leases in Utah, 6.17 percent (1,556) were drilled and 3.76 percent produced [refer to Table 4 in (GAO 2008)]. Over a five year period between 2014 and 2018, on average only 58% of approved APDs (federal and non-federal) across Utah were developed (UDOGM 2018).

RFDS Assumption for Analysis in this EA

For the analysis of the 25 nominated parcels by the public, encompassing 32,713.76 acres, it was estimated a maximum of 30 wells[9] would be drilled (BLM 2015, BLM 2008), and the maximum new disturbance will be 30 wells totaling 150 acres (a well totaling 5 acres of disturbance including well pad and access road)(Table 3 Reasonably Foreseeable Development of Leases Scenario for the Nominated Parcels

Table 3 Reasonably Foreseeable Development of Leases Scenario for the Nominated Parcels

Field Office	Nominated Parcels	Nominated Acres	Total RFDs (well)	Total RFDs (acreage)
Vernal	**25**	**32,713.76**	**30 wells**	**150 acres**

Green River District

Vernal Field Office

The VFO analyzed production of nearby wells. Parcel 013 is estimated to have 4 wells totaling 20 acres of disturbance, parcel 022 is estimated to have 2 wells totaling 10 acres of disturbance, and parcels 001 through 012, 014 through 020, and 023 through 027 will have one well for each parcel at 5 acres each of disturbance. Therefore, the RFD for all 25 parcels will be 30 wells totaling 150 acres. The RFDs are based on one-mile buffer of each parcel, and if there were no production within the one mile, one test well was recommended. If there was production within the 1 mile buffer, the total number of potential wells was calculated by the downhole spacing order (Appendix G – Reasonably Foreseeable Development of Leases Scenario). The maximum new disturbance will be 30 wells totaling 150 acres (a well pad and access road disturbance equaling 5 acres).

2.3 Alternative A – Proposed Action

The BLM would offer for lease the 25 nominated parcels (covering 32,713.76 acres) in the lease sale. The leases would include the standard lease terms and conditions for development of the surface of oil and gas leases provided in 43 CFR 3100 (BLM Form 3100-11) along with all stipulations mandated by policy (such as the Competitive Leasing Handbook, H-3120-1) and by the governing Land Use Plans (LUP).

[9] Additional information is located in Appendix G.

Legal land descriptions along with corresponding stipulations as well as notices added to address resource issues found through review and analysis that would be attached to each parcel are located within Appendix A – Parcel List with Stipulations and Notices. All stipulations from the governing LUP(s) and necessary notices being applied to the parcels are detailed in Appendix B – Stipulations and Notices Areas offered for oil and gas leasing would be subject to measures necessary to mitigate adverse impacts, according to the categories, terms, conditions, and stipulations identified in the land use plans, as amended.

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

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

At the leasing stage it is uncertain whether development on all leased parcels will move forward; however, for the purposes of this analysis, and in order to assess potential impacts, Reasonably Foreseeable Development (RFD) is assumed wherein all 25 nominated parcels will be developed. The Reasonably Foreseeable Development used for analysis assumptions under this alternative is described in Section 2.2.1.

2.4 Alternative B – No Action

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

2.5 Other Alternatives Considered but Not Analyzed in Detail

Other alternatives to the Proposed Action were not identified that would meet the purpose and need of agency action.

The Interior Board of Land Appeals has held that subsumed in a no action alternative is consideration of not leasing any or all parcels (Biodiversity Conservation Alliance *et al.*, 183 IBLA 97, 124 (2013)). The No Action alternative allows the authorized officer to resolve resource conflicts by deferring or removing parcels from the lease sale, before offering those parcels for sale. The alternatives carried forward represent those necessary for a reasoned choice (40 CFR 1502.14) and are based on the issues that were identified by the IDPRT.

2.5.1 No Leasing Alternative (Designating the Parcels as Closed to Leasing)

A no leasing alternative was considered but eliminated because it is inconsistent with the management plans for the area, and therefore is outside the purpose and need of this EA. This alternative would require a RMP Plan Amendment because the areas in question were found suitable for leasing by the governing RMPs and preceding management plans. The RMPs as amended also identified the lands as available for leasing subject to a range of constraints, and reject a no leasing alternative. This alternative was dismissed from detailed consideration.

2.5.2 Deferring Specific Parcels from the Sale

Since each parcel is an independent, though similar, action the BLM at the end of the EA process could choose to either lease or defer any parcel in the EA's decision record. Therefore, this alternative to defer for specific resource concerns was not considered in detail because it is substantially a combination of the proposed action and no action and does not improve the range of alternatives. Offering or deferring any particular parcel in this EA is within the range of alternatives already considered in detail in this EA, and can be implemented at the discretion of the Authorized Officer, as the need is identified in the NEPA analysis.

2.5.3 Adding Stipulations Beyond those Required by the Management Plan

This alternative to add additional stipulations beyond those identified by the applicable Management Plan to the nominated parcels was not considered in detail because it would require a plan amendment, which is outside the scope of this EA. However, deferral of any particular parcel due to unresolved resource conflicts is within the range of alternatives considered in detail in this EA, and can be implemented at the discretion of the Authorized Officer, or as the need is identified in the NEPA analysis.

2.5.4 No Contribution to the Uinta Basin's Air Quality

An alternative was suggested that prohibit contribution to or exacerbation of the air quality in the Uinta Basin. This alternative was not considered in detail because: 1) the act of leasing does not result in emissions and 2) no Federal or State laws prohibit contribution of emissions to a non-attainment airshed. Oil and gas exploration or development (which would result in emissions) is not being proposed in or authorized through the proposed action, and is outside the scope of this EA. If the leases are issued, and if development is proposed, additional analysis of the impacts to air quality would be conducted before an authorization may be granted.

Chapter 3 Affected Environment

3.1 Introduction

This chapter presents the potentially affected existing environment (i.e., the physical, biological, social, and economic values and resources) of the impact area as identified in the IDPRT Checklist as found in Appendix D – Interdisciplinary Parcel Review Team Checklist and introduced in Chapter 1 of this EA. Only those aspects of the affected environment that are potentially impacted are described in detail. Only those aspects of the affected environment related to the issues presented in Table 1 and discloses any potential direct, indirect and cumulative impacts on the resources identified as issues. Once issues are identified, impact indicators are selected to assess the impacts of alternatives and are used as a basis for future monitoring (Table 1. Issues Identified for Detailed Analysis).

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 D – Interdisciplinary Parcel Review Team Checklist.

Assumptions for analysis

The act of leasing 25 nominated parcels covering 32,713.76 acres in and of itself would have no immediate impacts on resources in the Vernal Field Office (VFO). However, for the purposes of this analysis, a framework of RFD is assumed wherein all parcels under each alternative are leased and developed.

While an appropriate level of NEPA for wells or roads would occur when a leaseholder submits an APD, reasonable development assumptions for lease development will be used in the analysis of impacts in this EA to inform the decision since leasing results in a commitment resources unless the lease is allowed to expire without development.

Cumulative impacts include the combined effect of past projects, ongoing projects, and other reasonably foreseeable future actions.

3.2 General Setting

The proposed action would result in additional leasing of acres in Green River District (2 percent). Utah's State and Institutional Trust Lands Administration (SITLA) offered quarterly competitive lease sales in January, April, and July 2019, October 2019, and November 2019[10]. The STILA parcels may be interspersed or located in the general vicinity of the nominated lease parcels analyzed in this EA.

[10] Additional information regarding the SITLA can be accessed online at: http://sitla.maps.arcgis.com/apps/MapSeries/index.html?appid=4744407de569440b875849fa34672865.

Green River District

Vernal Field Office

Currently there are 1,303,374 authorized leased[11] acres in the VFO (Table 4), which includes those acres from the March 2019 and June 2019 lease sales. To date, the Vernal Field Office RMP, as amended by the GRSG ARMPA (BLM 2015) designates 1,878,294 acres open to leasing with either standard, moderate (CSU/TL), or major stipulations (NSO). Approximately 69% of these acres have been leased; not including the acres from the September 2019 (11,666 acres) and December 2019 (302 acres) lease sales. The March 2020 lease sale would offer additional 1.7% (32,713) of the acres designated for leasing. Currently, there are 1,303,374 leased acres within the VFO, and the lease sale would make an additional 32,713 acres available for lease.

To date, the leases from the September 2019 lease sale have not been issued, and the December lease sale has not occurred. If the September leases are issued before the March 2020 lease sale, then the total authorized leased acres for the VFO would be 1,315,040 or 70% leased. If all parcels offered at the December lease sale are sold and leases issued, then total authorized leased acres for the VFO would cumulatively increase to 1,315,342 acres or 70% leased. Assuming all offered acres from the September 2019 and December 2019 lease sales become authorized leased acres, the March 2020 lease sale would be a cumulative increase of approximately 1.7% (or 71.7% authorized lease acres). This is because if the September 2019, December 2019, and March 2020 leases are authorized the total leased acres for the VFO would be 1,348,055 acres or 72% of the 1,878,294 acres designated for leasing.

Table 4. Leasing Category Acreages for Vernal Field Office

	Designated Acres	Authorized Lease Acres[1]	% Leased Acres	Acres Offered-Leases Not Issued[2]	March 2020 Proposed Acres	% March 2020 Proposed Acres	Proposed Authorized Lease Acres (%)[4]
TOTAL	1,878,294[3]	1,303,374	69%	11,968	32,713	1.7%	71.7%

[1] Leased acres are calculated using GIS data and are therefore a close approximation of actual leased acres. All calculations were rounded to the nearest whole number. Authorized lease acres include the acres from the March 2019 and June 2019 lease sales within the VFO, but do not include September 2019 or December 2019 lease acres as these have not been authorized.
[2] Acres offered at the September 2019 and December 2019 lease sales are show here. These acres were or could be offered for sale, but a decision to issue leases has not been signed and therefore no leases have been authorized.
[3] Designated acres total only includes the leasable designated acres and excludes the 577,216 closed acres.
[4] This percent of proposed authorized lease acres includes the acres from the September 2019, December 2019, and March 2020 lease sales.

3.3 Resources/Issues Brought Forward for Analysis

The affected environment of the proposed action and no action alternatives, and their potential environmental effects were considered and analyzed by the IDPRT as documented in the IDPRT Checklist, Appendix D – Interdisciplinary Parcel Review Team Checklist The checklist indicates which

[11] ArcGIS data displaying land status by surface management agency and existing oil and gas leases on federal lands can be found at: https://bit.ly/2Uy8TpF

resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis. Resources which could be impacted to a level requiring further analysis are described in this chapter and impacts to these resources are analyzed below.

3.3.1 Issue 1: What quantity of air pollutants would be produced based on the reasonably foreseeable development (RFD) scenario? How would air pollutant emissions from subsequent development of leased parcels affect air quality?

3.3.1.1 Affected Environment

Information on air quality in the leasing area is contained in the 2018 BLM Utah Air Monitoring Report (AMR) (BLM 2019) and in each field office RMP (see Section 1.7) to which this analysis incorporates by reference. This EA summarizes technical information related to air resources affected environment.

Air Quality

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including six nationally regulated ambient air pollutants including carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} & $PM_{2.5}$), sulfur dioxide (SO_2) and lead (Pb). EPA has established National Ambient Air Quality Standards (NAAQS) for criteria pollutants (Section 2.2.1, AMR). The NAAQS are protective of human health and the environment. Compliance with the NAAQS is typically demonstrated by monitoring for ground-level atmospheric air pollutant concentrations. Areas where pollutant concentrations are below the NAAQS are designated as attainment or unclassifiable, and air quality is generally considered to be good. Locations where monitored pollutant concentrations are higher than the NAAQS are designated nonattainment, and air quality is considered unhealthy. Nonattainment areas in Utah have been designated in portions of the Salt Lake Field Office (primarily along the Wasatch Front) and in the Vernal Field Office (portions of Duchesne and Uintah Counties below 6,250 ft elevation) (BLM 2019). Most parcels (Appendix A – Parcel List with Stipulations and Notices), in the Vernal Field Office, are located in a nonattainment area for ozone while parcels 005, 026, and 027 are in areas designated as attainment or unclassifiable.

Air quality in a given area can be measured by its Air Quality Index value (AQI). The AQI is reported according to a 500-point scale for each of the major criteria air pollutants, with the worst denominator determining the ranking. For example, if an area has a O_3 value of 132 on a given day and all other pollutants are below 50, the AQI for that day would be 132. The AQI scale breaks down into six categories: good (AQI<50), moderate (50-100), unhealthy for sensitive groups (100-150), unhealthy (>150), very unhealthy and hazardous. The AQI is a national index, therefore the air quality rating and the associated level of health concern is the same throughout the country. The AQI is an important indicator for populations sensitive to air quality changes (USEPA, 2018c).

When the AQI value is in the good range, pollutant concentrations are well below the NAAQS and air pollution poses little or no risk. Moderate AQI values occur when pollution is below but near the NAAQS and voluntary emission reduction measures are encouraged. The AQI is considered unhealthy when the NAAQS is exceeded, and major pollution sources are often required to implement mandatory emission reduction measures. Counties without AQI data have fewer air pollutant sources and are assumed to have good air quality for this analysis.

AQI data that is available for counties in which lease parcels are located is presented in Table 5. During the 2015-2017 timeframe most counties have good or moderate air quality (i.e., pollution concentrations below the NAAQS) more than 99% of the time. The data for Uintah County shows days with unhealthy air quality occur approximately 2% of the time. In this EA, additional air pollutant concentration information is provided for counties that have more than 1% of days rated as unhealthy. AQI and

pollution concentration information, for the rest of the state, is available in the AMR (BLM 2019).

Table 5. AQI Index Summary Statistics by County

County	# Days with AQI	# of Days When AQI was…			% of Days Rated …		
		Good	Moderate	Unhealthy	Good	Moderate	Unhealthy
Uintah County, UT	1096	731	341	24	67%	31%	2%

In areas identified with more than 1% of days having unhealthy air quality, Ozone and $PM_{2.5}$ are identified in the AQI data as the primary pollutants determining air quality for the area. Air pollutant concentrations are reported using design values. A design value is a statistic that describes the air quality status of a given location relative to the level of the NAAQS. Design values are used to designate and classify nonattainment areas, as well as to assess progress towards meeting the NAAQS. Design values are provided in Table 6. Reported $PM_{2.5}$ concentrations are below the NAAQS, and ozone values above the standard.

Table 6. 2015-2017 Criteria Pollutant Design Values

Pollutant	Location	Averaging Time	Concentration	NAAQS
O_3	Uintah Basin	8-hour	0.088 ppm	0.070 ppm
$PM_{2.5}$	Duchesne County	Annual	6.1 µg/m3	12.0 µg/m3
$PM_{2.5}$	Duchesne County	24-hour	24 µg/m3	35 µg/m3

The Utah Division of Air Quality (DAQ) compiles statewide emission inventories to assess the level of pollutants released into the air from various sources. The latest inventory is summarized in the AMR (BLM 2019), and provided in Appendix E – Air Quality and Green House Gas Information and Calculations. Emissions for each individual county where parcels are located can be found in the AMR (BLM 2019) and in the UDAQ emission inventory report (UDAQ 2018). The largest human sources of criteria air pollutants in Utah are on-road mobile sources for CO, point sources for NO_x and SO_x, area sources for PM_{10} and $PM_{2.5}$, and oil and gas sources for VOCs.

Hazardous air pollutants (HAPs) are known or suspected to cause cancer or other serious health effects, or adverse environmental effects, so they are also regulated by the EPA. Examples of listed HAPs emitted by the oil and gas industry include benzene, toluene, ethyl benzene, mixed xylenes, formaldehyde, normal-hexane, acetaldehyde, and methanol. A list of HAP point source emissions by County is published by the Utah Division of Air Quality (UDAQ 2018), and is incorporated by reference. More information on HAPS can be found in Appendix E – Air Quality and Green House Gas Information and Calculations.

The parcels in this lease sale are located within Prevention of Significant Deterioration (PSD) Class II areas and are not near (within 50 km) Class I National Parks in Utah. The CAA PSD requirements give more stringent air quality and visibility protection to national parks and national wilderness that are designated as Class I areas, but PSD does not prevent emission increases. Federal Land Managers are responsible for defining specific Air Quality Related Values (AQRVs), including visual air quality (haze),

and acid (nitrogen and sulfur) deposition, for an area and for establishing the criteria to determine and adverse impact on the AQRVs. AQRVs do not have threshold standards, but Federal land managers have identified levels of concern. Current visibility and deposition information for regional Class I areas is summarized in the AMR (BLM 2019). Each Class I area in Utah shows an improving visibility trend, with Canyonlands showing a statistically significant improvement in the clearest and haziest days. Both nitrogen and sulfur deposition show improving trends from 2000 to 2016.

3.3.1.2 Environmental Consequences

Impacts of the Proposed Action

Leasing the subject tracts would have no direct impacts to air quality. Any potential effects to air quality from the sale of lease parcels would occur at such time that any issued leases are developed. Please note, this proposed action does not authorize or guarantee specific development scenarios. If leased, drilling of wells on a lease would not be permitted until the BLM approves an Application for Permit to Drill (APD). Any APDs received would be subject to additional site specific NEPA review. However, development assumptions have been made in this EA to inform the decision since an issued lease must be developed to keep it from expiring. Air quality impacts are incorporated by reference from the Monument Butte Oil and Gas Development Project Final EIS (BLM 2016) and the Fishlake National Forest Oil and Gas Leasing Analysis FEIS (USDAFS 2013). Variations in emission control technologies as well as construction, drilling, and production technologies used by various operators make it difficult to accurately estimate specific air quality impacts at this time.

During well development, there could be emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. NO_2, SO_2, and CO would be emitted from vehicle tailpipes. Fugitive dust concentrations would increase with additional vehicle traffic on unpaved roads and from wind erosion in areas of soil disturbance. Drill rig and fracturing engine operations would result mainly in NO_2 and CO emissions, with lesser amounts of SO_2. These temporary emissions would be short-term during the drilling and completion phases.

During well production there could be continuous emissions from separators, condensate storage tanks, and daily tailpipe and fugitive dust emissions from operations traffic. During the operational phase of a well, NO_2, CO, VOC, and HAP emissions would result from the long-term use of storage tanks, pumps, separators, and other equipment. Additionally, road dust (PM_{10} and $PM_{2.5}$) would be produced by vehicles servicing the wells.

Annual estimated criteria pollutant emissions from potential future development of a single well was estimated from the Monument Butte FEIS Alternative B (BLM 2016) emissions inventory, and is summarized in Table 7. Development of individual lease parcels may result in higher or lower emissions for various reasons, including differences with geologic formations, proximity to existing support infrastructure, different development methods and control technology used by a lessee, and other reasons. For total foreseeable emissions, multiply the amounts in the table by the total number of foreseeable wells. However, it is not reasonable to assume that all wells will be drilled in a single year because the lessee has 10 years to establish production on a lease, and historically most leases never have production attempted or established[12]. If production is not attempted within the 10-year timeframe, the lease will be terminated with no development or production emissions occurring.

[12] See GAO's October 2008 finding that for leases issued from 1987 through 1996, development occurred on 6% of onshore leases and production was achieved on 5%. https://www.gao.gov/new.items/d0974.pdf

Table 7. Annual Emissions Estimate for as Single Well (tons/year)

	NO_x	CO	VOC	SO_2	PM_{10}	$PM_{2.5}$	HAPs
Construction	0.27	0.10	0.02	0.00	0.28	0.07	0.00
Drilling	6.61	3.61	1.34	0.01	4.81	0.68	0.01
Completion	0.43	0.16	0.03	0.00	2.12	0.23	0.00
Production	0.72	0.85	2.75	0.00	0.36	0.08	0.37
Totals	8.04	4.71	4.14	0.01	7.57	1.06	0.38

The primary sources of HAPs would be from oil storage tanks and smaller amounts from other production equipment. Small amounts of HAPs would be emitted by construction equipment. However, these emissions are estimated to be less than 1 ton per year. Based on the negligible amount of project-specific emissions, the Proposed Action is not likely to violate, or otherwise contribute to any violation of any applicable air quality standard, and may only contribute a small amount to any projected future potential exceedance of any applicable air quality standards.

Air quality and AQRV impacts from the development of exploratory wells and production wells were modeled in the Fishlake National Forest Oil and Gas Leasing Analysis FEIS (USDAFS 2013) and the Monument Butte FEIS (BLM 2016), and are incorporated by reference. The Fishlake analysis evaluated maximum modeled air pollutant concentrations at various distances and elevations (above and below) from a well site, and compared them to Class I and Class II increments. Generally, results predicted that air quality standards would continue to be met if the model receptor was in a Class I airshed and was at an elevation above or below the well site and at a distance of 55 kilometers (34 miles) or greater away from a production well or 5 kilometers (3 miles) or greater away from an exploratory well. Further modeling and analysis are recommended if the source is less than 55 or 5 kilometers respectively. Results predicted no potential compliance problems if the receptor was in a Class II airshed. Similar results and recommendations are made about visibility standards. Oil and gas development may also release criteria pollutants that can contribute to acid rain and its impacts on lakes and vegetation. Fishlake National Forest FEIS modeling results are provided in Appendix E – Air Quality and Green House Gas Information and Calculations.

Exceedances of the NAAQS for 1-hour NO_2, 24-hour $PM_{2.5}$, and 8-hour O_3 were anticipated as a result of a 5,750 well oil and gas well project (see Appendix E – Air Quality and Green House Gas Information and Calculations Table 22 which summarizes the modeled impact of the Monument Butte FEIS Alternative A). The highest NO_2 impacts modeled in the Monument Butte project resulted from the 20-acre downhole spacing operations scenario where four wells were drilling simultaneously surrounded by 64 producing wells. The Utah Division of Oil, Gas, and Mining have spaced the proposed lease areas as 40-acre spacing, so the density of development modeled in Monument Butte is not reasonably foreseeable. There are no monitored exceedances of the NO_2 NAAQS. The highest 24-hour $PM_{2.5}$ impacts modeled in the Monument Butte project occurred during construction and development under a scenario where an unpaved road with six branches leads to one well pad under construction, one well pad under development, and four well pads containing producing wells all within a 1000 meter square (0.4 square miles or 256 acres). There are no monitored exceedances of the $PM_{2.5}$ NAAQS, see Table 6. Although O_3

is not directly emitted by oil and gas activities, the precursors to O_3 formation (VOC and NOx) are emitted. The background value for ozone is above the NAAQS so that any additional emissions of O_3 precursors may result in the formation of O_3 and thereby contribute to the ongoing exceedances. The leases themselves are not anticipated to result in exceedances of the 1-hour NO_2, 24-hour $PM_{2.5}$, or 8-hour O_3 NAAQS. The foreseeable future development from the subject leases would be much smaller than the modeled project, so contributions to NO_2 and $PM_{2.5}$ exceedances are not anticipated. VOC and NOx emissions that may result in the formation of O_3 would be controlled through the conformity determination process. A conformity determination is not required for NO_2 or $PM_{2.5}$ because the area is not in nonattainment of those standards.

Oil and gas field development can result in regional haze. Table 23 in Appendix E – Air Quality and Green House Gas Information and Calculations summarizes the Monument Butte 5,750 oil and gas well field development model's findings of the number of days when regional haze impacts above Federal Land Manager levels of concern could occur in Class I and sensitive Class II areas. No impacts would occur from leasing.

Oil and gas field development can result in acid deposition. Table 24 in Appendix E – Air Quality and Green House Gas Information and Calculations summarizes The Monument Butte 5,750 oil and gas well field development model's findings of deposition impacts in Class I and sensitive Class II areas. The Federal Land Manager levels of concern were exceeded at the closest Class I and Class II areas for nitrogen deposition, but not for sulfur deposition.

Oil and gas field development can result in changes to the acid neutralizing capacity of water bodies. Appendix E – Air Quality and Green House Gas Information and Calculations Table 25 summarizes the Monument Butte 5,750 oil and gas well field development model's findings of acid neutralizing capacity changes in several sensitive lakes. None of the maximum modeled impacts for Alternative A would exceed limit of acceptable change.

Potential HAP carcinogenic and non-carcinogenic impacts were analyzed as part of the 5,750 well Monument Butte project (BLM 2016). For non-carcinogenic effects, the modeled maximum impacts are below the evaluation criteria (Relative Exposure Levels, Reference Concentrations, and Toxic Screening Levels). The maximum likely exposure impact for potential carcinogenic risk is calculated to be 1.8 in a million, which is less than the EPA acceptable rank of risk of 100 in a million (EPA 2018).

If exploration occurs, short-term impacts would be stabilized or managed rapidly (within two to five years) and long-term impacts are those that would substantially remain for more than five years.

A general conformity applicability analysis shows that a general conformity determination is not possible at the leasing stage, but would be required before approval of an APD, see Appendix E – Air Quality and Green House Gas Information and Calculations for details. Substantial air resource impacts are not anticipated from the development of the remaining parcels based on the emissions estimates contained in Table 7, the parcels being in areas compliant with all NAAQS, and considering the location of parcels relative to population centers and Class I areas. No further analysis or modeling is warranted for the leasing decision. As identified in notice UT-LN-102 additional analysis or mitigation may be required when parcels are developed.

Impacts of the No Alternative Action

Under the No Action Alternative, BLM would continue to manage these lands based on the objectives outlined in their class categories. No new attendant infrastructure associated with oil and gas development would be built under the No Action Alternative. No new emissions of pollutants would occur.

3.3.1.3 Required Design Features

Application of stipulations and notices listed in Appendix B – Stipulations and Notices would be adequate for the leasing stage to disclose potential future restrictions and to facilitate the reduction of potential impacts.

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

Regulatory agencies also require various mitigations measures for oil and gas well permits. State permit by rule requirements are identified in Utah Administrative Code R307-504-511. Well development in Indian Country would be subject to permitting requirements in the Federal Implementation Plan for the Indian Country Minor New Source Review Program for the Oil and Natural Gas Industry (80 FR 51991).

3.3.1.4 Cumulative Impacts

The cumulative impact analysis area (CIAA) for air quality is the counties and field offices where lease parcels are located. The CIAA also includes regional Class I areas and other environmentally sensitive areas (e.g., national parks and monuments, wilderness areas, etc.) nearest to the parcels. Cumulative impacts to air quality and AQRV are incorporated by reference from the Monument Butte FEIS (BLM 2016), the BLM's Air Resource Management Strategy (ARMS) Modeling Project (BLM 2014), and the recent UDAQ $PM_{2.5}$ maintenance plan model assessment (UDAQ 2019). These modeling analyses provide a reference for potential cumulative impacts due to regional oil and gas development. It is important to note that the ARMS model performance evaluation of ozone indicated a negative model bias (under predicts) during the winter and a positive model bias (over predict) during the summer in the 4 km domain. The model performance evaluation for $PM_{2.5}$, indicated a negative model bias (under predict) throughout the year in the 4 km domain (BLM 2014). Overall, the UDAQ $PM_{2.5}$ model performance is good.

Emissions

Past and present actions that have affected and would likely continue to affect air quality in the CIAA include surface disturbance resulting from oil and gas development and associated infrastructure, geophysical exploration, ranching and livestock grazing, range improvements, recreation (including OHV use), authorization of ROWs for utilities and other uses, and road development. Past and present actions in CIAA that have affected and would likely continue to affect air quality are too numerous to list here but would include the development of power plants; the development of energy sources such as oil, gas, and coal; the development of highways and roads; and the development of various industries that emit pollutants. These types of actions and activities can reduce air quality through emissions of criteria

pollutants (including fugitive dust), VOCs, and HAPs, as well as contribute to deposition impacts and to a reduction in visibility.

Past, present, and reasonably foreseeable oil and gas development is listed in the Utah Division of Oil Gas and Mining's Well Counts statistical report (UDOGM 2018). At the end of 2018 there were 14,028 active wells in Utah. In 2008 the active number of wells was 10,308, showing an increase in near 4,000 active wells over a ten-year period. At the end of 2014 National Emission Inventory year there were 13,961 active wells. Emissions from the wells estimated for this lease sale would add to the emissions from the existing active wells. Total oil and gas emissions are anticipated to have a small increase to the values listed in Table 19.

Modeled Impacts

The BLM incorporates by reference the ARMS modeling results that were evaluated in the Monument Butte FEIS (BLM 2016). The ARMS model determined that in the 2021 future year, all assessment areas are within the applicable PSD increments for annual NO_2, 3-hour SO_2, annual SO_2, and annual PM_{10}, while most assessment areas exceed the 24-hour $PM_{2.5}$ and PM_{10} PSD increment (BLM 2014). Figure 1 shows that the ARMS predicted ozone design values for the CIAA exceed the NAAQS, in the Uinta Basin and along the Wasatch Front metropolitan area. Other areas of the state have concentrations below the NAAQS, generally between 0.055 to 0.065 ppm. However, a few hot spots approach the NAAQS, with concentration between 0.065 and 0.070 ppm. In Class I and Class II areas outside the Uinta Basin ARMS study area, O_3 concentrations are highest during the summer period (BLM 2014). For areas outside the Uinta basin, the modeling results are likely conservative due to the over prediction of summertime O_3 in the ARMS model. If background O_3 levels rise, outside the Uintah Basin, additional analysis may be needed when plans of development are submitted for the lease parcels.

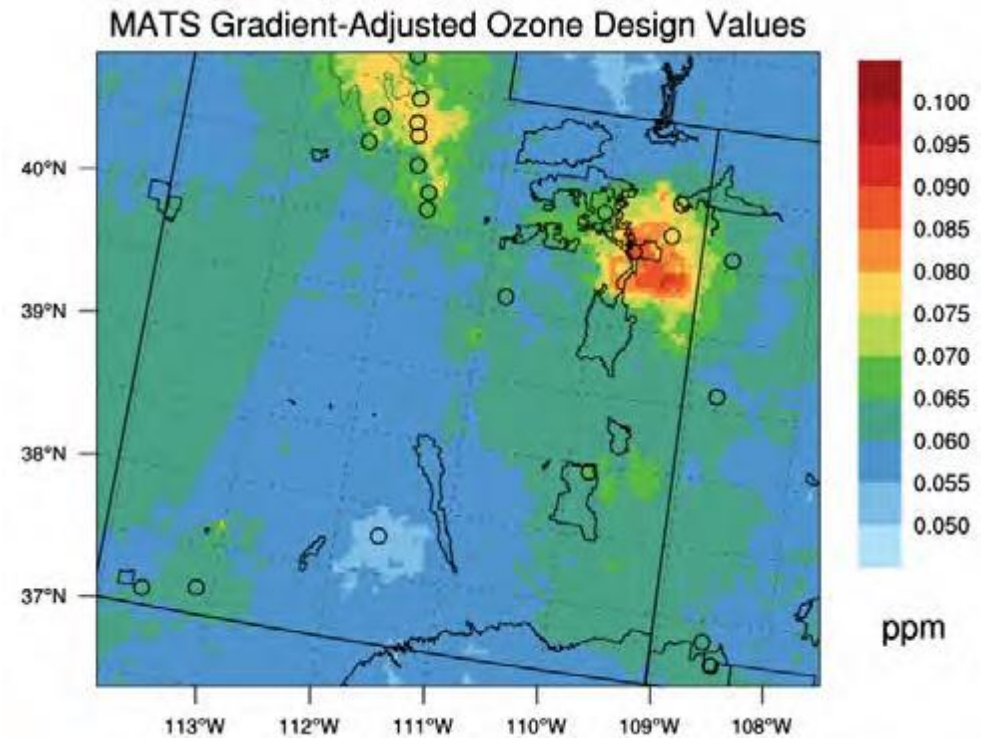

Figure 1. ARMS predicted ozone design values with on the books controls for oil and gas emissions in the year 2021.

The UDAQ performed air quality modeling to predict future design values for the Daily $PM_{2.5}$ maintenance plan. $PM_{2.5}$ is primarily a wintertime air pollution problem due to strong inversions and valleys surrounded by tall mountains limiting the dilution of $PM_{2.5}$ forming pollutants. As a result, the UDAQ modeled three wintertime $PM_{2.5}$ episodes where meteorological conditions produced the best model performance. Model results show attainment of the standard at all locations in future years 2026 and 2035 (UDAQ 2019). The highest concentration was predicted in counties along the Wasatch Front and in Cache Valley, see Figure 2. Elevated concentrations were modeled in the Uinta Basin but are well below the NAAQS, which agrees with observed design values (Table 6).

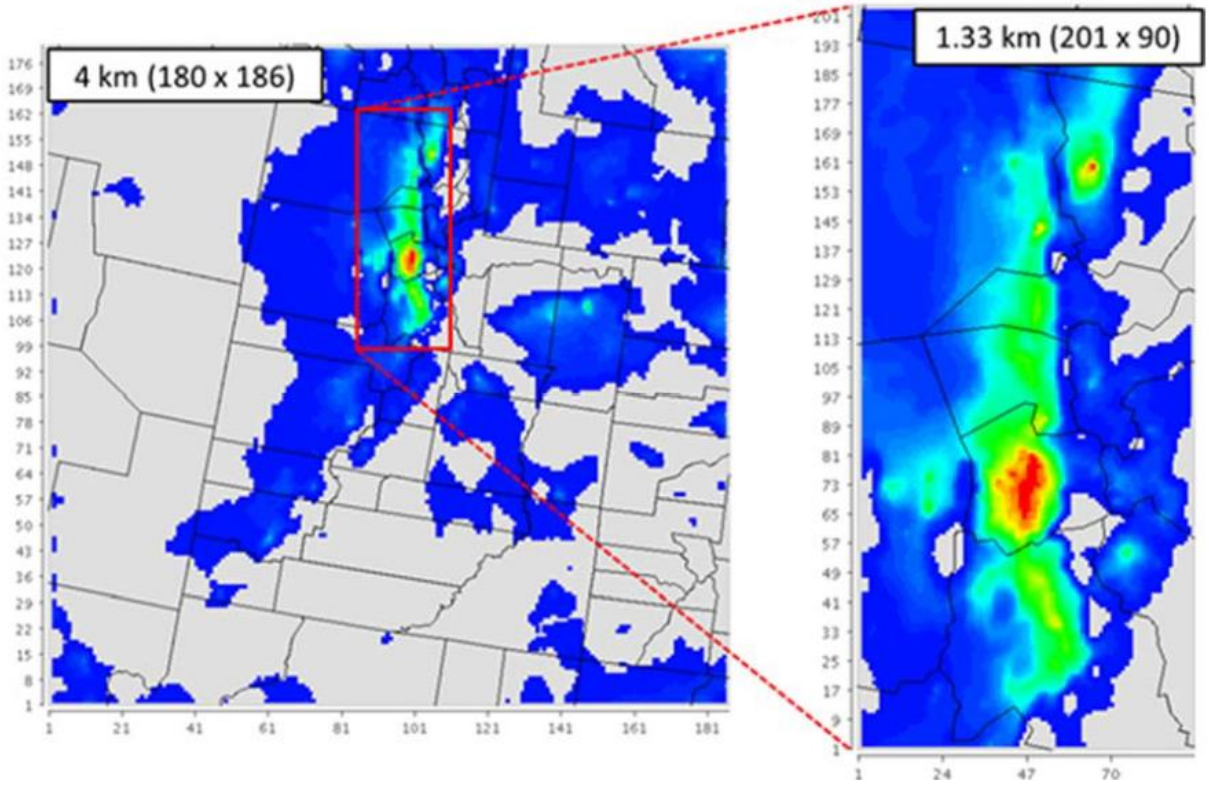

Figure 2. UDAQ CAMx photochemical modeling domains and predicted PM2.5 concentrations from the January 7, 2011 episode (red represents higher concentrations, blue and gray are lower concentrations).

Other emission contributors to ozone and $PM_{2.5}$ concentrations would continue at present rates such as construction, urban development, and personal vehicle use.

Air Quality Related Values

AQRVs were also analyzed in the ARMS modeling study. Visibility conditions in Class I areas generally show improvement in the 2021 future year scenarios relative to the 2010 Base Year and 2010 Typical Year. In general, the greatest improvement in visibility relative to the 2010 Typical Year occurs for the 2021 Scenario, which has the lowest oil and gas emissions of the four future year scenarios considered. Additionally, the AMR (BLM 2019) shows that visibility has been improving at the Class I areas in Utah. Development of lease sale parcels would slightly increase the impacts to visibility, but are not likely to be perceptible or substantially change the improving visibility trend.

The ARMS model results generally show a decrease in deposition values for the 2021 future year scenarios relative to the 2010 Typical Year. However, the differences in estimated deposition values between all four future year scenarios are generally very small. As identified in the Monument Butte FEIS (BLM 2016), acid neutralizing capacity change exceeds the 10 percent limit of acceptable change for all model scenarios at all seven lakes of interest.

Visibility and deposition conditions in Class I and Class II areas would likely follow current improving trends as described in the AMR (BLM 2019).

Hazardous Air Pollutants

Existing emissions of HAPs in the CIAA are detailed in the Utah Division of Air Quality's 2014 Point Source Emissions Inventory (UDAQ 2018). These HAP emissions (cumulative inventory of point source HAPs) are summarized in Table 20. The BLM is unaware of any foreseeable point source projects. Past, present, and reasonably foreseeable oil and gas development is listed in the Utah Division of Oil Gas and Mining's Well Counts statistical report (UDOGM 2019). The EPA has determined that for all of Utah the total cancer risk is 12 to 33 in 1 million (EPA 2019). This cancer risk is within the acceptable range of risk published by the EPA of 100 in 1 million as discussed in the National Contingency Plan, 40 CFR 300.430. The highest cancer risks in Utah are found in counties along the Wasatch Front and Washington County. The noncancer respiratory hazard index for all of Utah is between 0.14 and 0.54. Hazard index values less than one are acceptable and noncancer respiratory risks are not expected.

The proposed action of leasing would not directly contribute to cumulative criteria pollutant emissions, visibility impacts, acid deposition, ANC change or HAPs impacts. Future potential development of the leases would contribute to criteria pollutant emissions and air quality related value changes as previously disclosed. However, that contribution is contained within and would be indistinguishable from and dwarfed by the model and emission inventory scope and margin of error that are used to assess those impacts due to the small size of the foreseeable development in relation to the modeled foreseeable development (equal to more than 14,000 present and future wells). Future potential development of the leases would contribute to HAPs emissions and cancer risk. However, the HAPs emission contribution is not meaningful in the context of point source emissions ongoing in the CIAA.

The No Action alternative would not contribute to criteria pollutant emissions, HAP emissions, or AQRV impacts because the leases would not be issued, and no development could occur.

3.3.2 Issue 2: What quantity of greenhouse gas emissions (GHG) would be generated from subsequent oil and gas development of leased parcels based upon the RFD scenario?

3.3.2.1 Affected Environment

Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years such as temperature and precipitation. Climate change is the long-term (several decades or longer) alteration of atmospheric weather patterns (temperature, precipitation, winds, etc.), but changes could also occur in other parts of the climate system such as the hydrosphere (water), cryosphere (ice), biosphere (living organisms, ecosystems), or lithosphere. The 2018 BLM Utah Air Monitoring Report (BLM 2019) discusses the current climate conditions in Utah, and is incorporated by reference. The report presents the three-decade average and trends of temperature and precipitation for each of the seven climate divisions in Utah.

Utah's climate has average annual temperatures ranging between 45-52 ºF and average precipitation of 10-13 inches (BLM 2019). Mountainous areas have annual average temperatures near 40 ºF with average precipitation of 23 inches. Southern Utah low elevation areas in the St George Field Office have average temperatures of about 59 ºF. Trends over the most recent climate normal period (1981-2010) show

average temperatures increase 0.5 ºF while precipitation decrease between 0.3 and 1.5 inches. However, it is noted that decreases in precipitation are heavily influenced by the historic rain and snowfall in the early 1980's and recent precipitation is near the 1895-2017 average.

Average annual temperature and precipitation information for each Utah climate division is presented in Table 8, along with trends from the most recent climate normal period (1981-2010). The lease parcels are located in all of the climate divisions except for the Western and Dixie divisions. Average annual temperatures range from 40-52°F, with the Northern Mountains division being the coolest and the Southeast division the warmest. The 30-year climate trends of annual averages show increasing temperatures and decreasing precipitation. However, the decreasing precipitation trend is heavily influenced by the record amounts of precipitation that occurred in the early 1980's. Additional details on climate in these areas and the rest of Utah are provided in the 2018 BLM Utah Air Monitoring Report (BLM 2019).

Table 8. Climate Trends

	1895-2017 Mean		1981-2010 Trend	
Climate Division	**Temp (ºF)**	**Precip (in.)**	**Temp (ºF)**	**Precip (in.)**
1, Western	49.6	9.81	+ 0.5	-0.76
2, Dixie	58.5	12.94	+ 0.6	-0.60
3, North Central	47.9	16.7	+ 0.6	-1.49
4, South Central	46	15.71	+ 0.5	-0.78
5, Northern Mountains	40.1	23.46	+ 0.5	-1.32
6, Uinta Basin	45.1	10.72	+ 0.5	-0.65
7, Southeast	51.5	9.8	+ 0.5	-0.51

In November 2018 the Fourth National Climate Assessment (NCA4) Volume II was published. Compared to previous reports, NCA4 provides greater detail on regional scales as impacts and adaptation tend to be realized at a more local level. The Southwest region (Arizona, California, Colorado, New Mexico, Nevada, and Utah) encompasses diverse ecosystems, cultures, and economies, reflecting a broad range of climate conditions, including the hottest and driest climate in the United States. The average annual temperature of the Southwest increased 1.6°F (0.9ºC) between 1901 and 2016. Moreover, the region recorded more warm nights and fewer cold nights between 1990 and 2016, including an increase of 4.1°F (2.3°C) for the coldest day of the year. Each NCA has consistently identified drought, water shortages, and loss of ecosystem integrity as major challenges that the Southwest confronts under climate change. Since the last assessment, published field research has provided even stronger detection of hydrological drought, tree death, wildfire increases, sea level rise and warming, oxygen loss, and acidification of the ocean that have been statistically different from natural variation, with much of the attribution pointing to human-caused climate change (USGCRP 2018).

Climate change includes both historic and predicted climate shifts that are beyond normal weather variations. Climate change may be due to natural internal processes or external forces. Earth's atmosphere has a natural greenhouse effect wherein naturally occurring gases such as water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and fluorinated gases absorb and retain heat (EPA 2018). A number of activities contribute to the phenomenon of climate change, including emissions of GHGs (especially CO_2 and methane) from fossil fuel development, large wildfires, activities using combustion

engines, changes to the natural carbon cycle, and changes to radiative forces and reflectivity (albedo). In order to assess the potential for climate change, and the resultant effects of climate change, the standard approach is to measure and predict emissions of GHGs. Since the pre-industrial era (approximately 1750) to 2017, concentrations of GHG's have increased 45% for CO_2, 164% for CH_4, and 22% for N_2O, Table 9. In 2017, the atmospheric concentration of CO_2 was 407 ppm and is increasing at a rate of 2.2 ppm/yr.

Table 9. Global Atmospheric Concentration and Rate of Change of Greenhouse Gases

	CO_2	**CH_4**	**N_2O**
Pre-Industrial Concentration	280 ppm	0.700 ppm	0.270 ppm
2017 Atmospheric Concentration	407 ppm	1.850 ppm	0.330 ppm
2007-2017 Rate of Change	2.2 ppm/yr	0.007 ppm/yr	0.008 ppm/yr

Source: EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2017 (EPA 2019)

Each GHG has a global warming potential (GWP) that accounts for the intensity of each GHG's heat trapping effect and its longevity in the atmosphere. GWP values allow for a comparison of the impacts of emissions and reductions of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO_2. The GHGs are presented using the unit of Metric Tons of CO_2 equivalent (MT CO2e), a metric to express the impact of each different GHG in terms of the amount of CO_2 making it possible to express GHGs as a single number. According to the Intergovernmental Panel on Climate Change (IPCC), GWPs typically have an uncertainty of ±35 percent (IPCC 2014). GWPs have been developed for several GHGs over different time horizons including 20-year, 100 year, and 500 year. The choice of emission metric and time horizon depends on type of application and policy context; hence, no single metric is optimal for all policy goals. The 100-year GWP (GWP100) was adopted by the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol and is now used widely as the default metric. In addition, the EPA uses the 100 year time horizon in its *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017* (EPA 2019) and GHG Reporting Rule requirements under 40 CFR Part 98 Subpart A, and uses the GWPs and time horizon consistent with the IPCC Fifth Assessment Report (IPCC 2014), Climate Change Synthesis Report (2014) in its science communications. BLM Utah uses GWPs that reflect the current state of science and the 100-year time horizon to allow for direct comparison to state and national emissions.

State, national, and global GHG emissions are reported in Table 10. Additional details about state, national, and global GHG emissions are discussed in Appendix E – . Since 2013, emissions from major sources in Utah has decreased from 44.5 million metric tons (MMT) CO_2e to 35 MMT CO_2e. However, state total GHG emissions do not include emissions from the agriculture, residential and commercial use, industrial processes, transportation, and waste management sectors, which are substantial sources of GHG emissions. Current emissions information for these sectors is not available. The Utah Greenhouse Gas Inventory and Reference Case Projections (Strategies 2007) report projected Utah emissions in 2020 to be 5.8 MMT CO_2e for agriculture, 16.3 MMT CO_2e for residential and commercial use, 5.8 MMT CO_2e for industrial processes, 22.4 MMT CO_2e for transportation, and 4.7 MMT CO_2e for waste management. Adding the projections for these sectors with the reported major source emissions results in approximately 90.1 MMT CO_2e total GHG emissions estimate for the State of Utah. Nationally, emission have decreased by 253.5 MMT CO_2e from 2013 to 2017. Decreases in GHG emissions are a result of multiple factors, including a continued shift from coal to natural gas, increased use of renewable energy, and milder weather that contributed to less overall electricity use (EPA 2019).

Table 10. Annual State, National, and Global GHG Emissions (CO2e) in Million Metric Tons per Year

Utah	US Energy Sector	United States	Global
90.1	5,424.8	6,456.7	46,423.3

Source**:** EPA Inventory of US Greenhouse Gases Emission and Sinks 1990-2017 (EPA 2019)
EPA GHG Reporting Program FLIGHT tool (EPA 2018)
Utah GHG Inventory and Reference Case Projections (Strategies 2007)
Fossil CO2 & GHG Emissions of all World Countries, recent year 2012 (Janssens-Maenhout, et al. 2017)

The U.S. Geological Survey (USGS) has produced estimates of the GHG resulting from the extraction and end-use combustion of fossil fuels produced on Federal lands in the United States, as well as estimates of ecosystem carbon emissions and sequestration on those lands (USGS 2018). The study reports GHG emissions from extraction, transport, fugitives, and combustion of fuel over a ten-year period (2005-2014). In 2014, nationwide gross GHG emissions from fossil fuels extracted from Federal lands was 1,332.1 MMT CO_2e. Emissions from fossil fuels produced on Federal lands represent, on average, 23.7 percent of national emissions for CO_2, 7.3 percent for CH_4, and 1.5 percent for N2O over the 10 years included in this estimate (USGS 2018). Uncertainty associated with emissions estimates is 2-5% for combustion, 25-42% for fugitives, and 12-15% for degassed CH_4 emissions from coal mines. Trends and relative magnitude of emissions are roughly parallel to production volumes.

Utah Federal fossil-fuel-related gross emissions in 2014 were 46.75 MMT CO_2e, approximately 3.5% of the estimate of national emissions from Federal fossil fuels (USGS 2018). Emissions from the adjacent fossil fuel producing states of Colorado, New Mexico, and Wyoming were 55.78, 91.63, and 744.2 MMT CO_2e, respectively, in 2014. For comparison, Utah Federal emissions were 83.8% of Colorado's, 51.0% of New Mexico's, and 6.3% of Wyoming's. USGS annual emissions data for each state is shown in Appendix E – Air Quality and Green House Gas Information and Calculations. The linear trend of the USGS data shows a decrease of 0.4 MMT CO_2e/yr in Utah. Assuming this trend continues, projected Utah Federal fossil fuel emissions in 2020 would be 42.7 MMT CO_2e and would be an even smaller percentage when compared with adjacent state and national emissions.

3.3.2.2 Environmental Consequences

Impacts of the Proposed Action

While the leasing action itself would not generate any GHG emissions, the BLM recognizes that the reasonably foreseeable consequence of leasing may lead to oil and gas development, and that such development could result in an increase in GHG emissions due to well development and operations, and from downstream uses of the petroleum products produced from these parcels.

Emissions from Lease Parcel Development

At the leasing stage, BLM cannot develop a precise emissions inventory, as many factors, including the duration of possible development, and the types of related equipment (rig engine tier, horsepower, etc.) that may be utilized by a lessee in the future, are unknown. Emissions inventories developed for recent projects in each BLM Utah district are used as estimates for this EA. Methods and assumptions used for estimating GHG emissions from the development of lease parcels are described in Appendix E – .

Emissions of GHGs can occur during both the construction and operation phase of a well. Construction emissions occur from heavy equipment and vehicle exhaust, drill rigs, completion equipment including fracturing engines, and venting. Operation emissions may occur from storage tank breathing and flashing, truck loading, pump engines, heaters and dehydrators, pneumatics, flaring, fugitives, and vehicle exhaust. Estimates of single well GHG emissions based on BLM Utah's district emissions inventories are listed in Table 11.

Table 11. Estimated Emissions from Construction and Operating Potential Future Wells

Field Office	RFD (wells)	Single Well Emissions (MT CO_2e)		Total Emissions (MT CO_2e)	
		Construction	Operation/yr	Construction	Operation/yr
Vernal	30	679	428	20,360	12,850

Total estimated GHG emissions from operating the projected number of wells from this lease sale is 12,850 MT CO_2e/yr. Using the 20-year GWP time horizon, operation emissions are 15,275 MT CO_2e/yr. Construction emissions are estimated at 20,360 MT CO_2e/yr, or 20,405 MT CO_2e/yr with the 20-year GWP.

Emissions from Combustion of Produced Oil or Gas

If lease parcels are developed and if the resulting well produces oil or gas, GHG emissions are expected to result from the downstream end-use of the fossil fuel. To calculate estimates of these downstream emissions for this EA, BLM assumed that all produced oil or gas will be combusted (such as for domestic heating or energy production). However, the BLM has no authority to direct or regulate the end-use of the produced products and an actual end-use may differ from the assumption used for calculating downstream GHG emissions.

Estimates of GHG emissions from combustion can be made by multiplying the produced number of barrels (bbl) of oil and thousand cubic feet (mcf) of gas with GHG emission factors from the EPA Greenhouse Gases Equivalencies Calculator – Calculations and References website (EPA, 2019). These emission factors provide an estimate of the equivalent amount of CO2 produced from a bbl of oil or mcf of gas. The emission factors follow IPCC guidance by accounting for 100% oxidation of carbon in the fossil fuel to CO_2, regardless if the carbon atom is part of a CO_2, CH_4, or other hydrocarbon molecule.

As BLM does not know how much oil or gas will be produced from the parcels that would be affected by the proposed action, BLM has assumed that future wells will produce oil and gas in similar amounts as existing nearby wells. Annual production data for oil and gas is obtained from the Utah Division of Oil, Gas and Mining (UDOGM, 2018). BLM used annual data from 2008 to 2018 to calculate the average production per well in a field office. However, some wells may produce more or less than the average. Low and high production estimates are also used to calculate a range of combustion emissions, in order to better inform decision makers and the public of potential emissions. Details on estimating production and combustion emissions are presented in Appendix E –

Table 12 lists the estimated range of annual GHG emissions from combustion of oil and gas produced by a single well and the total estimated combustion emissions for all parcels considered in the original EAs. While a range of combustion emissions is presented, for simplicity, the average is used when discussing total emissions for the proposed action.

Table 12. Annual Estimated Emissions from Combustion of Produced Oil and Gas from the Proposed Action

Field Office	RFD (wells)	Single Well Combustion Emissions Range (MT CO_2e/yr)			Total Emissions Range (MT CO_2e/yr)		
		Low	Average	High	Low	Average	High
Vernal	30	1,133	2,577	4,020	33,989	77,297	120,605

Projected average annual combustion GHG emissions from all of the parcels considered is 77,297 MT CO_2e/yr. GHG emissions may range from 33,989 MT CO_2e/yr, to 120,605 MT CO_2e/yr, depending on realized production rates, control technology, physical characteristics of any oil produced, and other factors.

Existing laws do not regulate specific atmospheric GHG concentrations or emissions rates. Emissions estimates themselves are presented for disclosure purposes and as a proxy for impacts from the proposed action. Emissions can be compared to annual state and national emissions listed in Table 10 to provide a measure of the relative impact. The total estimated GHG annual emissions from well operations (12,850 MT CO_2e/yr) and fossil fuel combustion (77,297 MT CO_2e /yr), plus one-time construction emissions (20,360 MT CO_2e), from development on the parcels considered is 110,507 MT CO_2e. This is 0.32% of Utah major industrial sources. To express GHG emissions on a scale relatable to everyday life the EPA GHG equivalency calculator can be used (https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator). The projected emissions (110,507 MT CO_2e/yr) are equivalent to 23,462 passenger vehicles driven for one year and would require approximately 130,058 acres of U.S. forests to sequester. Climate change impacts are further discussed in the cumulative impacts section of this document.

Lifetime GHG emissions from the parcels considered can be estimated by multiplying well production life with the operation and combustion emissions and adding the one-time construction emissions. Assuming an average well life of 30 years, the total gross emissions from the parcels analyzed would be 2.72 MMT CO_2e. However, assuming the production life of a well is somewhat speculative at the leasing stage. Individual wells could be dry or have shorter or longer production lifespans, resulting in lower or higher lifetime emissions.

While the BLM provides an estimate of direct and indirect GHG emissions from the potential development of lease parcels, there are unknown factors including actual production, life expectancy of a well, how produced minerals are used, the form of regulation of GHG parameters by delegated agencies, and whether any Best Available Control Technologies are utilized at the upstream or downstream emission location(s). Statewide, the range of combustion emissions alone has an uncertainty of nearly 340% based on if a well is low or high producing. This uncertainty is compounded when accounting for other factors listed above. Other factors that account for uncertainty in emissions calculations is provided in Appendix E – Air Quality and Green House Gas Information and Calculations.

Impacts of the No Alternative Action

Under the No Action Alternative, the parcels would not be leased so no future development could occur. As a result, no GHG emissions from the development of these lease parcels would occur and there would be no addition to the existing national and global emissions that influence climate change.

3.3.2.3 Mitigation of Impacts from GHG Emissions and Climate Change

The BLM regulates portions of natural gas and petroleum systems identified in the EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks report (EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2017 2019). In carrying out its responsibilities, BLM has developed a list of best management practices (BMPs) designed to reduce emissions from field production and operations. Analysis and approval of future development on the lease parcels may include application of BMPs within BLM's authority, as Conditions of Approval, to reduce or mitigate GHG emissions. Additional measures developed at the project development stage also may be incorporated as applicant-committed measures by the project proponent, or added to necessary air quality permits.

BMPs to reduce the impacts of climate change and GHG emissions may include, but are not limited to:

- Flare hydrocarbon and gases at high temperatures in order to reduce emissions of incomplete combustion through the use of multi-chamber combustors;
- Require that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored;
- Installation of liquids gathering facilities or central production facilities to reduce the total number of sources and minimize truck traffic;
- 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; and,
- Implementation of directional and horizontal drilling technologies whereby one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores;

Additionally, the BLM encourages natural gas companies to adopt proven cost-effective technologies and practices that improve operation efficiency and reduce natural gas emissions, to reduce the ultimate impact from the emissions.

In October 2012, the EPA promulgated air quality regulations for completion of hydraulically fractured gas wells. These rules require air pollution mitigation measures that reduce the emissions of VOCs during gas well completions. Mitigation includes a process known as "green completion" in which the recovered products are sent through a series of aboveground, closed, separators which negates the need for flowing back into surface pits as the product is immediately sent to gas lines and the fluids are transferred to onsite tanks.

3.3.2.4 Cumulative Impacts

Even though leasing by itself does not contribute to cumulative (total) effects on air resources, future foreseeable development on leased parcels, and related combustion, could contribute to total GHG emissions and therefore climate change. The CIAA for GHG emissions occurs on various scales (local, state, national, and global). While emissions are evaluated at various scales, climate impacts are presented at the state and regional level since the public tends to experience the impacts and adaptation at a local level (USGCRP 2018). Estimated annual GHG emissions from existing oil and gas sources and approved APDs are presented in Table 13. Existing oil and gas sources include active producing wells and shut-in wells that are capable of producing, as reported by UDOGM at the end of 2018. Development of approved APDs that have not been drilled to completion represent emissions sources from present actions. Emissions for existing wells include the operation and combustion emissions, while estimates for APDs include construction, operation, and combustion emissions. Federal and non-federal wells are included in both the past and present estimates. Annual oil and gas related emissions in the State of Utah

from past and present actions is 41,985,836 MT CO_2e/yr. For context this is 46.61% of State and 0.65% of U.S. Total Emissions (Table 10).

Table 13. Estimated Annual GHG Emissions (MT CO_2e/yr.) from Past and Present Oil and Gas Wells.

Field Office	Existing Well Emissions (Past)	APD Emissions (Present)	Annual O&G Emissions (Past + Present)
Vernal	30,780,127	1,790,216	32,570,343
Statewide Total	39,791,562	2,194,274	41,985,836

The Resource Management Plan (RMP) for each field office planning area includes a Reasonably Foreseeable Development Scenario (RFDS) describing the number of expected wells over the life of the plan. These expected wells can be used to estimate the potential future GHG emissions for all lands open to leasing (Federal and non-federal). Planning-area-wide emissions are estimated by multiplying the expected number of wells by the single well construction, operation, and combustion emissions, assuming all lands would be leased, and fully developed concurrently (Table 14). Annual oil and gas emissions from the RFDS expected number of wells is 43,697,541 MT CO_2e/yr, with additional one-time emissions of 6,627,261 MT CO_2e from well construction.

Table 14. Expected wells from the Vernal Field Office RMP RFDS, and Corresponding GHG Emissions

Field Office	RMP RFDS wells	Construction (MT CO_2e)	Operation (MT CO_2e/yr)	Average Combustion (MT CO_2e/yr)	RMP 30-Year Lifetime (MMT CO_2e)
Vernal	6,530	3,226,053	1,267,802	16,824,944	546.01
Statewide	9,559	6,627,261	4,229,267	39,468,274	1,317.55

Some oil and gas development have occurred since the implementation of the RMP. Table 15 lists the remaining number of estimated wells from the RMP RFDS that have not yet been developed, and the estimate of GHG emissions that are foreseeable from future development in the field office. The estimates are made by multiplying the remaining number of wells projected in the respective RMPs by the average GHG emissions from single well construction, operation, and combustion estimates. These estimates represent the foreseeable annual emissions from undeveloped leases and future leasing actions. Remaining foreseeable development of the RFDS could result in statewide annual operation and combustion emissions of 32,043,774 MT CO_2e/yr, with an additional one-time emission of 4,896,921 MT CO_2e from well construction. For context, the statewide annual foreseeable operation and combustion emissions are 35.58% of State and 0.50% of U.S. Total Emissions (Table 10).

Table 15 Foreseeable Emissions from undeveloped Portion of RMP RFDS

Field Office	Drilled Wells	APDs	Remaining RFDS	Construction (MT CO2e)	Operation (MT CO2e/yr)	Average Combustion (MT CO2e/yr)
Vernal	3205	486	2,839	1,926,745	1,216,059	7,314,857
Statewide	3555	520	5,484	4,896,921	3,867,521	28,176,254

GHG emissions from development of lease parcels would add cumulatively to other past, present (Table 13), and foreseeable (Table 15) oil and gas emissions, as well as existing emissions from other sectors in the state (Table 10). Other foreseeable actions that would change GHG emissions include construction of the Uinta Basin Railway, and conversion of the Intermountain Power Plant from coal to natural gas. The Uinta Basin Railway project is in the early stages the environmental analysis and GHG emissions have not be quantified yet. Short-term emissions would occur from construction of the railway. Long-term emission increases would occur from operation of the railway, but would partially be offset by emission reductions due to less haul truck trips. As oil and gas development is highly influenced by market prices, the railway may result in more well development as it becomes cheaper to get fluid minerals to market. Foreseeable emissions from well development are already accounted for in Table 15, and it is anticipated that the railway would increase the pace of development and emissions would occur over a shorter timeframe. With the Intermountain Power Plant converting to 1,200 megawatts of natural gas fuel electricity from the current 1,800 megawatts from coal-fired generation. In 2017 the Intermountain Power Plant emitted 7.69 MMT CO_2e. Based on natural gas electric generation CO_2 emissions per megawatt hour in Utah (EIA 2019), emissions at the Intermountain Power Plant would be reduced to approximately 4.28 MMT CO_2e after the conversion.

Estimated annual operations and combustion emissions (90,147 MT CO_2e/yr) from parcel development is 0.21% of the statewide past and present oil and gas development annual emissions (Table 13) and 0.28% of statewide foreseeable emissions from the remaining RFDS (Table 15). For comparison, the proposed action Calculations estimated annual emissions are 0.10% of State and 0.0014% of U.S. total emissions (Table 10).

Table 16, shows the annual GHG emissions estimate, from well operation and product combustion, for a years' worth of BLM Utah lease sales (June 2019, September 2019, December 2019, and March 2020). This provides context for what a years' worth of BLM leasing would add to past, present, and foreseeable oil and gas development emissions in Utah. Emissions after the full development of the RFD from the four lease sales is 1,427,564 MT CO_2e/yr, which is about 3.4% of annual past and present oil and gas development emissions (41,977,559 MT CO_2e/yr.). An additional 135,153 MT CO_2e would occur from constructing the wells, but these emissions would be spread out over a 10-year period.

Table 16 Annual Emissions Estimate from a Year of BLM Leasing (MT CO_2e/yr).

Field Office	Annual Lease RFD	Annual Leasing Operation Emissions	Annual Leasing Combustion Emissions	Total Annual Leasing Emissions	Comparison to Annual O&G Emissions (Past + Present)
Cedar City	2	4,049	5,430	9,480	100.0%
Fillmore	0	0	0	0	0.0%
Kanab	0	0	0	0	0.0%
Moab	6	10,731	5,422	16,152	1.4%
Monticello	5	8,942	15,699	24,641	0.7%
Price	30	12,850	103,335	116,185	3.5%
Richfield	29	58,714	948,680	1,007,394	112.3%
Salt Lake	2	4,049	12,275	16,324	5.4%
St George	0	0	0	0	0%
Vernal	79	33,839	203,548	237,387	0.7%
State Total	153	133,174	1,294,390	1,427,564	3.4%

Information from BLM's Greenhouse Gas and Climate Change Report (Golder 2017) is incorporated by reference to describe potential GHG emissions for various future years and energy development scenarios. That report calculated GHG emission estimates for two energy development scenarios ("normal" and "high" rates of energy production and consumption) for projected years 2020 and 2030, for each state with federal fossil mineral resources managed by the BLM including Utah. GHG emission estimates for both federal and non-federal energy-related activities (i.e., upstream and midstream) and consumption (i.e., downstream) were developed for coal, oil, natural gas, and liquefied natural gas. The report used production and consumption data presented in the EIA 2016 Annual Energy Outlook to determine growth factors to estimate normal and high inventories. The following summarizes the projected 2020 and 2030 annual GHG emissions and trends for Utah and adjacent fossil fuel producing States federal resources:

- Total annual Utah Federal GHG emissions from coal, oil, natural gas, and liquid natural gas are projected to decrease from the baseline year (2014) to future years 2020 and 2030. The 2020 projected emissions decrease by 6.5% for the normal scenario and 1.4% for the high scenario. For future year 2030 the emissions decrease is 15.7% for the normal scenario and 12.9% for the high scenario.

- Nationally the total annual Federal GHG emissions from coal, oil, natural gas, and liquid natural gas are projected to decrease from the baseline year (2014) by 9.1% and 5.0% respectively for the 2020 future year normal and high scenarios. National GHG emission decrease from the baseline year by 24.3% and 21.3% respectively for the 2020 future year normal and high scenarios.

- For the baseline year (2014) Utah Federal GHG emissions are contribute 5.2% to the total emissions from Department of Interior Region 7 States (Colorado, New Mexico, Utah, and Wyoming.) In future years, Utah's contribution to regional Federal GHG emission increases slightly to 5.3% for both the 2020 normal and high scenarios, and to 5.7% and 5.6% of the 2030 normal and high scenarios respectively.

- Nationally, Federal emissions from Utah fossil fuel development makes up 4.8% of total annual U.S. Federal GHG emissions. In future years, Utah's contribution to national Federal GHG emission increases slightly to 4.9% and 5.0% respectively for the 2020 normal and high scenarios, and to 5.3% for both the 2030 normal and high scenarios.

On a global scale, the GHG emission contribution of any single geographic subunit (such as a BLM field or state office) or source (such as federal minerals) on a subnational scale is dwarfed by the large number of comparable national and subnational contributors. The relative contribution of GHG emissions from production and consumption of federal minerals will vary depending on contemporaneous changes in other sources of GHG emissions. A single subnational contributor, such as a BLM field office, is very unlikely to influence global cumulative emissions. Nevertheless, each source contributes, on a relative basis, to global emissions and long-term climate impacts.

Climate Change

As climate impacts and trends tend to be realized at local levels (USGCRP 2018) climate change is discussed on a regional scale, as opposed to a national or global scale. The U.S. Geological Survey National Climate Change Viewer (USGS 2019) can be used to evaluate potential climate change at the state and county level. Data presented in the climate viewer is intended to assist the scientific community in conducting studies on climate changes and to enhance public understanding of possible future climate impacts to their local communities. The viewer provides historical (1950-2005) and future (2006-2099) climate projects under a moderate (RCP4.5) and aggressive (RCP8.5) emissions scenario. These emission scenarios correspond to atmospheric concentrations of CO_2 by 2100 of 650 ppm for RCP4.5, and 1370 ppm for RCP8.5. Observed concentration in 2017 were 407 ppm, see Table 9. The Greenhouse Gas and Climate Change Report (Golder 2017) compares nationwide derived future year BLM GHG emissions profiles with RCPs. In year 2020, the BLM normal and high emissions scenarios are track closest to RCP 8.5 in 2020 and between RCP 2.5 and RCP 4.5 in 2030. The climate viewer compiles projections from 30 different global climate models. Projected changes to maximum and minimum temperature and precipitation for Utah are presented in this EA as the climate change anticipated from the different greenhouse gas emission scenarios.

Projected changed to seasonal maximum 2-m air temperature is presented in Figure 3 with seasonal changes to minimum 2-m air temperature is presented in Figure 4. For both GHG emissions scenarios temperatures increase above historical levels by mid-century and 2100. Projections for RCP8.5 begin to deviate from the RCP4.5 projections after mid-century, and depending on the season are approximately 5ºF or warmer by 2100. For the RCP4.5 scenario, both maximum and minimum temperatures level off approximately 5ºF warmer than historical temperatures, while the RCP8.5 scenario shows a continued increasing trend at year 2100.

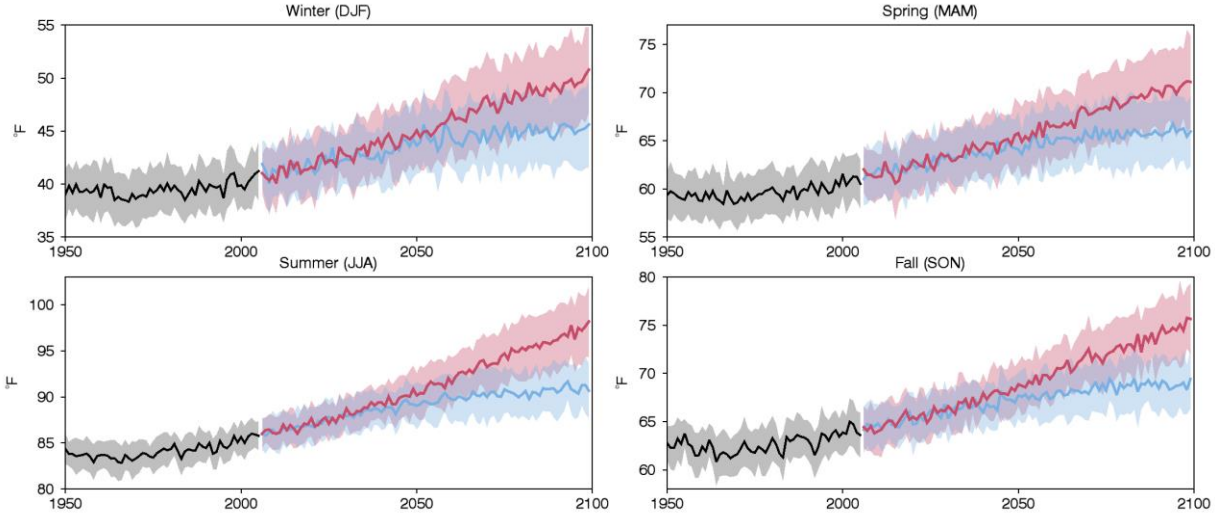

Figure 3. Seasonal average time series of maximum 2-m air temperature for historical (black), RCP4.5 (blue), and RCP8.5 (red). Solid lines are the average and shaded areas represent the standard deviation.

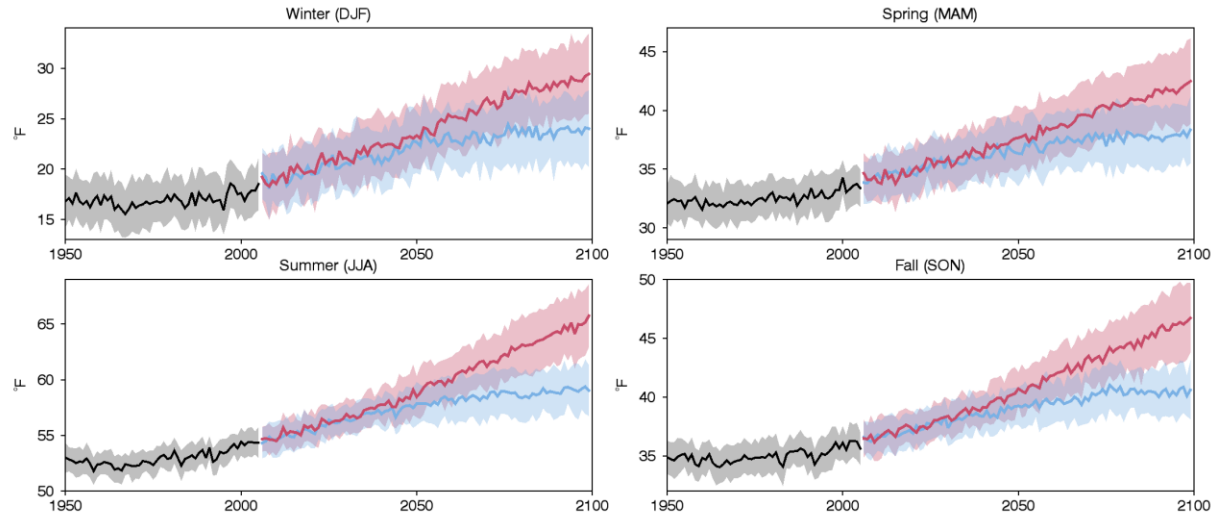

Figure 4. Seasonal average time series of minimum 2-m air temperature for historical (black), RCP4.5 (blue), and RCP8.5 (red). Solid lines are the average and shaded areas represent the standard deviation.

Projected changes to monthly precipitation for four time periods (1961-2010 historical, 2025-2049, 2050-2074, and 2075-2099) is presented in Figure 5. Estimated changes for all time periods and both emission scenarios are minimal (not statistically significant) with respect to historic precipitation, but with a slight increase in precipitation for RCP8.5 during the winter. The historical precipitation falls within the upper and lower ranges for all estimates of precipitation change. However, both the RCP8.5 and RCP4.5

projections show statistically significant lower amounts of snow water equivalent and runoff for all future time periods. In other words, less snowpack in the winter, more runoff during the winter, and less during the spring and summer.

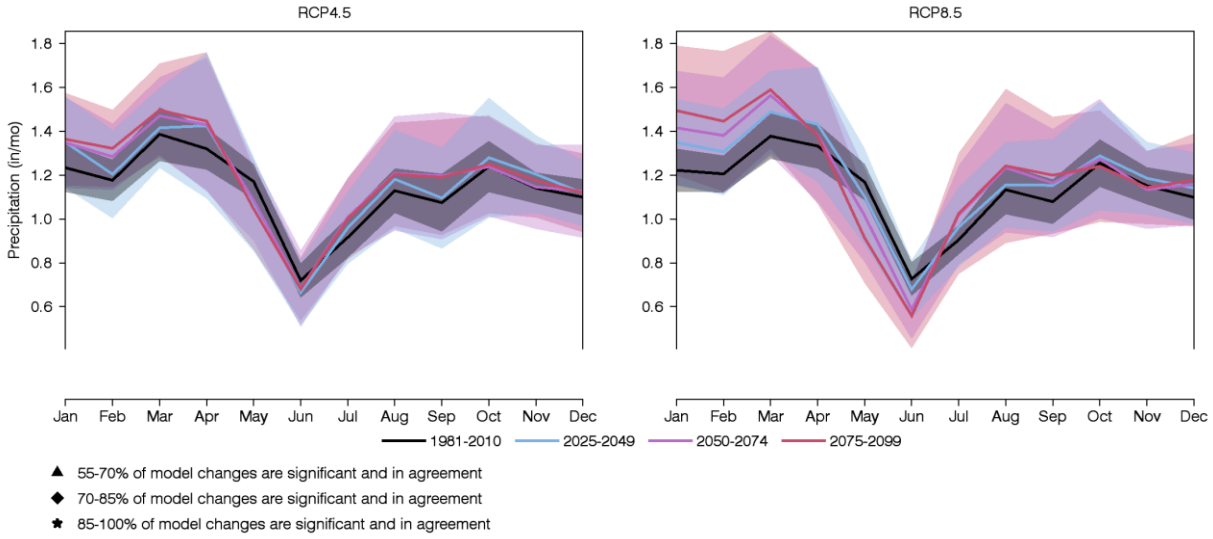

Figure 5. Monthly averages of precipitation for four time periods for the RCP4.5 (left) and RCP8.5 (right) simulations. The average of 30 CMIP5 models is indicated by the solid lines and their standard deviations are indicated by the respective shaded envelopes. Triangle, diamond and square symbols indicate the percent of models that simulate future minus present changes that are of the same sign and statistically significant. A two-sided Students t-test is used to establish statistical significance ($\rho \leq 0.05$).

The proposed action may result in GHG emissions that contribute to statewide, regional, and national GHG emissions totals. All GHGs, regardless of the source, contribute incrementally to the climate change phenomenon. While GHG emissions resulting from individual decisions can certainly be modified or potentially prevented by analyzing and selecting reasonable alternatives that appropriately respond to the action's purpose and need, the BLM has limited decision authority to meaningfully or measurably prevent the cumulative climate change impacts that would result from global emissions.

The No Action alternative would not contribute to the cumulative emissions or climate change because the subject leases would not continue, and no development of those leases would occur.

Chapter 4 Consultation and Coordination

4.1 Introduction

The issues included in Section 1.8 identifies those that are analyzed in detail in Chapter 3. The IDPRT Checklist (Appendix D) provides the rationale for issues that were considered but not analyzed further. The issues were identified through the public and agency involvement process described in Sections 4.3 below.

4.2 Persons, Groups, and Agencies Contacted/Consulted

Persons, agencies, and organizations that were contacted or consulted during the preparation this EA are identified in Table 17.

4.2.1 Endangered Species Act of 1973

The effects of Oil and Gas leasing development on T&E species were analyzed through Section 7 consultation on existing BLM Utah Vernal Field Office Resource Management Plans, in 2008 (Cons. # 6-UT-08-F-0025).

The March 2020 lease action is in compliance with T&E species management outlined in accordance with the requirements under the FLMPA and the NEPA.

While Federal regulations and policies require the BLM to make its public land and resources available on the basis of the principle of multiple-use, it is BLM policy to conserve special status species and their habitats, and to ensure that actions authorized by the BLM do not contribute to the need for the species to become listed as T&E by the USFWS.

For lease sales conducted on listed species covered by these consultation actions, the BLM regularly coordinates with the USFWS to assure agreement 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 contained in the associated USFWS biological opinion(s) concurring with BLM's Not Likely to Adversely Affect (NLAA) determinations.

- March 2020
    - Lease notice provided to USFWS: October 15, 2019
    - Email with preliminary shapefiles: September 27, 2019
    - Additional information supporting determination: October 21, 2019
    - USFWS Agreement with BLM Determinations: November 8, 2019

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.

4.2.2 National Historic Preservation Act (NHPA) of 1966

The BLM prepared a cultural resources report to document its reasonable and good faith effort to identify 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).

The Advisory Council for Historic Preservation's (ACHP) document titled Meeting the "Reasonable and Good Faith" Identification Standards in Section 106 Review, from https://www.achp.gov/sites/default/files/guidance/2018-05/reasonable_good_faith_identification.pdf outlines the steps to determine when a reasonable and good faith identification effort has been met. The ACHP states:

- Prior to beginning the identification stage in the Section 106 process, the regulations (at 36 CFR § 800.4) require the federal agency to do the following:
- Determine and document the APE [Area of Potential Effect] in order to define where the agency will look for historic properties that may be directly or indirectly affected by the undertaking;
- Review existing information on known and potential historic properties within the APE, so the agency will have current data on what can be expected, or may be encountered, within the APE;
- Seek information from others who may have knowledge of historic properties in the area. This includes the State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer (THPO) and, as appropriate, Indian tribes or Native Hawaiian organizations who may have concerns about historic properties of religious and cultural significance to them within the APE.

Following these initial steps, the regulations (36 CFR § 800.4(b) (1)) set out several factors the agency must consider in determining what is a "reasonable and good faith effort" to identify historic properties:

> Take into account past planning, research and studies; the magnitude and nature of the undertaking and the degree of federal involvement; the nature and extent of potential effects on historic properties; and the likely nature and location of historic properties within the APE. The Secretary of the Interior's standards and guidelines for identification provide guidance on this subject. The agency official should also consider other applicable professional, state, tribal, and local laws, standards, and guidelines. The regulations note that a reasonable and good faith effort may consist of or include 'background research, consultation, oral history interviews, sample field investigation, and field survey.'

For lease sales, BLM's identification efforts include: (1) completing a comprehensive "records review," which is an intensive review and analysis of available pertinent cultural resource records and information for each parcel and the surrounding areas that are included in the undertaking APE; and (2) proactively seeking information from others who may have knowledge of historic properties in the area. The BLM's identification efforts that are described in this report for the March 2020 lease sale undertaking are consistent with the direction provided in multiple Interior Board of Land Appeals (IBLA) decisions/orders, including Mandan, Hidatsa, and Arikara Nation, 164 IBLA 343 (2005), Southern Utah Wilderness Alliance, IBLA 2008-264 (2009), and Southern Utah Wilderness Alliance, IBLA 2002-334.

The Section 106 process established by BLM oil and gas leasing was further codified in the 2020 State Protocol Agreement between The Bureau of Land Management and the Utah State Historic Preservation Office. This document is available at https://www.blm.gov/programs/cultural-heritage-and-paleontology/archaeology/what-we-manage/utah.

On November 18, 2019 the BLM sent invitations to participate in government to government consultation to: the Confederated Tribes of the Goshute, Skull Valley Band of Goshute Indians, The Hopi Tribe, Navajo Nation, Navajo Nation, Navajo Mountain Chapter, Navajo Nation, Kayenta Chapter, Navajo Nation, Dennehotso Chapter, Navajo Nation, Oljato Chapter, Navajo Nation, Mexican Water Chapter, Navajo Nation, Red Mesa Chapter, Navajo Nation, Teec Nos Pos Chapter, Navajo Nation, Aneth Chapter, Navajo Utah Commission, Shivwits Band of Paiutes, Kanosh Band of Paiutes, Cedar Band of Paiutes, Indian Peaks Band of Paiutes, Kaibab Band of Paiute Indians, Moapa Band of Paiute Indians, Pueblo of Jemez, Pueblo of Laguna, Pueblo of Santa Clara, Pueblo of Zia, Eastern Shoshone Tribe, Northwest Band of Shoshone Nation, Southern Ute Indian Tribe, Uintah and Ouray Ute Tribe, Ute Indian Tribe, Ute Mountain Ute Tribe, White Mesa Ute. On December 27, 2019, the Hopi Tribe requested the cultural report.

On October 7, 2019, UTSO BLM posted data and instructions on ePlanning for consulting parties to request consulting party status on the March 2020 Lease Sale Cultural Resource Report. Consultation

with consulting parties is ongoing.

On January 21, 2020, BLM sought concurrence regarding our determination of affect in the March 2020 Lease Sale Cultural Resources Report with Utah SHPO. On [ongoing], BLM received [ongoing] from SHPO.

Table 17. List of Contacts and Findings.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
National Park Service	Coordinated with as a potential Stakeholder in the affected lands.	A memorandum transmitting the preliminary list of parcels was sent on October 1, 2019, followed up the next day with an email including GIS shapefiles. Coordination is ongoing.
United States Fish and Wildlife Service	Coordinated/consulted with for compliance with the Endangered Species Act.	A memorandum transmitting the preliminary list of parcels was sent on October 1, 2019. Emails were sent on transmitting the corresponding shapefiles on September 27, 2019. The USFWS agreed with BLM determinations on November 8, 2019. Refer to section 4.2.1.
United States Forest Service	Coordinated with as a potential Stakeholder in the affected lands.	A letter transmitting the preliminary list of parcels was sent on October 1, 2019. Comments or concerns were not expressed. Coordination is ongoing.
Public Lands Policy Coordination Office/ Utah Division of Wildlife Resources	Coordinated with as leasing program partner.	Letters transmitting the preliminary list of parcels were sent on October 1, 2019. An e-mail with GIS shapefiles was sent to UDWR on September 27, 2019, to satisfy the requirements of IM-2012-43. Comments were submitted during the public comment period. The comment is located in Appendix H, comment 29.
State Institutional Trust Lands Administration	Coordinated with as a potential Stakeholder in the affected lands.	A letter transmitting the preliminary list of parcels was sent on October 1, 2019. Comments or concerns were not expressed.
State Historic Preservation Office and Consulting Parties	Consultation as required by NHPA (16 USC 470)	On January 21, 2020, a No Adverse Effect determination was mailed to the SHPO. On [ongoing] SHPO concurrence was received. Coordination is ongoing.
Various Tribal Governments (see section 4.2.2)	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1996) and NHPA (16 USC 470)	On October 13, 2019, UTSO sent an invitation to consult letter to each tribe. On December 27, 2019, the Hopi Tribe requested the cultural report. No tribes have responded to the invitation to consult. Coordination and consultation will continue up until the lease auction, at the request of any tribe.

4.3 Public Participation

Scoping Period

The UTSO sent letters/memorandum to the following stakeholders: the National Park Service (NPS), the United States Fish and Wildlife Service (USFWS), the United States Forest Service (USFS) and the State of Utah's Public Lands Policy Coordination Office (PLPCO), Division of Wildlife Resources (UDWR) and the School Institutional Trust Lands Administration (SITLA) to notify them of the pending lease sale, solicit comments and concerns on the preliminary parcel list. The BLM also provided GIS shapefiles depicting the proposed sale parcels to contact points within the NPS and UDWR. Consultation and coordination efforts are summarized in Table 17.

Comment Period

As introduced in Section 1.2, the preliminary EA and the unsigned Finding of No Significant Impact (FONSI) were posted and made available for a 30-day public review and comment period on December 3, 2019. This announced the 30-day comment period (12/03/2019-01/03/2020) for this lease sale. The documents were made available online at the Utah State Office's Oil and Gas Leasing Webpage and the BLM's NEPA Register.

Section 4.3.1 will identify changes to this EA that were made as a result of public comments and internal review. Comments and BLM's responses to each of the comment letters will be shown in Appendix H.

Seven comment letters were received. Three comment letters were non-substantive comments are defined in the NEPA Handbook, H-1790-1, (section 6.9.2.), and the other four comments letters did have substantive comments. The comment letters and BLM's responses to the points made in the letters are contained in Appendix H. Minor changes to this EA were made as a result of some comments.

NHPA Coordination

On October 7, 2019, BLM posted an invitation on the BLM NEPA Register to interested parties to consult in order to satisfy the public involvement requirements under Section 106 of the National Historic Preservation Act (NHPA) [16 U.S.C. 470(f) pursuant to 36 CFR 800.2(d)(3)]. The information about historic and cultural resources within the area potentially affected by the proposed project/action/approval assisted the BLM in identifying and evaluating impacts to such resources in the context of both NEPA and Section 106 of the NHPA. The BLM will consult with Indian tribes on a government-to-government basis in accordance with Executive Order 13175 and other policies, if requested by any Tribe. If Tribal concerns are identified, including impacts on Indian trust assets and potential impacts to cultural resources, they will be given due consideration.

BLM will also provide a copy of the draft cultural report [ongoing] to individuals and/or organizations who participated as a Consulting Party.

4.3.1 Modifications Based on Public Comment and Internal Review]

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

1. Appendix A and Appendix B were updated to reflect the final stipulations and notices for the nominated parcels.
2. Minor grammar, spelling, and formatting changes were made in the document.
3. Modifications were made to the analysis in section 3.3.2, section 3.3.2.4, and Appendix E to clarify methods and calculations for greenhouse gases.

4. The indirect and direct analysis in Section 3.3.2 has been updated from the previous 24 wells to the correct number of 22 wells to analyze GHG emissions.
5. Dates were updated in Table 17, and Section 4.3.

4.4 Preparers

An IDPRT prepared the document and analyzed the impact of the proposed action upon the various resources (Table 18). They considered the affected environment and documented their determination in the IDPRT Checklist (Appendix D – Interdisciplinary Parcel Review Team Checklist). Only those resources that would likely be impacted were carried forward into the body of the EA for further analysis.

Table 18. Preparers of This EA.

Name	Title	Responsible for the Following Section(s) of this Document
Leah Waldner	Natural Resource Specialist	Project Lead, Oil and Gas Leasing Program Coordinator
Glenn Stelter	Archaeologist	Oil and Gas Leasing Program, NHPA Compliance
Karen Cathey	Natural Resource Specialist	Oil and Gas Leasing Program, Stakeholder Coordination
Angela Wadman	Natural Resource Specialist	Oil and Gas Leasing Program, NEPA Compliance
Sheri Wysong	Natural Resource Specialist	Oil and Gas Leasing Program, NLCS and Recreation
Ann Marie Aubry	Hydrologist	Oil and Gas Leasing Program, Hydrology Resources
Aaron Roe	Botanist	Oil and Gas Leasing Program, USFWS Consultation
Erik Vernon	Air Quality Specialist	Oil and Gas Leasing Program, Air Quality; Greenhouse Gases.
Robin Naeve	Fluid Minerals Branch Chief	Oil and Gas Leasing Program Review and Oversight

All specialists that reviewed the parcels are identified in Appendix D – Interdisciplinary Parcel Review Team Checklist.

Chapter 5 References

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Chapter 6 Appendices

A. Parcel List with Stipulations and Notices
B. Stipulations and Notices
C. Figures (Maps)
D. Interdisciplinary Parcel Review Team Checklist
E. Air Quality and Green House Gas Information and Calculations
F. Acronyms/Abbreviations
G. Reasonably Foreseeable Development Scenario
H. Comments and Responses

Appendix A – Parcel List with Stipulations and Notices

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

Stipulations	Notices
Cultural Resources Protection (Handbook H-3120-1)	Notice to Lessee (MLA)
Threatened & Endangered Species Act (Handbook H-3120-1)	

UT0320 - 001 T. 4 S., R 19 E., Salt Lake Meridian Secs. 1, 12, 13, 14, 23, and 24: All. 1993.74 Acres Uintah County, Utah Vernal Field Office	
Stipulations	**Notices**
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-230: TL – Crucial Deer and Elk Winter UT-S-231: CSU – Crucial Deer Winter Range UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management UT-S-348: CSU/NSO – Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood-Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 002
T. 4 S., R 19 E., Salt Lake Meridian
Secs. 25, 26, and 35: All.
1579.24 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range UT-S-261: TL – Raptor Buffers UT-S-347: NSO – Greater Sage-grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-25: White-Tailed and Gunnison Prairie Dog UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 003
T. 5 S., R 19 E., Salt Lake Meridian
Sec. 1: All.
649.20 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-83: Site ROW UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 004
T. 4 S., R 20 E., Salt Lake Meridian
Secs. 3: Lots 1-6, 8, and 9, S2NW, SW, NWSE, S2SE;
Secs. 4 and 10: All;
Sec. 11: Lots 3-6, E2NE, SWNW, W2SW, SE.
2278.69 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range UT-S-347: NSO – Greater Sage-grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat UT-S-356: CSU – Greater Sage-Grouse Indirect Impacts From Noise UT-S-357: CSU – Greater Sage-Grouse Indirect Impacts From Tall Structures	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 005
T. 4 S., R 20 E., Salt Lake Meridian
Secs. 5, 8, and 9: All;
Sec. 17: N2NE, SWNE, W2, NWSE, S2SE.
2496.40 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range UT-S-261: TL – Raptor Buffers UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-57: Public Water Reserve UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 006
T. 4 S., R 20 E., Salt Lake Meridian
Secs. 6, 7, and 18: All.
2128.51 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-57: Public Water Reserve UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 007
T. 4 S., R 20 E., Salt Lake Meridian
Secs. 19 and 30: All;
Sec. 31: Lots 1, 2, and 4, NE, E2NW, E2SW, SE.
2053.53 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range UT-S-261: TL – Raptor Buffers UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 008
T. 4 S., R 20 E., Salt Lake Meridian
Sec. 20: All;
Sec. 21: NE, NWNW, S2NW, S2;
Secs. 28 and 29: All.
2520.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range UT-S-261: TL – Raptor Buffers UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-83: Site ROW UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 009
T. 5 S., R 20 E., Salt Lake Meridian
Sec. 3: Lots 3 and 4, S2NW, SW;
Secs. 4, 5, and 6: All.
2247.02 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-13: Pronghorn Winter Habitat UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-83: Site ROW UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 010
T. 5 S., R 20 E., Salt Lake Meridian
Secs. 10, 13, 14, and 15: All.
2560.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-13: Pronghorn Winter Habitat UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-83: Site ROW UT-LN-89: Horseshoe Milkvetch (*Astragalus Equisolensis*) UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality 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

UT0320 - 011
T. 5 S., R 20 E., Salt Lake Meridian
Secs. 22, 23, and 27: All.
1920.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-261: TL – Raptor Buffers UT-S-347: NSO – Greater Sage-grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-13: Pronghorn Winter Habitat UT-LN-25: White-Tailed and Gunnison Prairie Dog UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-85: Tar Sands Area UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 012
T. 5 S., R 20 E., Salt Lake Meridian
Secs. 24, 25, and 26: All.
1920.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-261: TL – Raptor Buffers UT-S-316: Material Site Rights-Of-Way UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL-Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-13: Pronghorn Winter Habitat UT-LN-25: White-Tailed and Gunnison Prairie Dog UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-89: Horseshoe Milkvetch (*Astragalus Equisolensis*) UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 013
T. 5 S., R 20 E., Salt Lake Meridian
Secs. 34 and 35: All.
1296.04 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-261: TL – Raptor Buffers UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-13: Pronghorn Winter Habitat UT-LN-25: White-Tailed and Gunnison Prairie Dog UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils 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-101: Air Quality 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

UT0320 - 014
T. 4 S., R 21 E., Salt Lake Meridian
Sec. 30: SWNE.
40.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-85: Tar Sands Area UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-131: Greater Sage-Grouse Net Conservation Gain UT-LN-132: Greater Sage-Grouse Required Design Features UT-LN-133: Greater Sage-Grouse Buffer

UT0320 - 016
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 4: SWSW;
Sec. 9: Lots 1 and 2, W2NW, NWSE, S2SE.
321.29 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally-listed UT-LN-52: Noxious Weeds

UT0320 - 016
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 4: SWSW;
Sec. 9: Lots 1 and 2, W2NW, NWSE, S2SE.
321.29 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
	UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-83: Site ROW UT-LN-85: Tar Sands Area UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 017
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 5: Lot 5, SWNE.
80.06 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally-listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-83: Site ROW UT-LN-85: Tar Sands Area

UT0320 - 017
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 5: Lot 5, SWNE.
80.06 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
	UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 018
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 15: Lots 1-8;
Sec. 22: Lots 1 and 2, S2NE;
Sec. 23: W2SW.
557.10 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-205: TL – Greater Sage-Grouse Brood Rearing and Nesting UT-S-207: CSU – Greater Sage-Grouse (Structures) UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitation	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-85: Tar Sands Area UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis

UT0320 - 018
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 15: Lots 1-8;
Sec. 22: Lots 1 and 2, S2NE;
Sec. 23: W2SW.
557.10 Acres
Uintah County, Utah
Vernal Field Office

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

UT0320 - 019
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 17: Lots 3 and 4, SW, W2SE;
Sec. 18: NW, S2;
Secs. 19 and 20: All;
Sec. 21: W2.
2403.75 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-205: TL – Greater Sage-Grouse Brood Rearing and Nesting UT-S-207: CSU – Greater Sage-Grouse (Structures) UT-S-261: TL – Raptor Buffers UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-25: White-Tailed and Gunnison Prairie Dog UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-53: Riparian Areas UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-83: Site ROW UT-LN-85: Tar Sands Area

UT0320 - 019
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 17: Lots 3 and 4, SW, W2SE;
Sec. 18: NW, S2;
Secs. 19 and 20: All;
Sec. 21: W2.
2403.75 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations UT-S-352: CSU – Greater Sage-Grouse Tall Structures UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing UT-S-354: TL – Greater Sage-Grouse Brood Rearing UT-S-355: TL – Greater Sage-Grouse Winter Habitat	UT-LN-89: Horseshoe Milkvetch (*Astragalus Equisolensis*) UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 020
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 21: SE;
Sec. 27: S2SW, SWSE;
Secs. 28, 33, and 34: All.
2204.25 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species

UT0320 - 020
T. 5 S., R 21 E., Salt Lake Meridian
Sec. 21: SE;
Sec. 27: S2SW, SWSE;
Secs. 28, 33, and 34: All.
2204.25 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-195: NSO – Greater Sage-Grouse Leks UT-S-205: TL – Greater Sage-Grouse Brood Rearing and Nesting UT-S-206: CSU – Greater Sage-Grouse (Noise Reduction) UT-S-207: CSU – Greater Sage-Grouse (Structures)	UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-85: Tar Sands Area UT-LN-89: Horseshoe Milkvetch (*Astragalus Equisolensis*) UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality 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

UT0320 - 022
T. 7 S., R 21 E., Salt Lake Meridian
Sec. 14: NESW, SWSW, NWSE, S2SE.
200.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves	T&E-03: Endangered Fish of the Colorado River 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-13: Pronghorn Winter Habitat

UT0320 - 022
T. 7 S., R 21 E., Salt Lake Meridian
Sec. 14: NESW, SWSW, NWSE, S2SE.
200.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
	UT-LN-25: White-Tailed and Gunnison Prairie Dog UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-89: Horseshoe Milkvetch (*Astragalus Equisolensis*) UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-128: Floodplain Management

UT0320 - 023
T. 5 S., R 22 E., Salt Lake Meridian
Sec. 25: W2SW;
Sec. 26: NESE, S2SE;
Sec. 35: NENE.
240.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-96: Air Quality Mitigation Measures

UT0320 - 023 T. 5 S., R 22 E., Salt Lake Meridian Sec. 25: W2SW; Sec. 26: NESE, S2SE; Sec. 35: NENE. 240.00 Acres Uintah County, Utah Vernal Field Office	
Stipulations	**Notices**
	UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-113: Western Yellow-billed Cuckoo

UT0320 - 024 T. 5 S., R 22 E., Salt Lake Meridian Sec. 29: SESW, SESE. 80.00 Acres Uintah County, Utah Vernal Field Office	
Stipulations	**Notices**
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%) UT-S-230: TL – Crucial Deer and Elk Winter Range UT-S-231: CSU – Crucial Deer Winter Range	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-83: Site ROW UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis

UT0320 - 025
T. 6 S., R 22 E., Salt Lake Meridian
Sec. 3: SWNW, N2SW;
Sec. 4: SENE.
160.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%)	T&E-03: Endangered Fish of the Colorado River Basin T&E-05: Listed Plant Species UT-LN-44: Raptors UT-LN-45: Migratory Bird UT-LN-49: Utah Sensitive Species UT-LN-51: Special Status Plants: Not Federally Listed UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-85: Tar Sands Area UT-LN-89: Horseshoe Milkvetch (*Astragalus Equisolensis*) UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis

UT0320 - 026
T. 15 S., R 24 E., Salt Lake Meridian
Sec. 4: All;
Sec. 5: S2;
Sec. 9: All;
Sec. 10: Lots 7-10, SW;
Sec. 17: All.
2511.30 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%)	T&E-03: Endangered Fish of the Colorado River Basin T&E-06: Mexican Spotted Owl UT-LN-20: Rocky Mountain/Desert Bighorn Sheep Crucial Lambing and Rutting Habitat UT-LN-44: Raptors UT-LN-45: Migratory Bird

UT0320 - 026
T. 15 S., R 24 E., Salt Lake Meridian
Sec. 4: All;
Sec. 5: S2;
Sec. 9: All;
Sec. 10: Lots 7-10, SW;
Sec. 17: All.
2511.30 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-159: CSU – Visual Resources – VRM II UT-S-247: TL – Crucial Elk Calving And Deer Fawning Habitat	UT-LN-49: Utah Sensitive Species UT-LN-52: Noxious Weeds UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-85: Tar Sands Area UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

UT0320 - 027
T. 15 S., R 24 E., Salt Lake Meridian
Sec. 10: E2;
Sec. 11: W2NW, W2SW;
Sec. 15: All;
Sec. 22: All;
Sec. 27: NE, N2NW, SWNW, S2.
2360.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-01: Air Quality UT-S-96: NSO – Fragile Soils/Slopes Greater than 40% UT-S-99: CSU – Fragile Soils/Slopes UT-S-100: CSU – Fragile Soils/Slopes (21%-40%)	T&E-03: Endangered Fish of the Colorado River Basin T&E-06: Mexican Spotted Owl UT-LN-20: Rocky Mountain/Desert Bighorn Sheep Crucial Lambing and Rutting Habitat UT-LN-44: Raptors UT-LN-45: Migratory Bird

UT0320 - 027
T. 15 S., R 24 E., Salt Lake Meridian
Sec. 10: E2;
Sec. 11: W2NW, W2SW;
Sec. 15: All;
Sec. 22: All;
Sec. 27: NE, N2NW, SWNW, S2.
2360.00 Acres
Uintah County, Utah
Vernal Field Office

Stipulations	Notices
UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves UT-S-159: CSU – Visual Resources – VRM II UT-S-247: TL – Crucial Elk Calving And Deer Fawning Habitat	UT-LN-49: Utah Sensitive Species UT-LN-52: Noxious Weeds UT-LN-57: Public Water Reserve UT-LN-66: Cultural Resources Located Sandy or Erodible Soils UT-LN-96: Air Quality Mitigation Measures UT-LN-99: Regional Ozone Formation Controls UT-LN-101: Air Quality UT-LN-102: Air Quality Analysis UT-LN-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

Appendix B – Stipulations and Notices

Stipulation Summary Table

NUMBER	UTAH STIPULATIONS
UT-S-01	**AIR QUALITY** All stationary new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower shall not emit more than 2 grams of NO_x per horsepower-hour. **Exception:** This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. **Modification**: None **Waiver**: None **AND** All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour. **Exception**: None **Modification**: None **Waiver**: None
UT-S-96	**NO SURFACE OCCUPANCY – FRAGILE SOILS/SLOPES GREATER THAN 40%** No surface occupancy for slopes greater than 40 percent. **Exception:** If after an environment analysis the authorized officer determines that it would cause undue or unnecessary degradation to pursue other placement alternatives; surface occupancy in the NSO area may be authorized. Additionally, a plan shall be submitted by the operator and approved by BLM prior to construction and maintenance and include: • An erosion control strategy; • GIS modeling; • Proper survey and design by a certified engineer. **Modification:** Modifications also may be granted if a more detailed analysis, i.e. Order I, soil survey conducted by a qualified soil scientist finds that surface disturbance activities could occur on slopes greater than 40% while adequately protecting the area from accelerated erosion. **Waiver**: None
UT-S-99	**CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES** The surface operating standards for oil and gas exploration and development (Gold Book) shall be used as a guide for surface-disturbing proposals on steep slopes/hillsides. **Exception**: None **Modification**: None

NUMBER	UTAH STIPULATIONS
	Waiver: None
UT-S-100	**CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES (21%-40%)** If surface-disturbing activities cannot be avoided on slopes from 21-40% a plan will be required. The plan will be approved by BLM prior to construction and maintenance and include: • An erosion control strategy; • GIS modeling; • Proper survey and design by a certified engineer. **Exception**: None **Modification**: None **Waiver**: None
UT-S-123	**NO SURFACE OCCUPANCY – RIPARIAN, FLOODPLAINS, AND PUBLIC WATER RESERVES** No new surface-disturbing activities are allowed within active flood plains, wetlands, public water reserves, or 100 meters of riparian areas. Keep construction of new stream crossings to a minimum. **Exception:** An exception could be authorized if: (a) there are no practical alternatives (b) impacts could be fully mitigated, or (c) the action is designed to enhance the riparian resources. **Modification**: None **Waiver**: None
UT-S-159	**CONTROLLED SURFACE USE – VISUAL RESOURCES - VRM II** Within VRM II areas, surface-disturbing activities will retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Any change to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. **Exception**: Exempted are recognized utility corridors. **Modification**: None **Waiver**: None
UT-S-195	**NO SURFACE OCCUPANCY – GREATER SAGE-GROUSE LEKS** No surface-disturbing activities within 1/4 mile of active Greater Sage-Grouse leks year-round found outside of Priority Habitat Management Areas (PHMA). **Exception**: None

NUMBER	UTAH STIPULATIONS
	Modification: None **Waiver**: None
UT-S-205	**TIMING LIMITATION – GREATER SAGE-GROUSE BROOD REARING AND NESTING** No surface-disturbing activities within 2 miles of active Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) within brood rearing and nesting habitat from **March 1 - June 15**. **Exception:** None **Modification:** None **Waiver:** None
UT-S-206	**CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (NOISE REDUCTION)** Within ½ mile of known active Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) use the best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise. **Exception**: None **Modification**: None **Waiver**: None
UT-S-207	**CONTROLLED SURFACE USE – GREATER SAGE-GROUSE (STRUCTURES)** No permanent facilities or structures would be allowed within 2 miles Greater Sage-Grouse leks found outside of Priority Habitat Management Areas (PHMA) when possible. **Exception**: None **Modification**: None **Waiver**: None
UT-S-230	**TIMING LIMITATION – CRUCIAL DEER AND ELK WINTER RANGE** No surface disturbing activities in deer and elk crucial winter range from **December 1 - April 30**. **Exception**: This restriction would not apply if and/or elk are not present, or if it is determined through analysis and coordination with UDWR that impacts could be mitigated. Factors to be considered would include snow depth, temperature, snow crusting, location of disturbance, forage quantity and quality, animal condition, and expected duration of disturbance. **Modification**: The stipulation could be modified based on findings of collaborative monitoring and analysis. For example, the winter range configuration and time frames could be changed if current animal use patterns are determined to be inconsistent with the dates and boundaries established.

NUMBER	UTAH STIPULATIONS
	Waiver: This stipulation could be waived if it is determined through collaborative monitoring and analysis that the area is not crucial winter range or that timing restrictions are unnecessary.
UT-S-231	**CONTROLLED SURFACE USE – CRUCIAL DEER WINTER RANGE** Within crucial deer winter range, no more than 10% of such habitat will be subject to surface disturbance and remain un-reclaimed at any given time. **Exception**: This stipulation may be excepted if either the resource values change, or the lessee/operator demonstrates to BLMs satisfaction that impacts can be mitigated. **Modification**: None **Waiver**: None
UT-S-247	**TIMING LIMITATION – CRUCIAL ELK CALVING AND DEER FAWNING HABITAT** In order to protect crucial elk calving and deer fawning habitat exploration, drilling, and other development activity will not be allowed from **May 15 - June 30**. **Exception**: This restriction would not apply to maintenance and operation of existing facilities. This stipulation may be excepted if either the resource values change, or the lessee/operator demonstrates to BLMs satisfaction that adverse impact can be mitigated. **Modification**: None **Waiver**: None
UT-S-261	**TIMING LIMITATION – RAPTOR BUFFERS** Raptor management will be guided by the use of "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A), utilizing seasonal and spatial buffers, as well as mitigation, to maintain and enhance raptor nesting and foraging habitat, while allowing other resource uses. **Exception**: None **Modification**: Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the "*Raptor BMPs",* would include the following: 1. Completion of a site-specific assessment by a wildlife biologist or other qualified individual. See example (Attachment 1 of the Raptor BMPs in Appendix A) 2. Written documentation by the BLM Field Office Wildlife Biologist, identifying the proposed modification and affirming that implementation of the proposed modification(s) would not affect nest success or the suitability of the site for future nesting. Modification of the *"*BMPs*"* would not be recommended if it is determined that adverse impacts to nesting raptors would occur or that the suitability of the site for future nesting would be compromised. 3. Development of a monitoring and mitigation strategy by a BLM biologist, or other raptor biologist. Impacts of authorized activities would be documented to determine if the modifications were implemented as described in the environmental

NUMBER	UTAH STIPULATIONS
	documentation or Conditions of Approval, and were adequate to protect the nest site. Should adverse impacts be identified during monitoring of an activity, BLM would follow an appropriate course of action, which may include cessation or modification of activities that would avoid, minimize or mitigate the impact, or, with the approval of UDWR and the USFWS, BLM could allow the activity to continue while requiring monitoring to determine the full impact of the activity on the affected raptor nest. A monitoring report would be completed and forwarded to UDWR for incorporation into the Natural Heritage Program (NHP) raptor database. **Waiver**: None
UT-S-316	**MATERIAL SITE RIGHTS-OF-WAY:** Lessee shall conduct operations in conformity with the following requirements: 1. The Utah State Department of Highways will have unrestricted rights of ingress of the property. 2. The lease will not conflict with the right of the Utah State Department of Highways to remove any road-building materials from the property. 3. The Utah State Department of Highways reserves the right to set up, operate, and maintain such facilities as are reasonable to expedite the removal, production, and use of the materials; and the lessee shall not interfere with the Highway Department's use of the property for such purposes.
UT-S-347	**NO SURFACE OCCUPANCY – GREATER SAGE-GROUSE PRIORITY HABITAT MANAGEMENT AREAS*** No surface occupancy within Greater Sage-Grouse Priority Habitat Management Areas (PHMA). **Exception:** The Authorized Officer with concurrence with the State Director, may grant an exception only where the proposed action: i. Would not have direct, indirect, or cumulative effects on GRSG or its habitat; OR, ii. Is proposed to be undertaken as an alternative to a similar action occurring on a nearby parcel, and would provide a clear conservation gain to GRSG. The conservation gain must include measures, such as enforceable institutional controls and buffers, sufficient to allow the BLM to conclude that such benefits will endure for the duration of the proposed action's impacts. The Authorized Officer may not grant an exception unless the applicable state wildlife agency, the USFWS, and the BLM unanimously find that the proposed action satisfies (i) or (ii). Such finding shall initially be made by a team of one field biologist or other GRSG expert from each respective agency. In the event the initial finding is not unanimous, the finding may be elevated to the appropriate BLM State Director, USFWS State Ecological Services Director, and state wildlife agency head for final resolution. In the event their finding is not unanimous, the exception will not be granted. Approved exceptions will be made publicly available at least quarterly. **Modification:** None **Waiver:** None

NUMBER	UTAH STIPULATIONS
	*The other greater sage-grouse stipulations would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-348	**NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE – GREATER SAGE-GROUSE DISTURBANCE CAP** Manage discrete anthropogenic disturbances, whether temporary or permanent, so they cover less than 3 percent on all lands (regardless of land ownership) at each level: 1) PHMA associated with a GRSG population area (referred to as biologically significant units {BSU} when coordinating across state lines) and 2) within the proposed project analysis area to protect PHMA and the life-history needs of GRSG from habitat loss and GRSG populations from disturbance and limit fragmentation in PHMA. This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above (UT-S-347 GRSG) were granted. See Appendix E of the 2015 GRSG Approved RMP Amendment for disturbance calculation instructions. **Exception:** None **Modification:** None **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-349	**NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE – GREATER SAGE-GROUSE DENSITY LIMITATION** Limit the density of energy and mining facilities within Priority Habitat Management Areas (PHMA) during project authorization to an average of one energy/mineral facility per 640 acres on all lands (regardless of land ownership) in PHMA within a proposed project analysis area to protect PHMA and the life-history needs of GRSG from habitat loss and 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 2015 GRSG Approved RMP Amendment for calculation details. **Exception:** None **Modification:** None **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-350	**CONTROLLED SURFACE USE/TIMING LIMITATION – GREATER SAGE-GROUSE BREEDING SEASON NOISE LIMITATIONS** Limit noise from discrete anthropogenic disturbances within Priority Habitat Management Areas (PHMA), including activities from construction, operation and maintenance, to below 10 decibels above ambient sound levels (baseline as available at the signing of the GRSG RMP Amendment ROD or as first measured thereafter) at occupied leks from 2 hours before to 2 hours after official

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

NUMBER	UTAH STIPULATIONS
	Waiver: None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-354	**TIMING LIMITATION – GREATER SAGE-GROUSE BROOD-REARING** Manage uses to prevent disturbance to GRSG populations and habitat by applying seasonal restrictions (e.g., no surface disturbance) between April 15 – August 15 in the Greater Sage-Grouse (GRSG) Priority Habitat Management Areas (PHMA) brood-rearing habitat to seasonally protect that habitat from disruptive activity. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with the appropriate State of Utah agency. **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-355	**TIMING LIMITATION – GREATER SAGE-GROUSE WINTER HABITAT** Manage uses to prevent disturbance to GRSG populations and habitat by applying seasonal restrictions (e.g., no surface disturbance) between Nov 15 – March 15 in Priority Habitat Management Areas (PHMA) for Greater Sage-Grouse (GRSG) winter habitat to protect GRSG within PHMA from disruptive activity during the winter season. **Exception:** None **Modification:** Specific time and distance determinations would be based on site-specific conditions and may be modified due to documented local variations (e.g., higher/lower elevations) or annual climactic fluctuations (e.g., early/late spring, long and/or heavy winter) in order to better protect GRSG, in coordination with the appropriate State of Utah agency. **Waiver:** None *This would only be applicable to new fluid minerals leases if the exception criteria identified for the NSO stipulation above were granted.
UT-S-356	**CONTROLLED SURFACE USE – GREATER SAGE-GROUSE INDIRECT IMPACTS FROM NOISE** Areas outside of Priority Habitat Management Areas (PHMA), portions of the State of Utah's opportunity areas within 4 miles of a lek that is located within PHMA will be subject to the following constraints: Limit noise from discrete anthropogenic disturbances (during construction, operation, or maintenance) so it will not exceed 10 decibels above ambient sound levels (baseline as available at the signing of the GRSG RMP Amendment ROD or as first measured

NUMBER	UTAH STIPULATIONS
	thereafter) at occupied leks within PHMA from 2 hours before to 2 hours after official sunrise and sunset during breeding season (e.g., while males are strutting); **AND** Limit project related noise in other PHMA habitats and seasons where it would be expected to reduce functionality of habitats that support associated GRSG populations in order to protect GRSG from indirect disturbance near leks within PHMA. **Exception:** None **Modification:** As additional research and information emerges, specific new limitations appropriate to the type of projects being considered would be evaluated and appropriate measures would be implemented where necessary to minimize potential for noise impacts on PHMA GRSG population behavioral cycles. **Waiver:** None
UT-S-357	**CONTROLLED SURFACE USE – GREATER SAGE-GROUSE INDIRECT IMPACTS FROM TALL STRUCTURES** Areas outside of Priority Habitat Management Areas (PHMA), portions of the State of Utah's opportunity areas within 4 miles of a lek that is located within PHMA will be subject to the following constraints: Limit the placement of permanent tall structures** adjacent to breeding and nesting habitats to minimize placement of structures that introduce new perching and/or nesting opportunities for avian predators. **Exception:** None **Modification:** None **Waiver:** None **For the purposes of this restriction, a tall structure is any man-made structure that provides for perching/nesting opportunities for predators (e.g., raptors and ravens) that are naturally absent, or that decreases the use of an area by GRSG. A determination as to whether something is considered a tall structure will be made based on local conditions such as existing vegetation or topography.

Notice Summary Table

NUMBER	UTAH LEASE NOTICES
UT-LN-11	**CRUCIAL ELK CALVING AND DEER FAWNING HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing crucial elk calving or deer fawning habitat. Exploration, drilling and other development activities may be restricted for up to 60 days. Modifications may be required in the Surface Use Plan of Operations including seasonal timing restrictions to protect the species and its habitat.
UT-LN-13	**PRONGHORN WINTER HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing crucial pronghorn winter habitat. Surface use or otherwise disruptive activity may be restricted for up to 60 days during pronghorn fawning season, as determined by BLM, including exploration, drilling and other development activities. Modifications may be required in the Surface Use Plan of Operations including seasonal timing restrictions to protect the species and its habitat.
UT-LN-20	**ROCKY MOUNTAIN/DESERT BIGHORN SHEEP CRUCIAL LAMBING AND RUTTING HABITAT** The Lessee/Operator is given notice that the lands in this parcel contains habitat for bighorn sheep. Modifications to the surface use plan may be required in order to protect habitat from surface disturbing activities. Surface use or otherwise disruptive activity may be restricted for up to 60 days during pronghorn fawning season, as determined by BLM. These modifications may include such measures as timing restrictions to avoid surface use during the crucial lambing and rutting seasons. Measure may also include avoidance of certain areas such as water sources and talus slopes.
UT-LN-25	**WHITE-TAILED AND GUNNISON PRAIRIE DOG** The lessee/operator is given notice that this lease parcel has been identified as containing white-tailed or Gunnison prairie dog habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect white-tailed or Gunnison prairie dog from surface disturbing activities in accordance with the Endangered Species Act and 43 CFR 3101.1-2.
UT-LN-44	**RAPTORS** Appropriate seasonal and spatial buffers shall be placed on all known raptor nests in accordance with Utah Field Office Guidelines for Raptor Protection from Human and Land use Disturbances (USFWS 2002) and Best Management Practices for Raptors and their Associated Habitats in Utah (BLM 2006). All construction related activities will not occur within these buffers if pre-construction monitoring indicates the nests are active, unless a site-specific evaluation for active nests is completed prior to construction and if a BLM wildlife biologist, in consultation with USFWS and UDWR, recommends that activities may be permitted within the buffer. The BLM will coordinate with the USFWS and UDWR and have a

NUMBER	UTAH LEASE NOTICES
	recommendation within 3-5 days of notification. Any construction activities authorized within a protective (spatial and seasonal) buffer for raptors will require an on-site monitor. Any indication that activities are adversely affecting the raptor and/or its' young the on-site monitor will suspend activities and contact the BLM Authorized Officer immediately. Construction may occur within the buffers of inactive nests. Construction activities may commence once monitoring of the active nest site determines that fledglings have left the nest and are no longer dependent on the nest site. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-45	**MIGRATORY BIRD** The lessee/operator is given notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within priority habitats. Surveys should focus on identified priority bird species in Utah. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations.
UT-LN-49	**UTAH SENSITIVE SPECIES** The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, Migratory Bird Treaty Act and 43 CFR 3101.1-2.
UT-LN-51	**SPECIAL STATUS PLANTS: NOT FEDERALLY LISTED** The lessee/operator is given notice that lands in this lease have been identified as containing special status plants, not federally listed, and their habitats. Modifications to the Surface Use Plan of Operations may be required in order to protect the special status plants and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.
UT-LN-52	**NOXIOUS WEEDS** The lessee/operator is given notice that lands in this lease have been identified as containing or is near areas containing noxious weeds. Best management practices to prevent or control noxious weeds may be required for operations on the lease.

NUMBER	UTAH LEASE NOTICES
UT-LN-53	**RIPARIAN AREAS** The lessee/operator is given notice that this lease has been identified as containing riparian areas. No surface use or otherwise disruptive activity allowed within 100 meters of riparian areas unless it can be shown that (1) there is no practicable alternative; (2) that all long-term impacts are fully mitigated; or (3) that the construction is an enhancement to the riparian areas. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-57	**PUBLIC WATER RESERVE** The lessee/operator is given notice that lands in this lease have been identified as a designated Public Water Reserve. Surface occupancy or use is subject to the Public Water Reserve Executive Order No. 107. Modification to the Surface Use Plan of Operations may be required for the protection of the reserve up to and including no surface occupancy or use. Protection of a designated public water reserve as discussed in Public Water Reserve Executive Order No. 107. This limitation does not apply to operations and maintenance of producing wells.
UT-LN-66	**CULTURAL RESOURCES LOCATED SANDY OR ERODIBLE SOILS** This parcel is located in an area of high concentrations of cultural resources. Known cultural sites are fragile and many are buried under sandy deposits which migrate due to their susceptibility to wind. These sites, or large portions, are not visible from the surface. Therefore, the following mitigation measures may be applied to any surface disturbance of this parcel: 1. pre-surface disturbance cultural resource inventories; 2. pre-surface disturbance subsurface testing; 3. monitoring of ground disturbance; and 4. post-disturbance monitoring identifying resources as the soils stabilize around a project.
UT-LN-72	**HIGH POTENTIAL PALEONTOLOGICAL RESOURCES** The lessee/operator is given notice that lands in this lease have been identified as having high potential for paleontological resources. Surveys will be required and modifications to the Surface Use Plan of Operations may be required in order to protect paleontological resources from surface disturbing activities in accordance with Section 6 of the lease terms and 43 CFR 3101.1-2. In addition, monitoring may be required during surface disturbing activities.
UT-LN-83	**SITE ROW** The lessee/operator is given notice that lands in this lease have an existing site ROW present. Modifications to the Surface Use Plan of Operations may be required or other appropriate mitigation as deemed necessary by the BLM Authorized Officer in order to protect the valid existing rights.

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UT-LN-85	**TAR SANDS AREA** Section 350 of the Energy Policy Act of 2005, enacted August 8, 2005, and amended the Mineral Leasing Act to authorize the Secretary of Interior to issue oil and gas leases in special tar sand areas. Please be advised that all or part of this lease parcel lies within a Special Tar Sands Area. The successful bidder should be aware that special tar sands underlie this lease area. The authorized officer may modify the location or timing of oil and gas activities to provide for future tar sand development.
UT-LN-89	**HORSESHOE MILKVETCH *(ASTRAGALUS EQUISOLENSIS)*** In order to minimize effects to the federal candidate horseshoe milkvetch, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service) developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) will not result in a trend toward federal listing of the species. For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain horseshoe milkvetch; characteristics include sagebrush, shadscale, horsebrush, and other mixed desert shrub communities in Duchesne River Formation soils at 4,790 to 5,185 feet. Occupied habitat is defined as areas currently or historically known to support horseshoe milkvetch; synonymous with "known habitat." The following avoidance and minimization measures should be included in the Plan of Development: 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable horseshoe milkvetch habitat is present. 2. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories: a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols, b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (usually May 1st to June 5th in the Uintah Basin; however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower), c. Will occur within 300' from the centerline of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until May 1st the following year. 3. Design project infrastructure to minimize impacts within suitable habitat[2]:

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	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 roadbed; where feasible, use the natural ground surface for the road within habitat, e. Place signing to limit off-road travel in sensitive areas, and f. Stay on designated routes and other cleared/approved areas. 4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: a. Follow the above (3.) recommendations for project design within suitable habitats, b. Construction of roads will occur such that the edge of the right of way is at least 300' from any plant, c. Roads will be graveled within occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from May 1st to June 5th (flowering period); dust abatement applications will be comprised of water only, d. The edge of the well pad should be located at least 300' away from plants, e. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline crosses suitable habitat to ensure pipelines don't move towards the population, f. Construction activities will not occur from May 1st through June 5th within occupied habitat, g. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc., h. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, i. Designs will avoid concentrating water flows or sediments into occupied habitat, j. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and k. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. 5. Occupied horseshoe milkvetch habitats within 300' of the edge of the surface pipelines' right of ways, 300' of the edge of the roads' right of ways, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.

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	Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in coordination with the U.S. Fish and Wildlife Service.
UT-LN-96	**AIR QUALITY MITIGATION MEASURES** The lessee is given notice that the Bureau of Land Management (BLM) in coordination with the U.S. Environmental Protection Agency and the Utah Department of Air Quality, among others, has developed the following air quality mitigation measures that may be applied to any development proposed on this lease. Integration of and adherence to these measures may help minimize adverse local or regional air quality impacts from oil and gas development (including but not limited to construction, drilling, and production) on regional ozone formation. • All internal combustion equipment would be kept in good working order. • Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer. • Open burning of garbage or refuse would not occur at well sites or other facilities. • Drill rigs would be equipped with Tier II or better diesel engines. • Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater. • Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers. • During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible. • Well site telemetry would be utilized as feasible for production operations. • Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr. for engines <300HP; and 1g NOx/bhp-hr. for engines >300HP. Additional site-specific measures may also be employed to avoid or minimize effects to local or regional air quality. These additional measures will be developed and implemented in coordination with the U.S. Environmental Protection Agency, the Utah Department of Air Quality, and other agencies with expertise or jurisdiction as appropriate based on the size of the project and magnitude of emissions.

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UT-LN-99	**REGIONAL OZONE FORMATION CONTROLS** To mitigate any potential impact oil and gas development emissions may have on regional ozone formation, the following Best Management Practices (BMPs) would be required for any development projects: • Tier II or better drilling rig engines • Stationary internal combustion engine standard of 2g NOx/bhp-hr. for engines <300HP and 1g NOx/bhp-hr. for engines >300HP • Low bleed or no bleed pneumatic pump valves • Dehydrator VOC emission controls to +95% efficiency • Tank VOC emission controls to +95% efficiency
UT-LN-101	**AIR QUALITY** All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 grams of NOx per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. AND All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NOx per horsepower-hour. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-102	**AIR QUALITY ANALYSIS** The lessee/operator is given notice that prior to project-specific approval, additional air quality analyses may be required to comply with the National Environmental Policy Act, Federal Land Policy Management Act, and/or other applicable laws and regulations. Analyses may include dispersion modeling and/or photochemical modeling for deposition and visibility impacts analysis, control equipment determinations, and/or emission inventory development. These analyses may result in the imposition of additional project-specific air quality control measures.
UT-LN-113	**WESTERN YELLOW-BILLED CUCKOO** The Lessee/Operator is given notice that the lands in or adjacent to this parcel contain potentially suitable habitat that falls within the range for western yellow-billed cuckoo, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend upon whether the action is temporary or permanent, and whether it occurs within or outside the breeding and nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action could continue for more than one breeding season and/or cause a loss of habitat or displace western yellow-billed cuckoos through disturbances. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to, these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following

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	these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Avoidance and minimization measures include the following: 1. Habitat suitability within the parcel and/or within a 0.25-mile buffer of the parcel will be identified prior to lease development to identify potential survey needs. 2. Protocol Breeding Season Surveys will be required in suitable habitats prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by permitted individual(s), and be conducted according to protocol. 3. For all temporary actions that may impact cuckoo or suitable habitat: a. If action occurs entirely outside of the cuckoo breeding season (June 1 – Aug 31), and leaves no structure or habitat disturbance, action can proceed without a presence/absence survey. b. If action is proposed between June 1 and August 31, presence/absence surveys for cuckoo will be conducted prior to commencing activity. If cuckoo are detected, activity should be delayed until September 1. c. Eliminate access routes created by the project through such means as raking out scars, revegetation, gating access points, etc. 4. For all permanent actions that may impact cuckoo or suitable habitat: a. Protocol level surveys by permitted individuals will be conducted prior to commencing activities. b. If cuckoos are detected, no activity will occur within 0.25 mile of occupied habitat. c. Avoid drilling and permanent structures within 0.25 mile of suitable habitat unless absence is determined according to protocol level surveys conducted by permitted individual(s). d. Ensure noise levels at 0.25 mile from suitable habitat do not exceed baseline conditions. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.25-mile buffer for suitable habitat. 5. Temporary or permanent actions will require monitoring throughout the duration of the project to ensure that western yellow-billed cuckoo or its habitat is not affected in a manner or to an extent not previous considered. Avoidance and minimization measures will be evaluated throughout the duration of the project. 6. Water produced as a by-product of drilling or pumping will be managed to ensure maintenance or enhancement of riparian habitat. 7. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 8. Ensure that water extraction or disposal practices do not result in change of hydrologic regime that would result in loss or degradation of riparian habitat. 9. Re-vegetate with native species all areas of surface disturbance within riparian areas and/or adjacent uplands.

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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	**LIGHT AND SOUND** In accordance with the Vernal RMP Decision MIN-5, the BLM will seek to minimize light and sound pollution within the project area using the best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to direct noise away from noise sensitive areas (e.g., sensitive habitat, campgrounds, river corridors, and Dinosaur National Monument). Light pollution will be mitigated by using methods such as limiting height of light poles, timing of lighting operations (meaning limiting lighting to times of darkness associated with drilling and work over or maintenance operations), limiting wattage intensity, and constructing light shields. If a determination is made that natural barriers or view sheds will meet these mitigation objectives, the above requirements may not apply.
UT-LN-128	**FLOODPLAIN MANAGEMENT** The lessee/operator is given notice that, in accordance with Executive Order 11988, to avoid adverse impact to floodplains 1) facilities should be located outside the 100 year floodplain, or 2) would be minimized or mitigated by modification of surface use plans within floodplains present within the lease.
UT-LN-129	**GREATER SAGE-GROUSE – DISTURBANCE CAP** Manage discrete anthropogenic disturbances, so they cover less than 3 percent of 1) PHMA associated with a Greater Sage-Grouse (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 2015 GRSG Approved RMP Amendment for disturbance calculation instructions.)
UT-LN-130	**GREATER SAGE-GROUSE – DENSITY LIMITATION** Limit the density of energy and mining facilities within Priority Habitat Management Areas (PHMA) during project authorization to an average of one energy/mineral facility per 640 acres on all lands (regardless of land ownership) in PHMA within the proposed project analysis area to protect PHMA and the life-history needs of GRSG from habitat loss, protect GRSG populations from disturbance, and limit fragmentation in PHMA.
UT-LN-131	**GREATER SAGE-GROUSE – NET CONSERVATION GAIN** In Priority and General Habitat Management Areas (PHMA and GHMA) all actions that result in habitat loss and degradation will require mitigation that provides a net conservation gain to the GRSG. Mitigation must account for any uncertainty associated with the effectiveness of the mitigation and will be achieved through avoiding, minimizing and

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	compensating for impacts. Mitigation will be conducted according to the mitigation framework found in Appendix F of the 2015 GRSG Approved RMP Amendment.
UT-LN-132	**GREATER SAGE-GROUSE – REQUIRED DESIGN FEATURES** Apply the Required Design Features (RDF)* in Appendix C of 2015 GRSG Approved RMP Amendment when developing a lease within Priority and General Habitat Management Areas (PHMA and GHMA). *RDFs may not be required if it is demonstrated through the NEPA analysis that the RDF associated project/activity is: • Documented to not be applicable to the site-specific conditions of the project/activity (e.g. due to site limitations or engineering considerations). Economic considerations, such as increased costs, do not necessarily require that an RDF be varied or rendered inapplicable; • An alternative RDF, state-implemented conservation measure, or plan-level protection is determined to provide equal or better protection for GRSG or its habitat; • Provide no additional protection to GRSG or its habitat.
UT-LN-133	**GREATER SAGE-GROUSE - BUFFER** In Priority and General Habitat Management Areas (PHMA and GHMA), the BLM will apply the lek buffer-distances identified in the USGS Report Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review (Open File Report 2014-1239) in accordance with Appendix B of the 2015 GRSG Approved RMP Amendment, Applying Lek-Buffer Distances, consistent with valid and existing rights and applicable law in authorizing management actions.

Threatened and Endangered Species Notices

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

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	described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletion amounts must be reported to BLM. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.
T&E-05	**LISTED PLANT SPECIES** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for federally listed plant species under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease 1. Site inventories: a. Must be conducted to determine habitat suitability, b. Are required in known or potential habitat for all areas proposed for surface disturbance prior to initiation of project activities, at a time when the plant can be detected, and during appropriate flowering periods, c. Documentation should include, but not be limited to individual plant locations and suitable habitat distributions, and d. All surveys must be conducted by qualified individuals. 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Project activities must be designed to avoid direct disturbance to populations and to individual plants: a. Designs will avoid concentrating water flows or sediments into plant occupied habitat. b. Construction will occur down slope of plants and populations where feasible; if well pads and roads must be sited upslope, buffers of 300 feet minimum between surface disturbances and plants and populations will be incorporated. c. Where populations occur within 300 ft. of well pads, establish a buffer or fence the individuals or groups of individuals during and post-construction. d. Areas for avoidance will be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc. e. For surface pipelines, use a 10-foot buffer from any plant locations: f. If on a slope, use stabilizing construction techniques to ensure the pipelines don't move towards the population. 4. For riparian/wetland-associated species, e.g. Ute ladies-tresses, avoid loss or disturbance of riparian habitats. 5. Ensure that water extraction or disposal practices do not result in change of hydrologic regime. 6. Limit disturbances to and within suitable habitat by staying on designated routes. 7. Limit new access routes created by the project. 8. Place signing to limit ATV travel in sensitive areas. 9. Implement dust abatement practices near occupied plant habitat.

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	10. All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area. 11. Post construction monitoring for invasive species will be required. 12. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in plant habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 13. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.
T&E-06	**MEXICAN SPOTTED OWL** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for Mexican spotted owl, a federally listed species. The Lessee/Operator is given notice that the lands in this lease contain Designated Critical Habitat for the Mexican spotted owl, a federally listed species. Critical habitat was designated for the Mexican spotted owl on August 31, 2004 (69 FR 53181-53298). Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend whether the action is temporary or permanent, and whether it occurs within or outside the owl nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s). 2. Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the conservation measures below if project activities occur within 0.5 mile of suitable owl habitat. Determine potential effects of actions to owls and their habitat. a. Document type of activity, acreage and location of direct habitat impacts, type and extent of indirect impacts relative to location of suitable owl habitat. b. Document if action is temporary or permanent. 3. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved,

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	minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 4. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in canyon habitat suitable for Mexican spotted owl nesting. 6. For all temporary actions that may impact owls or suitable habitat: a. If the action occurs entirely outside of the owl breeding season (March 1 – August 31), and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey. b. If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity must be delayed until outside of the breeding season. c. Rehabilitate access routes created by the project through such means as raking out scars, re-vegetation, gating access points, etc. 7. For all permanent actions that may impact owls or suitable habitat: a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities. b. If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC). c. Avoid drilling and permanent structures within 0.5 mi of suitable habitat unless surveyed and not occupied. d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5-mile buffer for suitable habitat, including canyon rims. e. Limit disturbances to and within suitable habitat by staying on approved routes. f. Limit new access routes created by the project. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.
T&E-12	**PARIETTE CACTUS (SCLEROCACTUS BREVISPINUS) AND UINTA BASIN HOOKLESS CACTUS [SCLEROCACTUS GLAUCUS (BREVISPINUS AND WETLANDICUS)]** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for the Pariette cactus and Uinta Basin hookless cactus, under the Endangered Species Act (ESA). The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease. In order to minimize effects to the federally threatened Pariette cactus and Uinta Basin hookless cactus, the BLM in coordination with the USFWS, developed the following avoidance and minimization measures. Integration of and adherence to these measures will help

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	ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the ESA. For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Uinta Basin hookless cactus. Habitat descriptions can be found in the U.S. Fish and Wildlife Service's 1990 Recovery Plan and Federal Register Notices for the Uinta Basin hookless cactus (http://www.fws.gov/endangered/wildlife.html). Occupied habitat is defined as areas currently or historically known to support Uinta Basin hookless cactus; synonymous with "known habitat." The following avoidance and minimization measures should be included in the Plan of Development: 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable Pariette cactus and Uinta Basin hookless cactus habitat is present. 2. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories: a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols, b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected, and during appropriate flowering periods: i. *Sclerocactus brevispinus* surveys should be conducted March 15th to June 30th, unless extended by the BLM ii. *Sclerocactus wetlandicus* surveys can be done any time of the year, provided there is no snow cover, c. Will occur within 300' from the edge of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until March 15th the following year for *Sclerocactus brevispinus* and one year from the survey date for *Sclerocactus wetlandicus*. 3. Design project infrastructure to minimize impacts within suitable habitat[2]: a. Reduce well pad size to the minimum needed, without compromising safety, b. Limit new access routes created by the project, c. Roads and utilities should share common right-of-ways where possible, d. Reduce width of right-of-ways and minimize the depth of excavation needed for the roadbed; 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

NUMBER	THREATENED & ENDANGERED SPECIES NOTICES
	g. All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area and non-native species that are not likely to invade other areas. 4. Within occupied habitat[3], project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: a. Follow the above (3.) recommendations for project design within suitable habitats, b. Buffers of 300 feet minimum between the edge of the right of way (roads and surface pipelines) or surface disturbance (well pads) and plants and populations will be incorporated, c. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline crosses the habitat to ensure the pipelines don't move towards the population, d. Before and during construction, areas for avoidance should be visually identifiable in the field (e.g., flagging, temporary fencing, rebar, etc.), e. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, f. Designs will avoid concentrating water flows or sediments into occupied habitat, g. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and h. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. 5. Occupied Pariette cactus and Uinta Basin hookless cactus habitats within 300' of the edge of the surface pipelines' right-of-ways, 300' of the edge of the roads' right-of-ways, and 100' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the USFWS. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the USFWS. 6. Re-initiation of Section 7 consultation with the USFWS will be sought immediately if any loss of plants or occupied habitat for the Pariette cactus and Uinta Basin hookless cactus is anticipated as a result of project activities. 7. The lessee will observe the management and conservation measures developed for the Level 1 and 2 Core Conservation Areas that have been identified by the USFWS. These conservation measures include disturbance caps (no further disturbance in Core 1 Areas and a 5% disturbance cap in Core 2 Areas). Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.

Appendix C – Figures/Maps

- Vernal Field Office Parcel Overview (northern), Green River District.
- Vernal Field Office Parcel Overview (southern), Green River District.
- Greater Sage-Grouse habitat, Vernal Field Office Parcel Overview (northern), Green River District.
- Greater Sage-Grouse habitat, Vernal Field Office Parcel Overview (southern), Green River District.

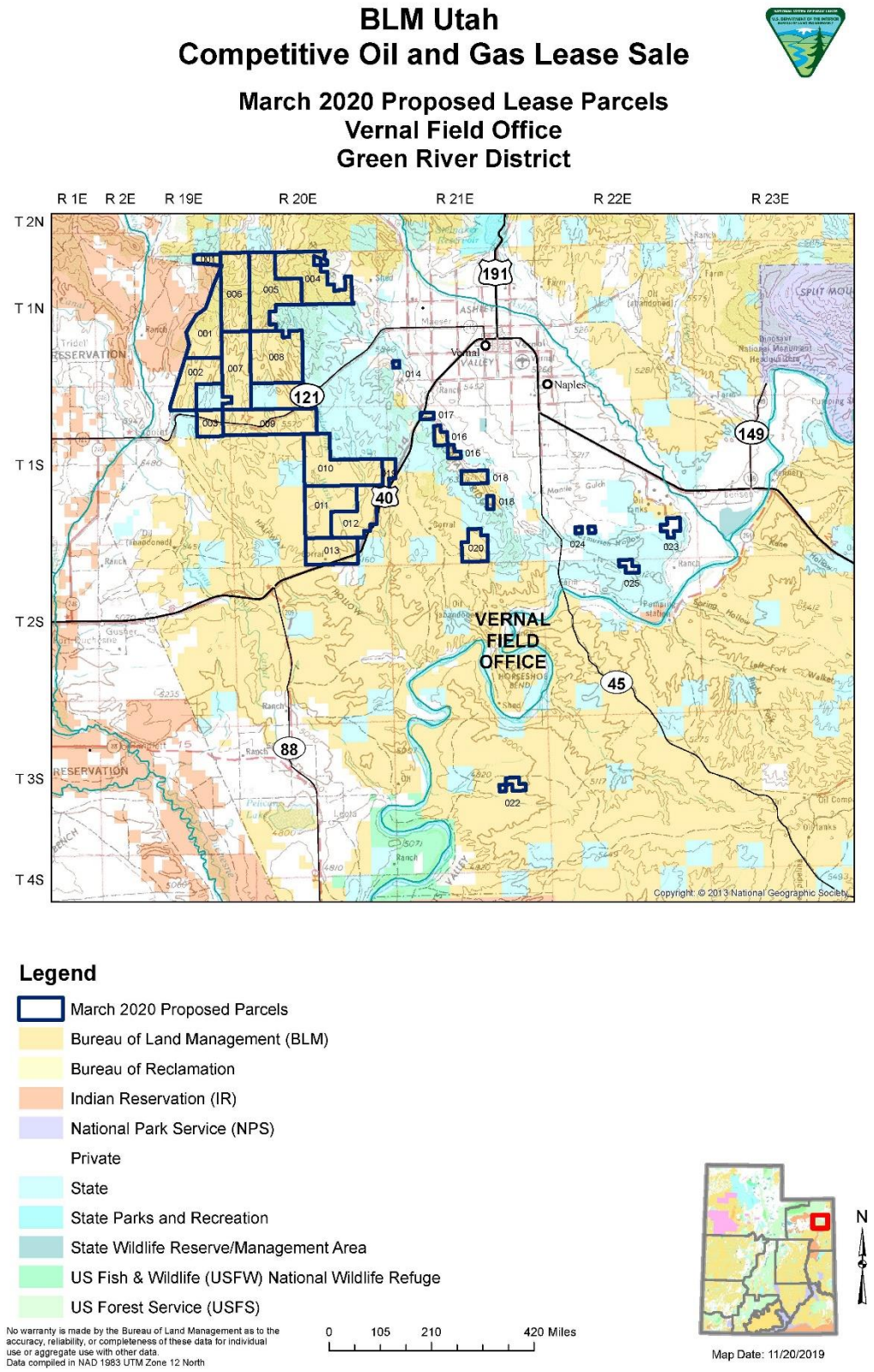

Figure 6. Vernal Field Office Parcel Overview (northern), Green River District.

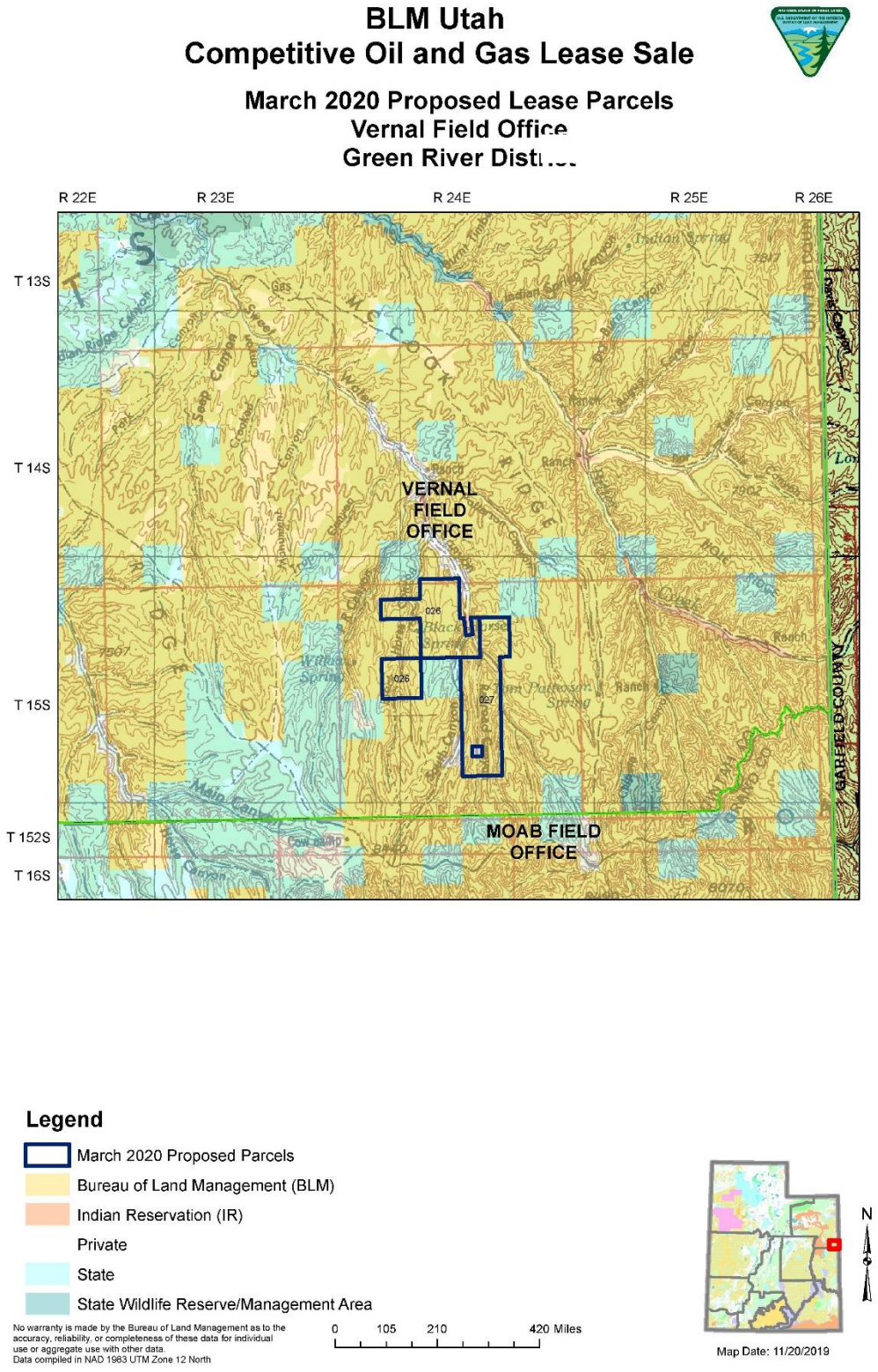

Figure 7. Vernal Field Office Parcel Overview (southern), Green River District.

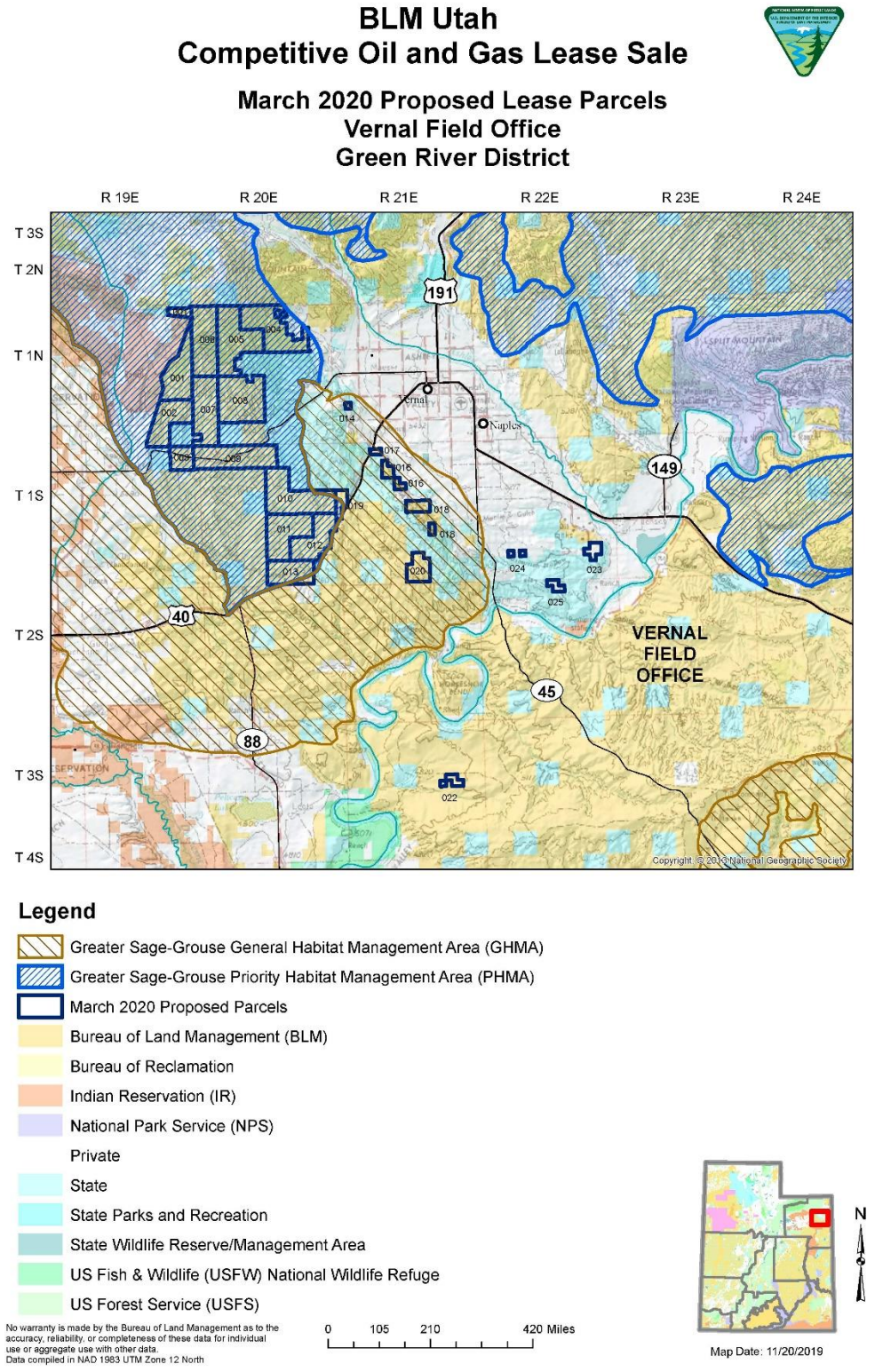

Figure 8 Greater Sage-Grouse habitat, Vernal Field Office Parcel Overview (northern), Green River District.

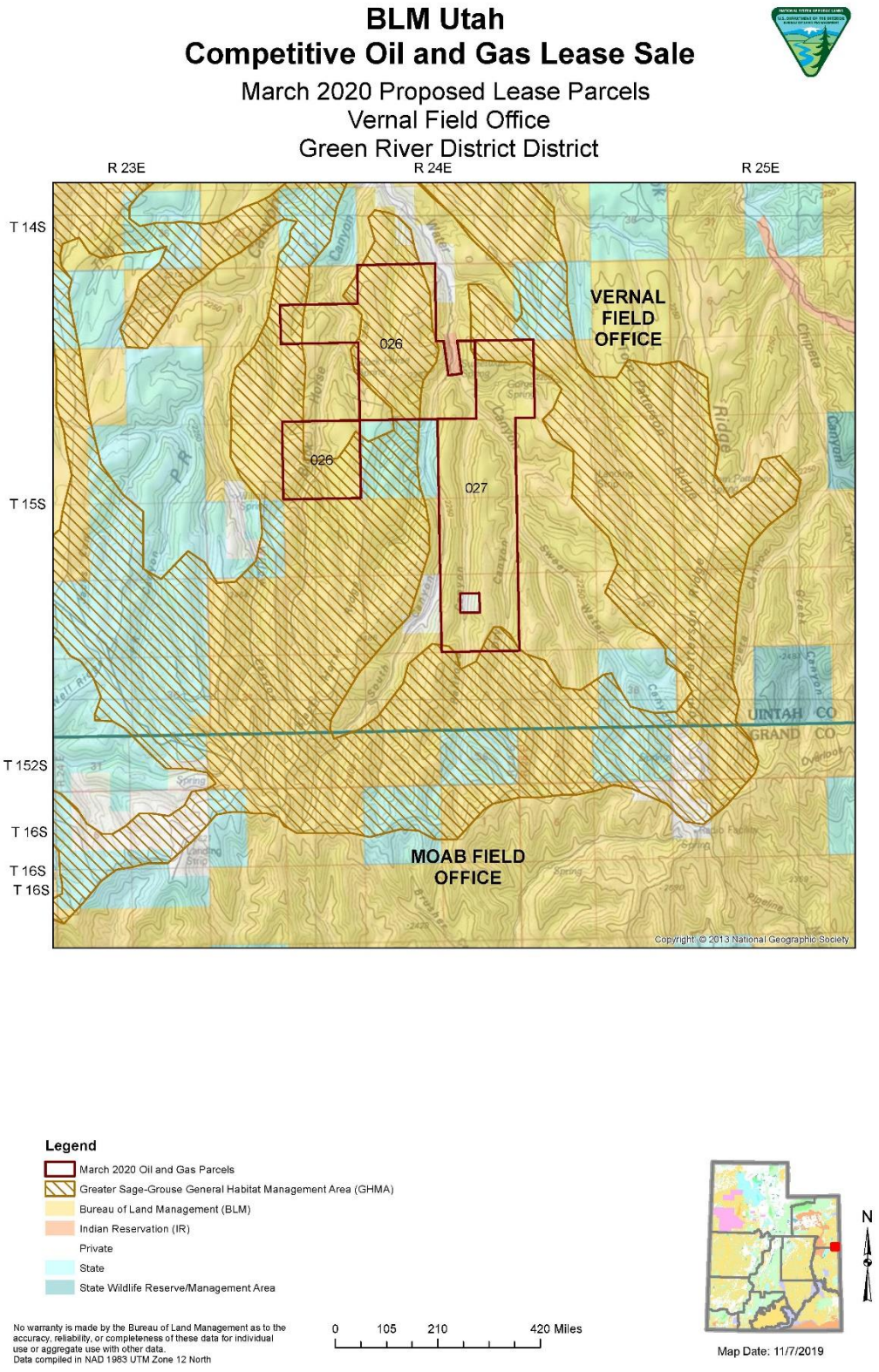

Figure 9 Greater Sage-Grouse habitat, Vernal Field Office Parcel Overview (southern), Green River District.

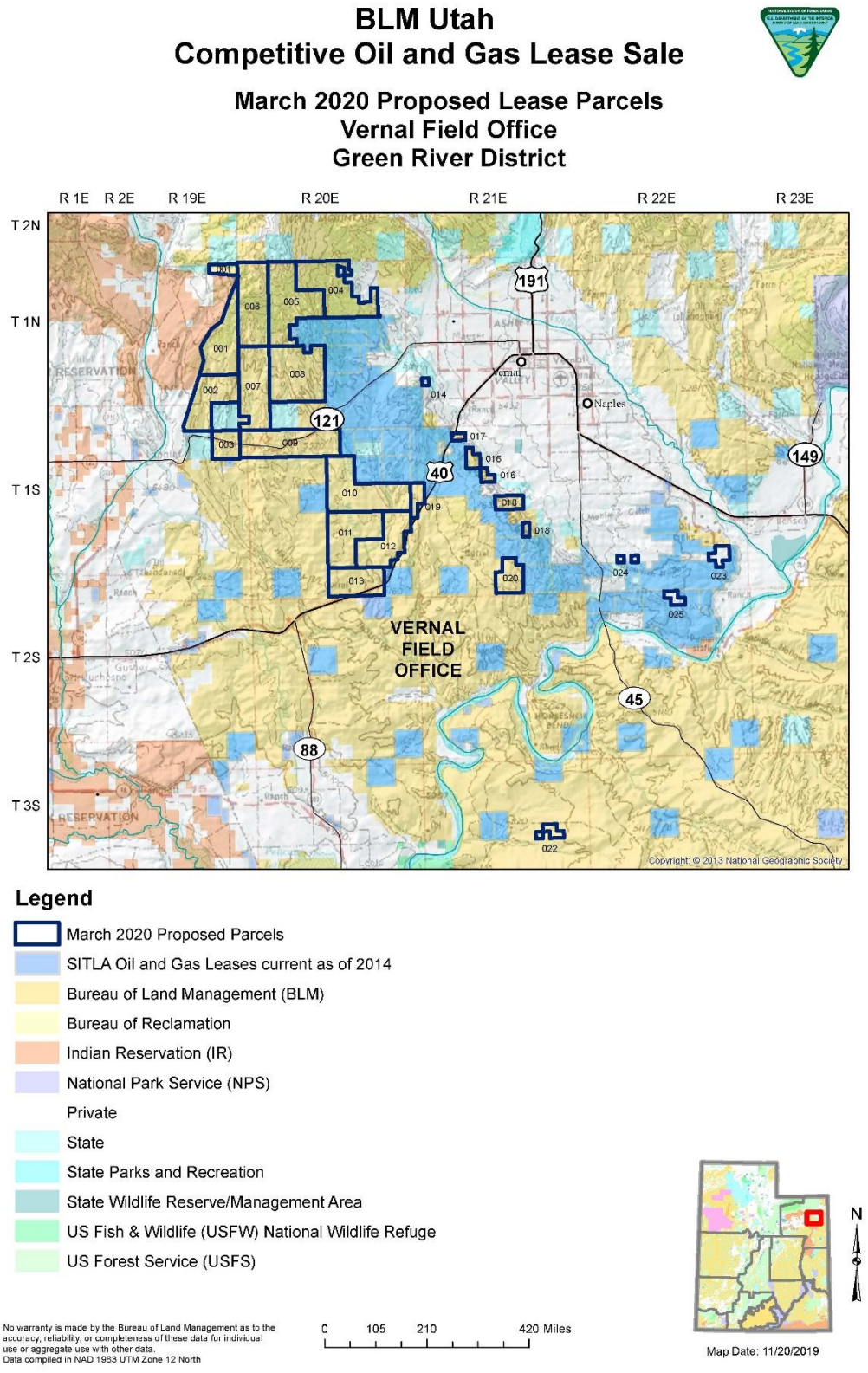

Figure 10 Authorized STILA oil and gas leases

Appendix D – Interdisciplinary Parcel Review Team Checklist

DETERMINATION OF STAFF:

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

NI = present, but not affected to a degree that detailed analysis is required/resource has been previously analyzed (i.e., FEIS, EAs, ARMPA, RMP) resulting in no further impact than what was analyzed, and previously disclosed

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

Green River District
Vernal Field Office

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
Air			
PI	Air Quality	Activities related to exploration, construction, drilling, completion, testing, and production of an oil or gas well could result in emissions of pollutants (including those that are regulated) that could affect air quality. Emissions of NOx and VOC's from potential drilling and production may contribute to the ozone non-attainment issue in the Uinta Basin. Most parcels are partially or completely within the Uinta Basin nonattainment area for ozone and are subject to a CAA General Conformity analysis before parcel development can be approval. Parcels 05, 026 and 027 are outside the nonattainment area. Application of notices UT-LN-96 (Air Quality Mitigation Measures), UT-LN-99 (Regional Ozone Formation Controls), UT-LN-101 (Air Quality) and UT-LN-102 (Air Quality Analysis) is warranted on all parcels. <u>Stipulations and Notices</u>: UT-S-01: Air Quality –applied to all parcels UT-LN-96: Air Quality Mitigation Measures – applied to all parcels UT-LN-99: Regional Ozone Formation Controls – applied to all parcels UT-LN-101: Air Quality – applied to all parcels UT-LN-102: Air Quality Analysis – applied to all parcels	Erik Vernon 10/28/2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
PI	Greenhouse Gases	Greenhouse Gases are composed mostly of CO2, CH4, N2O, HFCs, PFCs, & SF6. The primary sources of GHG emissions from the development of lease parcels includes construction equipment tailpipe exhaust, fugitive CH4, and combustion of produced oil and gas. GHG emissions may occur during well construction, drilling, and production operations, and during end use of the produced oil or gas. A representative emissions inventory of GHGs for parcel development, contribution to cumulative emissions, and impacts to climate change should be presented. Surface disturbing activity from development of lease parcels would reduce the lands carbon sequestration ability. Land use change would be temporary over the life of a well pad as reclamation should return the land to a condition approximately equal to that which existed prior to disturbance (BLM 2007). Site specific changes to sequestration cannot be quantified as factors such as vegetation type, amount of biomass, and future weather affecting plant regrowth are unknown. The RFD of 150 acres of disturbance would be approximately 0.00045% of the 33 million acres of federal land. Changes to carbon storage and sequestration will likely be well below the natural variability from wildfires and other land change that reported in the USGS Federal Fossil Fuel GHG emissions report (USGS 2018). Sequestration changes will not be analyzed in detail.	Erik Vernon 10/28/2019
Recreation			
NP	Areas of Critical Environmental Concern	No parcels intersect with designated ACECs.	Sheri Wysong 10/24/2019
NI/NP	NPS Administered Lands	On October 2, 2019, shape files and other information were sent via email to Dinosaur National Monument to scope for possible impacts to Monument resources from leasing. The closest parcel to the Monument boundary is almost seven miles away. No concerns have been voiced by the NPS as of December 3, 2019. Coordination is ongoing. There are no National Historic Trails within the Field Office.	Sheri Wysong 10/24/2019
NP	BLM Administered National Monuments	No parcels intersect with designated BLM Monuments.	Sheri Wysong 10/24/2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
NI	Recreation	McCoy Flats Mountain Bike Trail System (2012, DOI-BLM-G010-2012-0057-EA) is located at the edge of the Uinta Basin west of Vernal, Utah. It has 35 miles of interconnecting loops (single track) for riders of all skill levels. The area is closed to motorized, and equestrian use. The trail system is a Nationally Designated Mountain Biking Trail System in 2019 by the John D. Dingell, Jr. Conservation, Management, and Recreation Act. None of the nominated parcels contain any segment of the 35 miles single track trail, and oil and gas development on the parcels would not conflict with the trail system. Both trail development and oil and gas leasing and subsequent development nearby can occur without impacts to trail development. Special attention may be required in placement of drill pads and access routes to parcel 018 and 020 to avoid the McCoy Flat Mountain Bike Trail System, and outside the three trail designated corridors for new trail development (2012 Decision Record). All of which are outside the nominated parcels. Lease Notice UT-LN-115, Light and Sound, will be added to parcels 010, 011, 012, 013, 016, 017, 018, 019, and 020, <u>Stipulations and Notices</u>: UT-LN-115: Light and Sound – applied to parcels 010, 011, 012, 013, 016, 017, 018, 019, and 020,	Sheri Wysong 10/24/2019 Angela Wadman 11/12/2019
NI	Scenic or Backcountry Byways	Parcel 004 is between 2 to 2.5 miles of the Red Cloud/Dry Fork Loop, a Type II Scenic Backway. Topography would screen any development on the parcel from the Backway.	Sheri Wysong 10/24/2019
NI	Visual Resources	Most of parcel 027 and part of parcel 026 are designated Visual Resource Management Class II. Development of parcel 027 may be constrained because of the designation. Stipulation UT-S-159 will be attached to 026 and 027. <u>Stipulations and Notices</u>: UT-S-159: CSU – Visual Resources – VRM II – applied to parcels 027 and 026	Sheri Wysong 10/24/2019
NP	Wild and Scenic Rivers	No parcels intersect designated Wild and Scenic Rivers.	Sheri Wysong 10/24/2019
NP	Wilderness/ Wilderness Study Area	No parcels intersect designated Wilderness or Wilderness Study Areas.	Sheri Wysong 10/24/2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
NI	Lands with wilderness characteristics	Parcels 001, 002, 005, 006, 007, 008, 009, 010, 011, 012, 013 are No Surface Occupancy. Parcels 016, 017, 018 and 019 are not in roadless areas with over 5,000 acres of contiguous BLM lands. State or private lands are not included in making this acreage determination. Parcels 026 and 027 intersect the Sweet Water lands with wilderness characteristics inventory area (IA). The VFO RMP/ROD did not select Alternative E of the VFO RMP/FEIS that proposed managing the IA with (among other prescriptions) closing it to oil and gas leasing. (BLM 2008, 2-39). The VFO RMP did not carry Sweet Water LWC forward because "The area is considered high potential for oil and gas development…. Wilderness characteristics could not be protected, preserved, or maintained."	Sheri Wysong 10/24/2019
Cultural			
NI	Cultural Resources	The BLM archaeologists have compiled cultural resources data from the Vernal Field Office cultural resource libraries, GIS data (CURES), and the Preservation Pro database area. These data sources contain information of all of the recorded cultural resource sites and cultural resource survey data for the area available to BLM and the Utah Division of State History. Archaeologist use this data to determine if oil and gas development could occur within each parcel while avoiding know cultural sites. The parcels are reviewed for the application of stipulations and lease notices as required by the Vernal Field Office RMP. Per BLM Handbook H-3120-1 – Competitive Leases, all parcels included in this lease sale will have the protection offered by the BLM Cultural Resource Protection Stipulation. Lease stipulations are legal requirements that go above and beyond standard lease requirements. Meeting lease stipulation requirements is a critical component of having any future proposed development approved by the BLM. The stipulation reads as follows: 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. This stipulation gives BLM the legal authority to require modification to or disapprove any future activities related to the development of these lease parcels if conflicts with cultural resources cannot be resolved. In	Glenn Stelter 10/30/2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		other words, BLM retains control over future development and has the discretion and authority to prevent adverse effects. There are no exceptions, modifications, or waivers for this stipulation. Consultation with Utah State Historic Preservation Office is pending the completion of the March 2020 Oil and Gas Lease Sale Cultural Resources Report. BLM's consultation with Native American Tribes is ongoing. For future undertakings related to this lease sale, the BLM will not approve any ground disturbing activities until it completes its obligations to consider cultural resources under NEPA, NHPA and other authorities specific to those future undertakings. Consideration of impacts to cultural resources and adverse effects to historic properties will be taken into account during the review stage of site-specific development plans. <u>Stipulations and Notices</u>: Cultural Resource Stipulation as required by Handbook H-3120-1 are applied to all parcels. UT-LN-66 (Cultural Resources Located Sandy or Erodible Soils) are applied to all parcels.	
NI	Native American Religious Concerns	The following Tribes were invited to consult on this project via certified letter on November 13, 2019 the Confederated Tribes of the Goshute, Skull Valley Band of Goshute Indians, The Hopi Tribe, Navajo Nation, Navajo Nation, Navajo Mountain Chapter, Navajo Nation, Kayenta Chapter, Navajo Nation, Dennehotso Chapter, Navajo Nation, Oljato Chapter, Navajo Nation, Mexican Water Chapter, Navajo Nation, Red Mesa Chapter, Navajo Nation, Teec Nos Pos Chapter, Navajo Nation, Aneth Chapter, Navajo Utah Commission, Shivwits Band of Paiutes, Kanosh Band of Paiutes, Cedar Band of Paiutes, Indian Peaks Band of Paiutes, Kaibab Band of Paiute Indians, Moapa Band of Paiute Indians, Pueblo of Jemez, Pueblo of Laguna, Pueblo of Santa Clara, Pueblo of Zia, Eastern Shoshone Tribe, Northwest Band of Shoshone Nation, Southern Ute Indian Tribe, Uintah and Ouray Ute Tribe, Ute Indian Tribe, Ute Mountain Ute Tribe, White Mesa Ute Tribal consultation is ongoing. The BLM will consult with Indian tribes on a government-to-government basis, if requested by any Tribe. Additional coordination and consultation would be initiated at the APD stage. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	Glenn Stelter 11/12/2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
Wildlife			
NI	Greater Sage-Grouse	Potential impacts to the greater sage-grouse (GRSG) were analyzed in the Utah Greater Sage-Grouse Approved Resource Management Plan Amendment (ARMPA) and the associated 2015 FEIS, using current data from UDWR and the BLM. In addition, newly collected data and analysis in the 2018 Utah Greater Sage-Grouse Resource Management Plan Amendment FEIS were also considered. Many of the elected parcels are encompassed by GRSG lek, brood-rearing and winter habitats, and have received appropriate stipulations and notices, in conformance with the 2015 ARMPA, to minimize impacts (Appendix A). Maps contained in Appendix C illustrate the location of parcels relative to Priority Habitat Management Areas (PHMAs), which are No Surface Occupancy (NSO), and General Habitat Management Areas (GHMA). The 2015 ARMPA, Fluid Minerals Objective MA-MR-1,states, "When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG." In addition, BLM Informational Memo (IM)-2018-26 clarifies this objective for fluid mineral leasing and development to: • Prioritize parcels in non-habitat management areas, followed by lower habitat management areas (e.g., GHMA), then higher priority habitat management areas (PHMA) where a backlog of Expressions of Interest (EOI) occur. • Encourage lessees to acquire leases outside of GRSG PHMA due to fewer restrictions in those areas. The BLM has complied with this objective because Utah currently has no backlog of EOI's, and the interdisciplinary team workload allowed for analyzing all 25 parcels for this lease sale. Therefore, all parcels were considered in this lease sale, including those within PHMA and GHMA. The BLM has applied stipulations and notices to these parcels in order to encourage lessees to acquire parcels outside of PHMA and GHMA. All parcels in the March 2020 oil and gas lease sale contain habitat modeled as suitable for the GRSG, except parcels 022, 023, 024, and 025. These four parcels and their acreages were not included in further analysis for impacts to the GRSG. PHMA: Of the total acres offered for lease, 25,133.90 acres are within PHMA (66.2%). The following parcels are entirely located within PHMA: 001, 002, 003, 005, 006, 007, 008, 009, 011; these parcels partially contain PHMA: 004 (99.7%), 010 (95.7%), 012 (99.5%), 013 (87.3%), and 019 (44.3%).. All	

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		surface areas within PHMA are categorized as no surface occupancy (NSO), and will receive the following lease stipulations and notices to mitigate impacts to GRSG, as summarized: • UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas. This stipulation restricts all surface occupancy with exceptions only where a proposed action would not have direct, indirect or cumulative effects or would provide clear conservation gains to the species. • UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap, which will not allow disturbance to exceed 3% within the project area or Biologically Significant Unit (BSU). • UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation, which limits density of energy and mining facilities to an average of one per 640 acres of all lands in PHMA. • UT-S-350: CSU/TL – Greater Sage-Grouse Breeding Season Noise Limitations, which limits noise to below 10 decibels above ambient at occupied leks from 2 hours before to 2 hours after official sunrise and sunset during breeding season. • UT-S-352: CSU – Greater Sage-Grouse Tall Structures, which limits the placement of tall structures to reduce avian predator perches in breeding and nesting habitat. • UT-S-353: TL – Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing, which applies seasonal restrictions to protect sensitive habitat. • UT-S-354: TL – Greater Sage-Grouse Brood Rearing, which applies seasonal restrictions on activities such as no surface disturbance, in brood-rearing habitat. • UT-S-355: TL – Greater Sage-Grouse Winter Habitat, which prevents disturbance by applying seasonal restrictions, such as no surface disturbance to protect the sensitive species during the winter. • UT-LN-129: Greater Sage-Grouse Disturbance Cap, which limits disturbance to less than 3 percent of PHMA within a BSU, and within proposed project analysis areas. • UT-LN-130: Greater Sage-Grouse – Density Limitation, which limits density of energy and mining facilities within PHMA to an average of one per 640 acres. • UT-LN-131: Greater Sage-Grouse- Net Conservation Gain, which requires mitigation that provides a net conservation gain to the GRSG. • UT-LN-132: Greater Sage-Grouse – Required Design Features, which minimizes impacts through special design features. • UT-LN-133: Greater Sage-Grouse Buffer, which will apply buffers within both PHMA and GHMA to minimize impacts to leks.	

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		Leks: Parcel 020 is located within 0.25 mile of a known lek located outside PHMA, but within GHMA habitat. The following parcels are within 2 miles of a lek: 001, 002, 003, 004, 005, 006, 007, 009, 010, 011, 012,013, 018, 019, and 020. These parcels will receive all or portions of the applicable stipulations: • UT-S-195: NSO – Greater Sage-Grouse Leks, which allows no surface occupancy within ¼ mile of an active lek located outside PHMA. • UT-S-205: TL – Greater Sage-Grouse Brood Rearing and Nesting, which requires no surface disturbing activities within 2 miles of a lek located outside PHMA. • UT-S-206: CSU – Greater Sage-Grouse (Noise Reduction), which limits noise within ½ mile of a lek found outside of PHMA. • UT-S-207: CSU-Greater Sage-Grouse (Structures), which allows no permanent facilities within 2 miles of leks found outside PHMA. • UT-LN-133: Greater Sage-Grouse Buffer, which will apply buffers within both PHMA and GHMA to minimize impacts to leks. Parcels 004 contains opportunity areas located outside PHMA, but is located within 4 miles of a lek within PHMA. Parcel 004 will receive the applicable stipulations: • UT-S-356: CSU – Greater Sage-Grouse Indirect Impacts from Noise, which limits noise to not exceed 10 decibels above ambient from 2 hours before to 2 hours after official sunrise and sunset during breeding season. • UT-S-357: CSU – Greater Sage-Grouse Indirect Impacts from Tall Structures, which limits placement of tall structures adjacent to breeding and nesting habitat to minimize perches for avian predators. GHMA: Of the total acres offered for lease, 3,779.40 acres are within GHMA (9.9%). The following parcels are entirely located within GHMA: 014, 016, 017, 018, and 020; the following parcels contain GHMA: 010 (4.3%), 012 (0.5%), 013 (12.7%), 019 (55.6%), 026 (63.6%) and 027 (8.7%). These parcels, in addition to those stipulations noted above where parcels contain both PHMA and GHMA, will receive the following lease notices: • UT-LN-131: Greater Sage-Grouse- Net Conservation Gain, which requires mitigation that provides a net conservation gain to the GRSG. • UT-LN-132: Greater Sage-Grouse – Required Design Features, which applies specific design features to mitigate and minimize impacts to GRSG.	

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		• UT-LN-133: Greater Sage-Grouse Buffer, which will apply buffers within both PHMA and GHMA to minimize impacts to leks. State of Utah Sage-Grouse Management Area (SGMA) Opportunity Areas: A portion of parcel 004 falls outside PHMA, but within SGMA habitat, for 0.02% of total acres. **Potential for cumulative impact**: The CIAA for the GRSG, for the March 2020 lease sale is the Uintah-Diamond Mountain Population Area (a Biologically Significant Unit, or BSU) encompassed within the PHMA, which totals 565,734 acres. Disturbance acreage at the project scale and the BSU scale within PHMA may not exceed three percent. Geospatial analysis conducted using individual data layers indicates that all individual sub-unit populations within the Uintah population area are currently under the three percent disturbance cap. In PHMA and GHMA, acreage for project-level development will not be known until the APD stage of the process and site-specific analysis of impacts to PHMA at the lease stage would be speculative. The BLM is unable to accurately estimate potential for cumulative loss to PHMA from development opportunity provided by the lease. However, the BLM analyzes development within PHMA, on a BSU basis nationally, at least annually, tracking development for the year prior. Current estimated disturbance within this BSU, calculated as of June 2019, is 7,415 acres, or 1.31%. In the absence of NSO stipulations, the RFD development of 80 acres within PHMA, would bring the estimated total disturbance to 7,495 acres, or 1.33%, within the BSU, below the 3% disturbance cap. For the 11 parcels within GHMA the RFD scenario estimates that there would be 45 acres of surface disturbance within GHMA, if these leases are fully developed. Impacts from potential surface disturbance and development would be mitigated through the ARMPA management actions including net conservation gain and implementation of the required design features (RDFs). Data specific to the March 2020 lease sale, estimating acreage of PHMA, GHMA and SGMA Opportunity Areas, within the parcels resulted from impact analysis run November 4, 2019. Total PHMA acreage within the subject parcels is approximately 25,133.9 acres, all of which is designated as NSO. Collectively, PHMA and GHMA acreage included within parcels identified for the March 2020 lease sale totals 28, 913.4 acres. Of this acreage, the following types of modeled seasonal habitat occur: breeding (13,981.1 ac.), summer (2,295.5 ac), winter (22,902 ac). Seasonal habitat acreage may overlap with PHMA, GHMA or other seasonal habitat types. Analysis from the 2015 ARMPA/FEIS and 2018 FEIS, recognized that increased development would result in direct habitat loss and fragmentation (ARMPA 2015, p. 4-28; FEIS 2018, p. 4-16); the BLM has	

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		designated PHMA within the parcels identified for the March 2020 lease sale as no surface occupancy, and the NSO stipulations discussed above will be incorporated as part of the parcel lease agreement. Where stipulations allow for requests for exceptions or modifications, these would be granted only in situations which would not have direct, indirect or cumulative effects or would provide clear conservation gains to the species. Where an exception or modification may be granted for a single stipulation, other stipulations and notices would remain in effect, providing multiple layers of protection. In PHMA and GHMA actions resulting in habitat loss and degradation require mitigation which provides a net conservation gain to the GRSG, and accounts for uncertainty associated with the effectiveness of that mitigation. This mitigation will be achieved through avoiding, minimizing and compensating for impacts to the GRSG. In addition, required design features and appropriate buffers would be required where appropriate to minimize impacts to the GRSG habitat and leks, (see UT-LN-131, UT-LN-132, and UT-LN-133). If lease development occurs on adjacent private parcels (using directional drilling), then surface management measures may not apply to these private parcels with private minerals underlying them. Therefore, GRSG on federal lands may be subject to disturbance impacts from development facilities and activities on private lands, as well as increased predation due to the placement of tall oil and gas structures that act as raptor perches. This may reduce the reproductive success and/or survivorship of the affected GRSG, or drive them away from otherwise suitable habitats. Due to the disjunct pattern of federal ownership in the project area, any of the parcels could be affected by impacts from development on adjacent private lands. The 2015 ARMPA established an objective to prioritize oil and gas leasing and development outside of GRSG habitat management areas but to allow for leasing with appropriate stipulations. Stipulations, such as the NSO and Controlled Surface Use (CSU) noted above, are intended to be used to encourage lessees to acquire leases outside of PHMA, due to fewer restrictions in those areas than in higher priority habitat management areas; however, leasing of parcels within GRSG habitat management areas prior to leasing parcels in non-habitat areas was not required. Should the lease be sold, and an APD received, the BLM has reserved the right to apply reasonable and appropriate site-specific mitigation conditions of approval, such as applicable BMPs and RDFs, as described in the 2015 ARMPA and in the stipulations and notices noted above. (BLM IM-2018-26) The NSO restrictions attached to the PHMA make it unlikely that leasing and ensuing development of one or more of these parcels would contribute to a reduction in the overall abundance of GRSG, although existing and directional drilling operations from adjacent private and state lands would not be subject to	

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		these restrictions, and could affect GRSG on those lands and possibly on adjacent public lands through disturbance impacts and the increase in tall structures. However, it would not be expected to increase cumulative effects to levels that would compromise the viability of any GRSG population or the use of broader intact landscapes within or near the cumulative impact area, nor would the cumulative effects be expected to exceed the ARMPA's disturbance cap. Even with potential for exceptions, modifications and waivers, because the BLM is directed not to exceed the disturbance cap including during future development, impacts from the proposed lease sale are not likely to cumulative add to impacts to the GRSG not already considered in the 2015 ARMPA and 2018 FEIS. Stipulations and Notices: UT-S-195: NSO – Greater Sage-Grouse Leks – applied to parcel 020 UT-S-205: TL- Greater Sage-Grouse Brood Rearing and Nesting – applied to parcels 018, 019, and 020 and UT-S-206: CSU – Greater Sage-Grouse (Noise Reduction) - applied to parcel 020 UT-S-207: CSU-Greater Sage-Grouse (Structures) - applied to parcels 018, 019, and 020 UT-S-347: NSO – Greater Sage-Grouse Priority Habitat Management Areas – applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013, and 019 UT-S-348: NSO/CSU – Greater Sage-Grouse Disturbance Cap – applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013, and 019 UT-S-349: NSO/CSU – Greater Sage-Grouse Density Limitation - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013, and 019 UT-S-350: CSU/TL-Greater Sage-Grouse Breeding Season Noise Limitations - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013,018 and 019 UT-S-352: CSU – Greater Sage-Grouse Tall Structures - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013, and 019 UT-S-353: TL- Greater Sage-Grouse Breeding, Nesting and Early Brood Rearing - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013, and 019 UT-S-354: TL- Greater Sage-Grouse Brood Rearing - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013, and 019 UT-S-355: TL – Greater Sage-Grouse Winter Habitat - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013, and 019 UT-S-356: CSU-Greater Sage-Grouse Indirect Impacts from Noise - applied to parcel 004 UT-S-357: CSU- Greater Sage-Grouse Indirect Impacts from Tall Structures - applied to parcel 004 UT-LN-129: Greater Sage-Grouse Disturbance Cap - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013, and 019	

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		UT-LN-130: Greater Sage-Grouse – Density Limitation - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013, and 019 UT-LN-131: Greater Sage-Grouse – Net Conservation Gain - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013,014,016,017,018,019,020, ,026 and 027 UT-LN-132: Greater Sage-Grouse – Required Design Features - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013,014,016,017,018,019,020, 026 and 027 UT-LN-133: Greater Sage-Grouse Buffers - applied to parcels 001,002,003,004,005,006,007,008,009,010,011,012,013,014,016,017,018,019,020, 026 and 027	
NI	Sensitive Animal Species	The BLM manages sensitive species in accordance with BLM Manual 6840. Available data sources, including BLM data layers and that available through Utah Conservation Data Center (UCDC) were used to determine if the known or potential habitat falls within the parcels identified for the March 2020 lease sale, with the following results for species with potential to occur. The application of lease notices for sensitive species, migratory birds and raptors, applied to every parcel, will allow for the opportunity to make adjustments at the site-specific level when an APD is received if circumstances change to allow potential for occurrence of these species. Smooth green snake: This species prefers moist areas, especially moist grassy areas/meadows, which may occur in parcels 022, 023 and 024. Implementation of UT-LN-49: Sensitive Species will allow modifications at the APD stage of development to minimize impacts to this species. Great Plains toad: This species prefers grasslands with loose soil for burrowing, in and near riparian corridors or wet areas. There is no specific data on occurrence; however, parcels 016, 017, 018, 022, 023, 024, and 025 contain substantial and high value habitat, possibly including vernal/ephemeral pools, ephemeral and intermittent streams; small unmapped desert seeps/springs, which would provide important breeding habitat. Ferruginous hawk: Ferruginous hawks are distributed throughout most of Utah and may occasionally occur in very open, dry habitat. Breeding ferruginous hawks are not expected. UT-LN-44: Raptors, will implement guidelines for raptor protection on all parcels. Burrowing owl: Suitable habitat occurs within lease parcels 002, 011, 012, 013, 019, and 022. This species prefers open areas within deserts, grasslands, and sagebrush steppe communities. This small owl nests and	Karen Cathey November 4, 2019

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		roosts in underground burrows in open and short-grass habitats. Habitat consists of well-drained, level to gently sloping areas characterized by sparse vegetation and bare ground. UT-LN-44: Raptors will implement guidelines for raptor protection. Bobolink: There are no known occurrences of the bobolink within the VFO but lease parcels 016, 017, 018, 022, 023, 024, 025 overlap with potential high value habitat according to UDWR conservation data base. This species breeds, nests, and forages in wet meadow, wet grassland, and irrigated agricultural areas that tend to be associated with riparian or wetland areas. UT-LN-45: Migratory Birds and UT-LN-49: Sensitive Species will allow modifications at the APD stage of development to minimize impacts to this species. Lewis' woodpecker: Marginal suitable habitat occurs within lease parcels 026 and 027. The bird may occur in the areas, but is not known to be a permanent resident. The majority of the breeding habitat consists of open park-like ponderosa pine forests, but they are also found in mixed conifer, pinyon-juniper, riparian and oak woodlands. Wintering grounds are spread over a wide range of habitats. UT-LN-45: Migratory Birds and UT-LN-49: Sensitive Species will allow modifications at the APD stage of development to minimize impacts to this species. Big free-tailed bat: The species is an insectivore which often roosts and forms maternity colonies in massive sandstone cliffs near bodies of open water. The species is rare in Utah, but may occur in parcels 026 and 027. The species is managed under the Bat Conservation Plan. Implementation of UT-LN-49: Sensitive Species will allow modifications at the APD stage of development to minimize impacts to this species. Fringed myotis: There is documentation of this species in the VFO area (www.utahbats.com). Fringed myotis occur primarily in desert, grassland, and woodland habitats and thus may occur on all parcels; and roost in caves, mines, rock crevices, buildings, and other protected sites. The species is managed under the Bat Conservation Plan. Implementation of UT-LN-49: Sensitive Species will allow modifications at the APD stage of development to minimize impacts to this species. Spotted bat: There is some documentation of this species in the VFO area, with two spotted bats trapped August 2019 on Diamond Mountain. (www.utahbats.com). Suitable roosting and foraging habitat occur within lease parcels 001, 004, 005, 006, 026 and 027. Spotted bats are found in various habitats from desert to montane coniferous stands, including pinyon juniper woodland, canyon bottoms, open pasture, and	

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		hayfields. They roost in caves, in cracks, and crevices in cliffs and canyons. Spotted bats apparently feed primarily on noctuid moths and sometimes beetles. They are managed under the Utah Bat conservation Plan and implementation of UT-LN-49: Sensitive Species will allow modifications at the APD stage of development to minimize impacts. Townsend's big-eared bat: There is documentation of this species in the VFO area (www.utahbats.com), and suitable foraging habitat (marginal) occurs within the lease parcels. These species potentially occur throughout Utah. However, they depend on caves and mines year-round for maternity colonies and hibernacula. Implementation of UT-LN-49: Sensitive Species will allow modifications at the APD stage of development to minimize impacts to this species. White-tailed prairie dog: White-tailed prairie dogs are generally found at altitudes ranging between 5,000 and 10,000 feet in desert grasslands and shrub grasslands. The species hibernates in underground burrows during winter, and breeds in the spring, with young emerging above ground in early June. Active prairie dog colonies have been identified on parcels 002, 011, 012, 013, 019, 022, and UT-LN-25: White-tailed and Gunnison Prairie Dog will be applied to minimize impacts to this species. Raptors: Other raptors may nest and forage throughout Utah. Parcels 002, 005, 007, 008, 011, 012, 013, and 019, have occurrence of particular notices. Implementation of UT-S-261: TL-Raptor Buffers identifies the need to work use guidance contained in "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A). These practices utilize seasonal and spatial buffers, as well as mitigation, to maintain and enhance raptor nesting and foraging habitat, while allowing other resource uses. These lease notices were designed by the BLM to provide protections through general and specific measures which would identify and protect BLM sensitive species. Where a specific lease notice is not applied, UT-LN-49 will notify that the parcel has been identified as containing potential habitat for sensitive species and that modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities. No surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status species. Stipulations and Notices:	

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		UT-S-261: TL – Raptor Buffers – applied to parcels 002, 005, 007, 008, 011, 012, 013, and 019 UT-LN-44: Raptors – applied to all parcels UT-LN-45: Migratory Bird – applied to all parcels UT-LN-49: Utah Sensitive Species – applied to all parcels	
NI	Threatened, Endangered, Candidate or Proposed Animal Species	The standard endangered species stipulation as per Handbook H-3120-1 is attached to all parcels. The BLM used the USFWS Planning, and Conservation (IPaC) System to determine what species may occur in the vicinity of parcels identified for the March 2020 lease sale area. The IPaC lists the following endangered animal species as potentially occurring: Canada lynx, Colorado River Fish (bonytail chub, Colorado pikeminnow, humpback chub, razorback sucker). The IPaC also lists potential for the threatened Mexican spotted owl and yellow-billed cuckoo. No designated critical habitat for these species occurs in the parcels proposed for the March 2020 lease sale. Canada lynx: Canada lynx - This species is most likely to persist in boreal forest areas that receive deep snow and have high-density populations of snowshoe hares, the principal prey of lynx. This species is not likely to occur on the proposed parcels. Mexican spotted owl: Models (Willey/Spotskey 1997 & 2000) predict potential habitat or FWS recommended buffers is found within one-half mile of parcels 026 and 027, so these parcels will receive T&E-06: Mexican Spotted Owl to assure ability to modify surface use plans should the species be detected at the time of APD. Nesting/roosting habitat typically occurs either in well-structured forests with high canopy cover, large trees, and other late seral characteristics, or in steep and narrow rocky canyons formed by parallel cliffs with numerous caves and/or ledges within specific geologic formations (USFWS 2012). Yellow-billed cuckoo: There is no designated Critical habitat nor habitat suitable for occurrence of this species within or within 2 miles of the parcels identified for the March 2020 lease sale. A small, marginally suitable area is located within ¼ mile of parcel 023, thus UT-LN-113: Western yellow-billed cuckoo will be added to inform the future operator of potential restrictions should the species be detected. Endangered Fish of the Upper Colorado River: Portions of parcel 023 fall within one-half mile of, and have drainages directly to, the 100-year floodplain that contain primary constituent elements necessary for survival of the razorback sucker and Colorado pikeminnow. In addition, water depletions from *any* portion of the Upper Colorado River drainage basin 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 parcels will receive Lease Notice T&E-03: Endangered Fish of the	Karen Cathey November 4, 2019

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		Upper Colorado River Drainage Basin, which provides measures that may avoid and minimize adverse effects to these sensitive fish, including the need to report depletion amounts to the BLM and possible need for consultation with the USFWS. These stipulations or notices, in addition to the general Endangered Species Act stipulation assure that the operator remains aware of responsibilities for the duration of the lease. Moreover, the BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation. The protections offered by the Endangered Species Act stipulation, in addition to those requirements of species-specific stipulations/notices minimizes potential for impacts to listed species. Stipulations and Notices: T&E-06: Mexican Spotted Owl – applied to parcels 026 and 027 UT-LN-113: Western yellow-billed cuckoo – applied to parcel 023 T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin – applied to all parcels	
NI	Fish and Wildlife Excluding USFWS Designated Species	Parcels were evaluated for State identified game species, including the American bison, cougar, black bear, moose, Rocky Mountain elk, mule deer, pronghorn antelope, mountain goat, California bighorn sheep, desert bighorn sheep, Rocky Mountain bighorn sheep, snowshoe hare, wild turkey, chukar, California quail, Gambel's quail, band-tailed pigeon, dusky/blue grouse, sharp-tailed grouse, ruffed grouse, white-tailed ptarmigan and ring-necked pheasant using UDWR data. Habitat suitable for those not listed below is not expected to occur. Cougar: Parcels 001 through 025 fall in the South Slope, Vernal/Diamond Mountain/Bonanza management units for the cougar, while parcels 026 and 027 fall in the Book Cliffs management unit. Cougar management units are managed for annual statewide limited-entry hunting season. Cougars are present across Utah, and prefer pinyon-juniper and pine-oak brush areas where there are rocky cliffs, ledges and tall trees or brush that can be used for cover. Black bear: Parcels 026 and 027 are located entirely within crucial yearlong habitat for black bear, and transient animals may occur on all parcels. Attractants should be managed to avoid inviting bears to the site (e.g., trash, standing water).	Karen Cathey November 13, 2019

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		American bison: Parcels 026 and 027 contain habitat to support bison and UDWR reports records of occurrence. The Book Cliff bison herd was established in 2009. The herd is not fenced and commingles with bison from the Ute Tribal Trust Lands The bison have begun to naturally extend across historic ranges. Division of Wildlife Resources neither requests nor supports bison-driven stipulations on mineral extraction activities (DOI 2014, UDWR 2007). Rocky mountain elk: Parcels 004, 005, and 006 are entirely within winter crucial habitat for the elk, along with significant portions of parcels 001, 007, and 008 and the northeast portion of parcel 002. Implementation of UT-S-230: TL – Crucial Deer and Elk Winter Range; UT-S-231: CSA- Crucial Deer Winter Range here will protect this species during sensitive times. Parcels 026 and 027 are entirely located in summer/fall substantial habitat will apply timing limitations on construction and restrict disruptive activities during and after development to minimize impacts to animals that are present in this area. Moose: Year-long substantial habitat for the moose occurs throughout 001, and in the northern portions of parcels 005, 006. Moose are primarily browsers and depend on shrubs and young deciduous trees for food during much of the year. Moose in Utah are also associated with riparian habitat types, but they are not obligates. Moose tend to avoid human interaction and would move away from disturbance. Mule deer: Summer, or year-long crucial habitat occurs in parcels 014, 017, 018, 023, 024, 026 and 027. Winter crucial habitat occurs in parcels 001, 002, 004, 005, 006, 007, 008. Implementation of UT-S-230: TL – Crucial Deer and Elk Winter Range; UT-S-231: CSA- Crucial Deer Winter Range; and UT-S-247 Timing Limitation – Crucial Elk Calving And Deer Fawning Habitat will apply timing limitations on construction and restrict disruptive activities during and after development to minimize impacts to animals that are present in this area. Year-long, winter or summer substantial habitat also occurs in 001, 002, 007, 008, 009, 016, 017, 018, 019, 020, 026, and 027. Pronghorn antelope: Year-long crucial habitat for pronghorn antelope is identified in parcels 009, 010, 011, 012, 013, and parcel 022; implementation of UT-LN-13: Pronghorn Winter Habitat on these habitats will provide timing limitations on construction activities that will minimize impacts to animals that are present in this area. Year-long substantial habitat occurs in all parcels except 004, 005, 006, 014, 016, 017, 023, 026 and 027. Pronghorn populations occur in shrub-steppe habitat, with large expanses of open, rolling or flat terrain (UDWR 2017). Rocky mountain bighorn sheep: Crucial year-long habitat occurs within lease parcel 026 and 027. Bighorns prefer open habitat types with adjacent steep rocky areas for escape and safety. Implementation of UT-LN-	

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		20: Rocky Mountain/Desert Bighorn Sheep Crucial Lambing and Rutting Habitat will provide timing limitations on construction activities and possibly other surface use plan modification to minimize impacts to animals that are present in this area. Wild turkey: Habitat appropriate for turkey occurrence occurs of the majority of parcel 023 and southern portions of parcel 026. Three subspecies of wild turkey: eastern, Merriam's and Rio Grande, have been introduced into Utah; habitat includes areas where there is a combination of trees, forbs and grass (UDWR 2014). These birds will avoid areas where human disturbance is active. Chukar: Year-long crucial habitat occurs in parcels 014 through 018. Native to Asia, the Middle East, and southern Europe, this species steep, rocky, mountainous terrain contains a mixture of brush, grasses, and forbs. These birds will avoid areas where human disturbance is active. California quail: Year-long crucial habitat for this quail occurs in the northeast corner of parcel 017. These quail are native to the Pacific coast, from Oregon down to Baja California, and may be found in brushy areas with ready access to water. They will avoid areas where human disturbance is active. Dusky/Blue grouse: Parcel 027 is entirely and southern portions of parcel 027 are located in year-long crucial habitat. This upland game bird prefers open stands of conifer or aspen with an understory of brush, and will avoid areas where human disturbance is active. Ring-necked pheasant: Year-long crucial habitat occurs in parcels 014, 016, 017, 018 023 and 024. This upland game species originates in eastern Asia, and prefers agricultural and grassy fields. <u>Stipulations and Notices</u>: UT-LN-13: Pronghorn Winter Habitat – applied to parcels 009, 010, 011, 012, 013 and 022 UT-LN-20: Rocky Mountain/Desert Bighorn Sheep Crucial Lambing and Rutting Habitat - applied to parcels 026 and 027 UT-S-230: TL – Crucial Deer and Elk Winter Range – applied to parcels 001, 002, 004, 005, 006, 007, 008, 014, 017, 018, 023, 024 UT-S-231: CSU – Crucial Deer Winter Range – applied to parcels 001, 002, 004, 005, 006, 007, 008, 014, 017, 018, 023, 024	

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		UT-S-247 Timing Limitation – Crucial Elk Calving and Deer Fawning Habitat – applied to parcels 026 and 027	
Plants			
NI	Sensitive Plant Species	BLM manages sensitive species in accordance with BLM Manual 6840 and the sensitive species List (UT-IM-2019-005, March 4, 2019). Because areas specific to the lease parcels have not been extensively surveyed, and because seasonal conditions may change over time to allow unexpected species to occur, UT-LN-49: Utah Sensitive Species, will notify that the parcel has been identified as containing potential habitat for sensitive species and that modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities. No surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status species. Where a species is listed as being expected to occur, UT-LN-51: Special Status Plants: Not Federally listed will be applied to minimize potential for impact, in addition to species specific notices where appropriate. Available data sources, including BLM data layers and site-specific BLM expertise were used to determine if the known or potential habitat falls within parcels identified for the March 2020 lease sale, with the following results indicating species with potential to occur: Horseshoe milkvetch: Known to occur on the Duchesne River Formation in sagebrush, shadscale, horsebrush and other mixed desert shrub communities, 4800-5200 ft. UT-LN-89: Horseshoe Milkvetch will be applied to parcels 010, 012, 019, 020, 022, 025, requiring site inventories and notifying the lessee that avoidance and minimization measures will be required at the APD stage. Hamilton milkvetch: Habitat includes eroding slopes of the Duchesne River, Wasatch, and less commonly Mowry Shale, Dakota, and other formations in desert shrub and pinyon-juniper plant communities from 5,500 to 6,740 ft. Parcels: 001, 002,003, 005, 006, 007, 008, 009, 010, 011, 012, 013, 016, 018, 019, 020. Lapoint beardtongue: Shadscale, sagebrush, and juniper communities in red and gray clays and sandy clays of the Duchesne River Formation. Endemic, known only from between Maeser and north to Tridell in Duchesne and Uintah counties. Parcels: 001, 002, 003, 005, 006, 007, 008, 009, 010, 011, 012, 013, 016, 018, 019, 020. Sterile yucca: Known occurrences of the species are found growing in sandy soils. However, this species has not been extensively surveyed for nor is the range and exact habitat requirements fully understood. Parcels: 002, 003, 007, 009, 010, 011, 012, 013, 016, 017, 018, 019, 020, 022, 025.	Karen Cathey November 4, 2019

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		Stipulations and Notices: UT-LN-49: Utah Sensitive Species – applied to all parcels UT-LN-51: Special Status Plants: Not Federally-listed – applied to parcels 001, 002, 003, 005, 006, 007, 008, 009, 010, 011, 012, 013, 016, 017, 018, 019, 020, 022, 025 UT-LN-89: Horseshoe Milkvetch – applied to parcels 010, 012, 019, 020, 022, 025	
NI	Threatened, Endangered, Candidate or Proposed Plant Species	The standard endangered species stipulation as per Handbook H-3120-1 is attached to all parcels. Lists of Endangered Species Act (ESA) species was obtained from the USFWS Information, Planning, and Conservation (IPaC) System for the RHA area on October 8, 2019. The IPaC lists the following threatened plant species as potentially occurring in the region of the subject parcels: Ute ladies'-tresses. All parcels except parcels 026 and 027 may contain habitat suitable for this species, which prefers moist areas in and around wet meadows, stream banks, abandoned oxbow meanders, marshes, and raised bogs, and occasionally even moist swales or irrigated pastureland, at elevations between 4,500 and 6,850 ft. Application of lease notice, T&E-05: Listed Plant Species, will require surveys in appropriate habitat and protective measures, in addition to further coordination or consultation with the USFWS, should plants be identified. Collectively, these measures will minimize the potential for impact to the species at the leasing stage and no further analysis is necessary in this EA. Uinta Basin hookless cactus: Data indicates this species may occur in the area of parcel 022. Implementation of T&E-12: Pariette Cactus (*Sclerocactus brevispinus*) and Uinta Basin Hookless Cactus (*Sclerocactus glaucus (brevispinus and wetlandicus)* will require surveys in appropriate habitat, and protective measures, in addition to further coordination or consultation with the USFW, should plants be identified. Collectively, these measures will minimize the potential for impact to the species at the leasing stage and no further analysis is necessary in this EA. Stipulations and Notices: T&E-05: Listed Plant Species – applied to all parcels except 026 and 027. T&E-12: Pariette Cactus (*Sclerocactus brevispinus*) and Uinta Basin Hookless Cactus (*Sclerocactus glaucus (brevispinus and wetlandicus*) – applied to parcel 022	Karen Cathey November 4, 2019

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NI	Invasive Species/ Noxious Weeds (EO 13112)	Noxious/invasive weed species may be present on all of the subject parcels, known occurrence is noted here by class and parcel: Class A Noxious – Leafy spurge: 017 Black henbane: 026 Class B Noxious – Russian knapweed: 011, 013 Musk thistle: 026, 027 Perennial pepperweed: 005, 008, 009, 010, 011, 019, 020 Class C Noxious – Canada thistle: 004, 005, 008, 019, 020, 022 Houndstongue: 004, 005, 026, 027 Saltcedar: 001, 002, 003, 009, 110, 011, 013, 017, 019, 020 Invasive Annual Grasses, Biennial Forbs, Shrubs or Trees: Cheatgrass: 003, 004, 005, 008, 009, 011, 013, 019, 020, 022 Fuller's teasel: 009, 010, 011, 017, Russian olive: 001 Application of notice UT-LN-52: Noxious Weed is warranted on all parcels. Constraints, including the use of certified weed free seed and vehicle/equipment wash stations, would be applied as necessary at the APD stage as documented in filing plans and COAs. Control measures would be implemented during any ground disturbing activity and documented through a PUP/PAR. Additional control and procedural information is documented in the Programmatic EIS Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States and its Record of Decision, (September 2007). If treatment occurs as part of regular operations, BMPs, SOPs and site-specific mitigation are applied at the APD stage as COAs. Negligible impacts would be expected as a result of leasing and exploration.	Karen Cathey November 4, 2019
NI	Vegetation Excluding	This proposed sale and issuance of an oil and gas leases would not authorize ground disturbances which could affect vegetation resources, as leasing is an administrative action that does not result in any surface disturbance. There would be no impacts to vegetation resources through sale of leases. Site-specific impacts	Karen Cathey November 4, 2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
	Special Status Species	cannot be analyzed until an exploration or development application is received, after leases are issued. However, the BLM recognizes that exploration or development could occur, and applied lease stipulations and notices will notify buyers during sale of leases. Should an APD be filed, additional NEPA documentation would be conducted and the BLM will use the opportunity to make adjustments at the site-specific level to ensure impacts are addressed. Future development proposals 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. Additional detailed analysis in this EA is not necessary.	
NI	Woodland / Forestry	Scattered sparse woodlands exist in areas adjacent to all parcels included in the proposed lease sale, but not in quantities sufficient to establish public harvest areas. Exploration or development would not limit use or access to any established wood sale areas. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs. Per 43 CFR 5400 Sale of Forest Products, permits are required for severance and removal of forest products regardless of whether the product is utilized or not.	Karen Cathey November 4, 2019
Environmental Justice and Socioeconomics			
NI	Environmental Justice	As defined in EO 12898, minority and low-income populations do occur within or use areas within Uintah County. All citizens can file an expression of interest or participate in the bidding process (43 CFR 3120.3-2). The stipulations and notices applied to the subject parcels do not place an undue burden on these groups. Leasing the nominated parcels would not cause any disproportionately high and adverse effects on minority or low-income populations. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	David Gordon 10/1/2019
NI	Socio-economics	Based on the RFDS, no quantifiable additional or decreased economic impact to the local area/counties would be caused by exploration or development. The parcel areas would still receive use by county residents and other visitors including recreationists regardless of alternative selected. Refer to the Economic Profile System Reports prepared on 11/12/2019 (BLM 2019) (A Profile of Agriculture, Public Land Amenities, A Profile of Demographics, A Profile of Federal Land Payments, A Profile of Government Employment, A Profile of Land Use, A Profile of Mining, Including Oil & Gas, A Profile of Non-Labor Income, A Profile of Service Sectors, A Profile of Socioeconomic Measures, A Profile of Timber and Wood Products, A Profile of Industries that Include Travel & Tourism, A Profile of Development and the Wildland-Urban Interface, and A Summary Profile). Additional information is contained in the county general plan and its corresponding resource management plan. Land uses in county and parcel areas would continue. Land use plan (as amended) allocations would not be altered. Approximately 15 percent of jobs in Uintah County, or around 1,300 jobs, are connected with travel and	David Gordon 10/1/2019 Angela Wadman 11/12/2019 Julie Suhr Peirce 1/22/2020

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		tourism, with an estimated average annual wage rate of $44,622 in 2018 dollars. While the total number of jobs related to this sector has been declining in recent years, the percentage of all jobs that those jobs represent has increased as the number of overall jobs in Uintah County has recently declined. The value to the regional economy of each mountain biker user day is estimated at $208. This includes purchases of equipment, clothing, services, lodging, meals, fuel, and so on. To the extent that these items are purchased outside of the immediate economic region, the value to the local economy would be reduced. For every $100,000 spent by mountain bikers in the local economy, an estimated two jobs, $37,000 in labor income, and $116,000 in output is supported. For each dollar spent by mountain bike riders in Uintah County, an estimated additional $0.36 in economic output is generated. Any reductions that would impact these values--due to mountain bike riders choosing to go elsewhere—would be expected to proportionately impact the local economy in an amount reflecting these numbers. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	
Water Resources			
NI	Water Resources/ Quality (drinking/ surface/ ground), Public Water Reserves	There are no identified ground or surface drinking water protection zones in the area of the lease parcels. If an APD is filed, SOPs required by regulation and design features would be sufficient to isolate and protect all usable ground or surface water sources before drilling or exploration begin. The SOPs include the requirements for disposal of produced water contained in Onshore Oil and Gas Order (O.O.) No. 7 and the requirements for drilling operations contained in O.O No. 2. Potential freshwater aquifers zones would be protected by the requirement of casing and cementing the drill hole to total depth. The casing would be pressure tested to ensure integrity prior to drilling out the surface casing shoe plug. BMPs, SOPs, and site-specific mitigation may be applied at the APD stage as COAs. Potential impacts to groundwater are addressed by following UT IM 2010-055 (Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development) prior to APD approval. Standard protocols would minimize potential impacts including no surface disturbance or occupancy within 660 feet of any natural springs, no surface disturbance in the 100-year floodplain or within 100 meters on either side of the center line of any stream or riparian area). BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs. <u>Stipulations and Notices</u>:	Jerrad Goodell 10/16/2019 Ann Marie Aubry 11-4-2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		Applying the following lease notice (UT-LN-53) to parcel 19 would minimize potential impacts to water resources: UT-LN-53: No surface use or otherwise disruptive activity allowed within 100 meters of riparian areas. Applying the following lease notice (UT-LN-128) to all parcels (parcels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 22, 26, 27) would minimize potential impacts to water resources: UT-LN-128: 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. Applying the following stipulation (UT-S-123) to all parcels (parcels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 22, 26, 27) would minimize potential impacts to water resources: UT-S-123**:** 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. Applying the following lease notice (UT-LN-57) to parcel 5, parcel 6, and parcel 27 to protect Public Water Reserves will minimize potential impacts to water resources: UT-LN-57: 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.	
NI	Wetlands/ Riparian Zones / Floodplains	Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, parcel 19 was identified as containing riparian and/or wetland systems. Intermittent and ephemeral streams and associated floodplains occur on all parcels. Leasing of parcels would not affect these resources. BMPs, SOPs, and site-specific mitigation may be applied at the APD stage as COAs. With these stipulations and other site-specific mitigation practices, no additional analysis is required in this EA. <u>Stipulations and Notices</u>	Jerrad Goodell 10/16/2019 Ann Marie Aubry 11-4-2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		Applying the following stipulation (UT-S-123) to all parcels (parcels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 22, 26, 27) would minimize potential impacts to wetland, riparian and floodplain resources: UT-S-123**:** 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. Applying the following lease notice (UT-LN-53) to parcel 19 would minimize potential impacts to wetland, riparian and floodplain resources: UT-LN-53: No surface use or otherwise disruptive activity allowed within 100 meters of riparian areas. Applying the following lease notice (UT-LN-128) to parcels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 22, 26 and 27 would minimize potential impacts to wetland, riparian and floodplain resources: UT-LN-128: 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.	
NI	Soils: Physical/ Biological	Leasing of parcels would result in no impacts to soil resources. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an APD be filed. If additional site-specific resource protection measures are needed to prevent unnecessary or undue degradation, these would be developed at the time of the site specific NEPA. It is expected that reclamation procedures would be required to ensure long-term vegetation impacts are minimized. Reclamation provisions/procedures would include re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, noxious weed controls, etc. SOPs, BMPs and site-specific design features applied at the APD stage, including reclamation, may be applied as COAs. <u>Stipulations and Notices</u> The following stipulations would be applied to parcels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 22, 23, 24, 25, 26 and 27 to minimize potential impacts to soils from development on steep slopes: UT-S-99: 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 UT-S-100: If surface-disturbing activities cannot be avoided on slopes from 21-40% a plan will be required. The plan will be approved by BLM prior to construction and maintenance and include: • An erosion control strategy; • GIS modeling;	David Gordon 10/16/2019 Ann Marie Aubry 11-4-2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		• Proper survey and design by a certified engineer The following stipulation would be applied to parcels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 23, 24, 26 and 27 to minimize potential impacts to soils from development on steep slopes greater than 40%: UT-S-96: No surface occupancy for slopes greater than 40 percent	
Rangeland Health			
NI	Farmlands (Prime or Unique)	The three parcels with potentially prime or unique farmlands (023, 024, and 025) all have private surface. There are 480 acres in these three parcels, with 164 acres (34% of total acreage in these parcels) of soils classified as prime farmlands if irrigated. Aerial imagery shows that no irrigation is occurring on these three parcels. None of these parcels would be irrigated due to oil/gas exploration or development activities. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	David Gordon 10/9/2019 Ann Marie Aubry 11/4/2019
NI	Fuels/Fire Management	Exploration or development would not conflict with the Fire Management Plan goals and objectives. The implementation of appropriate reclamation standards at the APD stage would prevent an increase of hazardous fuels. Fuels and fire management would not be impacted by the lease process. BMPs, SOPs, and site-specific mitigation may be applied at the APD stage as COAs.	Dixie Sadlier 10/16/2019
NI	Livestock Grazing	Twenty-three of the parcels or portions of those parcels are located within ten federal livestock grazing allotments. Leasing or production activities would not cause changes to grazing permit terms and conditions. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis, at the APD stage. Impacts to livestock grazing may occur as a result of subsequent actions including exploration development, production, etc. Therefore, reclamation provisions/procedures including re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, range improvement project replacement/restoration (e.g., fences, troughs and cattle guards), noxious weed control, would be identified in future NEPA/decision documents on a case-by-case basis (at the APD stage). In addition, if any range improvement projects could be impacted by wells or associated infrastructure, well pads could be moved 200 meters to avoid rangeland improvements or vegetation monitoring plots as per 43 CFR 3101.1-2. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	Dusty Carpenter 10/15/2019 Travis Decker 10/16/2019

<table>
<tr><th>Determi-nation</th><th>Resource</th><th>Rationale for Determination</th><th>Parcel Reviewer</th></tr>
<tr><td></td><td></td><td>The 10 allotments that have parcels or portions of parcels included within the boundaries have permitted seasons of use that vary from spring to winter. Livestock type authorized includes both cattle and domestic sheep.

The following specific parcels were determined to have livestock grazing. There are 37,700 acres proposed for leasing within the allotments listed below. Nine of the ten allotments have been evaluated for rangeland health standards within the last 17 years. However, only the Split Mountain allotment has been evaluated in the last 10 years. Specific impacts to rangeland health standards as address in 43 CFR 4100 and 43 CFR 4180 would require site specific analysis beyond the scope of this specific leasing document.

<table>
<tr><td>Parcel Number</td><td>Grazing Allotments</td></tr>
<tr><td>001</td><td>12 Mile, Perry</td></tr>
<tr><td>002</td><td>12 Mile</td></tr>
<tr><td>004</td><td>12 Mile, East Little Mountain, Coal Mine Basin</td></tr>
<tr><td>005</td><td>12 Mile, Coal Mine Basin</td></tr>
<tr><td>006</td><td>12 Mile, Perry</td></tr>
<tr><td>007</td><td>12 Mile</td></tr>
<tr><td>008</td><td>12 Mile</td></tr>
<tr><td>009</td><td>12 Mile, East Huber</td></tr>
<tr><td>010</td><td>12 Mile, East Huber</td></tr>
<tr><td>011</td><td>12 Mile, East Huber</td></tr>
<tr><td>012</td><td>East Huber, McCoy Flats</td></tr>
</table>
</td><td></td></tr>
</table>

<table>
<tr><th>Determi-nation</th><th>Resource</th><th>Rationale for Determination</th><th>Parcel Reviewer</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>013</td><td>12 Mile, East Huber</td></tr>
<tr><td>016</td><td>McCoy Flats</td></tr>
<tr><td>017</td><td>McCoy Flats</td></tr>
<tr><td>018</td><td>McCoy Flats</td></tr>
<tr><td>019</td><td>12 Mile, McCoy Flats</td></tr>
<tr><td>020</td><td>McCoy Flats</td></tr>
<tr><td></td><td></td></tr>
<tr><td>022</td><td>Split Mountain</td></tr>
<tr><td>026</td><td>Sweet Water</td></tr>
<tr><td>027</td><td>Sweet Water</td></tr>
</table>
Any possible effects to Range Improvement Projects throughout the 10 federal grazing allotments would be avoided or analyzed during site-specific NEPA analysis. The allotments the lease parcels cover would range from desert salt shrub, sage steppe to forested lands (parcels 026 and 027). Elevation ranges from around 5,000 feet to upwards of 7,500 feet in elevation. Most areas are located within the 5–8-inch annual precipitation zone, with some areas receive more precipitation. Allotments identified within the lease sale parcels will have grazing permits continued with existing terms and conditions through authority determined within the FLPMA, until those grazing permits can be processed through site-specific NEPA documents analyzing the current and on-going oil and gas activities.</td><td></td></tr>
<tr><td>NI</td><td>Wild Horses and Burros</td><td>The parcels do not intersect herd areas or herd management areas.</td><td>Dusty Carpenter 10/11/2019</td></tr>
<tr><td colspan="4">Lands and Minerals</td></tr>
</table>

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
NI	Lands/Access	Leasing parcels would have no effect on property boundaries. In accordance with WO IM 2011-122, cadastral survey reviews and verifies the legal land descriptions prior to lease issuance. Stone monuments may be present and would need to be avoided the same as metal cap monuments. Detailed land surveys may be warranted at the APD stage. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs. Coordination with existing right-of-way holders in the proposed lease parcels would occur if their right-of-way would be affected. There are several identified Uintah County claimed roads within the lease parcels 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 25, 26 and 27. Coordination with Uintah County would need to occur if the roads need to be upgraded and to determine if other permits are required. Lands identified for disposal as listed in the Vernal Resource Management Plan (2008) are within parcels 1, 16, 17 and 18. Parcels 10, 12, 13, 19, 23 and 25 are within existing Transportation/Utility Corridors. <u>Stipulations</u> Material Site UT-S-316 on parcel 12 sec. 24 NE¼NE¼. Public Water Reserves UT-S-123 on parcels 5 and 27. <u>Notices</u> Existing Rights-of-way UT-LN-83 on parcels 3, 8, 9, 10, 13, 16, 17, 19, and 24. Public Water Reserves UT-LN-57 on parcels 005, 006, and 27.	P. Ahrnsbrak 10/4/2019
NI	Geology / Mineral Resources/ Energy Production	Oil and gas exploration could lead to an increased understanding of the geologic setting, as subsurface data obtained through lease operations that may become public record. This information promotes an understanding of mineral resources as well as geologic interpretation. While conflicts could arise between oil and gas operations and other mineral operations, these could generally be mitigated under 43 CFR 3101.1-2 and under standard lease terms (Sec. 6) where sitting and design of facilities may be modified to protect other resources. Depending on the success of oil and gas drilling, non-renewable natural gas and/or oil would be extracted and delivered to market. Production would result in the irretrievable loss of these resources. The RFDS is	Dallas Nutt 10/16/19 Angela Wadman 11/5/2019

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		documented at section 2.2.1. The proposed action would not exceed the level of activity predicted in the RFDS. Any oil and gas development can be managed to avoid or work within other mineral resources. Mining claims and Mineral Materials were checked on 10/16/2019. No active placer claims, or Mineral Material sites were found to be associated within any parcel. If the parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information is provided in Sections 2.2.2 through 2.2.6 "FracFocus," is a database available to the public online at http://fracfocus.org/. Public has expressed concerns that: • Spills during the management of hydraulic fracturing fluids and chemicals or produced water that result in large volumes or high concentrations of chemicals reaching groundwater resources; • Injection of hydraulic fracturing fluids into wells with inadequate mechanical integrity, allowing gases or liquids to move to groundwater resources; and, • Discharge of inadequately treated hydraulic fracturing wastewater to surface water resources. Before operators or service companies preform hydraulic fracturing treatment, a series of tests are preformed to ensure well, casing, and well equipment is in proper order and will safely withstand the application of the fracture treatment pressures and flow rates. Operators must comply with O.O. #2 and O.O. # 7. If fracking should occur in an area where there is no vertical separation between the hydraulically fractured rock formation and the bottom of the potential underground drinking water source, fracking fluid may be introduced into the source. The majority of flow back water from hydraulic fracturing in Utah is recycled and used in future hydraulic fracturing completions. Therefore, the underground injection of hydraulic fracturing flow back in Utah is very limited and presents little potential for inducing seismic activity. In fact, there has been no reported induced seismicity in Utah that was from water injected into Class II wells. Oil and gas wells produce a great amount of wastewater. The majority this water has high salt brine content and must be disposed of in an environmentally safe manner. In Utah, a majority (95%) of this produced water is pumped into Class II injection wells. In certain parts of the country, water injection has caused some induced seismicity in the form of small earthquakes. Two major factors play a role in induced seismicity from water injection. First, the amount of water being injected. Secondly, the local geology of the water injection site. In Utah, the volumes are lower than those states experiencing induced seismicity. Also, the geology is different than those states experiencing induced seismicity. The injection zones are stratigraphically thousands of feet above the basement rock that may contain large unknown faults. Therefore, at this time it appears that	

Determi-nation	Resource	Rationale for Determination	Parcel Reviewer
		induced seismicity from water injection is not a problem in the oil fields of Utah. (Personal communication from John Rogers, Utah Division of Oil, Gas and Mining (UDOGM), March 27, 2018). Parcels 011, 014, 016, 017, 018, 019, 020, 025, and 026 are within the designated Special Tar Sands Areas (Asphalt Ridge Tar Sand Area). This area was designated in 1981 by Congress. Leasing can go forward because the expression of interests for these parcels only had oil and gas requests. Parcels 014, 017, 016, 018, and 020 are on top of existing Tar Sands' expression of interests. The Vernal Field Office is currently working on Asphalt Ridge Tas Sands Leasing EA (DOI-BLM-UT-G010-2010-0199-EA). Lease Notice UT-LN-85 would be applied to parcels 011, 014, 016, 017, 018, 019, 020, 025, and 026. Oil and Gas development may be delayed providing for future tar sands development. Special attention may be required in placement of drill pads and access routes to avoid unnecessary hill-slope cuts. Lease stipulations and notices are created to mitigate impacts of oil and gas development on other resources. In conclusion, there would be no negative affects to mineral resources. <u>Notices</u> UT-LN-85 on parcels 011, 014, 016, 017, 018, 019, 020, 025, and 026.	
NI	Paleontology	There are no known paleontological resources within the parcels. If an APD is filed, specific clearances would be conducted and incorporated into that NEPA process. If paleontological resources are located, the AO would be contacted. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs. Parcel 013 is partially in PFYC 4 (Potential Fossil Yield Classification), no other parcels in the March 2020 lease sale are located in areas of high fossil yield potential. <u>Notices</u> UT-LN-72 on parcel 013	Dallas Nutt 10/16/19 Angela Wadman 11/5/2019
NI	Wastes (hazardous or solid)	Hazardous materials are not known to exist on the parcels. Refer also to the Air Quality discussion for specific information on hazardous air pollutants (HAPs). Hazardous materials, if not handled properly that are associated with operations, have the potential to be spilled on the lease/drill site. However, the spill would be contained, reported, and cleaned up by the operator. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	David Gordon 10/1/2019

Appendix E – Air Quality and Green House Gas Information and Calculations

General Conformity Applicability

The Clean Air Acts General Conformity Rule mandates that the BLM evaluate reasonably foreseeable emissions that result from its actions in a nonattainment area to determine if they conform with the applicable regulatory agency implementation plans (40 CFR 93.153). The rule takes into account air pollution emissions associated with actions that are federally funded, licensed, permitted, or approved, and ensures emissions do not contribute to air quality degradation, thus preventing the achievement of state and federal air quality goals. In short, general conformity refers to the process of evaluating plans, programs, and projects to determine and demonstrate they meet the requirements of the CAA and an applicable implementation plan.

The General Conformity Rule divides the air conformity process into two distinct areas, applicability and determination. Federal agencies must initially assess if an action is subject to the Conformity Rule (Applicability Analysis) and then if the action conforms to an applicable implementation plan (Conformity Determination). Guidance from Information Bulletin 2014-084 (BLM 2014) was used to perform an applicability analysis in order to determine if a conformity determination is needed for this lease.

The general conformity rules are not applicable to this lease sale because: 1) onshore lease sales are analogous to offshore leases for the Outer Continental Shelf which are explicitly exempt in the Clean Air Act, 2) leasing does not directly authorize pollutant emitting activities, and no direct emissions would result, and 3) emissions are not reasonably foreseeable as defined in 40 CFR § 93.152 as it is unknown what design features or mitigation measures an operator will use. The BLM has evaluated the proposed lease sale in accordance with the provisions of 40 CFR Part 93, Subpart B. Based on a review of 40 CFR § 93.153(c), BLM has determined that the requirement to perform a full conformity determination is not required for the proposed action for the following reasons:

- Under 40 CFR 93.153(c)(2), a conformity determination is not required for actions "which would result in no emissions increase or an increase in emissions that is clearly de minimis." Leasing does not authorize emissions generating activities, and therefore does not directly result in an emissions increase.
- A conformity determination also is not required "where the emissions (direct or indirect) are not reasonably foreseeable." 40 CFR § 93.153(c)(3). As defined in the CAA, "Reasonably foreseeable emissions are projected future direct and indirect emissions that are identified at the time the conformity determination is made; the location of such emissions is known and the emissions are quantifiable as described and documented by the Federal agency based on its own information and after reviewing any information presented to the Federal agency." 40 CFR § 93.152 While this EA provides information for the factors that should be considered to determine a reasonable *estimate* of foreseeable emissions for the proposed lease parcels and overall for the region for purposes of NEPA indirect and cumulative impacts analysis, it does not have specific information about whether or how the specific parcel under consideration will be developed during the initial 10 year lease period, such that a more precise emissions inventory could be reasonably estimated and compared to the thresholds provided in 40 CFR § 93.153(b).
- An onshore lease sale is analogous to the example provided in 40 CFR § 93.153(c)(3)(i), "Initial Outer Continental Shelf lease sales which are made on a broad scale and are followed by exploration and development plans on a project level." Similarly, development of an onshore lease requires subsequent BLM review and NEPA analysis of a specific development proposal. There are several factors to consider for estimating potential emissions that are highly variable depending on the project, and although potential emissions from parcel development are used for

analysis and discussion in this EA, "reasonably foreseeable emissions" are not definitive until the BLM receives actual plans of development (i.e. APDs).

- Furthermore, 40 CFR § 93.153(d) provides, "[notwithstanding the other requirements of this subpart, a conformity determination is not required for:
    - The portion of an action that includes major or minor new or modified stationary sources that require a permit under the new source review (NSR) program (Section 110(a)(2)(c) and Section 173 of the [CAA]) or the prevention of significant deterioration program (title I, part C of the [CAA])." 40 CFR 93.153(d)(1). It is uncertain at this time, but highly likely, that several project design features, for example equipment sets, such as tanks, truck loading, wellsite stationary engines, VOC control devices, dehydration units, and other equipment will require at least a minor new source review (permit) prior to constructing such facilities to implement any subsequent development proposals. Emissions from such permitted facilities would not be subject to the general conformity analysis provisions. BLM expects that much of the new oil and gas development that may occur on the proposed lease parcels would use similar equipment and processes that will require similar permitting to the recent oil and gas development projects for the area. For example, emissions sources include in Utah Administrative Code R307-504-511 or the Federal Implementation Plan for the Indian Country Minor New Source Review Program for the Oil and Natural Gas Industry (80 FR 51991) would not be included.

For all of these reasons, a conformity determination is not required for the sale of the leases under consideration.

Criteria Air Pollutant Emissions

A summary of existing criteria air pollutant emissions for the State of Utah is provided in Table 19.

Table 19. 2014 Criteria Air Pollutant Emissions (tpy) in Utah by Source

Source	CO	NOx	PM10	PM2.5	SOx	VOCs
Area Sources	36,713.5	13,937.5	153,057.8	22,816.2	170.6	33,417.2
Area Sources Oil and Gas	15,444.7	16,404.2	790.5	564.5	291.5	178,518.3
Non-Road Mobile	121,315.9	17,287.8	1,528.1	1,449.4	214.3	20,066.5
On-Road Mobile	203,288.5	60,952.1	12,425.8	4,277.6	294.6	20,487.0
Point Sources	23,175.9	63,141.8	10,303.5	5,635.7	25,561.6	5,848.1
Point Portable	83.5	228.4	93.1	17.8	38.9	51.
Biogenics	143,712.4	0.0	0.0	0.0	0.0	692,037.
Wildfires	5,793.3	164.9	701.0	630.9	0.0	989.
State Total	**549,528**	**172,117**	**178,900**	**35,392**	**26,572**	**951,41**

Hazardous Air Pollutant Emissions

A summary of existing HAP emissions for counties in which lease parcels are located is presented in Table 20.

Table 20. Triennial Inventory of HAPs (2014).

HAPS (tpy)	Uintah County
Acetaldehyde	0.010
Benzene	--
Ethylbenzene	--
Formaldehyde	0.180
Hexane	--
Methanol	--
Naphthalene	--
Toluene	--
Xylenes	--

Fishlake National Forest Oil and Gas Modeling Results

Impact analyses, from the Fishlake National Forest Oil and Gas Leasing FEIS (USDAFS 2013), were conducted for distances ranging from 0.25 to 200 km (124.3 miles) from the source and at seven receptor elevations that ranged from 2,500 feet above to 2,500 feet below the source. The highest receptor impacts occurred when the model receptors were at or near the same elevation as the source. Table 21 documents the maximum predicted criteria pollutants NO2, SO2, and PM10/PM2.5 concentrations (μg/m3) as well as the maximum visibility impairment impacts at a variety of distances, for the scenario where the receptors were at the same elevation as the source. The tabulated impacts represent the maximum impact at the given distance for any of the elevation scenarios. For the impact assessment of primary PM2.5 PM10 impacts were used as a conservative assessment given that primary PM2.5 is a subset of primary PM10.

Table 21 Air Quality Impacts from Drilling a Single Well

Criteria Pollutant	Period	Class I Increment	Class II Increment	1km	5km	10km	20km
				Concentrations ($\mu g/m^3$) at Various Distances			
SO_2	1-hour	NA	NA	0.11	0.03	0.01	0.01
	3-hour	25 $\mu g/m^3$	512 $\mu g/m^3$	0.16	0.05	0.02	0.01
	24-hour	5 $\mu g/m^3$	91 $\mu g/m^3$	0.07	0.02	0.01	0.00
	Annual	2 $\mu g/m^3$	20 $\mu g/m^3$	0.02	0.01	0.00	0.00
NO_2	1-hour	NA	NA	54.6	14.7	7.2	3.1
	Annual	2.5 $\mu g/m^3$	25 $\mu g/m^3$	10.1	3.39	1.63	0.77
PM_{10}	24-hour	8 $\mu g/m^3$	30 $\mu g/m^3$	12.40	2.77	1.20	0.53
	Annual	4 $\mu g/m^3$	17 $\mu g/m^3$	3.09	0.69	0.30	0.13
$PM_{2.5}$	24-hour	NA	NA	12.40	2.77	1.20	0.53
	Annual	NA	NA	3.09	0.69	0.30	0.13
Deposition	NO_2 Dep	0.005	kg/hect/yr	0.0262	0.0050	0.0020	0.0007
	SO_2 Dep	0.005	kg/hect/yr	0.0001	0.0000	0.0000	0.0000
Visibility	Days $\Delta dv >$ 0.5	Less than Baseline	NA	4	1	1	1
	Days $\Delta dv >$ 1.0	Less than Baseline	NA	0	0	0	0

Monument Butte Modeling Results

Kleinfelder and Alpine Geophysics modeled the maximum potential ambient air quality impacts for the Monument Butte 5,750 oil and gas well development proposed action. The summary of that information is included in Table 22. Please note that Table 22 has been updated to reflect the latest NAAQS, and to include the EPA's 2017 design values for the background concentration where available.

Table 22. Monument Butte Proposed Action Maximum Potential Project Impacts

Pollutant	Averaging Period	Maximum Modeled Impact (µg/m^3)	Background (µg/m^3)	Total (µg/m^3)	NAAQS[d] (µg/m^3)
CO	1-hour	265 [a]	1800 [c]	2,065	35,000 [d]
CO	8-hour	137 [a]	3800 [c]	3,937	9,000 [d]
NO_2	1-hour	106.9[a, b]	19 [c]	115.6	100 [d]
NO_2	Annual	16.5 [a]	5 [c]	21.5	53 [d]
SO_2	1-hour	0.7 [a]	20.1 [a]	20.8	75,000 [d]
SO_2	3-hour	0.6 [a]	14.3 [a]	14.9	500 [e]
PM_{10}	24-hour	72.5 [a]	18.7 [a]	91.2	150 [d]
$PM_{2.5}$	24-hour	14.3 [a]	24 [c]	38.3	35 [d]
$PM_{2.5}$	Annual	1.4 [a]	6.1 [c]	7.5	12 [d]
O^3	8-hour	1.6[f]	88 [c]	89.6	70 [d]

a Value from Kleinfelder 2017 Table 1-2
b Assumes NO to NO_2 conversion of 80%
c EPA 2017 design value converted to µg/m^3
d NAAQS primary standard converted to µg/m^3
e NAAQS secondary standard converted to µg/m^3
f Maximum project impact at Dinosaur Air Quality Station value from Alpine 2015 Table 3-6

Alpine Geophysics LLC modeled the regional haze impacts of the Monument Butte 5,750 oil and gas well development proposed action at Class I and Class II areas of interest. Haze impacts are measured in delta deciviews (DDV) and report the number of days the visibility may be changed. The 0.5 dV and 1.0 dV measurements are change levels of concern promulgated by Federal Land Managers. The summary of the modeled results is included in Table 23.

Table 23. Monument Butte Proposed Action Maximum Emissions Regional Haze Impacts at Class I and Class II Areas of Interest

Class I and Class II Areas of Interest	Number of Days > 0.5 dV Change	Number of Days > 1.0 dV Change
U.S. National Park Service Class I Areas		
Arches National Park	9	6
U.S. National Park Service Class II Areas		
Dinosaur National Monument	124	97

Class I and Class II Areas of Interest	Number of Days > 0.5 dV Change	Number of Days > 1.0 dV Change
U.S. Forest Service Class II Areas		
Flaming Gorge National Recreation Area	94	61
High Uintas Wilderness Area	51	27
Source: Alpine 2015		

Alpine modeled the acid deposition impacts of the Monument Butte 5,750 oil and gas well development proposed action at Class I and Class II areas of interest. Federal Land Managers have developed the Deposition Analysis Thresholds (DAT) to measure acid deposition effects in Class I areas. Model results for Class II areas are compared for informational purposes only. The DAT for both nitrogen and sulfur in western Class I areas are 0.005 kg/ha/yr. Deposition below the DAT have negligible effects. The summary of the model findings is included in Table 24.

Table 24. Monument Butte Proposed Action Predicted Nitrogen and Sulfur Deposition

Class I and Class II Areas of Interest	Deposition Analysis Threshold (kg/ha/yr)	Total Max Project Annual Nitrogen Deposition (kg/ha/yr)	Total Max Project Annual Sulfur Deposition (kg/ha/yr)
U.S. National Park Service Class I Areas			
Arches National Park	0.005	0.007	0.000
U.S. National Park Service Class II Areas			
Dinosaur National Monument	0.005	0.038	0.001
U.S. Forest Service Class II Areas			
Flaming Gorge National Recreation Area	0.005	0.021	0.000
High Uintas Wilderness Area	0.005	0.021	0.001
Source: Alpine 2015			

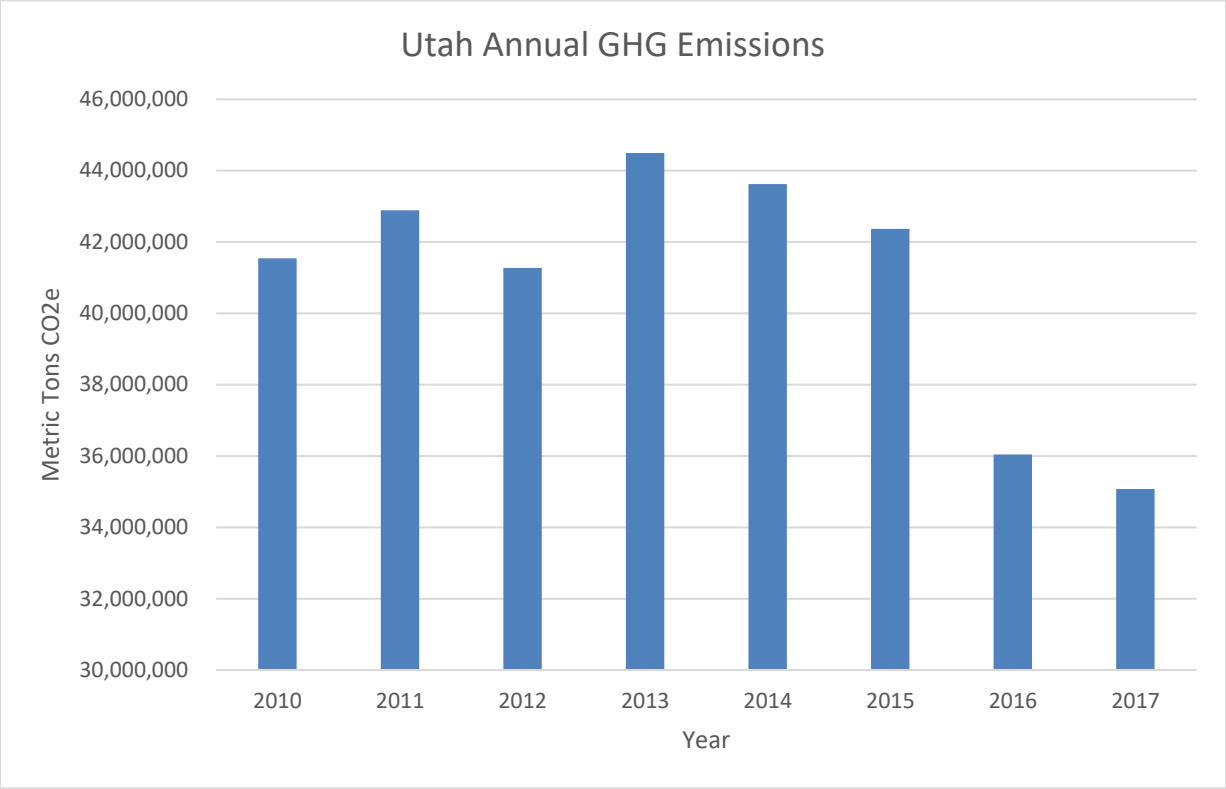
Alpine modeled the Acid Neutralizing Capacity (ANC) effects of the Monument Butte 5,750 oil and gas well development proposed action at Class I and sensitive Class II areas. ANC measure the ability of a water body to neutralize acid deposition. ANCs are compared to a limit of acceptable change, which is 10% change for lakes with a background ANC less than 25 μeq/L, and 1% for lakes with a background ANC of 25 μeq/L. All lakes in the modeling area have a background ANC greater than or equal to 25 μeq/L. The summary of the model findings is included in Table 25.

Table 25. Monument Butte Proposed Action Predicted Nitrogen and Sulfur Deposition

Lake	Background Acid Neutralizing Capacity (µeq/L)	Acid Neutralizing Capacity Change from Background (percent)	Limit of Acceptable Change (percent)
Heart Lake, High Uintas Wilderness Area	53.4	0.4	10
4D2-039, High Uintas Wilderness Area	65.16	0.7	10
Dean Lake, High Uintas Wilderness Area	51.4	0.3	10
Walk up Lake, Ashley National Forest	61.43	1.0	10
4D1-044, High Uintas Wilderness Area	64.98	0.3	10
Fish Lake, High Uintas Wilderness Area	104.5	0.5	10
Source: Alpine 2015			

State, National, and Global GHG Emissions

Reported GHG emissions from major sources in Utah in 2017 totaled 35.0 million metric tons (MMT) of CO_2e. A total of 64 facilities reported GHG emissions in 19 of Utah's 29 counties. Annual emissions in Utah for each year from 2010 to 2017 are shown in Figure 11. From 2013 to 2017, emissions in Utah decreased 9.4 MMT CO_2e, or 19.6%.



Source: EPA GHG Reporting Program FLIGHT tool (EPA 2018)

Figure 11 Annual GHG emissions from major industrial sources in Utah in MMT CO_2e

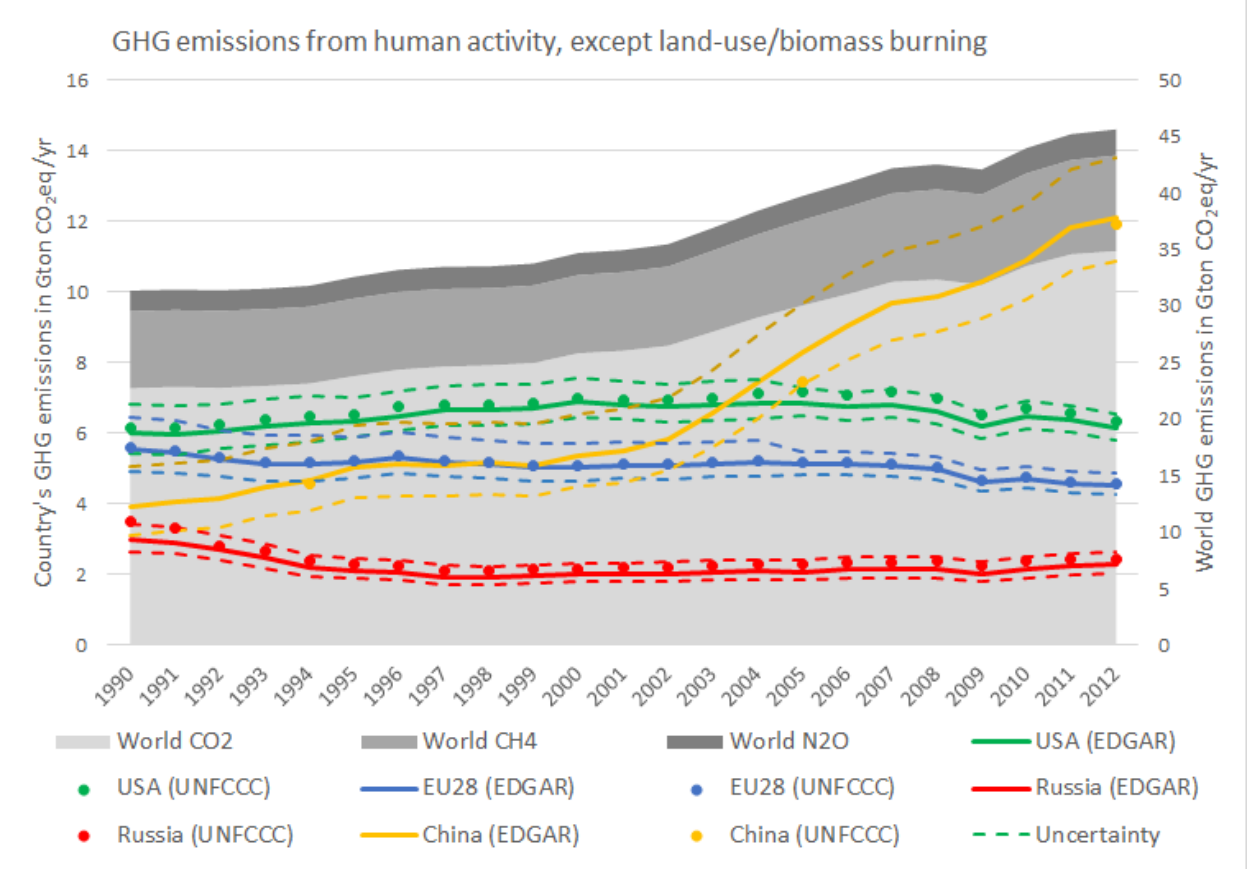
Total U.S. greenhouse gas emissions in 2017 were 6,456.7 MMT of CO_2e, as shown in Table 26. This represents a 1.3% increase in emissions compared to the 1990 baseline year presented in the report. Emissions decreased from 2016 to 2017 by 0.5 percent (35.5 MMT CO_2e), driven in large part by a decrease in CO_2 emissions from fossil fuel combustion (EPA 2019). The energy sector accounts for 84% (5,424.8 CO_2e) of GHG emissions in the United States.

Table 26. Recent Trends in U.S. Greenhouse Gas Emissions (MMT CO_2e)

	1990	2013	2014	2015	2016	2017
Total U.S. Emissions	6,371.0	6,710.2	6,760.0	6,623.8	6,492.3	6,456.7

Global emissions information is available in the European Commission Emissions Database for Global Atmospheric Research (EDGAR) (Janssens-Maenhout, et al. 2017). The EDGAR database provides a comprehensive picture of anthropogenic CO_2 emissions through 2016, and includes all IPCC sectoral classifications. Emissions data for all other GHGs is available through 2012. More recent estimates for all GHGs are not possible since no recent information is available about emissions from global agriculture, a major source sector for CH_4 and N_2O.

Total global GHG emissions in 2012 were 46,423.3 MMT CO_2e. Figure 12 shows the annual global emissions from 1990-2012. The global GHG emissions trends have increased since the beginning of the 21st century, driven mainly by increases in CO_2 emissions from China and other emerging economies. Methane and N_2O emissions were 19% and 6%, respectively, of total emissions in 2012.



Source: European Commission Emissions Database for Global Atmospheric Research (EDGAR) (Janssens-Maenhout, et al. 2017).

Figure 12 Total global GHG emissions in gigatons CO_2e/yr.

Energy related GHG emissions in the U.S. are presented in Table 27 (EPA 2019). Fossil fuel combustion is the largest source of energy related GHG emissions in the U.S. Energy related emissions increased 1.5% from 1990 to 2017. These increases were largely from fossil fuel combustion, non-energy use of fuels, and petroleum systems. Emissions decreases were seen in natural gas systems, coal mining, and mobile combustion.

Table 27. Recent Trends in U.S. Energy Sector Greenhouse Gas Emissions (MMT CO_2e)

	1990	2013	2014	2015	2016	2017
Fossil Fuel Combustion	4,738.8	5,157.4	5,199.3	5,047.1	4,961.9	4,912.0
Natural Gas Systems	223.1	190.8	190.6	192.2	191.2	191.9
Non-Energy Use of Fuels	119.6	123.5	119.9	126.9	113.7	123.2
Petroleum Systems	51.0	66.8	71.7	71.2	60.4	61.0
Coal Mining	96.5	64.6	64.6	61.2	53.8	55.7
Stationary Combustion	33.7	41.5	41.9	39.0	38.0	36.4
Mobile Combustion	55.0	26.6	24.3	22.4	21.2	20.1
Incineration of Waste	8.4	10.6	10.7	11.1	11.1	11.1
Abandoned Oil and Gas Wells	6.6	7.0	7.1	7.1	7.2	6.9
Abandoned Underground Coal Mines	7.2	6.2	6.3	6.4	6.7	6.4
Total	**5,339.8**	**5,695.0**	**5,736.4**	**5,584.7**	**5,465.3**	**5,424.8**

Source: EPA Inventory of US Greenhouse Gases Emissions and Sinks 1990-2017 (EPA 2019)

Gas wells tend to have higher methane emissions due to the nature of the fossil fuel being extracted. The U.S. natural gas systems include hundreds of thousands of wells, hundreds of processing facilities, and over a million miles of transmission and distribution pipelines. Details on methane emissions from natural gas systems are provided in Table 28, and include emissions from well exploration, production, processing, transmission and storage, and distribution. Methane emissions occur from un-combusted exhaust, venting and flaring, pressure relief systems, and equipment or pipeline leaks. In 2017, 1% of non-combustion methane emissions from natural gas systems came from exploration, 65% from production, 7% from processing facilities, 20% from transmission and storage, and 7% from distribution.

Table 28. Methane Emissions from U.S. Natural Gas Systems (MMT CO_2e)

	1990	**2013**	**2014**	**2015**	**2016**	**2017**
Exploration	4.0	3.0	1.0	1.0	0.7	1.2
Production	67.0	108.5	108.5	108.8	107.1	108.4
Processing	21.3	10.8	11.1	11.1	11.4	11.7
Transmission and Storage	57.2	31.0	32.4	34.2	34.5	32.4
Distribution	43.5	12.3	12.2	12.0	12.0	11.9
Total	**193.1**	**165.6**	**165.1**	**167.2**	**165.7**	**165.6**

GHG Emissions from Constructing and Operating Oil or Gas Wells

The construction and operation emissions are identified for a single well by field office and then multiplied by the lease sale RFD. This results in an estimate of the total emissions for the lease sale, by field office.

Direct GHG emissions from oil and gas activates occur during construction and operations of a well. Construction related emissions occur from the use of heavy machinery during pad construction, drilling, testing and completion, venting and flaring, interim reclamation, and vehicles. Construction emissions are typically a onetime occurrence. Operation related emissions occur from well workovers, pump engines, heaters, tanks, truck loading, fugitive leaks, pneumatics, dehydrators, compressor engines, reclamation, and vehicle traffic. Emissions from operation activities occur throughout the life of a well. Several factors may influence actual emissions including location, geological formation, well depth, equipment used, supporting infrastructure, and other factors. For these reasons, this document presents GHG emissions by BLM District Office from typical oil and gas well activity occurring in each area.

Green River District Direct Emissions

GHG emissions estimates for the Green River District are incorporated from the Monument Butte FEIS (BLM 2016), Alternative B No Action Alternative (see Appendix C – Air Quality Technical Support Document, pages 614 to 696). All methods and assumptions used to develop the emissions in the Monument Butte FEIS apply, and are incorporated by reference. The Alternative B (No Action alternative) emissions inventory is used because it does not include applicant committed emissions reduction measures, and represents potential wells that may result from leasing in the Green River District. A list of specific information used from the Monument Butte FEIS follows:

- Sources common to both oil and gas wells
    - 9. Construction Tailpipe Emissions (total emissions divided by 58 well pads)
    - 10. Construction Heavy Equipment Tailpipe Emissions (total emissions divided by 58 well pads)
    - 13. Reclamation Tailpipe Emissions (total emissions divided by 360 wells)

  - 18. Operations Tailpipe Emissions (total emissions divided by 360 wells)
  - 23. Truck Loadout Emissions (oil loading tpy/well and condensate loading tpy/well)
  - 24. Operation Pneumatic Emissions (total emissions divided by 788 wells)
- Oil well sources
  - 11. Drilling Tailpipe Emissions (total oil well emissions divided by 265 wells)
  - 14. Drill Rig Engine Emissions (oil well drill rig emissions)
  - 12. Completion Tailpipe Emissions (total oil well emissions divided by 265 wells)
  - 15. Well Fracturing Engine (oil well emissions)
  - 16. Oil Well Development Venting (total oil well emissions divided by 265 wells)
  - 20. Oil Storage Tank Working/Breathing Emissions (total wellsite emissions divided by 429 well pads)
  - 21. Oil Storage Tank Flashing Emissions, Uncontrolled (total wellsite flashing emissions divided by 429 well pads)
  - 25. Wellsite Pumping Unit Engines (new engine emissions)
  - 26. Production Heater Emissions (separator and tank heater well emissions)
  - 27. Oil Well Fugitives (emissions tons/yr-well)
- Gas well sources
  - 11. Drilling Tailpipe Emissions (total gas well emissions divided by 95 wells)
  - 14. Drill Rig Engine Emissions (gas well drill rig emissions)
  - 12. Completion Tailpipe Emissions (total gas well emissions divided by 95 wells)
  - 15. Well Fracturing Engine (gas well emissions)
  - 22. Gas Well Storage Tanks Working, Breathing, and Flashing Emissions (total wellsite emissions divided by 209 well pads)
  - 26. Production Heater Emissions (dehydrator heater well emissions)
  - 28. Deep Gas Well Fugitive Emissions (emissions tons/yr-well)
  - 29. Wellsite Dehydrator Emissions (well dehydrator emissions)

Emission estimates for construction and operation of a single well are presented in Table 29. Emissions are listed by well type, with gas wells having higher construction emissions mainly due to deeper drilling depths and oil wells having higher operation emissions mainly from heaters and pump engines. Well types are not easily identifiable when calculating the total emissions from existing and reasonably foreseeable wells, so calculations for the Green River District are based on gas well construction emissions (678.5 CO_2e/yr. per well) combined with oil well operation emissions (427.7 CO_2e/yr per well). This provides a conservative estimate when well type is unknown.

Table 29. Single Well GHG Emissions Based on the Monument Butte FEIS Alternative B Inventory

Single Oil Well Emissions Metric Tons per year				
Development Phase	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction	89.4	0.08	0.001	92.0
Operations	387.7	1.44	0.001	428.3
Total	477.2	1.53	0.001	520.3
Single Gas Well Emissions Metric Tons per year				
Development Phase	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction	676.5	0.03	0.005	678.7
Operations	1.3	3.05	0.0000	86.6
Total	677.8	3.07	0.005	765.3

Canyon Country District Direct Emissions

Emissions estimate for the Canyon Country District are incorporated by reference from the Moab Master Lease Plan (MLP) FEIS (BLM 2016). All methods and assumptions used to develop the emissions in the Moab MLP FEIS apply, and are incorporated by reference. Single well annual emissions were computed by taking the total annual GHG emissions from the Moab MLP FEIS high emissions scenario and dividing by the number of wells constructed each year for the construction emissions, and divided by the number of producing wells for the operations emissions. Single well emissions estimated were calculated using the same emissions inventory calculations spreadsheet, including assumptions and emissions factors, that was used to develop the Moab MLP FEIS high emissions scenario. To provide a single well emissions estimate the following inputs were changed in the toolkit: number of wells drilled annually changed from nine to one, and the number of producing wells changed from 140 to one. Emissions were also converted from short tons to metric tons, and CO_2e was updated using current GWP from the IPCC Fifth Assessment Report. This emissions inventory (Table 30) represents oil and gas operations occurring within the Canyon Country District.

Table 30. Single Well GHG Emissions Based on the Moab MLP FEIS Inventory

	Single Well Emissions Metric Tons per year			
Development Phase	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction	2485.0	8.44	0.044	2733.0
Operations	374.0	50.41	0.009	1788.4
Total	2859.4	58.86	0.053	4521.4

Color Country and West Desert District Direct Emissions

The Color Country and West Desert Districts have lower oil and gas potential than the Green River and Canyon Country Districts. As a result, existing wells tend to be farther from supporting infrastructure and processing facilities. The emissions inventory (Table 31) from the Grand Staircase Escalante National Monument and Kanab RMP FEIS, Appendix M Air Technical Support Document (p. M-46) (BLM 2019) accounts for emissions from wells that are far from supporting infrastructure. The emissions inventory and all methods and assumptions from the Grand Staircase Escalante National Monument and Kanab RMP FEIS are incorporated by reference, and considered to be a represent GHG emissions inventory for oil and gas development on parcels within the Color Country and West Desert Districts. Single well operations emissions are calculated from the production estimates in Table 14c of the FEIS and dividing by the total number of wells (14). Gas flaring values are divided by 7 wells as the FEIS assumed half the wells would be vented and half flared. Gas venting emissions are assumed to be zero due to the new Utah Administrative Code R307-511 requiring all produced gas to be routed to a sales line or flared. Emissions from the combustion of fuel oil are not included in the well operation estimate since they are accounted for in the downstream combustion calculations.

Table 31 Single Well GHG Emissions Based on the GSENM Kanab DEIS Inventory

	Single Well Emissions Metric Tons per year			
Development Phase	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Construction	836.5	3.60	0.021	942.9
Operations	1756.2	9.38	0.021	2024.6
Total	2592.7	13.0	0.042	2967.5

GHG Emissions from the Combustion of Produced Oil or Gas

Combustion emissions from foreseeable development are difficult to quantify since the amount of produced oil and gas is unknown until after a well is drilled. For the purpose of this supplemental EA, BLM assumed that future wells would produce oil and gas in similar amounts as other existing nearby wells. BLM used annual data from 2008 to 2018 to determine the average production per well. However, some wells may produce more or less than the average. To better inform decision makers and the public, low and high production estimates are used for calculating combustion emissions.

Estimates of production and combustion GHG emissions for a single well are presented in Table 32. The average annual production and standard deviation of annual production between the years 2008 and 2018 was first calculated for each field office using data from the Utah Division of Oil, Gas and Mining (UDOGM 2018). A standard deviation is a statistical measure used to quantify the amount of variation in a set of data. BLM based low and high production estimates on values two standard deviations below and above the average annual production. Two standard deviations account for 95% of the variation, assuming the dataset of annual production is a Gaussian distribution (equally varies above and below the average). Since two standard deviations only cover 95% of the variation, it's possible, but unlikely, that an individual well could produce more or less oil and gas than the estimated production range. A well is most likely to produce higher amounts of oil and gas immediately after it is drilled, and produce less at the end of its lifespan due to production decline. At the field office level, BLM assumed that active wells produce both oil and gas since the Utah Division of Oil, Gas and Mining reports only identify total producing wells at the county level and the number for each well type (oil or gas) is only reported for the entire state. Using the statewide well type information for comparison, the low, average, and high combustion emissions for an oil well in Utah are 1,857 mt CO_2e/yr, 3,156 mt CO_2e/yr, and 4,455 mt CO_2e/yr respectively. Gas well combustion emissions are 2,410 mt CO_2e/yr (low), 3,483 mt CO_2e/yr (average), and 4,556 mt CO_2e/yr (high). State average emissions by well type are in a similar to the average emissions for all field offices. The statewide average emissions per well from Table 12 is used for field offices where no well production data is available to estimate GHG emissions.

Table 32. Production of Oil and Gas for a Single Well and Associated GHG Combustion Emissions

	2008-2018 Range of Oil Production (bbl/well)			**2008-2018 Range of Gas Production (mcf/well)**			**Range of Emissions per well (metric tons CO2e/yr)**		
Field Office	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**	**Low**	**Ave**	**High**
Vernal	797	2,254	3,711	14,344	29,171	43,997	1,133	2,577	4,020
Average	963	2,329	3,694	15,069	31,106	47,142	1,244	2,715	4,186

EPA Emissions factors: 0.43 metric tons CO2e/bbl, and 0.0551 metric tons CO2e/mcf. (EPA 2019). Production data obtained from the Utah Division of Oil, Gas and Mining (UDOGM 2018).

Uncertainty

The GHG emissions estimates discussed in this EA are an estimate of the GHGs that may be released into the atmosphere as a result of initial wellsite construction, well drilling and completion, production, and end use in connection with potential development of the leases associated with the proposed action. GHG emissions estimates involve uncertainty due to unknown factors including well depth, actual production,

how produced minerals are used, the form of regulation of GHG parameters by delegated agencies, and whether any Best Available Control Technologies are utilized at the upstream or downstream emissions location(s). Deeper wells require engines with a greater horsepower. The British thermal unit content of the product can also vary substantially which will ultimately influence any estimates of GHGs from combustion, as can the total volume of liquids produced with the gas stream, which also requires handling, and may generate fugitive emissions. Ultimately, while estimates in this EA are based on the best available data, including information from existing operators regarding future drilling plans and targets, these estimates are subject to many conditions that are largely beyond the BLM's control. Unforeseen changes in factors such as geologic conditions, drilling technology, economics, demand, and federal, state, and local laws and policies could result in different quantities of GHG emissions than those estimated in this supplemental EA.

The rough estimates of combustion CO_2e emissions presented in this EA are qualified by uncertainty in potential future production, and in predicting the end uses for the fuels extracted from a particular leasehold. Future production is uncertain with regard to the actual levels of development over time, levels of development over the life of the lease, new technology, geologic conditions, and the ultimate level of production from any given well (whether reservoir related, or for economic reasons). For the analysis in this supplemental EA, BLM used average per-well production estimates for each relevant field office. This approach may overestimate or underestimate production in areas where resource conditions depart from "average," because it assumes, for purposes of analysis, that all lands have equal potential for production, and all lands may be produced at some point in the future. While this may not hold true based on site-specific geology, it is a reasonable method for developing estimates of GHG emissions at the leasing stage.

After extraction from federal leases, end uses of oil and gas may include refining for transportation fuels, fuel oils for heating and electricity generation, or production of asphalt and road oil. Oil and gas may also be used in the chemical industry, for the manufacture of medicines and everyday household items, plastics, military defense and for the manufacture of synthetic materials. Further, fossil fuels can be consumed, but not combusted, when they are used directly as construction materials, chemical feedstock, lubricants, solvents, waxes, and other products. Common examples include petroleum products used in plastics, natural gas used in fertilizers, and coal tars used in skin treatment products.

The BLM does not control the specific end use of the oil and gas produced from federal leases. As a result, the BLM can only provide an estimate of potential GHG emissions by conservatively assuming that all produced oil and gas would eventually be combusted.

Existing and Foreseeable Total Oil and Gas GHG Emissions

Existing GHG emissions from the operations of all (federal and non-federal) producing oil and gas wells are presented in Table 33. Emissions are presented for existing wells in each field office and as a state total.

Table 33. Estimated Annual Operating Emissions from Existing Federal and Non-Federal Oil and Gas Wells

Field Office	Operation Emissions (CO_2e/yr/well)	Number of Active Wells	Total (Metric Tons CO_2e/yr)
Vernal	428	11,112	4,759,722
		State Total	**7,647,848**

Emissions of GHGs from combustion for all oil and gas produced within Utah in 2018 are presented in Table 34. BLM used 2018 production data, by county, reported by the Utah Division of Oil, Gas and Mining database (UDOGM 2018) for all (federal and non-federal) producing wells. Emissions were calculated by multiplying the production amounts by EPA equivalency emission factors (EPA 2019).

Table 34. Annual GHG Emissions from Combustion of Produced Oil and Gas (2018)

	2018 Total Production		Metric Tons CO_2e/yr		
Field Office	**Oil (bbl)**	**Gas (mcf)**	**Oil**	**Gas**	**Total**
Vernal	30,929,312	230,867,520	13,299,604	12,720,800	26,020,405
Total	36,895,510	295,438,197	15,865,069	16,278,645	32,143,714

EPA Emission factors: 0.43 metric tons CO_2e/bbl, and 0.0551 metric tons CO_2e/mcf. (EPA 2019)
Production data obtained from the Utah Division of Oil Gas and Mining (UDOGM 2018).

Estimated GHG emissions from drilling, operation, maintenance, and reclamation of foreseeable oil and gas wells are presented in Table 35. Foreseeable development includes approved APDs (Federal and non-federal) as reported by the Utah Division of Oil, Gas, and Mining (UDOGM 2018). Since APDs are valid for a 2-year period, this analysis only includes APDs from 2017 through 2019. Wells that have been drilled to completion from the APDs are included in the existing emissions.

Table 35. Estimated Annual Direct GHG Emissions from Development of APDs

Field Office	Drilling CO_2e/yr per well	Operation CO_2e/yr per well	APDs (Federal and non-federal)	Drilling Total Metric Tons CO_2e/yr	Operations Total Metric Tons CO_2e/yr
Vernal	678	428	486	329,834	208,174
	State Total		520	402,272	266,789

Federal Land Fossil Fuel GHG Emissions

Data from the USGS report on Federal Land fossil fuel emissions is presented in Table 36 (Gross Emissions) and Table 37 (Net Emissions) (USGS 2018). Data is presented for Utah and adjacent states. Figure 13, shows the gross emissions for Utah and the linear trend over the ten-year period.

Table 36. Gross Fossil Fuel Emissions from Federal Lands (MMT CO_2e)

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Colorado	63.43	63.62	63.32	64.22	60.49	63.19	66.2	65.71	51.77	55.78
New Mexico	91.4	89.48	84.36	78.94	78.65	73.74	72.44	78.18	80.68	91.63
Utah	51.52	52.92	45.36	49.77	42.74	37.71	42.12	51.57	49.06	46.75
Wyoming	775.1	798.9	836.4	908.9	858.6	875	855.4	779.4	730.6	744.2
Nationally	1422	1438.8	1458.5	1490.2	1482.6	1489.3	1424.3	1338.2	1264.7	1332.1

Table 37. Net (Gross Emissions - Carbon Storage) Fossil Fuel Emissions from Federal Lands (MMT CO_2e)

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Colorado	29.3	34.4	32.8	52.8	37.1	52.1	43.2	68.7	30.7	12.1
New Mexico	68	66.6	67.6	63.3	71	58.7	72.5	79.7	63.5	68.6
Utah	4.8	37.1	50.7	55	31.6	28.5	14.4	55.3	38.8	25.2
Wyoming	736	789.6	818.2	871	814.9	836.3	824.2	783.3	708.2	701.5
Nationally	668.9	1130.6	1239.9	1151.4	912	821	918.6	1098.8	808.7	759

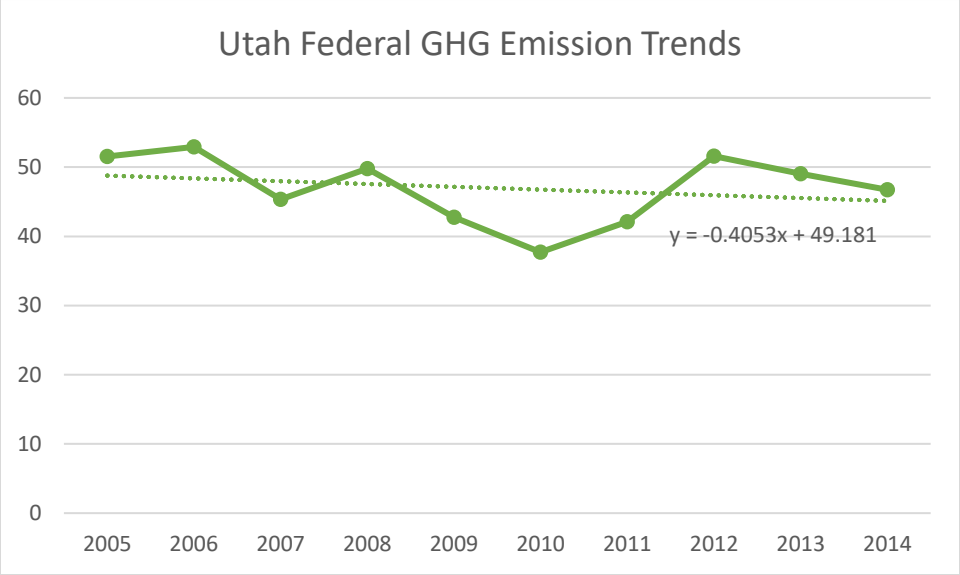


Figure 13. Utah Federal fossil fuel GHG emissions (MMT CO_2e) and trend for the period of 2005-2014.

Social Cost of Carbon

The BLM has considered whether a "social cost of carbon" estimate would contribute to informed decision making regarding the climate consequences of the greenhouse gas emissions considered here. This EA provides no quantitative monetary estimates of any benefits or costs. NEPA does not require an economic cost-benefit analysis (40 C.F.R. § 1502.23), although NEPA does require consideration of "effects" that include "economic" and "social" effects (40 C.F.R. 1508.8(b)). Quantifying only the costs of oil and gas development, by using the social cost of carbon metrics, but not the benefits (as measured by the economic value of the proposed oil and gas development and production generally equaling the price of oil and gas minus the cost of producing, processing, and transporting the minerals), would yield information that is inaccurate and not useful for the decision-maker.

The social cost of carbon tool was developed for the express purpose of "allow[ing] agencies to incorporate the social benefits of reducing carbon dioxide (CO2) emissions into cost-benefit analyses of regulatory actions that impact cumulative global emissions" and to assist agencies in complying with Executive Order 12866. Executive Order 12866 required federal agencies to assess the cost and benefits of rulemakings as part of their regulatory impact analyses. 58 Fed. Reg. 51,735 (October 4, 1993), supplemented by Exec. Order No. 13,563, 76 Fed. Reg. 3821 (Jan. 18, 2011). The action considered here is not a rulemaking and does not require a regulatory-impact analysis.

Instead of relying on a cost-benefit analysis, the BLM's approach to estimating GHG emissions and potential effects on climate change in this EA is to include calculations to show estimated construction, operation, combustion, and cumulative GHG emissions from potential future development. The BLM also includes a discussion of potential climate change impacts at global and regional scales. BLM's approach recognizes that there are adverse environmental impacts related to climate change associated with the development and use of fossil fuels, provides potential GHG emissions estimates, and discusses potential climate change impacts qualitatively. This effectively informs the decision-maker and the public of the potential for GHG emissions and the potential implications of climate change. This approach presents the data and information in a manner that follows many of the guidelines for effective climate change communication developed by the National Academy of Sciences (Council 2010) by making the information more readily understood and relatable to the decision-maker and the general public.

Appendix F – Acronyms/Abbreviations

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

Appendix G – Reasonably Foreseeable Development of Leases Scenario

Development of the parcels under the Proposed Action can be conceived of in three phases and their associated activities: Implementation phase (pad construction, drilling of the well using a conventional pit system or closed-loop system, hydraulically fracturing the well, development of any needed access roads, or expansion of existing roads, installation of pipeline), production phase (vehicle traffic, engines to pump oil if necessary, compressor engines to move gas through a pipeline, venting from storage tanks, hauling produced fluids, regularly monitoring the well, and completing work-over tasks throughout the life of the well if and when necessary), plug and reclamation phase (plugging the well, reclaiming the well pad and other associated disturbances to include access roads and pipelines).

Standard terms, conditions, and stipulations listed would apply as appropriate to each lease. In addition, site specific mitigation measures and best management practices (BMPs) would be attached as Conditions of Approval (COAs) for each proposed exploration and development activity authorized on a lease. Additional site-specific impacts would be addressed in a subsequent NEPA document at the Application for Permit to Drill (APD) stage. Drilling of wells on a lease would not be permitted until the lease owner or operator secures approval of a drilling permit and a surface use plan of operations as specified under Onshore Oil and Gas Orders (43 CFR 3162), nor until site-specific NEPA analysis is conducted.

Oil and gas leases are issued for a 10-year period and continue for as long thereafter as oil or gas is produced in paying quantities. However, it should be noted that if a leaseholder fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease, the lease defaults back to the Federal Government and the lease can be re-offered in another lease sale.

Well Pad and Road Construction

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

Equipment for well pad construction could consist of dozers, scrapers, excavators and graders. Disturbance for each well pad could range from 1.0 acre up to 6.8 acres depending on numerous factors such as depth and type of well (vertical, directional, horizontal). All available topsoil from each well pad would be stripped and stockpiled around the edge of the pad for future reclamation. When needed, topsoil would be spread over interim reclamation areas, seeded, left in place for the life of the well, and the remaining topsoil would be used during the final reclamation process. All well pads would be reclaimed. During interim and/or final reclamation, disturbed land would be seeded with a mixture (certified weed free) and rate as required by the BLM.

Depending on the locations of the proposed wells, some new or upgraded access roads are anticipated to be required to access well pads and maintain production facilities. Any new roads constructed for the purposes of oil and gas development would be utilized year-round for maintenance of the proposed wells and other facilities, and for the transportation of fluids and/or equipment, and would remain open to other land users. Construction of new roads or upgrades to existing roads would require a 30-foot construction width and would be constructed of native material. After completion of road construction activities, the 30-foot construction width would be reclaimed to an 18-foot wide crowned running surface as well as drainage ditches. The location of the wells would not be known until the APD stage.

Well Drilling and Completion Operations

A drilling rig would be transported to the well pad (along with other necessary equipment). Drilling would commence with well spud. Typical drilling operations would include: adding joints of drill pipe at the surface as the hole deepens; circulating drilling fluids to cool the drill bit and remove the drill

cuttings; pulling the drill pipe from the hole to replace worn drill bits; and setting strings of casing and cementing them in place. Air and/or water-based drilling fluid may be used to drill the hole. Prior to setting the production casing, open-hole well logs may be run to identify potentially productive horizons. If the evaluation concludes that sufficient natural gas and/or oil are present and recoverable, steel production casing would be installed and cemented in place. Drilling activities on a well would typically occur 24 hours per day, seven days per week, and would require approximately 20 workers. Depending on the depth and complexity of the well, drilling could last from a few days to one week.

Once a well has been drilled and evaluated to have sufficient oil and/or natural gas, completion operations would begin. Well completion involves perforating the production casing in target zones, followed by hydraulic fracturing (also known as, fracking) of the formation (see below for more information on hydraulic fracturing). The next phase of completion would be to flow and test the well to determine rates of production.

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

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

Hydraulic Fracturing

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

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

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

The use of horizontal drilling through unconventional reservoirs combined with high-volume water based multi-stage fracking activities has led to an increase in oil and gas activity in several areas of the country which has, in turn, resulted in a dramatic increase in domestic oil and gas production nationally. However, along with the production increase, fracking activities are suspected of causing contamination of fresh water by creating fluid communication between oil and gas reservoirs and aquifers. The Environmental Protection Agency (EPA) recently conducted an assessment of fracking on drinking water resources (https://www.epa.gov/hfstudy) [EPA 2016]. Presently, there are no unconventional reservoirs that are being exploited using high-volume water based hydraulic fracturing techniques.

Production Operations

If wells were to go into production, facilities would be located at the well pad and typically include a well head, two storage tanks, a truck load-out, separator, and dehydrator. Construction of the production facility would be located on the well pad and not result in any additional surface disturbance.

All permanent surface structures would be painted a flat, non-reflective color (e.g., covert green) specified by the BLM in order to blend with the colors of the surrounding natural environment. Facilities that are required to comply with the Occupational Safety and Health Act (OSHA) would be excluded from painting color requirements. All surface facilities would be painted immediately after installation and under the direction and approval of the BLM.

If oil is produced, the oil would be stored on location in tanks and transported by truck to a refinery. The volume of tanker truck traffic for oil production would be dependent upon production of the wells.

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

All operations would be conducted following the "Gold Book", Surface Operating Standards for Oil and Gas Exploration and Development (United States Department of the Interior and United States Department of Agriculture 2007). The Gold Book was developed to assist operators by providing information on the requirements for conducting environmentally responsible oil and gas operations on federal lands. The Gold Book provides operators with a combination of guidance and standards for ensuring compliance with agency policies and operating requirements, such as those found at 43 CFR 3000 and 36 CFR 228 Subpart E; Onshore Oil and Gas Orders (Onshore Orders); and Notices to Lessees. The Gold Book includes environmental BMPs designed to provide for safe and efficient operations while minimizing undesirable impacts to the environment.

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

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 for enhanced recovery. Handling of produced water is addressed in Onshore Oil and Gas Order No. 7.

Most injection wells do not cause earthquakes. In the United States, there is approximately 35,000 active waste-water disposal wells, 80,000 active enhanced oil-recovery wells, and tens of thousands of wells, and tens of thousands of wells are hydraulically fractured every year in the United States. The earthquake rate increased in Oklahoma, southern Kansas, central Arkansas, and multiple parts of Texas (Rubinstein 2015). In Utah, the volumes are lower than those states experiencing induced seismicity. Also, the geology is different than those states experiencing induced seismicity. The injection zones are stratigraphically thousands of feet above the basement rock that may contain large unknown faults.

Therefore, at this time it appears that induced seismicity from water injection is not a problem in the oil fields of Utah (BLM 2018).

Maintenance Operations

Traffic volumes during production would be dependent upon whether the wells produced natural gas and/or oil, and for the latter, the volume of oil produced. Well maintenance operations may include periodic use of work-over rigs and heavy trucks for hauling equipment to the producing well, and would include inspections of the well by a pumper on a regular basis or by remote sensing. The road and the well pad would be maintained for reasonable access and working conditions. Portions of the well pad not needed for production of the proposed well, including the reserve pit, would be re-contoured and reclaimed, as an interim reclamation of the site.

Plugging and Abandonment

If the wells do not produce economic quantities of oil or gas, or when it is no longer commercially productive, the well would be plugged and abandoned. The wells would be plugged and abandoned following procedures approved by a BLM Petroleum Engineer, which would include requiring cement plugs at strategic positions in the well bore. All fluids in the reserve pit would be allowed to dry prior to reclamation work. After fluids have evaporated from the reserve pit, sub-soil would be backfilled and compacted within 90 days. If the fluids within the reserve pit have not evaporated within 90 days (weather permitting or within one evaporation cycle, i.e. one summer), the fluid would be pumped from the pit and disposed of in accordance with applicable regulations. The well pad would be re-contoured, and topsoil would be replaced, scarified, and seeded within 180 days of the plugging the well.

Appendix H – Comments and Responses

As defined in the NEPA Handbook (page 40), "an 'issue' is a point of disagreement, debate, or dispute with a proposed action based on some anticipated environmental effect. An issue is more than just a position statement, such as disagreement with grazing on public lands. An issue:

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

Comments that express a professional disagreement with the conclusions of the analysis or assert that the analysis is inadequate may or may not lead to changes in the EA. Substantive comments and non-substantive comments are defined in the NEPA Handbook, H-1790-1, and section 6.9.2. The BLM National Environmental Handbook (H-1790-1) states that substantive comments do one or more of the following:

- Question, with reasonable basis the accuracy of information in the EIA or EA
- Question, with reasonable basis, the adequacy of methodology for, or assumptions used for the environmental analysis
- Present new information relevant to the analysis
- Present reasonable alternatives other than those analyzed in the EIS or EA
- Cause changes or revisions in one or more of the alternatives.

Comments that are not substantive or comments received after the close of the public comment period may not receive a response.

All comments received were incorporated fully into Appendix H. Not: paragraph numbering was added. The BLM received seven comments. Five comment letters that were received was posted on ePlanning. Due to the length, the BLM has summarized comments to the headers of SUWA and Outdoor Alliance. The documents, in its entirety, are included in the five comment letters that are published on ePlanning.

Number	***Commenter***	**Comment**	**Response**
1.	Southern Utah Wilderness Alliance et. al. (SUWA)	BLM Failed to Take a Hard Look at the Direct, Indirect and Cumulative Impacts of its Leasing Decision.	Due to length, the BLM has summarized SUWA comments. The document in its entirety is published on the ePlanning website. SUWA also submitted exhibits. The exhibits were received timely via USPS on December 31, 2019. However, SUWA did not submit the exhibits through ePlanning as required for the public comment period. The exhibits were not posted on ePlanning. No decisions were presented in the EA released for comment. The Decision Record (DR) is the document that provides rationale for the decision, based on the analysis in the EA, the context and intensity criteria in the FONSI, the conclusion of the NHPA consultation, and the finding of the consultation/coordination under the Threatened and Endangered Species Act. The DR will be issued shortly after any protests to any or all parcel's "inclusion in a Notice of Competitive Lease Sale (NCLS)." (43 CFR § 3120.1-3) are resolved. The NCLS reflects a *preliminary conclusion*, that certain proposed parcels are suitable to be offered then subsequently leased.
2.	SUWA	BLM Failed to Analyze Reasonably Foreseeable Impacts of the Lease Sale, instead relying on Lease Stipulations and Notices to preclude analysis…BLM's cessation of site-specific analysis in its leasing EA's is not supported.	Reasonably Foreseeable impacts from leasing are addressed in the RMP EIS's and other relevant NEPA documents. Upon determining those impacts, lease stipulations are crafted to mitigate the impacts, and lease notices are crafted to inform potential lessees that development of the lease could be further encumbered at the development stage by the additions of Conditions of Approval to the development permits. Upon site specific review of lease parcels, appropriate lease stipulations and notices are attached to parcels to mitigate the reasonably foreseeable impacts identified in the RMP EISs and Lease Notices to address impacts not addressed in stipulations. If those stipulations and notices adequately address the concerns, the resource specialist correctly makes a finding that no detailed analysis is warranted in the interdisciplinary checklist. BLM conducts a site-specific review at every lease proposal, and decides as to whether or not analysis of a particular resource is warranted separately from previous determinations. It provides the rationale for the determination in the interdisciplinary checklist. Site-specific analysis is not required unless reasonably foreseeable impacts were inadequately identified in previous analyses.

Number	*Commenter*	**Comment**	**Response**
3.	SUWA	BLM Failed to Analyze the Cumulative Impacts of Oil and Gas Leasing and Development since it did not use all RFDS's prepared for the VFO when assessing impacts and instead is only analyzing the cumulative impact of only 30 wells.	On page 2 of the comment letter, SUWA provides the following definitions: Direct effects are "caused by the action and occur at the same time and place." 40 C.F.R. § 1508.8(a). Indirect effects are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." *Id.* § 1508.8(b). Cumulative impact "is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." *Id.* § 1508.7. In the case of leasing, there are no direct impacts, since it is an administrative action. However, there are potential indirect impacts since lease issuance presumes a right to develop "later in time." In order to analyze indirect impacts, the BLM extrapolates the RFDS's prepared for the RMP and other EIS's to determine the RFD for the parcels. In order to analyze cumulative impacts, the BLM extrapolates the RFDS's prepared for the RMP and other EIS's to determine the RFD for the Cumulative Impact Analysis Area. The "30 wells" SUWA references was used to analyze indirect, not cumulative impacts. BLM resource specialists determined that the reasonably foreseeable impacts from the drilling of 30 wells were disclosed in the EISs prepared for the VFO RMP and its amendments. SUWA appears to be implying that the cumulative impact analyses in those EIS's (which would include all the so-called "piece-mealed" proposals listed on page 6 of SUWA's comment letter) are now inadequate because over 28,000 wells were projected to be drilled in the 2012 Technical Support Document (TSD) prepared by the Vernal Field Office. However, the reasoning for not using the TSD was explained in the response to SUWA's similar comment on the Foundation DOI-BLM-UT-G010-2019-0239-EA: *1) BLM should have considered the Greater Uinta Basin Oil and Gas Cumulative Impacts TSD's RFD of 28,417 wells in the cumulative impact sections including greenhouse gases.* Reason 1: The TSD was an August 2011 best estimate of reasonably foreseeable future wells that projected the drilling of 25,721 wells over an indefinite future during a "boom" cycle. In 2014, the cycle "busted", and as of September 2017, the BLM's best estimate of reasonably foreseeable future wells has decreased from that estimate by more than 11,000 wells. Detailed Explanation: The TSD was an August 2011 snapshot of the reasonably foreseeable future number of wells (Bureau of Land Management Vernal Field Office, 2012b) (Page 1 Header). If this document were revised today, its projected number of wells would be much lower due to the drop in gas and oil prices that resulted in an economic "bust" in late 2014. For example, Table 4-1 states that the foreseeable BLM wells totaled 25,721. However, the operator or proponent has since dropped several of the pending NEPA projects listed on page 11 that were included in that number. These dropped projects include: · Enduring Resource's Big Pack EA (664 wells) (Bureau of Land Management Vernal Field Office, 2008), · XTO's Little Canyon EA (510 wells) (Bureau of Land Management Vernal Field Office, 2008a), · Enduring Resource's Southam Canyon EA (249 wells) (Bureau of Land Management Vernal Field Office, 2008c), · XTO's Hill Creek Unit EA (137 wells) (Bureau of Land Management Vernal Field Office, 2009 unpublished data), and

Number	*Commenter*	**Comment**	**Response**
			· Uintah and Ouray Tribal Oil and Gas EIS (4,899 wells) (Bureau of Indian Affairs, 2010). · Greater Chapita Wells EIS Proposed Action (7,000 wells) (Bureau of Land Management Vernal Field Office, February 8, 2017). In addition, the number of wells in the following projects have been reduced since that time: · XTO River Bend EA 2013 Decision Record permitted 200 wells, instead of the 484 Proposed Action wells included in the TSD (Bureau of Land Management Vernal Field Office, 2013). *Also note that as of August 2019, no wells have been drilled under this EA.* · Gasco Final EIS Record of Decision permitted 1,298 wells, instead of the 1,491 Proposed Action wells included in the TSD (Bureau of Land Management Vernal Field Office, 2012c). *Also note that as of August 2019, only 4 wells have been drilled and 16 wells have been permitted under this EIS.* One project has increased its numbers over those accounted for in the model: · EOG's 22 well North Alger EA was acquired by Koch and the new NEPA decision contains 124 natural gas wells (Bureau of Land Management, 2013). *Also note that as of August 2019, no wells have been drilled under this EA.* Only two new large development proposals have been reviewed or received by the BLM VFO since 2011. · In 2015 the BLM completed the Koch Wild Horse Bench EA, 135 wells (Bureau of Land Management, 2015a). *Also note that as of August 2019, no wells have been drilled under this EA.* · In 2016, the BLM published a Notice of Intent for the Crescent Point Federal-Tribal EIS, a project that proposed up to 3,925 new wells (Bureau of Land Management Vernal Field Office, 2016a). This project has since been cancelled by the proponent, so no new wells will occur. In all, of the 25,721 wells "foreseen" by the TSD, 13,213 have been dropped by the proponent (Big Pack, Little Canyon, Hill Creek, Tribal EIS, and Chapita), 477 have been rejected by the BLM (River Bend 282 of the total proposed action and Gasco 193 of the total proposed action), and two were approved by the BLM but not implemented by the proponent to the level expected (XTO Riverbend and Gasco EIS). As a result of these overall reductions in foreseeable wells, the TSD now grossly overestimates the future numbers of wells in the Greater Uinta Basin area. The cumulative impact analyses of the RMP and RMP amendment EISs are still adequate for most resources. The BLM determined that additional analysis was required for air quality and climate change, as indicated in the EA.
4.	SUWA	BLM's determination that detailed analysis of impacts to GrSG was not warranted was arbitrary because: 1) it wasn't site-specific…2) Lease Stipulations and Notices do not constitute NEPA analysis 3) it does not acknowledge substantial and significant new information brought forward since the ARMPA was approved in 2015, and 4) BLM has not considered all past, present, and reasonably foreseeable oil and gas leasing and development in the Uintah Diamond Mountain population area.	See comment response 2.
5.	SUWA	BLM's determination that detailed analysis of impacts to water resources was not warranted was arbitrary because: 1) Lease Stipulations and Notices do not constitute NEPA analysis and 2)	See comment response 2, Appendix G – Reasonably Foreseeable Development of Leases Scenario, and section 1.9. It is beyond the scope of this EA to review the analysis of development

Number	*Commenter*	**Comment**	**Response**
		despite statements in past lease sale EAs that analysis of the impacts of hydraulic fracturing would take place at the APD stage, no detailed analysis of water resources occurred for APD's on the leased parcels.	plans except to assert that the determinations of the need for further analysis is made upon site-specific review of the development proposal. This EA does not commit to any further analysis at the development stage of the parcels considered, but does anticipate that it will occur when a development proposal provides sufficient information for meaningful analysis.
6.	SUWA	SUWA incorporates it's protest of the September 2019 Monticello Field Office EA on the issue of GHG emissions and Climate Change Impacts.	See comment response 1. A protest is not a comment on the EA. However, any appropriate changes made to the September 2019 Monticello Field Office EA (DOI-BLM-UT-0000-2019-0003-Other_NEPA) due to SUWA's protest are reflected in subsequent EA's, including this one. Points regarding climate and GHG emissions from SUWA's protest of the September 2019 Monticello Field Office EA are also addressed in response to comments that follow.
7.	SUWA	BLM Must Analyze the Impacts of its Action on Climate Change under NEPA.	The GHG and climate analysis contained in this EA complies with the court ruling from WildEarth Guardians (WEG) v. Zinke. The court found that the leasing actions that were part of the WEG v. Zinke litigation needed to quantify the direct, indirect, and cumulative emissions foreseeable from the leasing action or provide an explanation for why emissions can't be quantified. In Section 3.3.2.2, the BLM analyses the potential direct and indirect GHG emissions and climate impacts from developing the proposed lease parcels. Section 3.3.2.4 evaluates GHG emissions from existing oil and gas wells (past actions), for APDs (present actions), and RFDS (future leasing actions) and discloses predicted climate change impacts based on RCP emissions scenarios. Emissions estimates from developing the proposed lease parcels and from past present and future actions are compared to state and national emissions to provided context for how BLM leasing decisions contribute to the predicted climate change in the state. The EA has been updated (pages 39-40) to incorporate information from the BLM Greenhouse Gas and Climate Change Report (Golder 2017) to show how BLM fossil fuel development emissions relate to the RCP climate change scenarios. This analysis provides both the context and intensity to the decision-maker to determine significance of the action in the FONSI.
8.	SUWA	Climate Change Impacts are Already Occurring and must be Analyzed and Disclosed.	The BLM Utah's 2018 Air Monitoring Report includes information from the latest climate science studies and reports including the Fourth National Climate Assessment and Intergovernmental Panel on Climate Change (IPCC) 2018 Special Report. The EA incorporates by reference this report in Section 3.3.2. In addition, the BLM references the best available science including the Fourth National Climate Assessment report (page. 32), the EPA Inventory of US GHG Emissions and Sinks (pages 34 and 148-150), the IPCC Fifth Assessment Report (page. 33), and the USGS Federal Lands Greenhouse Gas Emissions and Sequestration in the United States (page. 34). Other scientific research was also assessed but not referenced in the EA. The BLM is entitled to rely on the expertise of its specialists in choosing the best available science. Refer to Lands Council v. McNair, 629 F.3d 1070, 1074 (9th Cir. 2010).
9.	SUWA	BLM Failed to Disclose the True Magnitude of Methane Pollution… BLM should analyze methane emissions using global warming potentials (GWP) that include carbon-feedback effects, and that including them would "substantially change" conclusions about methane impacts.	The BLM uses GWP from the IPCC Fifth Assessment Report without carbon-feedbacks. Specifically, the 100-year time horizon values used for CH_4 is 28 and 265 for N_2O, while values of 84 and 264 are respectively used for the 20-year time horizon. The 100-year time horizon is used to allow for a direct comparison with state and national emissions that are also reported using the 100-year GWP. Both the 20 year and 100-year values are reported for construction and operation emissions (Section 3.3.2.2). Only the 100-year value is reported for combustion emissions since this process converts methane into carbon dioxide ($CH_4 + 2O_2 \rightarrow CO_2 + 2H_20$) and combustion emissions will not be meaningfully different between different GWP time scales. The BLM uses GWP's without carbon feedback for the sake of simplicity and transparency to the decision maker and to provide a better comparison with state and national emissions, which do not use carbon feedback. GWP with and without carbon-feedback effects are not necessarily "upper-

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			end" or "lower-end" estimate, as suggested by SUWA. There is large uncertainty in the GWP estimates: ±30% and ±39% for the 20-year and 100-year methane GWPs, respectively. Uncertainties related to the carbon feedbacks are large (IPCC 2013). GWPs with carbon feedbacks are within the uncertainty estimates of GWPs without carbon feedbacks, and including them would not substantially change the information provided for the decision maker. Additionally, research (Gasser, et al. 2007) has found that climate-carbon feedbacks only make a small contribution to the climate metrics, and the inclusion or exclusion of feedbacks in the emissions do not greatly change modeled impact results. At present it is not foreseeable that regulatory agencies will use GWP's with feedbacks in the future. As recommended by (Gasser, et al. 2007), the BLM uses GWP's without carbon feedback to provide simplicity and transparency for the decision maker and to be consistent with state and national emissions, neither of which include GWP values with methane oxidation or carbon-feedback effects.
10.	SUWA	BLM Failed to Adequately Analyze and Disclose the Direct and Indirect Impact of its Action on Climate. by not disclosing emissions using the 20-year and 100-year GWPs, specific data and methods used to determine emissions estimates, and analyze emissions along the entire oil and gas supply chain.	See response to comment 9 regarding 20-year and 100-year GWP. Details regarding emissions estimates are provided in Appendix E – Air Quality and Green House Gas Information and Calculations. Specifically emissions estimates are incorporated by reference from the Monument Butte FEIS (BLM 2016), Alternative B No Action Alternative (see Appendix C – Air Quality Technical Support Document, pages 614 to 696), where the data and methodology is disclosed and already been publicly reviewed. Details for how the single well emissions are calculated are outlined on pages 147-150 of the EA. The EA discloses how emissions estimates are developed and references where the public review the data and methodologies. The commenter recommends that the BLM estimate emissions along the entire supply chain. The entire supply chain includes upstream emissions (well site), mid-stream emissions (transmission, distribution, and processing), and downstream emissions (end-use). Estimates of upstream and downstream emissions are provided in Section 3.3.2.2. At the leasing stage it is unknown what mid-stream facilities would be utilized, or how much the development of the proposed lease parcels would contribute to the facility total emissions. Without this information the mid-stream facilities cannot be accounted for as an indirect emission from parcel development. Instead the BLM accounts for mid-stream emissions in the cumulative analysis, see Section 3.3.2.4, as part of the Utah major industrial sources. Mid-stream facilities accounted for in the cumulative analysis include compressors stations, transmission facilities, gas plants, storage facilities, and refineries. Providing an estimate of every possible end-use is outside the scope of this analysis. Emissions from other end-uses are not included because it does not provide additional information about environmental impacts that are not already disclosed through reporting combustion emissions. The BLM has no authority to direct what the end-use of produced oil or gas should be, and does not have any information at this time related other end-use that may result from development of lease parcels. In the EA, the BLM assumes 100% of produced oil and gas will be used in combustion for domestic energy and heating purposes. This assumption provides a sufficient estimate of end-use emissions to inform the decision maker of the environmental impacts, and estimating other end-use emissions is unnecessary. While the BLM assumes that combustion will be the indirect end-use for product that results from the development of lease parcels, other end-uses are accounted for in the state and national emissions that are part of the cumulative analysis.
11.	SUWA	SUWA contends that the BLM did not fully analyze cumulative GHG emissions and potential impacts from other Federal and state leasing actions in the region and nationwide.	See response to comment 3.

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			A complete and thorough cumulative analysis is provided in section 3.3.2.4 of the EA. The EA includes potential GHG emissions for all foreseeable oil and gas development based on field office RMP reasonably foreseeable development scenario (RFDS) (page 37). As stated in the individual RMPs the RFDS includes oil and gas development scenarios on state, Federal, Tribal, and private lands. Furthermore, GHG emissions estimates from other sources (past, present, and foreseeable) are included in Sections 3.3.2.1 and 3.3.2.4). The also EA includes cumulative projected climate change impact information from the USGS National Climate Change Viewer (pages 40-42). These projections take into consideration RCP emission scenarios which includes future energy usage from fossil fuel development. The BLM has updated the EA to include additional information about oil, natural gas, and natural gas liquids GHG emissions trends from baseline year 2014 to future year 2030, for the EIA 2016 high and normal energy growth scenarios, for adjacent fossil fuel producing states with these resources on BLM-managed public lands (Department of Interior Region 7): Colorado, New Mexico, and Wyoming (see Section 3.3.2.4 pages 39-40). This revision also includes national federal fossil fuel projections. In addition, this EA includes Utah cumulative projected GHG emissions and climate change impact information from the BLM Greenhouse Gas and Climate Change report (Golder 2017) (see EA Section 3.3.4). The report utilized Annual Energy Outlook (AEO) 2016 Report energy and GHG emission projections for years 2020 and 2030 for all U.S. domestic oil and gas production (and downstream end-use). These national projections take into consideration future oil and gas production from all major U.S. basins, including those in nearby states. In the absence of other specific details, data, or references that would contribute to a more meaningful analysis, which was not provided, the BLM has met its obligations under NEPA.
12.	SUWA	The BLM failed to analyze and disclose the significance of its actions on climate and should use the social cost of carbon, social cost of methane, and global carbon budgeting tools to analyze the significance.	In the EA, direct and indirect GHG emissions are used as a proxy for climate impacts, compared to state and national emissions, and expressed in terms of the equivalent amount of vehicles and home energy use to make the impacts from emissions relatable to public life. This approach is consistent with the Council on Environmental Quality draft Guidance on Consideration of GHG Emissions. Climate impacts are further discussed in the cumulative analysis section 3.3.2.4. The commenter states that GHG emissions could be monetized, but monetization is only a conversion from one proxy to another and is not an environmental impact. Additionally, reporting only the cost of GHG emissions without a full cost benefit analysis would misinform the decision maker and public. NEPA does not require a cost benefit analysis. Reasoning for not using social cost of carbon are provided in Appendix E – Air Quality and Green House Gas Information and Calculations, and are expanded upon here. The BLM chose not to use social cost of carbon estimates for several reasons. First, social cost of carbon estimates is an economic metric meant to monetize the net effects associated with an increase in carbon dioxide emissions. As such, social cost of carbon estimates is developed through an economic cost-benefit analysis. NEPA does not require an economic cost-benefit analysis (40 C.F.R. § 1502.23). Without a complete monetary cost-benefit analysis, which would include the social benefits of energy production to society as a whole and other potential positive effect, inclusion of a global social cost of carbon analysis would be unbalanced, potentially inaccurate, and not useful. Additionally, CEQ's draft NEPA Guidance on Consideration of GHG Emissions states "an agency need not weigh the effects of the various alternatives in NEPA in a monetary cost-benefit analysis using any monetized

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			Social Cost of Carbon (SCC) estimates and related documents (collectively referred to as "SCC estimates"),or other similar cost metrics." (https://ceq.doe.gov/guidance/ceq_guidance_nepa-ghg.html) These reasons for not evaluating the SCC also apply to the social cost of methane. Further, social cost of carbon estimates is just one approach that an agency can take to examine climate consequences from GHG emissions associated with the proposed leasing action. The fact that climate impacts associated with GHG emissions were not quantified in terms of monetary costs does not mean that climate impacts were ignored in this EA. This EA quantifies greenhouse gas emissions as the common metric and then qualitatively discusses potential climate impacts. Climate change and potential climate impacts, in and of themselves, are often not well understood by the general public (Etkin and Ho 2007), and (National Research Council 2009)). This is in part due to the challenges associated with communicating about climate change and climate impacts, stemming in part from the fact that most causes are invisible factors (such as greenhouse gases) and there is a long lag time and geographic scale between causes and effects (National Research Council 2010). Research indicates that for difficult environmental issues such as climate change, most people more readily understand if the issue is brought to a scale that is relatable to their everyday life (Dietz 2013); when the science and technical aspects are presented in an engaging way such as narratives about the potential implications of the climate impacts (Corner, et al. 2015); use examples and make information relevant to the audience while also linking the local and global scales (National Research Council 2010). In order to more effectively convey the potential climate impacts the BLM quantified greenhouse gas emissions as a common metric, presented emissions in an equivalent related to everyday life, and discussed narratively climate impacts. This approach presents the data and information in a manner that follows many of the guidelines for effective climate change communication developed by the National Academy of Sciences (National Research Council 2010) by making the information more readily understood and relatable to the decision-maker and the general public. The approach taken by the BLM for this EA to discuss climate change provides impacts at several scales whereas the social cost of carbon metric only provides an impact metric at the global scale. This limits the usefulness for the decision-maker given the lack of information on more localized impacts. The BLM approach in the EA meets the "hard look" requirement by presenting the environmental impacts of the proposal and the alternatives in comparative form (quantified greenhouse gas emissions), and discusses cumulative climate impacts, providing for the definition of issues and environmental consequences ensuring that an informed decision can be made. Carbon budgeting is a simplified approach for identifying how much additional CO_2 emissions the atmosphere can accept in order to limit global warming to a certain temperature above pre-industrial levels (2.0C for Paris Agreement, 1.5C for IPCC 2018 Special Report). The carbon budget was developed as a tool to assist policy makers in reducing GHG emissions on national and global scales. There is no requirement or mechanism to apply a worldwide carbon budget to a site-specific project such as the proposed action. Carbon budgets do not currently exist at the national or state level, and creating such a budget is beyond the scope of this EA. While a carbon budget sounds like a simple tool there is a lot of complexity and uncertainty to it that make it confusing to the decision maker and public. There are multiple carbon budgets to choose from, each representing a different amount of global warming. Even for a carbon budget that limits warming to 1.5C, scientists have struggled to agree on the size of the budget. According to the Intergovernmental Panel on Climate Change (IPCC) 2018 Special Report (SR), "uncertainties in the size of these estimated remaining carbon budgets are substantial." The IPCC SR estimates the budget for a 50/50 chance of exceeding 1.5C at 580 gigatonnes of CO2 (GtCO2), with an uncertainty of ±400GtCO2. This uncertainty is nearly 70% of the budget. The uncertainty results from what the precise meaning of the 1.5C target is, definition of what "surface temperature" means, definition of the "pre-industrial" period, what

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			observational temperature dataset to use, uncertainty in non-CO2 factors that influence warming, and if earth-system feedbacks should be taken into account. With the large uncertainty in the remaining carbon budgets, it is not a useful tool for evaluating a GHG emissions significance level at this time. Additionally, carbon budgets are inherently reduced with any GHG emissions. Based on the disclosed GHG emissions in the EA and the substantial uncertainties in the size of carbon budgets, inclusion of carbon budgets would not provide additional useful information to the decision maker or public. The IPCC SR further states that policy actions across sectors and spatial scales are needed to reduce emissions and limit warming. Evaluations of such policy actions are beyond the scope of this EA.
13.	SUWA	BLM must analyze and disclose to the public the climate impacts at the leasing stage.	Reasonably foreseeable climate impacts resulting from GHG emissions is included in the EA, see section 3.3.2.4. No reference to specific analysis in the EA was provided by SUWA, and it is unknown what information they consider is missing.
14.	SUWA	BLM needs to explain its GHG emissions estimates presented in the March 2020 Lease Sale EA because in several instances the estimates are wrong (or, at a minimum, not consistent with its prior estimates). For example, in the March 2020 EA, BLM states that total annual GHG emissions are 41,985,836 MT CO2e/yr.114 But in the December 2019 EA, BLM states that total annual GHG emissions in Utah are 41,977,559 MT CO2e,115 and, in the September 2019 lease sale, BLM provided a higher emissions estimate of 46,420,735 MT CO2e for total annual emissions in Utah. *See* BLM, September 2019 Competitive Oil and Gas Lease Sale, Monticello Field Office, DOI-BLM-UT-0000-2019-0003-OTHER NEPA –MtFO-EA at 40, table. 15 (July 2019) (attached).	Upon review of the March 2020 Lease Sale EA (page 37) and the protest period December 2019 DOI-BLM-UT-0000-2019-0005-Other_NEPA-EA (page 46), both documents list the total annual GHG emissions as 41,985,836 MT CO_2e/yr. The September 2019 lease sale emissions are higher because that EA double counted emissions estimates from five lease sales (December 2018, March 2019, June 2019, September 2019, and December 2019)) by including them in the total annual GHG emissions in Utah and in the field office RFDS emissions estimate. This error was corrected in the March 2020 and December 2019 EA's by removing the emissions from recent leasing actions from the total annual GHG emissions. Additionally, a small calculation error was identified with the September 2019 EA emissions estimate as was described in the December 2019 EA response to comment 3d. The single well emissions sources were calculated as the average of the total emissions instead of the emissions per well that were provided in the Monument Butte FEIS (BLM, 2016). This discrepancy resulted in an additional emission of 0.8 MT CO_2e per well in the Price and Vernal Field Offices.
15.	SUWA.	BLM Failed to Prioritize Leasing Outside of Greater Sage-Grouse Habitat.	Leasing was prioritized according to the 2015 ARMPA. Fluid Minerals Objective MA-MR-1,states, "When analyzing leasing and authorizing development of fluid mineral resources, including geothermal, in PHMA and GHMA, and subject to applicable stipulations for the conservation of GRSG, priority will be given to development in non-habitat areas first and then in the least suitable habitat for GRSG." The BLM has complied with this objective because Utah currently has no backlog of EOI's, and the interdisciplinary team workload allowed for analyzing all 25 parcels for this lease sale. Therefore, all parcels were considered in this lease sale, including those within PHMA and GHMA. See the Appendix D under Greater Sage-Grouse for BLM's consideration of this objective. Language has also been added to section 1.6.
16.	SUWA	BLM Failed to Assess Whether the Lease Sale Complies with the Clean Air Act Conformity Provisions. BLM must consider emissions calculated in the NEPA analysis as indirect emissions under the general conformity regulations 40 C.F.R § 93.152. …(I)ndirect emission are defined as those emissions that are cause by the Federal action, but may occur later in time or distance, and are reasonably foreseeable, and which the Federal agency can practically control and will maintain control over. *Id* Lease Sale emissions clearly fit these criteria. BLM is approving the leases; emissions may occur once the well is developed BLM also argues that emissions are not reasonably foreseeable because "onshore lease sales are analogous to offshore leases for the Outer Continental Shelf which are explicitly exempt in the Clean Air Act." EA, App. E at 136. But onshore lease sales are explicitly not exempt under general conformity regulations. *See generally*	The commenter incorrectly states that BLM is suggesting a general conformity applicability analysis is not necessary for the March 2020 lease sale. A general conformity applicability analysis was performed and a summary of the analysis is contained in Appendix E – Air Quality and Green House Gas Information and Calculations (page 138-139). The applicability analysis followed guidelines outlined in the BLM Information Bulletin (IB 2014-084) Issuance of The BLM Fact Sheet on The Air Quality General Conformity Rule. Through the applicability analysis it was determined that the BLM cannot make a conformity determination at this time, for the reasons listed in the appendix. SUWA's comment appears to disagree with the applicability analysis conclusions. The primary issue is if emissions from parcel development are foreseeable or not. The emissions estimates in the EA are provided to inform the decision maker of potential air quality impacts and

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		40 C.F.R. § 93.153. And, more importantly, onshore oil and gas lease sales are not made on a broad scale, programmatic scale like Outer Continental Shelf (OCS) lease sales. *See Ctr. for Biol. Diversity v. U.S. Dept. of the Interior*, 563 F.3d 466, 473 (D.C. Cir. 2009) (describing the OCS process). Instead, it is the RMP process that is comparable to the OCS exemption. Thus, this argument, too, must fail. BLM also hints that an applicability analysis is not required because emissions will likely be below de minimis levels triggering such an analysis. EA, App. E at 136. But, if BLM does not know the total level of emissions that will occur before this exemption is applied, it cannot conclude that emission levels will fall under the 100 tons per year de minimis levels. Finally, BLM also argues that certain emissions sources will be subject to exemption under the New Source Review provision. *Id.* at 136-37. But, BLM misreads this narrow provision which exempts only "[t]he portion of an action that includes major or minor new or modified stationary sources that require a permit under the new source review (NSR) program (Section 110(a)(2)(c) and Section 173 of the Act) or the prevention of significant deterioration program (title I, part C of the Act)." 40 C.F.R. § 93.153(d)(1). EPA has consistently pushed back on attempts by other BLM offices to expand this provision to nonstationary sources.125 Thus, BLM cannot assume that application of this provision will bring levels below de minimis levels.	are not based on actual plans of development for the lease parcels. A lessee could use electric drill rigs, vapor recover devices, or other emissions reduction technology to reduce emissions below the levels presented in the EA. It is speculative to estimate emissions for conformity purposes at this stage as it is unknown if the parcel will be sold or what development techniques will be used, and SUWA has not provided this level of information. Additionally, SUWA estimates that "if more than 15 gas wells are drilled" in a single year the BLM must conduct a formal conformity determination. However, this estimate is based on the emissions in the EA that the commenter indicates may not be correct for conformity by stating "assuming these emissions estimates are correct (a point we do not concede)." SUWA further concludes that it is "foreseeable that 15 wells" could be developed considering that the EA has an RFD of 30 wells. The Clean Air Act conformity requires emissions to be evaluated on an annual basis. While the BLM does estimate that up to 30 wells could be developed, a lessee has 10 years to develop a parcel. At the leasing stage it is not reasonable to predict how many wells from the RFD could be developed in a single year. Any assumptions regarding the pace development or emissions control technology used by a lessee at this time is speculative and not required by the Clean Air Act.
17.	SUWA	The March 2020 Lease Sale EA Is Inconsistent with the Vernal RMP, in Violation of FLPMA, because, as the EA states, development of the parcels would contribute to ozone emissions. In other words, according to BLM itself, there is no scenario in which the proposed action can be implemented that will not result in continued exceedances of the National Ambient Air Quality Standards (NAAQS) for ozone. Thus, the decision to lease the parcels would not be consistent with the air quality goals and objectives of the Vernal RMP, which is to "ensure that authorizations comply…with implementation plans pertaining to air quality."	The commenter states that BLM must "ensure that its decision complies with the NAAQS for ozone." Compliance is a regulator function specifically delegated to the State, EPA, and other local regulatory agencies by the Clean Air Act. Violations of the NAAQS, regardless of source, triggers the designation of a non-attainment area and preparation of a State or Federal Implementation Plan (SIP or FIP) to bring the area into attainment. A non-attainment designation does not preclude future development in the area and there is no violation of the Clean Air Act simply due to NAAQS exceedances. Once the State and EPA develop a SIP or FIP, BLM "must work with state, tribal and local governments to ensure that federal actions conform to the air quality plans established in the applicable state or tribal implementation plan." (EPA 2017). General conformity, as discussed in the EA, is the Clean Air Act mechanism for the BLM to show that emissions from development of lease parcels complies with the SIP or FIP requirement, and will not worsen air quality or prevent the regulatory agencies from bringing the area back into attainment. The commenter concludes, based on the referenced statements in the EA, that implementation of the proposed action would preclude compliance, thus resulting in a violation. This conclusion is unsupported.
18.	SUWA	The March 2020 Lease Sale EA failed to analyze alternatives through the proper lens of the Tenth Circuit Court of Appeal's "rule of reason" standard	The commenter quotes *Colo. Envtl. Coal. v. Dombeck*, 185 F.3d (10th Cir. 1999)) 1174: "(T)he number and nature of alternatives must be "sufficient to permit a reasoned choice of alternatives as far as environmental aspects are concerned." In the case of a leasing EA, each parcel is essentially a stand-alone proposed action, and there are hundreds of possible combinations between a decision to lease all the parcels and a decision to lease none of them. The number of potential combinations increases exponentially when the possibility of removing portions of parcels is factored in. This number of potential "alternatives" constitutes a "reasoned choice" for the decision maker.
19.	SUWA	BLM must also analyze and disclose the GHG emissions associated with each alternative, so it can meaningfully consider a reasonable range of alternatives that would decrease the emissions resulting from its actions. Two recent cases are instructive. In *Western Organization of Resource Councils v. BLM*, the court invalidated BLM's EISs for the Buffalo and Miles City resource management plans because the agency failed to consider a reasonable alternative that reduced the amount of coal made available under the plans. 2018 WL 1475470 at *9 (D. Mont. March 26, 2018). The court found that "BLM's failure to consider any alternative that would decrease the	The commenter references two court decisions indicating that, in an RMP amendment, the BLM must consider alternatives that would limit the amount of coal extracted and limit the leasing and development in the planning areas, and contends that the lease sale EA must do the same. However, SUWA's contention does not take into consideration the difference in the decision made in a lease sale EA as opposed to a Resource Management Plan (RMP). Only an RMP revision or amendment can close lands to leasing, thus the impacts would differ for each alternative. Only the indirect impacts would differ in a lease sale EA. Since an alternative in an EA would presumably only

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		amount of extractable coal available for leasing rendered inadequate the Buffalo EIS and Miles City EIS in violation of NEPA." *Id.* at *9. The court explained, "BLM cannot acknowledge that climate change concerns defined, in part, the scope of the RMP revision while simultaneously foreclosing consideration of alternatives that would reduce the amount of available coal based upon deference to an earlier coal screening that failed to consider climate change." *Id.* at *17. Similarly, in *Wilderness Workshop*, the court found that BLM failed to consider reasonable alternatives by omitting any option that would meaningfully limit leasing and development within the planning area. 342 F. Supp. 3d at 1167.	remove particular lands temporarily (i.e. *defer* them) the cumulative impact analysis would remain the same since it would be based on the same RFDS calculated for the cumulative impact analysis area (CIAA) for each resource. There would be no conceivable difference in GHG emissions and the ensuing climate change. In section 6.6.3 of the BLM NEPA Handbook, it states the BLM: "may eliminate an action alternative if…it would have substantially the similar effects to an alternative that is analyzed." Therefore, the court decisions referenced by SUWA are not applicable to this context.
20.	SUWA	BLM's stated purpose and need, and "decision to be made," for the March 2020 lease sale are exceedingly broad. *See* Lease Sale EA at 3. BLM must analyze the four alternatives that it allegedly "considered but [did] not analyze in detail" pursuant to the Tenth Circuit's rule of reason standard, based on the agency's exceedingly broad objectives for this lease sale. *See* EA at 18-19 (dismissing four alternatives from further consideration). It is arbitrary for BLM to reject any of these alternatives, including those recommended by the public, based on the inapposite Board decision rather than after having applied the proper Tenth Circuit standard. *See id.* at 18 (relying on *Biodiversity Conservation All. et al.*, 183 IBLA 97 (2013)).	See comment response 18.
21.	SUWA	The sweeping objectives of BLM's Purpose and Need govern BLM's range of alternatives and dictate the reasonableness of recommended alternatives including those proposed herein by SUWA. • A "cultural resource preservation alternative." Under this alternative, BLM would not offer leases in areas where any of BLM's Class I site type models predict a high probability for cultural resources. BLM could achieve this objective by adjusting lease boundaries to avoid such areas. • A "greater sage-grouse habitat avoidance alternative." Under this alternative, BLM would not offer leases that fall within greater sage-grouse GHMA or PHMA in order to protect the species. BLM could achieve this objective by adjusting lease boundaries to avoid such areas.	See comment response 19.
22.	SUWA	BLM's Reliance on Ineffective Lease Stipulations Is Arbitrary…The Lease stipulation attached to the parcels to control NOX is ineffective to reduce ozone…BLM has not explained how the use of this stipulation is expected to effectively address the ozone problem now that the basin has been designated as nonattainment.	Refer to section 2.5.3, and 2.5.4, and comment response 15. BLM does not depend on lease stipulations to ensure conformance with the Clean Air Act. That being said, Ozone is not directly emitted into the atmosphere from oil and gas related activities. Instead, it is formed through photochemical reactions of volatile organic compounds (VOC) and nitrogen oxides (NOx). The BLM disagrees with the contention that lease stipulation UT-S-01 is ineffective, as it directly limits the emissions of NOx which is an important chemical when considering ground level ozone formation. Without the stipulation a lessee could legally use higher emitting engines. It would be premature and arbitrary for the BLM to require additional control measures specific to methane (CH_4) or nitrous oxide (N_2O) as suggested by SUW A. While some ozone formation pathways include CH_4 and N_2O, they are generally more stable than other ozone precursors and not the primary ozone forming chemicals. The Uinta Basin Ozone Study (UBOS) (https://documents.deg.utah.gov/air-guality/technicalanalysis/ DAO-2017-009835.pdf) found that chemicals driving wintertime ozone formation in the Uinta Basin differ greatly from summer ozone formation in urban areas. Another finding from UBOS showed that uncertainties still exist about the quantitative contribution of individual precursors to ozone formation and that it is difficult to predict how responsive ozone

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			will be to reductions in VOC and NO_x emissions. Additional science is needed to understand what emission control strategies will work best before creating new lease stipulations. Lease Notice UT-LN-102 also provides that parcels may need additional analysis or control measures to be applied at the APO stage. When a lease holder applies for an APO, it is on notice that a general conformity analysis is needed for parcels within a nonattainment area. During the conformity analysis, if emissions exceed de minimus levels, controls will be required either through mitigating emissions to de minimus levels, offsetting emissions within the nonattainment area, or adherence to implementation plan requirements. Plan of development information about emissions sources, such as use of Tier 4 instead of Tier 2 drill rigs, or if emissions would exceed de minim us levels, is unknown at the leasing stage. At the development stage, if it appears that emissions would exceed de minimus levels, conditions of approval may be required to control ozone precursor emissions.
23.	SUWA	BLM has provided no explanation for why, in light of the non-attainment designation, the agency need not create new, more effective, stipulations prior to selling off more public lands for oil and gas leasing and development, since BLM has noted that "winter-time ozone" is an issue not adequately covered in the Vernal RMP.	See the comment response 2, and 21. Part of the reason BLM prepares EAs for leasing decisions is to conduct analysis for issues that were not adequately addressed in previous analyses. The BLM prepared an updated air quality analysis in this EA, and has determined that impacts can be adequately addressed without creating new lease stipulations.
24.	Outdoor Alliance	Several proposed leases in this EA (012, 018, 020) are located within 1,000 feet of, and will negatively impact, the McCoy Flats Trail System, recently federally designated in the John D. Dingell, Jr. Conservation, Management, and Recreation Act. In addition to not considering the visual, safety, and air quality impacts to the McCoy Flats Trails System, located adjacent to many of these proposed leases (012, 013, 016, 018, 019, 020).	Due to length, the BLM has summarized Outdoor Alliance comments. The document, in its entirety, is published on the ePlanning website. McCoy Flats Mountain Bike Trail System (2012, DOI-BLM-G010-2012-0057-EA) is located at the edge of the Uinta Basin west of Vernal, Utah. It has 35 miles of interconnecting loops (single track) for riders of all skill levels. The area is closed to motorized, and equestrian use. The trail system is a Nationally Designated Mountain Biking Trail System in 2019 by the John D. Dingell, Jr. Conservation, Management, and Recreation Act. McCoy Flats is a minimally developed area. It is located within the Visual Resource Management (VRM) Class III. The 2019 John D. Dingell, Jr. Conservation, Management, and Recreation Act directed the BLM, no later than 2 years after March 12, 2019 (the date of the Act was passed), to develop a management plan. Until the completion of the management plan, the trail system will be administered in accordance with the 2012 Decision Record (DOI-BLM-G010-2012-0057-EA (BLM 2012)). The Act requires the BLM to increase recreational opportunities within the trail system and provide new mountain biking routes and trail construction. Also, the BLM, at the request of the State of Utah, shall seek to acquire the State Land that the trail system currently encompasses. No parcels contain any segment of the McCoy Flats Mountain Bike Trail System. Air quality impacts are disclosed in the EA. The air quality impacts within the McCoy Flats Trail system are identical to those analyzed elsewhere in the project area. Parcels 012, 013 and 019 are located across Highway 40 from the Trail System and development on those parcels would not be expected to cause safety concerns to bikers. In addition, the area on the northwest side of Highway 40 (including parcels 012, 013 and 019) in the area of the McCoy Trail System is designated No Surface Occupancy to protect Greater Sage-Grouse habitat, limiting the area where oil and gas development could impact the viewshed from the parcels. Development of parcels 016, 018 and 020 could result in viewshed impacts to the trail system. It is important to note, however, that the trail system is not located in a remote area with no existing development in the surrounding area. Congress did not withdraw the area from multiple use and users of the trail system cannot expect a wilderness type experience. Much of the land to northeast of the Trail System belongs to the State Institutional Trust Lands Authority (SITLA), and is under lease from that entity, and most of the area to the south is already under Federal lease. The BLM

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			was not authorized by Congress to acquire sufficient state lands to prevent oil and gas development of the area surrounding the trail system. As stated in the EA, BLM can mitigate safety concerns by requiring operators to use routes that will minimize intersecting the trails and roads used by the bikers.
25.	Outdoor Alliance	This EA fails to acknowledge the existence of several additional multi-use trails prioritized in the UCMTP that are directly implicated by this proposed lease sale. Proposed leases (001, 002, 003, 005, 007, 008, and 009) directly conflict with new trails at the Halfway Hollow Trail System, (AKA "Lapoint Trails") located northwest of the McCoy Flats Trail System. A third trail—Can You Moo20—is also directly implicated by proposed leases 010, 011, 012, and 013	The trails in Halfway Hollow Trail System are user created, and are in violation of the Trail Maintenance and Development Decision TMD-4**:** *Mountain bike use will be limited to designated roads and trails* in the 2008 Vernal Field Office RMP (page. 111 in the ROD). The Vernal Field Office has agreed to review the unauthorized trails to determine if their continued use would not cause undue harm to other resources, and may approve them as designated trails. Leasing of parcels 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, and 019 would not preclude designating the trails since the area surrounding them is categorized as No Surface Occupancy because they are within Greater Sage-grouse priority management habitat. Parcels 010, 011, 012, 013, 016, 017, 018, 019, and 020 are classified as VRM (visual resources management) Class III. Refer to section 3.3.1, Appendices A, C, D, E, and G for the BLM analyses and consideration of VRM, air quality, and safety. The BLM did not mention the Uintah County Master Trails Plan and the Halfway Hollow Mountain Biking Complex in this EA. The VFO has not adopted the Uintah County Master Trails Plan. The Halfway Hollow Mountain Biking Complex are user created trails on public lands administered by the BLM VFO without the proper permits, agreements or required NEPA analysis, and a BLM decision. The VFO has not approved and designated these trails nor do they maintain them. They are unauthorized, and therefore are not mentioned in the EA. The VFO recreation program is currently working with partner groups, and in the future, complete the proper NEPA to analyze these unauthorized trails in the Halfway Hollow Mountain Biking Complex, and make a decision on those unauthorized, user-built trails.
26.	Outdoor Alliance	To minimize impacts to McCoy Flats, the EA proposes to apply a lease notice to limit light and sound to parcels 010, 011, 012, 013, 016, 017, 018, 019, and 020 (parcels adjacent to McCoy Flats). We agree that it is important to minimize light and noise to protect the integrity of the recreation experience and preserve opportunities for economic growth from recreation in the region; however, these important recreational trails lie directly in the viewshed of proposed leases and the BLM should strengthen the stipulations to No Surface Occupancy (NSO) to appropriately mitigate visual impacts to the recreation experience.	Refer to section 2.5.3, and the BLM response to 25. Parcels 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, and parts of 013, 019 and 020 are already categorized as No Surface Occupancy. The BLM is not proposing to initiate new revisions or amendments to the approved RMP for this lease sale, and such Outdoor Alliance's proposal to strengthen stipulations, and/or create new stipulations does not respond to the purpose and need (section 1.4).
27.	Outdoor Alliance	Stipulation UT-S-53 requires no surface occupancy for developed recreation sites, and given that the McCoy Flats Trail System is now designated under federal law, the BLM should consider the McCoy Flats area a developed recreation site and manage the area with an NSO stipulation. Better yet, the BLM should defer these leases altogether given the many other leasing opportunities in Uintah County that do not conflict with existing and planned recreation assets.	Refer to section 1.6, section 2.5.2, and 2.5.3. The March 2020 is in compliance with the VFO RMP. The Mineral Leasing Act of 1920, as amended, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987, require the BLM to conduct quarterly, competitive lease sales to offer available oil and gas lease parcels. The public nominated the lands as an expression of interest (EOI) for the March 2020 Oil and Gas Lease Sale. Only the Assistant Secretary for Land and Minerals Management may suspend a lease sale (43 CFR 3120.1-3). Although, the name for stipulation UT-S-53 is No Surface Occupancy-Recreation and Administrative Sites, the stipulation is specifically for designated recreation sites such as campsites, kiosks, designated parking areas, designated picnic/day-use areas. For the McCoy Flats Mountain Bike Trail System, UT-S-53 can only be applied to the trailhead. This stipulation cannot be applied to unauthorized, user created trail systems. None of the nominated parcels contain any segment of the 35-mile single track, McCoy Flats Trail System.
28.	Outdoor Alliance	The EA fails to take hard look at impacts from oil and gas leasing on outdoor recreation and related socioeconomics.	Approximately 15 percent of jobs in Uintah County, or around 1,300 jobs, are connected with travel and tourism, with an estimated average annual wage rate of $44,622 in 2018 dollars. While the total number of jobs related to this sector has been declining in recent years, the percentage of all jobs

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			that those jobs represent has increased as the number of overall jobs in Uintah County has recently declined. The value to the regional economy of each mountain biker user day is estimated at $208. This includes purchases of equipment, clothing, services, lodging, meals, fuel, and so on. To the extent that these items are purchased outside of the immediate economic region, the value to the local economy would be reduced. For every $100,000 spent by mountain bikers in the local economy, an estimated two jobs, $37,000 in labor income, and $116,000 in output is supported. For each dollar spent by mountain bike riders in Uintah County, an estimated additional $0.36 in economic output is generated. Any reductions that would impact these values--due to mountain bike riders choosing to go elsewhere—would be expected to proportionately impact the local economy in an amount reflecting these numbers. Reasonably Foreseeable Impacts to recreational resources from oil and gas development were disclosed in the EIS prepared for the 2008 Vernal Field Office RMP. BLM conducted a site-specific review of the parcels, and for the reasons given in the responses to comments 25, 26, 27, and 28, determined that the reasonably foreseeable impacts were adequately disclosed, and detailed analysis was not required.
29.	Public Lands Policy Coordination Office (PLPCO)	The State of Utah has reviewed the 25 parcels proposed for oil and gas leasing in the BLM's March 2020 Utah Oil and Gas Lease Sale. The State appreciates the opportunity to provide comments and requests that these comments be incorporated into the BLM's final decision-making for the March 2020 lease sale. Responsible oil and gas development in rural Utah is critically important to the state's economy and could bring greatly needed jobs to struggling rural communities. The successful lease sale of all 25 parcels included on these proposed lists would have a positive impact on the State's economy and lower administrative obstacles to sustainable energy development. The State fully supports the inclusion of all 25 parcels proposed for the March 2020 lease sale, totaling over 32,713.76 acres. The lease sale of these parcels is consistent with the 2008 Resource Management Plans (RMPs) for Vernal Field Offices. The 2008 RMPs, which the State supported at their adoption, strike the appropriate balance between responsible energy development and the preservation of Utah's scenic and natural resources. Alternative A, the "Proposed Action" in the Environmental Assessment for the March 2020 lease sale appropriately utilize lease notices and stipulations as provided for in the respective RMPs. The State therefore requests that none of the 25 parcels be deferred from the March 2020 lease sale. The lease sale of all 25 parcels is also consistent with the State of Utah's 2018 Resource Management Plan, as well Uintah County Resource Management Plan impacted by the March 2020 lease sale. Under the Federal Land Management and Policy Act ("FLPMA"), BLM land use management activities should be coordinated with the resource management plans of state and local governments, consistent with FLPMA and federal law. The State supports the BLM's phased or tiered approach to identifying cultural resources and assessing effects to historic properties as a result of this lease sale. The State concurs with BLM that leasing is an undertaking pursuant to 36 C.F.R. Part 800, but it is a type of undertaking that does not result in significant impacts to cultural resources or adverse effects to historic properties. Leasing does not authorize any development or use of the surface lease lands without further application by the operator and approval by BLM. The State is satisfied with BLM's efforts to initiate consultation with the Utah State Historic Preservation Officer and Indian Tribes, and to invite other interested parties to participate in the consultation process. The State also acknowledges BLM's reasonable and good-faith efforts to identify historic properties through a comprehensive records review and by seeking information from others who may know of historic properties in the area. The State understands that lease holders, who seek to develop their parcels, must abide by stipulations and notices and fulfill additional requirements before BLM approves an Application for Permit to Drill. The State supports the BLM applying its Cultural Resources Protection stipulation across all parcels, applying other cultural resources	Comment noted. No response required

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		stipulations and notices to specific parcels, and requiring Class III cultural resources inventory of proposed well pads. The latter, especially, helps BLM to meet its requirement to proceed with the identification and evaluation of historic properties as specific aspects or locations of an alternative are refined using a phased approach. The State appreciates the frequency and efficiency with which the BLM is currently holding its quarterly oil and gas lease sales and hopes that these lease sales may continue. The State commends the BLM's policy of holding statewide lease sales as opposed to the former policy of rotating lease sales between BLM districts. Utah residents will continue to benefit as the BLM fulfills its mission to promote the sustained yield and multiple use of Utah's public lands. Please direct any questions or comments to the phone number listed below.	
30.	National Parks Conservation Association (NPCA)	We respectfully submit the following comments to the Utah Bureau of Land Management (BLM or "Agency") state office regarding the potential impacts of leasing 25 parcels offered for the March 2020 competitive oil and gas lease sale. National Parks Conservation Association (NPCA) represents thousands of Utah residents who, along with over 1.4 million members and supporters nationwide, understand the need to preserve and protect our National Park System throughout the country. To that end, we hope that our comments will inform the oil and gas leasing decisions in Utah that are connected to Dinosaur National Monument and the communities coupled with these special places. Based on our review of the Environmental Assessment, NPCA has concerns with nominated parcels 001-025, that when developed, will contribute to exacerbating impacts of climate change as well as further degrading already compromised air quality in the Uintah Basin that create broader public health concerns. Collectively the sale will add to the cumulative impacts on an already stressed landscape and air-shed connected to Dinosaur National Monument.	Comment noted. Most comments in NPCA's letter is more suited to scoping the proposal rather than commenting on the EA. As such, BLM has tried to clarify its assumptions for analysis when appropriate, but can offer little clarification on the actual analysis. Cross references to responses to similar issues specific to the EA are provided.
31.	NPCA	National Parks Conservation Association. The mission of NPCA is to "protect and enhance America's National Park System for present and future generations." Founded in 1919, NPCA is the leading citizen voice for the national parks. We are a national nonprofit with headquarters in Washington, DC, and 27 regional and field offices across the country, including our Southwest Regional Office in Salt Lake City. NPCA supports the principle that oil and gas activities can coexist in the broader landscape with protected places such as national parks when the federal government works closely with communities and other stakeholders to thoughtfully plan for development in a way that assesses and avoids conflicts. A top priority for our organization is protecting the resources within parks and the larger landscapes in which they are embedded, and the air and water on which they depend in order to protect and enhance their ecological and cultural integrity. Poorly planned oil and gas development adjacent to national park units can result in significant impacts to national park resources and values and can exacerbate climate change. We are particularly concerned about sound pollution and adverse impacts to dark night skies, air quality, sensitive ecological systems, wildlife, and water quality and quantity -- as well as preserving the opportunity for current and future visitors to experience parks "unimpaired," as intended by the 1916 Organic Act.	Background information. No response required.
32.	NPCA	BLM must take the necessary "hard look" at impacts on tribal communities in and around the proposed lease parcels. BLM must take a "hard look" at potential impacts on all communities living in and around the proposed lease parcels, particularly tribal communities which are statistically disproportionately affected by climate change. See 40 C.F.R. § 1508.27(b)(2) (including "degree to which the proposed action affects public health and safety" in factors that BLM must consider in evaluating the "significance" of a project's impacts). As BLM is well aware, tribal communities in the Uintah Basin continue to bear the burden of disproportionate cultural impacts as well as to the health and welfare associated with oil and gas development. In Utah, particularly in the Uintah Basin, these impacts can also have a differential adverse effect on low income or underserved populations, creating concerns that can and should be addressed in the context of this lease sale. It is essential that steps be taken to clearly identify and address potential	NPCA has offered no data to indicate that tribal communities in the Uintah Basin are disproportionally affected by the impacts of oil and gas development and/or climate change. Much of the oil and gas development in the Basin occurs on tribal lands, and the revenues benefit the tribe as well as its individual members. Furthermore, the following tribes were invited to participate in the NHPA consultation of this action on November 19, 2019: the Confederated Tribes of the Goshute, Skull Valley Band of Goshute Indians, The Hopi Tribe, Navajo Nation, Navajo Nation, Navajo Mountain Chapter, Navajo Nation, Kayenta Chapter, Navajo Nation, Dennehotso Chapter, Navajo Nation, Oljato Chapter, Navajo Nation, Mexican Water Chapter, Navajo Nation, Red Mesa Chapter, Navajo Nation, Teec Nos Pos

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		health effects and consider measures to avoid or reduce impacts to low-income and communities of people of color in terms of air and water quality and equitable economic gain for communities associated with development.	Chapter, Navajo Nation, Aneth Chapter, Navajo Utah Commission, Shivwits Band of Paiutes, Kanosh Band of Paiutes, Cedar Band of Paiutes, Indian Peaks Band of Paiutes, Kaibab Band of Paiute Indians, Moapa Band of Paiute Indians, Pueblo of Jemez, Pueblo of Laguna, Pueblo of Santa Clara, Pueblo of Zia, Eastern Shoshone Tribe, Northwest Band of Shoshone Nation, Southern Ute Indian Tribe, Uintah and Ouray Ute Tribe, Ute Indian Tribe, Ute Mountain Ute Tribe, White Mesa Ute. On December 27, 2019, the BLM received the Hopi Tribe letter requesting the BLM's class I cultural report. Coordination is ongoing.
33.	NPCA	BLM Is Required to Take a "Hard Look" at Potential Direct, Indirect, and Cumulative Impacts from the Proposed Action. BLM is required to take a hard look at a project's (1) direct impacts, or those impacts that are "caused by the action and occur at the same time and place," 40 C.F.R. § 1508.8(a); (2) its indirect impacts, or those which are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable," id. at § 1508.8(b); and (3) its cumulative impacts, or impacts "which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency ... or persons undertakes such other actions," id. at §1508.7. Thus, an agency is required to consider the cumulative effect, synergistically or in the aggregate, of proposed actions in a given area. See, e.g., Kleppe v. Sierra Club, 427 U.S. 390, 410 (1976) (stating that "proposals for [...] related actions that will have [a] cumulative or synergistic environmental impact upon a region concurrently pending before an agency must be considered together"); see also Sierra Club v. Mainella, 459 F.Supp.2d 76, 107 (D.D.C. 2006) (concluding that the NPS has acted arbitrarily and capriciously in issuing "findings of no significant impact" because the Park Service failed to take a "hard look" at impacts and failed to provide an adequate cumulative impacts analysis that included other existing oil and gas operations in the unit). NEPA also requires that BLM must consider the "[u]nique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas [and] [t]he degree to which the proposed action affects public health or safety." 40 C.F.R. § 1508.27(b)(3), (2).	See comment response 3.
34.	NPCA	Where, as here, reasonably foreseeable development on leased parcels in close proximity to an NPS unit may impair the use and enjoyment of the park, heightened scrutiny of impacts of the development is warranted. Accordingly, BLM should conduct a comprehensive analysis of the potential cumulative impacts of development of all the parcels based on current technologies and the latest science that accounts for cumulative impacts to national park units, particularly Dinosaur National Monument.	A National Park is an administrative unit, not a resource in and of itself. Resources such as air quality are of concern both inside and outside the Park unit, and the information used in the analyses applies equally on both sides of the administrative boundary.
35.	NPCA	Further, as part of its mandate under NEPA, BLM must evaluate the "reasonably foreseeable" site-specific impacts of oil and gas leasing prior to making an "irretrievable commitment of resources." New Mexico ex rel. Richardson, 565 F.3d 683, 718 (10th Cir. 2009); see also Sierra Club v. Hodel, 848 F.2d 1068, 1093 (10th Cir. 1988) (agencies are to perform hard-look NEPA analysis "before committing themselves irretrievably to a given course of action so that the action can be shaped to account for environmental values"). Leasing for oil and gas development undoubtedly constitutes an "irretrievable commitment of resources" when BLM issues a lease without reserving the right to later prohibit development. New Mexico ex rel. Richardson, 565 F.3d at 718. As part of this "hard look" requirement, courts have found that an agency must "examine the relevant data and articulate a rational connection between the facts found and decision made." New Mexico ex rel. Richardson, 565 F.3d at 713. Thus, failure to evaluate direct, indirect, and/or cumulative impacts that are "reasonably foreseeable" and to establish a rational connection between the available evidence and BLM's leasing decisions would violate NEPA's "hard look" requirement.	See comment response 2.

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36.	NPCA	BLM Must Fully Account for Air Quality Impacts. Visitors to national parks and their gateway communities consistently rate visibility and clear scenic vistas as one of the most important aspects of their experience. Clean air enhances the color and contrast of landscape features; allows visitors to see great distances; and safeguards ecosystem, visitor, and public health. Particulate matter (PM), nitrogen oxides (NOx), sulfur dioxide (SO2) and volatile organic compounds (VOCs) are haze-causing pollutants that obscure scenic vistas in national parks by impairing a viewer's ability to see long distances, color and geologic formation. They also contribute to unhealthy National Ambient Air Quality Standard pollutants ozone and particulate matter. The Dinosaur Foundation Document notes this as an issue of concern, "Winter inversions exacerbate air quality problems from oil and gas activities in Uinta Basin (i.e., ozone and particulates)."In general, BLM has not been comprehensively accounting for air quality and climate impacts from oil and gas development and extraction on western lands, and this extends to recent lease sales offered by the BLM in Utah.	See comment response 15.
37.	NPCA	Further, while each BLM field office is charged with reviewing its own lease sales, air pollutants do not respect administrative boundaries. Therefore, to ensure that air quality is adequately protected, BLM must comprehensively assess the cumulative impacts from oil and gas leasing and must do so across field offices	Before Assessing cumulative impacts, the BLM identifies a Cumulative Impact Analysis Area (CIAA). In the case of air quality, the CIAA is defined using the airshed concept. An airshed is a volume of air that is generally homogeneous with respect to atmospheric properties and the dispersion of air pollutants. In Utah geographical and meteorological constraints often define an airsheds boundaries and limit the dispersion of pollutants away from a source. The size of an airshed can vary from small valleys that are a few miles across to larger urban or regional areas that can be tens or hundreds of miles across. In the Vernal Field Office, where parcels are located, the topography and meteorological conditions tend to confine impacts to the airshed where the emissions sources are located. When meteorological conditions are strong enough, such as when a storm moves through, to transport pollutants outside the source airshed the wind and turbulence in general also dilutes pollutants to the point where they are indistinguishable from background concentrations by time the air mass reaches other. However, since regulatory agencies report emissions data according to county boundaries the CIAA include data for the counties that overlap the airsheds. For this EA that includes Duchesne and Uintah Counties. Additionally, the ARMS (Ozone) and UDAQ ($PM_{2.5}$) modeling analysis shown in Section 3.3.1.4 includes emissions sources outside the CIAA. Model results in Figure 1and Figure 2 show the highest pollutant concentrations stay close to the emissions sources (Wasatch Front urban sources, and Uinta Basin oil and gas sources) and within the source airshed. For instance the ozone concentrations (Figure 1) fall off rapidly at the Utah Colorado boarder due to inversions preventing transport of pollutants even though the geographic boundaries of the Uinta Basin extend into Colorado. The EPA similarly concluded that Colorado is a different airshed when designating the Uinta Basin Ozone nonattainment area. In the Final Area Designation for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document for Utah, the EPA concluded: "[T]he emissions in Rio Blanco County are small in comparison to the emissions from oil and gas operations in the two Utah Counties and on tribal land, and it is those emissions that are driving the unique wintertime ozone violations in area. In addition, Rio Blanco County emissions sources are located far from violating monitors, and the extremely low transport wind speeds recorded in Rangely, Colorado, show insufficient transport to violating monitors to allow these emissions to contribute to violations."
38.	NPCA	Additionally, under NEPA, the BLM has obligations to assess and report the near-field, far-field and cumulative impacts of expected emissions from the proposed project on the National Ambient Air Quality Standards (NAAQS), prevention of significant deterioration (PSD) increments, and air quality related values (AQRVs), and to identify alternatives or other mitigation measures sufficient	Extensive modeling is conducted when the scope of a project warrants the effort. Near Field and Far Field modeling was conducted for the Monument Butte Oil and Gas Development Plan, and the results of that modeling were used in the analysis of the impacts of this proposal. The cumulative analysis also includes far-field modeling from the ARMS Ozone and UDAQ $PM_{2.5}$ modeling

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		to prevent expected violations of NAAQS, PSD increments and adverse impacts on AQRVs. (40 C.F.R. §§ 1502.14(a), (f), 40 C.F.R. § 1502.16(h) and 40 C.F.R. § 1508.27(b)(10)).	studies. Impacts to air quality and AQRV's are disclosed in Sections 3.3.1.2 and 3.3.1.4, and in Appendix E – Air Quality and Green House Gas Information and Calculations.
39.	NPCA	The BLM must ensure its proposed actions adequately mitigate impact an area already in non-attainment status based on EPA standards. Substandard air quality is currently harming Dinosaur National Monument's natural integrity. NPS, EPA, NPCA and a host of scientific interests have expressed concerns with the area's poor air quality. The duty of the Secretary of the Interior to protect and preserve national park units unimpaired is non-discretionary. 54 Sec. 10010 et seq. (1916). While the Department is charged with various, sometimes-competing responsibilities, Solicitor Opinion M-36993 makes clear that the protection of national parks is paramount, "The Secretary has an absolute duty, which is not to be compromised, to fulfill the mandate of the 1916 Act to take whatever action and seek whatever relief as will safeguard the units of the National Parks System." (Solicitor John Leshy citing S. Rep. No. 95-528, at 8, 9, 13-1). Given the leasing as proposed potential to worsen air quality and increase emissions of greenhouse gases, BLM must consider the cumulative impacts to air quality in the region, as well as climate change impacts. The high volume of leasing in the Vernal Field Office that could drastically contribute to ozone nonattainment and further reduce air quality is of real concern to NPCA and many others. Despite its rural location in northeastern Utah and northwestern Colorado, Dinosaur National Monument has experienced a significant number of air pollution events, at times, with air quality being worse than downtown Los Angeles. The problem is tied, in part, to the extensive oil and gas development in the surrounding areas. A 2017 letter from the National Park Service to the BLM highlighted the concerns regarding air quality noting "Air quality studies have demonstrated that oil and gas activity in the Uintah Basin is the primary contributor to wintertime ozone exceedances." Further analysis regarding Uintah Basin air quality by the National Oceanic and Atmospheric Administration (NOAA) revealed how rapidly the sun, snow and chemical vapors emitted by oil and gas facilities produce ozone levels that can be harmful to human health. "Data collected during field work in 2013 showed that under proper conditions, ozone levels rose as much as 10 ppb per hour. Over the course of a week, ozone levels surged from a background of 40 parts per billion to 165 ppb - more than double the federal ozone standard of 75 ppb". Another study on oil and gas impacting air quality in Uintah Basin published in Environmental Science & Technology journal and by the American Chemical Society in 2014 notes, "Levels above this threshold are considered to be harmful to human health, and high levels of ozone are known to cause respiratory distress and be responsible for an estimated 5,000 premature deaths in the U.S. per year…Because of the photochemical nature of ozone production, tropospheric ozone pollution has traditionally been considered an urban, summertime phenomenon." Chief researchers conducting the study, wrote that its 2013 observations from the Uintah Basin oil and gas development area are, "to the best of our knowledge, among the highest-ever reported mole fractions of alkane non-methane hydrocarbon in ambient air. Mole fractions for the aromatic compounds reach or exceed those reported from the most heavily polluted inner cities." Researchers also found that Uintah Basin benzene levels, a carcinogen and precursor to ozone, frequently exceeded 1.4 parts per billion, which is a benchmark for chronic exposure. The study concluded that, "These observations reveal a strong causal link between oil and gas emissions, accumulation of air toxics and significant surface production in the atmospheric surface layer". Dinosaur National Monument's air quality simply should not be further degraded.	Background information and assertions. See the response to comment 3 and 39. AQRV impacts at National Park Service managed Class I and Class II areas of interest are already disclosed in Appendix E – Air Quality and Green House Gas Information and Calculations.
40.	NPCA	The BLM in northeast Utah consistently permits oil and gas development that cumulatively degrades air quality to levels worse than many metropolitan areas. Moving forward with the March 2020 lease sale as proposed, puts too much at risk. More thorough planning, particularly for cumulative impacts, and public engagement is necessary. While analysis of multiple individual, minor sources of pollution do not appear to be problematic, collectively they pose a significant	Comment noted. Only the Assistant Secretary for Land and Minerals Management may suspend a lease sale (43 CFR 3120.1-3) BLM is mandated under the FLPMA to comply with Clean Air Act, regardless of the adequacy of its stipulations. See the response to comment 4.

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		threat to the park's air quality. Visitors to national parks and wilderness areas consistently rate visibility and clear scenic vistas as one of the most important aspects of their experience. Dinosaur National Monument has identified clean, clear air as fundamental to achieving the park's purpose and maintaining the park's significance as a unit of the national park system	
41.	NPCA	We request that BLM defer parcels 001-025 until such time that adequate stipulations protective of air quality and related resources are embedded that specify mitigation measures to ensure the lands subject to the lease agreement are not developed in such a manner as to allow emissions to go unabated. While Utah maintains regulations that limit emissions from engines, we do not believe them to be adequate and will not result in controlling other sources of emissions, which we believe when assessed in the aggregate will have a demonstrable impact on public lands, wildlife and human health.	See comment response to 15. A general conformity applicability analysis was performed and is provided in Appendix E – Air Quality and Green House Gas Information and Calculations.
42.	NPCA	As BLM is required to undertake a "conformity" analysis for major federal actions, it must assess how new oil and gas leasing in Uintah County will conform to air regulations as required by the Clean Air Act. See 42 U.S.C. § 7506(c)(1). Although there is a one-year grace period for new nonattainment areas, we expect the agency to address these obligations given its current and forthcoming obligations under NEPA and the CAA. In addition, we request BLM collaborate with NPS at the APD phase, should the agency opt not to defer the lease sales at this time, to ensure air quality concerns are addressed via mitigation	The EA provides a best estimate of climate change impacts. This includes a projected emissions estimate for the development of lease parcels (Section 3.3.2.2), the cumulative emissions (Sections 3.3.2.1 and 3.3.2.4), and the projected climate impacts on temperatures and precipitation in Utah (Section 3.3.2.4).
43.	NPCA	BLM Must Take Necessary Steps to Account for Climate Change. NPCA urges the BLM to fully account for the potential climate change impacts associated with the leasing and ultimate oil and gas extraction associated with the March 2020 lease sale. This assessment should include preparing an emission inventory projection for the individual and cumulative impact of worse-case and best-case development scenarios, and performing a full analysis of both long and short-term impacts to nearby sensitive landscapes and populations potentially vulnerable to the effects of climate change.	Climate change impacts are accounted for in Section 3.3.2. This analysis includes a quantification of direct and indirect emissions for the lease sale RFD. Observed (USGCRP 2018) and predicted (USGS 2019) climate change impacts are also disclosed. Predicted climate impacts are based on RCP emissions scenarios and reported at mid and late century.
44.	NPCA	Dr. Robert Frost, former associate director of natural resource stewardship and science for the National Park Service, noted in a field hearing in Colorado that "[c]limate change is potentially the most far-reaching and consequential challenge to our mission than any previously encountered in the entire history of the NPS." NPCA shares this concern and urges the BLM to fully account for the potential acceleration of climate change as a result of oil and gas development, including that associated with the March 2020 lease sale.	Comment noted.
45.	NPCA	In addition, the BLM should prescribe administrative actions for all new leases in the state of Utah that will adequately mitigate the collective greenhouse gas emissions resulting from any approved oil and gas leasing.	This is beyond the scope of this proposal in the EA.
46.	NPCA	Conclusion. In sum, NPCA urges the BLM to address these concerns and conduct an oil and gas leasing process that is transparent, complies with NEPA, and that allows for public engagement. In particular, BLM must conduct a comprehensive analysis of the potential cumulative impacts of developing all of the parcels offered for lease, utilizing current technologies and the latest science, to account for adverse effects on national park units, especially those that could impact Dinosaur National Monument. Thank you for the opportunity to submit comments. NPCA respectfully requests that the BLM address our concerns on the March 2020 lease sale as relates in particular directly to national park units in the state and the cumulative impacts to the state of Utah	Background information. No response required.
47.	Utah Rock Art Research Association (URARA)	The Utah Rock Art Research Association (URARA) is the largest organization dedicated to Utah rock art. Our mission is: • To lead in the conservation, preservation and understanding of the value of rock art • To encourage the appreciation and enjoyment of rock art sites	Background information. No response required.

Number	*Commenter*	**Comment**	**Response**
		• To assist in the study, presentation, and publication of rock art research • To educate the public on rock art etiquette. URARA is the leading organization in the state of Utah advocating for the preservation, documentation, and study of Native American petroglyphs and pictographs (rock art). Our membership includes rock art enthusiasts, professional archeologists, anthropologists, geologists and others. Members spend time in the field and are building a rock art database to support our preservation concerns. We have partnered with the BLM on many projects to these ends. Our members have documented sites in every region of Utah. We hope to increase our activity in the Uintah Basin regarding rock art documentation and location correction. Our members have professional, academic, and avocational interest in Utah rock art.	
48.	URARA	Leasing and APD issuance. URARA recognizes that there will be areas that will be appropriate for oil and gas development. However, there are large tracts of lands that include drainages, washes and areas related to rivers and springs which our members and associates have identified as areas with high cultural resource value. We would like to have members meet with your staff and check some of these rock art locations before an APD is issued.	Comment noted. URARA public comment letter, with their request for consultation at the APD stage, was sent to the appropriate Vernal Field Office manager on January 10, 2020.
49.	URARA	Cultural Site Locations. Cultural sites including rock art tend to be concentrated in, and around, drainage systems including rivers, canyon drainages, washes and springs which form a geographical continuum of cultural use with the drainages of the Green River. The rock art panels, tools, arrowheads and other archeological artifacts in the semi-arid desert, confirm the geographic continuity, especially from the Dry Fork area west, east and south. Many archaic, Freemont and Ute panels exist in the lease area, some in the vicinity of La Point. In the Uintah Basin, there are concentrations of rock art, including pictographs and petroglyphs, extraordinary diverse Archaic styles, lovely Fremont and Ute panels, enormous lithic scatters, tools and other habitation artifacts. Consequently, we suggest buffers surrounding areas we know to be culturally rich	At the current leasing stage of development, those historic properties that are already recorded within parcels will be identified. This will provide a 'first look' when considering where potential development can take place. Should an APD proceed within a parcel a secondary, more thorough analysis will take place knowing the specifics of the development. At APD, should the proposed development reside near an area dense with historic properties, the responsible BLM officials will have the ability to 'avoid, minimize, or mitigate' adverse effects to historic properties within these buffer areas under the Cultural Resources Protection stipulation (H 3120-1) at their discretion. As the APD stage of development is a separate Section 106 event, full consultation as is standard with Section 106 will occur. At such a time, with specifics regarding the level of development at hand, URARA is free to, and indeed encouraged to, participate in consultation with BLM, and provide their recommended buffers to the discussion.
50.	URARA	Rock Art site locations. The Vernal Field Office had a concerted effort in the past to contract for rock art site locations. It is our concern that a large amount of these identified and recorded sites are off, in some cases by close to a mile. Other cases have sites recorded on ownership and management responsibilities other than BLM when they are located on BLM administered lands. New technology can give a more accurate location for these sites.	As this is an administrative action, the accuracy of site data within the Vernal Field Office is beyond the scope of Oil and Gas Leasing. However, URARA is free to discuss the site location data inaccuracies of those sites relative to an APD at the APD stage of development, as such sites will be inevitably a part of the discussion relative to the level of development.
51.	URARA	Road Development. To the extent that oil and gas development requires the development of new roads, we are concerned that these transportation routes will provide new, or improved, access to cultural resources within the Vernal Field Office borders. We are especially concerned that new roads not be developed within canyon and wash bottoms	It may be that road development is avoided at all, as the potential APD resides near existing road networks. It is also possible that road development will occur, and that the Cultural Resource Stipulation will be necessary to avoid, minimize, or mitigate damage to historic properties. As the extent of development is unknown at this time, the potential impacts from road development to historic properties is a point of discussion properly suited for the APD stage of development, as specifics regarding the development will be known.
52.	URARA	Bedrock Failure. In recent years there has been in increase in rock failure in the Uintah Basin, in some cases destroying very old panels. Some of this is from natural processes like weathering. However, a number of failures can be traced to seismic, and/or other land jarring practices. It is a great concern that activities not be allowed that can cause these rock failures and loose this precious resource forever.	As this is an administrative action, the extent of seismic activity within the Vernal Field Office, natural or artificial, is beyond the scope of this undertaking. However, URARA is free to discuss such topics at the APD stage of development.
53.	URARA	On all parcels that remain in this lease sale we recommend that the BLM include stipulations requiring the lease holders to protect all cultural resources, that the BLM include URARA in the review process for Applications for Permit to Drill (APD) within these parcels, and that the BLM	Cultural Resource Protection Stipulation H 3120-1 states: "This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground

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		disapprove parcel development plans if cultural resource conflicts cannot be satisfactorily resolved to avoid impacts to cultural resources altogether.	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." The BLM, the Advisory Council of Historic Preservation, and the Utah State Historic Preservation Office, has determined that the aforementioned stipulation is more than adequate to protect historic properties. Furthermore, the current URARA public comment letter, with their request for consultation at APD, was sent to the appropriate Vernal Field Office manager on January 10, 2020.
54.	URARA	Disclosure of site locations and descriptions. Due to the public nature of this document URARA will not disclose specific site locations. However, we are happy to provide information directly to appropriate BLM personnel for your consideration. Thank you for the opportunity to comment on this March Leasing Action. We look forward to our continued involvement in this process and wish to be consulted at the APD issuance stage. Thank you for your consideration	Thank you for ensuring the security of your site data. At APD, BLM would encourage URARA to disclose said data to the appropriate agency archaeologists so it may be brought into the discussion regarding the APD.
55.	Richard Spotts	Please keep it in the ground. I could not open this NEPA document on my phone. This is another example of problems with ePlanning. in any case, please do not lease more federal land for fossil fuel extraction. We need to keep it in the ground. Climate change is real, already causing human deaths and other serious problems, and rapidly getting worse. We are literally jeopardizing our children's future. Trump and the GOP Congress are corrupt and put corporate profits well ahead of the public interest. Please have the courage to do what is right for current and future generations of Americans. We pay your salary and entrust you with sustainably managing our public lands. Thank you very much for your consideration	Comment noted. The Mineral Leasing Act of 1920, as amended, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987, require the BLM to conduct quarterly, competitive lease sales to offer available oil and gas lease parcels. The public nominated the lands as an expression of interest (EOI) for the March 2020 Oil and Gas Lease Sale. Only the Assistant Secretary for Land and Minerals Management may suspend a lease sale (43 CFR 3120.1-3).
56.	Brian Behle	I encourage you to minimize gas leasing in the Green River area. It is much too important recreationally, environmentally, and economically through tourism to risk its degradation. Thank you	Comment noted. Refer to section 1.6 and 3.2. No response required.