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Chapter 1 Purpose & Need

1.1 Project Location and Legal Description

The December 2020 preliminary parcel list (Appendix A) contains 21 parcels covering 23,648.56 acres¹ for the December 2020 Competitive Oil and Gas Lease Sale (lease sale) and are located on public lands administered by the BLM Cedar City Field Office (CCFO), Moab Field Office (MbFO), and Vernal Field Office (VFO), as described in Appendix A. The 21 lease parcels identified within the Cedar City, Moab, and Vernal Resource Management Areas are located outside designated Greater Sage-grouse Priority and General Habitat Management Areas (PHMA & GHMA) and do not pose a threat to this species.

The legal descriptions of the nominated parcels are in Appendix A.

Table 1. Parcels by Field Offices

District – Field Office	Nominated Parcels	Nominated Acres
Canyon Country District - Moab Field Office	1	40.00
Color Country District – Cedar City Field Office	19	23,529.62
Green River District - Vernal Office	1	78.94
Total:	21	23,648.56

1.2 Introduction

It is the mandate of the BLM, as derived from various laws, including the Mineral Leasing Act (MLA) and the Federal Land Policy and Management Act of 1976 (FLPMA), as amended, to support the exploration and development of oil and gas owned by the Federal Government. 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. Additionally, the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLA) states that lease sales shall be held for each State where eligible lands are available at least quarterly and more frequently if the Secretary of the Interior determines such sales are necessary. Eligible lands are those that are open for leasing, and which the BLM has received Expressions of Interest (EOIs) nominating lands to be offered for lease or which

¹ A total of 20 parcels (35,428 acres) have been deferred from the lease sale due to conflicts that cannot be resolved by the time the NCLS would be published and are not subject to the public's review. Seventeen parcels were located in the Monticello Field Office and three parcels were located in Cedar City Field Office. These 20 parcels encompassing 35,428 acres may be evaluated in a future oil and gas lease sale.

the BLM has identified as high priority for leasing to prevent drainage. For the September 2020 Lease Sale, all parcels were nominated by the public.

Leasing is an administrative action that does not directly cause environmental consequences. It is also 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. Compliance with valid, nondiscretionary statutes (laws) is included in the standard lease terms, (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) Nondiscretionary laws includes 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 BLM administered surface disturbing actions, including those on split estate lands and can preclude all surface use a lease if necessary. However, many other resources do not have statutory protections, standard lease terms provide for reasonable measures to minimize adverse impacts to specific resource values, land uses, but direct, indirect, or cumulative effects to resources and uses could result from future levels of lease exploration or development, and these resources must be considered before the BLM makes an irretrievable commitment to allowing such development. The future levels of development are uncertain and undetermined; hence analysis focuses on identifying reasonably foreseeable impacts. After reviewing the parcels, the Utah State Office (UTSO) determined it was necessary to prepare this environmental assessment (EA) to comply with the National Environmental Policy Act (NEPA). This EA summarizes the environmental analysis of the potential development of the parcels proposed to be offered for lease. The analysis is step down and issue based to identify potential reasonably foreseeable impacts that could result from the implementation of the proposed action or no action alternatives and provides evidence for making a Finding of No Significant Impact (FONSI). If the analysis indicates development of some parcels would result in significant² reasonably foreseeable impacts not disclosed in the selected alternatives in the EISs listed in Section 1.7, the decision maker would determine those parcels should be deferred and a FONSI prepared for the remaining parcels. The FONSI and Decision Record (DR) could then be signed approving the modified proposed action.

1.3 Background

During the land use planning process required by the FLPMA³, the BLM analyzes several alternatives before deciding which public lands and minerals are open for leasing and under what terms and conditions. In accord with the Land Use Plan (LUP), lands can be deemed open to leasing under standard terms and conditions, closed to leasing, or open under special operating constraints, including No Surface Occupancy (NSO) identified as lease stipulations at the lease stage. Lease stipulations (S) (43 CFR 3101.1-2) 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.

² Significance is defined by NEPA, and is found in 40 Code of Federal Regulations (CFR) 1508.27.

³ The land use planning process can result in several types of Land Use Plans (LUPs) or the amendment of existing LUPs. The most common LUP is a Resource Management Plan (RMP), which guides the management of all resources within the boundaries of a BLM Field Office. Older LUPs may be limited to managing part of a Field Office, or multiple Field Offices.

The BLM implements the LUP by processing public EOIs on a quarterly basis as discussed in Section 1.2. From these EOIs, the BLM prepared the parcels and determines whether or not the existing NEPA analyses prepared for the LUPs, provide basis for leasing oil and gas resources within these parcels or if additional analysis is needed before making a leasing decision.

After the EOI cutoff date the UTSO reviews the nominations, removes lands not legally available for leasing, compiles the remaining lands and sends a preliminary parcel list to the appropriate District Office where the parcels are located. Whereas the decision to open lands to leasing was not an irretrievable commitment of resources, implementing the decision by offering parcels may be. As such, when the BLM incrementally implements the RMP decision by proposing to lease specific parcels, its resource specialists review the area *potentially* affected to determine if there is new information or circumstances, and if there is, if it would substantially change the analysis in the planning documents (keeping in consideration the lease stipulations), and if the reasonably foreseeable impacts are similar both quantitatively and qualitatively to those identified in the programmatic documents, again, keeping in consideration the lease stipulations.

Field Office staff reviews the legal descriptions of the parcels to confirm 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, resulting in the attachment of lease notices (LN) (43 CFR 3101.1-3). 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 Field Offices 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 (also known as ePlanning).⁴ The UTSO Oil and Gas Leasing webpage is also updated and maintained for the lease sale.⁵ 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 10-day protest period, and includes the revised EA and unsigned FONSI. If any changes to the parcels or stipulations/notices result from the protests, an erratum to the NCLS would be posted to the BLM website 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 September 29, 2020.

If the parcel is not purchased at the lease sale 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

4 The NEPA Register is a BLM environmental information internet site and can be accessed online at: <https://eplanning.blm.gov/eplanning-ui/home>.

5 UTSO Oil and Gas Leasing program webpage can be accessed at: <http://go.usa.gov/xXk8c>

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).⁶ A producing lease can be held indefinitely by economic production.

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 non-discretionary statutes, the standard lease terms and lease stipulations. 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.

Despite conveying the right to develop the oil and gas resources, 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.⁷ An APD may only be approved when an operator complies with any stipulations attached to the standard lease form. If an APD is received, the BLM would conduct additional site-specific NEPA analysis and consider the lease notices before deciding whether to approve the APD, and what conditions of approval (COA) should apply.

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.

1.4 Purpose and Need

The purpose of this action is for the UTSO to consider offering for oil and gas leasing parcels that the preliminary reviews have indicated are suitable for oil and gas development. The need for the Proposed Action is established by the BLM's mandates under the Acts discussed in Section 1.2, as well as the Mining and Minerals Policy Act of 1970, as amended.

1.5 Decision to be Made

Following the completion of the NEPA process the BLM would determine whether or not to offer 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

Under FLPMA, the BLM must manage for multiple uses of public lands in a combination that will best meet the present and future needs of the public and their various resources based on an approved land use plan or resource management plan (RMP). For split-estate lands where the mineral estate is an interest

⁶ Unless the lease is within an Operating Unit and the Unit is held by production of wells on other leases within the Unit.

⁷ 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/>

owned by the United States, the BLM has no authority over use of the surface by the surface owner; however, the BLM is required to declare in the RMP how the federal mineral estate will be managed, including identification of all appropriate lease stipulations (43 Code of Federal Regulations [CFR] 3101.1 and 43 CFR 1601.0-7(b); BLM Manual 1601.09 and Handbook H-1624-1).

All nominated lease parcels fall within areas open to leasing under the RMPs indicated above, as amended. Lease parcels, lease parcel surface ownership, lease parcel legal descriptions and total acreage, and lease stipulations and notices that apply are detailed in Appendix A. The alternatives described in Chapter 2 of this EA are in conformance with the following Land Use Plans, as amended.

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)

Canyon Country District

Moab Field Office RMP, October 2008, as amended (BLM 2008)

The RMP designated approximately 1.45 million acres of federal mineral estate open for continued oil and gas development and leasing (see RMP decisions Min-8, Min-11 to Min-16, and Min-19 on pages 74 through 76). Approximately 427,273 acres are open to oil and gas leasing, subject to standard terms, 806,994 acres will be subject to CSU/TL, 217,480 acres are subject to NSO, approximately 370,250 acres are closed to oil and gas leasing. The RMP (with associated amendments) also describes specific stipulations that would be attached to new leases offered in certain areas. Under the Proposed Action, parcels to be offered would be leased subject to stipulations prescribed by the RMP (see RMP Appendix A).

The RMP does not revise all management decisions in the Moab RMP, but it does amend certain decisions pertaining to oil/gas and potash leasing. The Moab MLP (BLM 2016) updates leasing decisions in portions of the existing RMPs for the Moab and Monticello Field Offices (see RMP decisions MIN-OG-1, MIN-OG-2, MIN-OG-4 to 8 on page 17 through 19). Approximately 230,765 acres are open to oil and gas leasing, subject to CSU/TL stipulations, 305,899 acres are subject to NSO stipulation, 145,284 acres are closed to leasing (See RMP Appendix A, and Appendix B). Approximately 103,619 acres within the Potash Leasing Areas are open to oil and gas leasing subject to CSU/TL or NSO stipulations.

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).

Color Country District

Cedar City Field Office, Cedar, Beaver, Garfield, Antimony RMP, October 1984, as amended (BLM 1984)

The RMP designated approximately 1,071,400 acres of federal mineral estate open for continued oil and gas development and leasing (see RMP decisions on pages 18 through 20). The RMP (with associated

amendments) also describes specific stipulations that would be attached to new leases offered in certain areas. Under the Proposed Action, parcels to be offered would be leased subject to stipulations prescribed by the RMP. Therefore, the Proposed Action conforms to the fluid mineral leasing decisions in the RMP and subsequent amendments, and are consistent with the RMP's goals and objectives for natural and cultural resources. 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

Green River District

Vernal Field Office RMP, October 2008, as amended (BLM 2008)

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).

1.7 Other Planning and NEPA Documents

NEPA documents and relevant studies that are applicable to this analysis include:

- 2008 Vernal Field Office Proposed RMP/FEIS (BLM 2008)
- 2016 Monument Butte Oil and Gas Development Project EIS (BLM 2016)
- 2017 Vernal Field Office Invasive Plant Management Plan (BLM-UT-G010-2016-011-EA) (BLM 2017)
- 2005 Reasonably Foreseeable Development Scenario for Oil and Gas. Vernal Field Office. Vernal, Utah. (BLM 2008)
- 2008 Moab Field Office Proposed RMP/FEIS (PRMP) (BLM 2008)
- 2016 Moab MLP Final EIS and Proposed RMP Amendment (BLM 2016)
- 2005 Reasonably Foreseeable Development Scenario for Oil and Gas. Moab Field Office. Moab, Utah. (BLM 2005)
- 1984 Cedar, Beaver, Garfield Antimony RMP/FEIS (BLM 1984)
- 1988 Supplemental Environmental Assessment for Oil and Gas Leasing in the Cedar City District (UT-040-88-69) (Reasonably Foreseeable Development Scenario for Oil and Gas). Cedar City Field Office, Cedar, Utah (BLM 1988)
- 2009 Oil and Gas Leasing in the Eastern Portion of the Cedar City Field Office (UT-040-08-036). (BLM 2009)

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.

1.8 Relationship to Relevant Laws, Regulations, Policies and Other Plans

The mandate of the BLM as derived from various laws, including the MLA and the Federal Land Policy and Management Act of 1976 (FLPMA), as amended, to promote the exploration and development of oil and gas on the public domain. Additionally, the Federal Onshore Oil and Gas Leasing Reform Act of 1987 states lease sales shall be held for each State where eligible lands are available at least quarterly and more frequently if the Secretary of the Interior determines such sales are necessary.

Purchasers of oil and gas lease parcels are required to comply with all applicable federal, state, and local laws and regulations, including obtaining all necessary permits prior to any lease development activities. 21 parcels were nominated. Stipulations attached to the lease, restrictions deriving from specific, nondiscretionary statutes, and such reasonable measures may be required to minimize adverse impacts to other resource values (43 CFR 3101.1-2).

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

- 43 CFR 3100 – Oil and Gas Leasing
- BLM Manual 3120 – Competitive Leasing
- BLM Competitive Leasing Handbook (H-3120-1)
- 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)
- Protection of Ground Water Associated with Oil and Gas Leasing, Exploration and Development (BLM UT IM 2010–055)
- June 2020 Memorandum from Utah Deputy State Director, Lands and Minerals regarding Preliminary List of Lands for Consideration in the December 2020 Competitive Oil and Gas Lease Sale
- 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)
- Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development 2008 Phase III Inventory-Onshore United States
- December 2020 Lease Sale Cultural Resources Report (Utah SHPO Case No.[ongoing]) (BLM 2020)

1.9 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.

The UTSO received the December 2020 lease sale parcel nomination list on June 18, 2020.

Internal scoping was initiated on June 30, 2020 when the nominated lease parcels for the December 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 attached IDPR Checklists, Appendix D – Interdisciplinary Parcel Review Team Checklist was also developed after consideration of these documents and their contents listed in section 1.6, 1.7 and Appendix E.

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 2. Issues Identified for Detailed Analysis

Issue	Issue Statement	Impact Indicator
Air Quality	What quantity of air pollutants would be produced based on the assumptions for analysis? 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 on the assumptions for analysis? How do these amounts compare to other sources of GHGs??	Reasonably Foreseeable Metric tons (MT) or million metric tons (MMT) per year of carbon dioxide equivalents (CO ₂ e)
Socioeconomics/Environmental Justice	What are the potential impacts to social and economic conditions and Environmental Justice?	Income, revenue, and spending (dollars)

1.10 Issue Statement Rationale for Not Further Discussing in Detail in the EA⁸

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 Chapter 4. Table 3 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

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

Constraints/Mitigation of Impacts that are implemented by law, regulation, or previous decisions (i.e., RMP ROD, EA decision, or EIS decision). Refer to section 1.6, 1.7 and Appendix E 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 3.

Table 3. Issues not included in Further Detail in the Environmental Assessment.

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
T&E Species	What are the potential impacts to federally listed threatened and endangered species or habitats in areas related to oil and gas development?	<p>The parcels involved in the lease sale were analyzed individually within each field office for occurrence of federally listed species, in coordination with the USFWS.</p> <p>The Threatened and Endangered Species Act Stipulation, in accordance with 43 CFR 3101.1-2, 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.</p> <p>Stipulations attached to the lease, restrictions deriving from specific, nondiscretionary statutes, and such reasonable measures may be required to minimize adverse impacts to other resource values (43 CFR 3101.1-2).</p> <p>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. 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.</p>
Sensitive Species (Wildlife and Plants)	What are the potential impacts to sensitive species (wildlife and plants) or their habitats from oil and gas development?	<p>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 <i>et seq.</i>, 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</p>

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
		<p>potential impacts from the proposed lease sale, as documented by the checklist found in Appendix D of this EA.</p> <p>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 (<i>Astragalus Equisolensis</i>)). For the 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 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.</p> <p>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.</p> <p>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.</p>

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
Migratory Birds	What are the potential impacts to migratory birds from oil and gas development?	<p>The Migratory Bird Treaty Act (MBTA) protects migratory birds; Instructional Memorandum No. 2008-050 requires the BLM to address the potential effects of the projects on 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).</p> <p>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).</p> <p>For the 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.</p> <p>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 opportunity to make adjustments, such as design modifications, at the site-specific level when an Application for Permit to Drill is received.</p>
Paleontology	What are the potential impacts on the integrity of paleontological resources associated with oil and gas disturbance?	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-construction 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	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
National Historic Trails/Units of the National Park Service	What are the potential impacts to the Old Spanish Trail from the development of the parcels in the CCFO?	Several parcels in the CCFO are proximate to a high potential segment of the Old Spanish Trail. Five parcels were deferred and one reduced in size in anticipation of corridor approval and possible new stipulations from the revised Cedar City Field Office under preparation.
Recreation	What would be the impacts of development of parcels 029 and 046 to recreational use?	<p>Parcel 029 is in the Moab Field Office north of I-70. There may be dispersed recreation on the parcel, mainly hunting. Impacts to wildlife, which could result in impacts to hunting were described in the MbFO RMP as follows: habitat loss and degradation resulting from the removal of vegetation (surface disturbance) and subsequent occupation of areas for oil/gas well pads, open pit mines, and associated roads and infrastructure. Wildlife avoidance of disturbed and occupied areas would reduce their value as habitat. Many species of wildlife avoid areas with high or inconsistent levels of noise, roads with frequent automobile/truck traffic, areas that are heavily lit at night, and areas surrounding structures. (BLM 2008, 4-461).</p> <p>Parcel 046 is adjacent to the Green River in the Vernal Field Office. Conflicts with development of the area next to the river were mitigated in the VFO RMP EIS by two stipulations calling for No Surface Occupancy. These stipulations would also reduce the noise and visual impacts to recreationalists on the River.</p>
Cultural Resources	What are the potential impacts from ground disturbing oil and gas activities on cultural resources?	<p>The BLM has conducted literature for the December 2020 sale using survey and site information from the CURES geodatabase, SEGO database, Utah DAM, General Land Office 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 (BLM 2020). The Cultural Resources and Tribal Consultation Stipulation (H 3120-1) is applied across all lease parcels. Stipulations attached to the lease, restrictions deriving from specific, nondiscretionary statutes, and such reasonable measures may be required to minimize adverse impacts to other resource values (43 CFR 3101.1-2).</p> <p>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,</p>

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
		<p>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.</p> <p>The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.</p> <p>Prior to approving APDs on Federal surface or split-estate lands, additional site specific NHPA analysis is required, including appropriate identification and consultation efforts.</p>
Riparian/ Wetlands/ Floodplains	What are the potential impacts from oil and gas exploration and development ground disturbing activities on riparian, wetlands, and floodplains?	<p>Resource Management plans for each office affected by the 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.</p> <p>UT-LN-53— Riparian Areas states no surface use or otherwise disruptive activity allowed within 100 meters of riparian areas.</p> <p>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.</p> <p>UT-S-387—NSO: Ephemeral Streams and states no surface occupancy allowed within 100 feet of ephemeral streams.</p> <p>UT-LN-128— Floodplains Management mandates avoiding adverse impacts to floodplains.</p>

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
		<p>With these stipulations and other site-specific mitigation practices, no additional analysis is required in this EA. Additional mitigation measures and buffers would be applied as necessary to protect these areas at the APD stage as these areas are identified in further detail.</p>
Hydrology/ Surface and Groundwater Resources	What are the potential impacts from oil and gas exploration and development ground disturbing activities on hydrology and hydrogeology?	<p>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.</p> <p><u>Groundwater</u> :</p> <p>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 ($\leq 10,000$ 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. This would eliminate the intermixing of ground water encountered from various aquifers encountered during the drilling process.</p> <p>The lease parcels have been reviewed for proximity or overlapping Sole Source Aquifers or Public Drinking Water Source Protection Zones as defined by the EPA and State of Utah Drinking Water Division. The parcels were also reviewed for potential water right conflicts. All of the parcels with the exception of parcel 029 which is within a zone 4 of the Vernal surface water source protection area (per Utah Admin code R309-600-9). Additional information and its applicability to potential impacts is provided in the Water Resources section in this document.</p> <p>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 No.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</p>

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
		<p>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.</p> <p><u>Surface water:</u></p> <p>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.</p> <p>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.</p> <p>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.</p>

1.11 Public Comment Period

The preliminary EA and the unsigned FONSI will be subject to a 15-day public comment period, which will be held from August 20, 2020 through September 4, 2020 (refer to Appendix H – Comments and Responses). The BLM received [reserved] comments on the lease sale (refer to section 4.3[reserved]).

Chapter 2 Description of Alternatives

2.1 Introduction

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

The nature of leasing is that offering each parcel, or portion of a parcel, is a separate action. As such the Proposed Action alternative comprises a multitude of alternatives that precludes the need for additional action alternatives. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the Proposed Action.

2.2 Analysis Assumptions

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 15-20-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.

Assumption for Analysis in this EA

The act of leasing 21 nominated parcels covering 23,648.56 acres in and of itself would have no direct

impacts on resources in the field office(s). However, for the purposes of this analysis, a development assumption is used based on the RFDS(s) or field development plans if the parcel is within or adjacent to a plan boundary. Some parcels may be assumed to have one or more wells drilled, while the remaining parcels may be assumed to have fewer than one well per parcel drilled.⁹ However, each parcel is reviewed to determine whether some level of development could occur without violating laws intended to protect the environment, or other resource conflicts would preclude development.

For the analysis of the 21 nominated parcels by the public, encompassing 23,648.56 acres, it was estimated a maximum of 4 wells¹ would be drilled (BLM 2005, BLM 2008, BLM 1988), and the maximum new disturbance will be 4 wells totaling 35.2 acres. This scenario would occur rarely, if at all (Appendix G). Statistically (BLM 2020), only the parcel located in Vernal have a higher probability that it may be acquired, capable of production (UDOGM 2018), and subsequently may receive an APD during the 10-year lease term. However, parcel 029 was previously leased. Acreages within parcel 029 were previously held by one lease UTU080413 (1996-2019). The lease was suspended (2006-2014) and terminated February 2019. No development occurred during the 10-year primary lease term. The prior lessee re-nominated the parcel. The Moab parcel has a higher probability that it may be acquired and capable of production. If the Cedar City parcels are acquired, they have a higher probability of being a dry hole or incapable of production to hold the lease beyond the 10-year primary term (43 CFR 3107.2-1). Production in paying quantities means production from a lease of oil and/or gas is of sufficient value to exceed direct operating costs and the cost of the lease rentals or minimum royalties. Only leases in production in paying quantities may receive an extension beyond the primary term (43 CFR 3135.1-5).

Table 4. Assumptions for Analysis for the Nominated Parcels

Field Office	Nominated Parcels	Nominated Acres	Wells	Surface Disturbance (acreage)
Vernal	1	78.94	1	5 acres
Moab	1	40.00	1	8.2 acres
Cedar City	19	23,529.62	2	22 acres
Total:	21	23,648.56	4	35.2

⁹ 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 2019).

Canyon Country District**Moab Field Office**

Over a four-year period from 2016 to 2019, including federal and non-federal lands, 43 percent of APDs received in Grand County were drilled (8 wells; 14 APDs), and 35 percent of APDs received in San Juan County were drilled (6 wells; 17 APDs) (UDOGM 2019). The parcels located in the Moab Field Office are considered low to moderate potential for development.

The Moab Field Office Reasonably Foreseeable Development Scenario for the Moab Field Office RMP RFD (BLM 2005) is the basis for the assumption of analysis for parcel 045. The parcel is located within the Greater Cisco development area. The 2005 RFDS to the MFO RMP projected that an average of about 26 wells per year for a total of about 390 wells over the next 15 years in the Book Cliffs (3-15 wells per year), Greater Cisco (3-10 wells per year), Roan Cliffs (0-1 wells per year), Salt Wash (0-2 wells per year), Big Flat-Hatch Point (3-5 wells per year), Lisbon Valley (2-4 wells per year), and Eastern Paradox (1-3 wells per year) development areas (BLM 2005). These projections provide a range of potential drilling activity, and are not thresholds for drilling activity. It is recognized that there would be some years with little to no drilling (<12 to 0 wells), and other years that may exceed 26 wells. However, it is estimated that only 50 percent of the wells drilled in Moab would be capable of production and the remaining 50 percent would be plugged, abandoned, and reclaimed. The average disturbance for a well is approximately 8.2 acres. The proposed action to offer for lease would compose of 0.014 percent of the total BLM acreage. The RMP RFD area contains 278,293 acres. For the purposed of this analysis it is assumed that one nominated parcel outside the MLP encompassing 40 acres will result in one well and 8.2 acres (one well pad and access road disturbance at 8.2 acres).

Color County District**Cedar City Field Office**

The 1988 Supplemental EA (BLM 1988) predicted a low potential, no more than ten percent based on the average success rates for wildcat wells in the United States. The probability of discovering a field is extremely low. For the analysis of the 21 nominated parcels, it is estimated a maximum of 2 wells would be drilled. The maximum new disturbance will be 2 wells totaling 22 acres (one well pad and access road at 11 acres). This scenario would rarely occur, if at all, since there has been no drilling activity over the last 4 years in this area and this area is considered exploratory. Statistically, it is more probable that only one well would be drilled for the nominated parcels and that well would be most likely be a dry hole.

Green River District**Vernal Field Office**

The VFO analyzed production of nearby wells. The parcel is located in a well explored natural gas field, with moderate oil and natural gas production. 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 – Reasonable Foreseeable Development of Leases Scenario). Parcel 029 was previously leased. Acreages within parcel 029 were previously held by one lease UTU080413 (1996-2019). The lease was suspended (2006-2014) and terminated February 2019. No development occurred during the 10-year primary lease term. The maximum new disturbance will be 1 well totaling 5 acres (one well pad and access road disturbance).

2.3 Alternative A – Proposed Action

The BLM would offer for lease the all or part of the nominated parcels (covering 114,050 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). 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. Under the Proposed Action, the BLM Authorized Officer also has the authority to selectively lease and subsequently issue leases, or to defer, in the light of the analysis of potential impacts presented in this EA.

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) Scenario is assumed wherein all 21 nominated parcels will be developed. The Reasonably Foreseeable Development used for analysis assumptions under this alternative is described in Section [2.2](#).

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 the agency action. The alternatives carried forward represent those necessary for a reasoned choice (40 CFR 1502.14).

2.5.1 Removing Parcels from the Sale to Address Specific Resource Concerns

This alternative does not meet the purpose and need, because it does not allow for the consideration of all parcels. Additionally, 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 (see Section 1.2). The Interior Board of Land Appeals has upheld this rationale in finding 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.

2.1.1 Adding Stipulations Beyond Those Required by the Management Plan

This alternative to add additional stipulations, including closing areas to leasing, 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

2.1.2 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 21 nominated parcels by the public, encompassing 23,648.56 acres in and of itself would have no direct impacts on resources in the CCFO, MbFO, and 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 in the Cumulative Impact Analysis Area (CIAA) determined for each resource, over the time period remaining in the RFDS.

3.2 General Setting

The proposed action would result in additional leasing of acres in Canyon Country District, Color Country District, and Green River District. Utah’s State and Institutional Trust Lands Administration (SITLA) offered quarterly competitive lease sales in April, and July, and October¹⁰. The SITLA parcels may be interspersed or located in the general vicinity of the nominated lease parcels analyzed in this EA. To date, the leases from the September 2019, December 2019, and March 2020 lease sale have not been

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

issued, the June 2020 lease sale had been cancelled, and the September 2020 lease sale has not occurred. The BLM ran a Legacy Rehost System (LR2000) report for all active leases. Refer to section 1.3 and Appendix E. Cedar City Field Office has 2 active leases, Fillmore Field Office has 58 active leases, Moab Field Office has 173 active leases, Monticello Field Office has 109 active leases, Price Field Office has 138 active leases, Richfield Field Office has 62 active leases, Salt Lake Field Office has 30 active leases and Vernal Field Office has 278 active leases.

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 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 assumptions for analysis? 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 2020 BLM Utah Air Monitoring Report (AMR) (BLM 2020) 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 (NO₂), ozone (O₃), particulate matter (PM₁₀ & PM_{2.5}), sulfur dioxide (SO₂) 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 2020).

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 that are representative for the airshed where parcels are located are provided in Table 4. It is assumed that counties without reported design values have good air quality and pollutant concentrations are below the NAAQS. The main pollutants of concern are O₃ and PM_{2.5} as these are the pollutants with reported design values near or above the NAAQS.

Table 5. 2016 to 2018 Criteria Pollutant Design Values

Pollutant	Location	Averaging Time	Concentration	NAAQS
O ₃	Iron County	8-hour	0.061 ppm	0.070 ppm
O ₃	Mesa County, Colorado	8-hour	0.065 ppm	0.070 ppm
O ₃	San Juan County ¹	8-hour	0.065 ppm	0.070 ppm
O ₃	Uintah County	8-hour	0.088 ppm	0.070 ppm
NO ₂	Duchesne County	Annual	4 ppb	53 ppb
NO ₂	Iron County	Annual	5.8 ppb	53
PM _{2.5}	Iron County	Annual	4.4 µg/m ³	12.0 µg/m ³
PM _{2.5}	Mesa County, CO ¹	Annual	5.9 µg/m ³	12.0 µg/m ³
PM _{2.5}	Duchesne County	Annual	6.3 µg/m ³	12.0 µg/m ³
PM _{2.5}	Mesa County, CO ¹	24-hour	17 µg/m ³	35 µg/m ³
PM _{2.5}	Duchesne County	24-hour	25 µg/m ³	35 µg/m ³
PM _{2.5}	Iron County	24-hour	12 µg/m ³	35 µg/m ³

1 – Representative of the area where parcels in the Moab Field Office are located

Every three years the Utah Division of Air Quality (DAQ) compiles statewide emission inventories to assess the level of pollutants released into the air from various sources (UDAQ 2020). Statewide and County 2017 emissions inventories are provided in the AMR (BLM 2020). In Utah, the largest human sources of criteria air pollutants are area sources for PM₁₀, PM_{2.5} and ammonia (NH₄), on-road sources for CO, point sources for SO₂, and oil & 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 2020). The 2017 HAPS emissions are listed for each field office where parcels are located in AMR (BLM 2020).

The parcels in this lease sale are located within Prevention of Significant Deterioration (PSD) Class II areas and are 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 2020). Over a ten-year period (2009 to 2018), Visibility data in Utah show a statistically significant improving trend for the clearest days at all monitoring sites in Utah except

at Capitol Reef National Park (trend not statistically significant). No statistically significant trend (improving or worsening) is observed at any of the IMPROVE sites in Utah for the haziest days. Nitrogen deposition conditions in Utah are fair to poor with no trend for improving or worsening conditions. Sulfur deposition conditions are good and generally improving.

3.3.1.2 Environmental Consequences

Impacts of the Proposed Action

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 the number of wells analyzed herein. 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 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. The near field air quality analysis would have similar impacts to those described in the Fishlake National Forest Oil and Gas Leasing Analysis FEIS (USDAFS 2013).

During well development, there could be emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. NO₂, SO₂, 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 NO₂ and CO emissions, with lesser amounts of SO₂. 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, NO₂, CO, VOC, and HAP emissions would result from the long-term use of storage tanks, pumps, separators, and other equipment. Additionally, road dust (PM₁₀ 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 Moab MLP FEIS Air Quality Analysis (BLM 2016) emissions inventory, and is summarized in Table 5. 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 established¹¹. If production is not attempted within the 10-year timeframe, the lease will be terminated with no development or production emissions occurring.

¹¹ 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 6. Annual Emissions Estimate for as Single Well (tons/year)

	NO_x	CO	VOC	SO₂	PM₁₀	PM_{2.5}	HAPs
Construction	5.25	8.38	2.97	0.09	10.20	1.66	0.11
Operation	0.46	1.07	16.38	0.01	1.48	0.17	1.56
Reclamation	0.02	0.01	<0.01	<0.01	0.01	<0.01	<0.01
Totals	5.73	9.45	19.35	0.10	11.69	1.83	1.68

The primary sources of HAPs would be from oil storage tanks and fugitives, with smaller amounts from other production equipment. A small quantity 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 are incorporated by reference. The 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 increment thresholds. Generally, results predicted that air quality standards would be met if the at Class I airsheds that are 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 for Class II airsheds. Similar results and recommendations are made about visibility standards.

Parcel 029 is located within the Uinta Basin ozone nonattainment area and requires a general conformity applicability assessment. The applicability assessment is documented in Appendix E – General Conformity Applicability. This assessment demonstrates the indirect emissions associated with this lease sale are not reasonably foreseeable as defined by the Clean Air Act and general conformity is not applicable.

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.

Substantial air resource impacts are not anticipated from the development of the lease parcels based on the emissions estimates contained in Table 5, the parcels being in areas compliant with all NAAQS, the air quality analysis for similar oil and gas development in the area, 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 to ensure no adverse impacts occur.

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 Constraints/Mitigation Measures

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 expected 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. This EA tiers to the cumulative impacts to air quality and AQRV that were disclosed in the Moab MLP (BLM 2016), Monument Butte FEIS (BLM 2016), and incorporated by reference 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 in the region. 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. 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.

Emissions in the oil and gas sector roughly parallel oil and gas production. The oil and gas production growth estimates for the Rocky Mountain region are used from the EIA 2020 Annual Energy Outlook (EIA 2020) to provide an estimate of the change in emissions from oil and gas sources in Utah. In the reference scenario projected oil and gas production growth remains relatively flat. Oil production is anticipated to decrease by an annual average of approximately 0.3% and gas production increase annually by approximately 0.1%. Similarly, oil and gas related emissions from existing and foreseeable wells, plus development of lease parcels, are anticipated to remain relatively the flat compared to those reported in the 2017 National Emissions Inventory (UDAQ 2020).

Modeled Impacts

The Moab MLP analysis included far-field modeling to evaluate impacts on NAAQS and AQRVs from multiple sources over the entire MLP area (portions of Moab and Monticello Field Offices. Technical details for this modeling are incorporated from Appendix F of the MLP FEIS. The modeling analysis evaluated three scenarios based on the range of alternatives in the MLP FEIS. Modeling results show no exceedances of the NAAQS for any pollutant for any of the modeled scenarios (BLM 2016). Emissions from this lease sale are not anticipated to increase pollutant concentrations above the modeled concentrations, and pollutant concentrations are likely to remain below the NAAQS due to the low amount of anticipated development.

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 NO₂, 3-hour SO₂, annual SO₂, and annual PM₁₀, while most assessment areas exceed the 24-hour PM_{2.5} and PM₁₀ 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. Modeled O₃ concentrations in the CIAA are below the NAAQS. In Class I and Class II areas outside the Uinta Basin ARMS study area, O₃ concentrations are highest during the summer period (BLM 2014). For areas outside the Uinta basin, including the CIAA, the modeling results are likely conservative due to the over prediction of summertime O₃ in the ARMS model. If background O₃ levels rise additional analysis may be needed when plans of development are submitted for the lease parcels. Predicted PM_{2.5} design values are shown in Figure 2, with annual concentrations in the CIAA generally below 5 µg/m³.

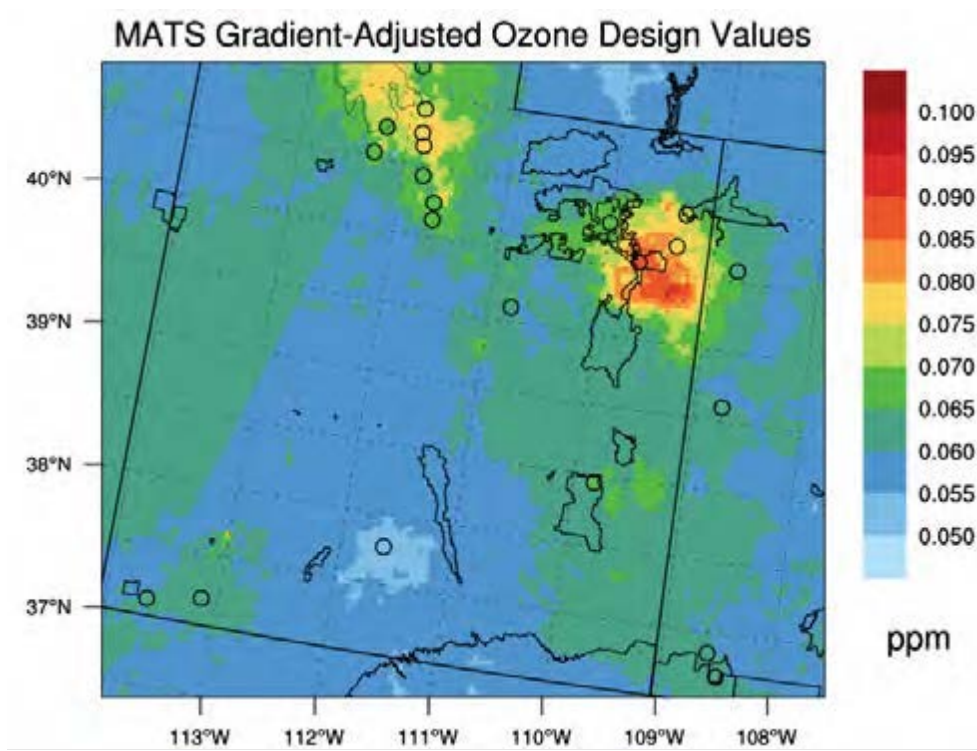


Figure 1. ARMS predicted ozone design values with on the books controls for oil and gas emissions in the year 2021.

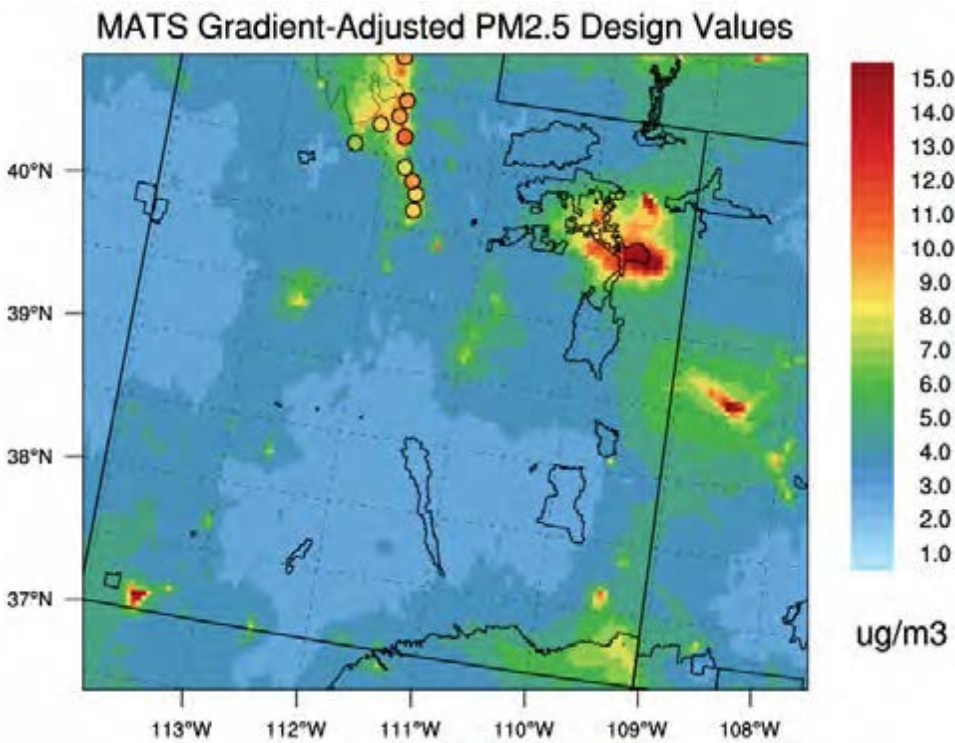


Figure 2. ARMS predicted PM2.5 design values with on the books controls for oil and gas emissions in the year 2021.

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), see Figure 3 .

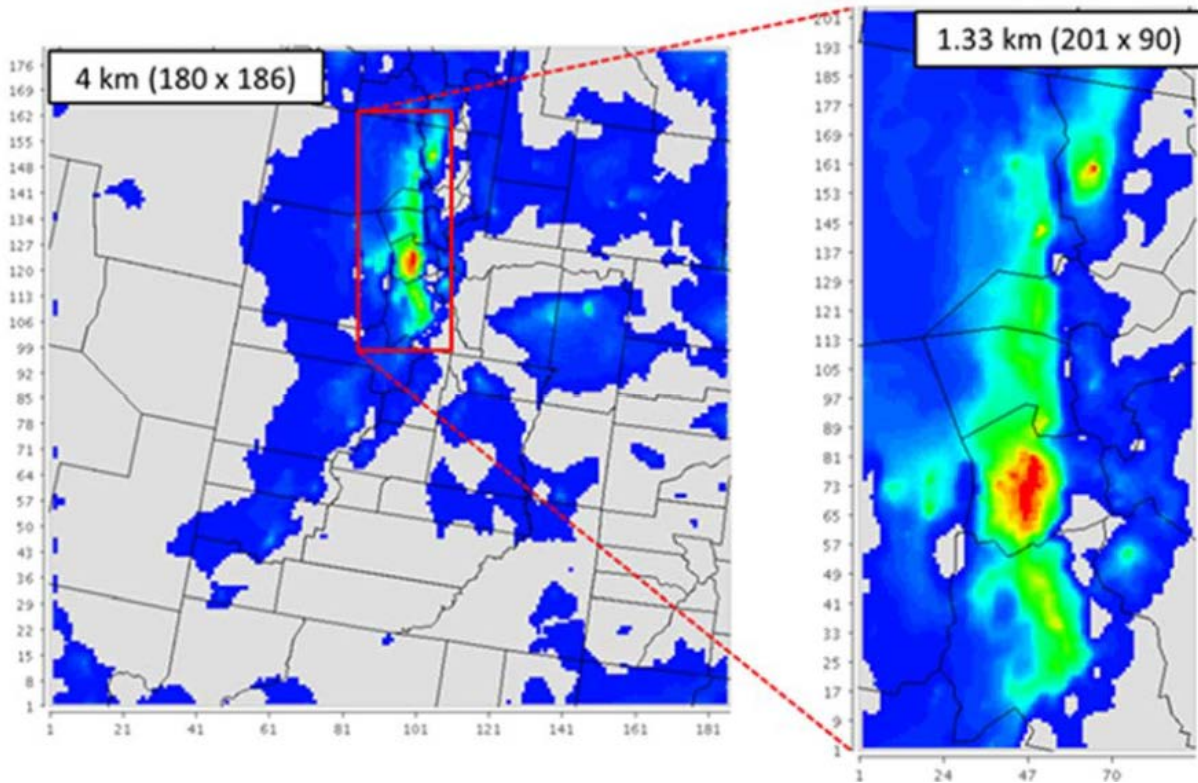


Figure 3. UDAQ CAMx photochemical modeling domains and predicted PM_{2.5} concentrations from the January 7, 2011 episode (red represents higher concentrations ~35 $\mu\text{g}/\text{m}^3$, blue and gray are lower concentrations).

Other emission contributors to ozone and PM_{2.5} concentrations would continue at present rates such as construction, urban development, and personal vehicle use. Development of the lease parcels with existing and foreseeable emissions sources are unlikely to cause exceedances of the NAAQS in the CIAA.

Air Quality Related Values

AQRVs were also analyzed in the ARMS and Moab MLP modeling studies. The MLP analyzed changes to visibility conditions by modeling the number of days there was a change in deciviews, which is a unit of measurement to quantify human perception of visibility. It is derived from the natural logarithm of atmospheric light extinction coefficient. One (1) deciview is roughly the smallest change in visibility (haze) that is barely perceptible. Modeled visibility impacts ranged from 159 days with more than 0.5 dv change and 86 days with more than a 1.0 dv change at Canyonlands National Park for the high emissions scenario, to no zero days with a 0.5 dv and 1.0 dv change at any local Class I area under the low emissions scenario. Coarse particulate (PM₁₀), primarily road dust from truck traffic on unpaved roads, was the dominate pollutant of concern under both high and medium emissions scenarios. Under the low emissions scenarios, nitrogen oxides play a greater role in visibility impacts. The specific meteorological year used in the analysis also had an influence on modeled impacts. Meteorology in 2008 had substantially greater levels of impacts across the board compared to the previous two years of meteorological data. This indicates sensitivity to meteorological variability, and given the large role

particulates play, adverse visibility impacts can most likely be tied to drier, hotter, and/or windier conditions (BLM 2016). Additionally the AMR (BLM 2019) shows that visibility has been improving at the Class I areas in Utah. Development of lease sale parcels would not result in any new visibility impacts beyond what has been disclosed in the Moab MLP FEIS. 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.

All MLP modeled values of sulfur and nitrogen deposition were near or below the Deposition Analysis Thresholds of 0.005 kg/ha/yr for total nitrogen and total sulfur for all the modeled alternatives, with the exception of the high and medium emissions scenarios for nitrogen deposition in Arches and the high, medium, and low scenarios in Canyonlands National Park for the 2008 meteorological year (BLM 2016). Development of lease parcels would not result in any new deposition impacts beyond what has been disclosed in the Moab MLP FEIS.

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. Acid neutralizing capacity change at all seven sensitive lakes exceeds the 10 percent limit of acceptable change for all model scenarios.

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

The EPA National Toxics Assessment tool is used to evaluate impacts from existing HAPs emissions in Utah. The EPA has determined that, for Utah counties with BLM managed lands, the total cancer risk is 12.1 to 26.7 in 1 million (EPA 2019), see AMR (BLM 2020). 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 in Washington County. The noncancer respiratory hazard index for Utah counties with BLM managed lands is between 0.14 and 0.54. Hazard index values less than one mean it is unlikely that air toxics will cause adverse noncancer health effects over a lifetime of exposure. Potential development of the leases and other foreseeable emissions sources would contribute to HAPs emissions and associated carcinogenic and noncancer risks.

The proposed action of leasing would not directly contribute to cumulative criteria pollutant emissions or visibility, acid deposition, and 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.

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 assumptions for analysis? How do these amounts compare to other sources of GHGs?

3.3.2.1 Affected Environment

Climate is the composite of generally prevailing weather conditions, such as temperature and precipitation, of a particular region throughout the year, averaged over a series of years. 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. While climate is always changing much of the recent observed changes are linked to rising levels of GHGs in the atmosphere (EPA 2016) due to human activities. The BLM Utah 2020 Air Resource Management Strategy Monitoring Report (AMR) (BLM 2020) discusses past, present, and foreseeable climate conditions and GHG emissions, and is incorporated by reference.

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 CO₂. The GHGs are presented using the unit of Metric Tons of CO₂ equivalent (MT CO₂e), a metric to express the impact of each different GHG in terms of the amount of CO₂ 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: 1990–2018* (EPA 2020) 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. The BLM Utah uses 100-year GWPs from the IPCC AR5 that reflect the current state of science, except where stated otherwise. Table 7 lists the GWP values from the IPCC AR5. Using the 100-year GWP values allows emissions estimates to be directly compared with state, national, and global emissions.

Table 7. Greenhouse Gases and Their Global Warming Potentials

Time Horizon	Carbon Dioxide (CO ₂)	Methane (CH ₄)	Nitrous Oxide (N ₂ O)	Hydrofluorocarbons (HFCs)	Perfluorocarbons (PFCs)	Sulfur hexafluoride (SF ₆)
100-year	1	28	265	Up to 12,400	6,630-11,100	23,500
20-year	1	84	264	Up to 10,800	4,880-8,210	17,500

Source: IPCC AR5 (IPCC 2013)

State, national, and global annual GHG emissions are presented in Table 8. Global emissions were obtained from the World Resources Institute Climate Data Explorer (World Resource Institue 2019) and

are reported up to the year 2016. National emissions for the 2018 reporting year come from the EPA Inventory of US Greenhouse Gases Emission and Sinks 1990-2018 (EPA 2020). Emissions for the state of Utah were obtained from the U.S. Energy Information Administration (EIA 2020) and supplemented by data from the World Resource Institute (agriculture, industrial sources, waste management, and fugitive emissions) and EPA (major industrial sources).

Table 8. Annual State, National, and Global GHG Emissions (CO₂e) in Million Metric Tons (MMT) per Year

Utah	US Energy Sector	United States	Global
71.8	5,547.2	6,676.6	46,140.95

Sources: Global - World Resource Institute, CAIT Climate Data Explorer (World Resource Institute 2019)

United States - EPA Inventory of US Greenhouse Gases Emission and Sinks 1990-2017 (EPA 2020)

Utah – U.S. Energy Information Administration, EPA FLIGHT (EPA 2018) and World Resource Institute (World Resource Institute 2019)

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 fossil fuels 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 CO₂e. The USG report also identifies that in 2014 Federal lands sequestered 475 MMT CO₂e, which is over 60% of the 773.5 MMT CO₂e sequestered in 2018 for the entire United States (EPA 2020). Emissions from fossil fuels produced on Federal lands represent, on average, 23.7 percent of national emissions for CO₂, 7.3 percent for CH₄, and 1.5 percent for N₂O over the 10 year evaluation period (USGS 2018). Uncertainty associated with emissions estimates is 2-5% for combustion, 25-42% for fugitives, and 12-15% for degassed CH₄ 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 CO₂e, 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 CO₂e, 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.

Estimated annual GHG emissions from existing oil and gas wells are presented in Table 9. Single well emissions estimates are used from relevant oil and gas projects occurring in Utah to estimate the operation emissions from existing wells and construction emissions for new wells. See the AMR (BLM 2020) for details on single well emissions estimates. Construction emissions are based on the number of new wells drilled in 2019. New well operation emissions are not included since they are approximately offset by the decrease in emissions from wells that were plugged and abandoned in 2019. In 2019, there were 126 new wells drilled and 195 wells plugged. Existing oil and gas sources include active producing wells and shut-in wells that are capable of producing, as reported by the Utah Division of Oil Gas and Mining (UDOGM) at the end of 2019. 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 CO₂, regardless of whether the carbon atom is part of a CO₂, CH₄, or another carbon-based molecule. Both Federal and non-federal wells are included in the emissions estimates. For context, Federal wells account for approximately 55% of all producing wells in Utah and Federal emissions likely account for a similar percentage of all oil and gas well emissions in the state.

Table 9. 2019 Baseline Annual GHG Emissions (MT CO₂e/yr.) from Existing Oil and Gas Wells.

Field Office	Number of Producing Wells	Operation Emissions	Combustion Emissions	New Well Construction Emissions	Annual O&G Emissions
Cedar City	0	0	0	0	0
Fillmore	1	2,025	0	0	2,025
Kanab	22	44,542	54,626	0	99,168
Moab	438	783,382	248,896	0	1,032,224
Monticello	719	1,285,874	2,180,178	8,1899	3,474,251
Price	1,340	573,977	2,492,670	0	3,066,647
Richfield	36	72,886	639,786	5,657	718,329
Salt Lake	50	101,231	172,567	0	273,798
St George	0	0	0	0	0
Vernal	11,229	4,809,838	24,891,442	79,404	29,780,684
Statewide Total	13,835	7,673,701	30,680,164	93,261	38,447,125

EPA Emission factors: 0.43 metric tons CO₂e/bbl, and 0.0551 metric tons CO₂e/mcf. (EPA 2019)

Production and well data obtained from the Utah Division of Oil Gas and Mining (UDOGM 2018).

Climate change is linked to the rising levels of GHG's in the atmosphere. Earth's atmosphere has a natural greenhouse effect wherein naturally occurring gases such as water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and fluorinated gases absorb and retain heat (EPA 2018). Several activities contribute to the phenomenon of climate change, including emissions of GHGs (especially CO₂ 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). The National Oceanic and Atmospheric Administration's Earth Systems Research Laboratory tracks atmospheric concentrations of GHG, and data from the annual mean concentration and rate of change for CO₂, CH₄, and N₂O, see Table 10.

Table 10. Global Atmospheric Concentration and Rate of Change of Greenhouse Gases

	CO ₂	CH ₄	N ₂ O
Pre-Industrial Concentration	280 ppm	0.700 ppm	0.270 ppm
2018 Atmospheric Concentration	407.38 ppm	1.857 ppm	0.331 ppm
2009-2018 Rate of Change	2.29 ppm/yr	0.007 ppm/yr	0.010 ppm/yr

Source: National Oceanic and Atmospheric Administration, Earth System Research Laboratory (NOAA/ESRL 2020), and EPA Inventory of US Greenhouse Gases Emission and Sinks 1990-2017 (EPA 2020)

The Annual Greenhouse Gas Index (AGGI) was developed to provide an easily understood standard for expressing the climate-warming influence of long-lived GHG's. Specifically, the AGGI is the ratio of the

total direct climate forcing from measured GHG concentrations compared to the 1990 baseline year. Climate forcing, sometimes called radiative forcing, is the difference between the amount of solar energy absorbed by the earth and the amount of energy that is radiated back to space. The 1990 year is given an AGGI value of 1.0 and the pre-industrial era is given a value of 0.0 (NOAA/ESRL 2019). The AGGI for 2018 was 1.43, which represents a 43% increase to climate forcing since 1990. While the AGGI does not predict the amount the Earth's climate has warmed, it does provide a measure of the effect that GHG emissions have on the climate system.

The level of climate forcing can be assessed by evaluating historical climate conditions such as temperature and precipitation. In the United States, climate data is reported by geographic regions called "climate divisions". The seven climate divisions in Utah are organized based on areas with similar terrain and weather stations observing the same general climate conditions. All climate divisions in Utah have some general similarities such as winter having the highest amount of monthly precipitation. Average temperature and precipitation and trend information for each Utah climate division is compiled from the NCEI Climate at a Glance Website (NOAA/NCEI 2020) and is presented in Table 10. The averages for the most recent climate normal period (three-decade timeframe, 1981 to 2010) are also presented for comparison to the average of all data from 1895 to 2019. Temperatures have been increasing 0.2 to 0.3 °F per decade. The North Central and Western Utah climate divisions have shown an increase in annual precipitation, while the other Utah climate divisions show little to no substantial change to annual precipitation. Additional details on climate in Utah is available in the AMR (BLM 2020).

Table 11. Current Climate Conditions and Trends in Utah

Climate Division	1895-2019 Mean		1895-2019 Trend (change/decade)		1981-2010 Mean	
	Temp (°F)	Precip (in.)	Temp (°F)	Precip (in.)	Temp (°F)	Precip (in.)
1, Western	49.6	9.83	+ 0.2	+0.06	50.2	10.45
2, Dixie	58.6	13.01	+ 0.2	-0.01	59.4	13.28
3, North Central	47.9	16.71	+ 0.2	+0.13	48.5	18.14
4, South Central	46.0	15.74	+ 0.2	+0.03	46.8	16.28
5, Northern Mountains	40.2	23.46	+ 0.2	+0.01	41.0	24.35
6, Uinta Basin	45.2	10.76	+ 0.3	+0.01	46.4	11.23
7, Southeast	51.6	9.80	+ 0.3	-0.01	52.7	10.10
State of Utah	47.8	13.46	+ 0.2	+0.03	48.7	14.05

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 (0.9°C) 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).

3.3.2.2 Environmental Consequences

Impacts of the Proposed Action

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, horse power, 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. Emissions estimates for a single well are provided in the AMR (BLM 2020). These estimates are conservative since many wells are developed on multi-well pads. Single wells emissions are reduced when developed on multi-well pads due to shared operational equipment and construction of a single pad, access road, and pipeline. Since there are no active producing fields in the Cedar City, Fillmore, and St. George field offices wells drilled in these areas are assumed to be exploratory and no operational or combustion emissions would occur.

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 GHG emissions from the potential development of lease parcels are listed in Table 11.

Table 12. Estimated Emissions from Construction and Operating Potential Future Wells

Field Office	Development Assumption (wells)	Single Well Emissions (MT CO ₂ e)		Total Emissions (MT CO ₂ e)	
		Construction	Operation/yr	Construction	Operation/yr
Cedar City	2	943	0	1,886	0
Moab	1	2,733	1,788	2,733	1,788
Vernal	1	679	428	679	428
Total	4	-	-	5,297	2,217

Using the 20-year GWP time horizon, emissions estimates for well construction and operation are 6,175 MT CO₂e and 5,121 MT CO₂e/yr. The 20-year GWP overestimates emissions since the single well emissions inventories used in this analysis were developed before implementation of Utah Administrative Code R307-511: Associated Gas Flaring Requirements. This rule requires that associated gas either be

routed to a sales pipeline, combustor unit, or other VOC control device which results in a reduction of methane emissions and the 20-year GWP.

Emissions from Combustion of Produced Oil or Gas

If lease parcels are developed and if the resulting wells produce oil or gas, GHG emissions are expected to result from the downstream end-use of the fossil fuel. To calculate estimates of downstream emissions for this EA, the 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.

As BLM does not know how much oil or gas will be produced from the parcels that would be affected by the proposed action, the BLM has assumed future wells will produce oil and gas in similar amounts as existing nearby wells. Annual production for a single well is estimated by taking ten years (2010 to 2019) of production data and dividing it by the number of producing wells during the same period. Single well annual production is multiplied by the number of wells assumed to be developed from this lease sale and emissions factors to provide an estimate of downstream combustion emissions. Since this approach uses production data from both new and old wells the emissions estimates are representative of average annual emissions over the entire life of a well. Emissions may differ for individual years, with new wells likely having higher GHG combustion emissions and older wells having lower emissions due to production decline as wells age.

Estimates of GHG emissions from combustion are 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 CO₂, regardless if the carbon atom is part of a CO₂, CH₄, or other hydrocarbon molecule. Estimates of downstream GHG combustion emissions are provided in Table 12.

Table 13. Annual Estimated Emissions from Combustion of Produced Oil and Gas from the Proposed Action

Field Office	Development Assumption (wells)	Estimate Produced Oil (bbl)	Estimated Produced Gas (mcf)	Estimated Combustion (MT CO ₂ e/yr)
Cedar City	2	0	0	0
Moab	1	1,090	7,934	906
Vernal	1	2,346	26,544	2,471
Total	4	3,437	34,478	3,377

The total estimated GHG annual emissions from well operations (Table 11) and fossil fuel combustion (Table 12), from development on the parcels considered is 5,594 MT CO₂e. This is 0.008% of Utah emissions (Table 7) and 0.015% of existing oil and gas wells (Table 8) in the state. 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 annual emissions are equivalent to 1,209 passenger vehicles driven for one year and would require approximately 7,306 acres of U.S. forests to sequester. 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 0.17 MMT CO₂e.

Since climate impacts are a result of global aggregate GHG emissions, climate change impacts are discussed in the cumulative impacts section of this document.

Social Cost of Carbon and Carbon Budgeting

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). This requirement was subsequently withdrawn by Executive Order No. 13783, 82 FR 16093 (Mar 28, 2017). The action considered here is not a rulemaking and does not require a regulatory-impact analysis.

Carbon budgeting is an approach for identifying how much additional CO₂ 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 (IPCC 2018)). 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 could 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 IPCC 2018 Special Report, “uncertainties in the size of these estimated remaining carbon budgets are substantial.” The IPCC estimates the budget for a 50/50 chance of exceeding 1.5C at 580 gigatonnes of CO₂ (GtCO₂), with an uncertainty of ± 400 GtCO₂. 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 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 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.

Instead of relying on a cost-benefit analysis or carbon budgets, 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.

Impacts of the No Alternative Action

Under the No Action Alternative, the parcels would not be leased so no foreseeable 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 IPCC prepared a special report in 2018 (IPCC 2018) on the impacts of global warming of 1.5 °C above pre-industrial levels, and related global greenhouse gas emission pathways. At the end of 2017 human activities are estimated to have caused 1.0 °C warming since pre-industrial times, with 1.5 °C warming expected to occur sometime between 2030 and 2052. The report states that limiting global

warming to 1.5 °C compared to 2.0 °C or more would lower the projected climate change impacts and adaptation needs. However, the IPCC special report also states that stringent and integrated policies across sectors and scales are needed to mitigate emissions to limit warming to 1.5 °C. Such policy actions are beyond the scope of the Proposed Action being considered by the BLM.

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

The CIAA for GHG emissions and climate change occurs on various scales (local, state, national, and global). Emissions and impacts from past and present actions are presented in Section 3.3.2.1 and foreseeable emissions are discussed in this section of the EA. Climate impacts occur throughout the globe and may include increases in atmospheric and ocean temperatures, sea level rise, impacts to ecosystems and ecosystem biodiversity, changes to weather phenomena (increase in frequency, intensity, and duration), and other impacts that are too numerous to list. The BLM presents emissions and impacts information on scales that are meaningful to the decision being made.

GHG emissions from past and present oil and gas development and from other sectors is provided in Section 3.3.2. The affected environment section also discusses the existing conditions and trends for atmospheric GHG concentrations and climate resulting from emissions of past and present actions. Estimates of foreseeable emissions and resulting climate conditions is presented in this section.

Short-term foreseeable GHG emissions from oil and gas wells in Utah are estimated from approved applications for permit to drill (APD) that have not been drilled to completion. However, not all APDs are drilled, and not all wells that are drilled go into production. Over a 5-year period (2015-2019), only 50% of APD's were drilled in Utah with 92% of the wells drilled going into production. For the same 5-year period there has also been an average of 183 wells per year that were plugged. Using this information, it is assumed that of the 231 approved APD's at the beginning of 2020 that have not been drilled yet, approximately 116 wells will be drilled with 107 of them going into production. Factoring in the wells plugged each year results in a net decrease of 60 operating wells. Multiplying these numbers with statewide single well emissions factors (see AMR (BLM 2020)) results in construction emissions 88,997 MT CO₂e, and a statewide average decrease in operation and combustion emissions of 42,154 MT CO₂e/yr and 195,631 MT CO₂e/yr respectively.

Long-term foreseeable GHG emissions estimates from oil and gas wells in Utah are estimated by applying U.S. Energy Information Administration (EIA) projected growth rates for oil and gas production to the 2019 baseline emissions estimates in Table 8. The high and low oil price scenarios for the Rocky Mountain region are used from the EIA 2020 Annual Energy Outlook (EIA 2020) to provide a range of future oil and gas production growth in Utah. Since GHG emissions are roughly parallel to production volumes (USGS 2018), the EIA growth projections are applied to the base year construction, operation, and combustion emissions to estimate total annual GHG emissions each year through the year 2050. From 2020 to 2050, the annual average oil and gas related emissions in Utah are estimated to range from 35.04 to 42.74 MMT CO₂e/yr, with aggregate emissions between 1,086.27 to 1,325.05 MMT CO₂e/yr. Field office level emissions are provided in the AMR (BLM 2020). Assuming the distribution of wells remains the same for each mineral lease type (Federal, State, Tribal Private), approximately 55% of the emissions would result from Federal leases.

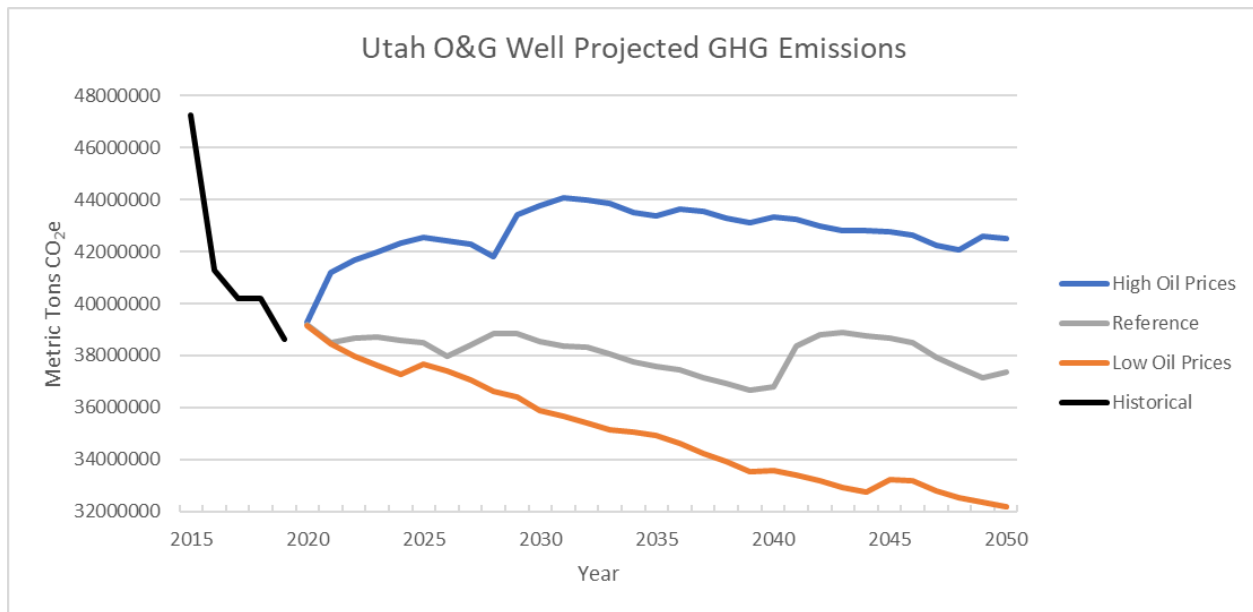


Figure 4. Estimated future GHG emissions from oil and gas wells in Utah, based on EIA projected oil and gas production for the Rocky Mountain region (EIA 2020).

Information from BLM’s Greenhouse Gas and Climate Change Report (Golder 2017) provides projections of foreseeable GHG emissions from BLM fossil fuel mineral leasing. This report calculated GHG emission estimates for normal and high energy development scenarios for each state with federal fossil mineral resources managed by the BLM, including Utah. National Federal GHG emission from coal, oil, natural gas, and liquid natural gas are projected to decrease from the baseline year (2014) by 24.3% and 21.3%, respectively for the 2030 future year normal and high scenarios. Utah’s contribution to regional (Colorado, New Mexico, Utah, and Wyoming) Federal GHG emission increases to 5.7% and 5.6% of the 2030 normal and high scenarios respectively. Utah’s contribution to national Federal GHG emission is projected to be 5.3% for both the 2030 normal and high scenarios.

The U.S. Energy Information Administration (EIA) provides projections of energy sector GHG emissions through the year 2050. The EIA national emissions projections are contained in the Annual Energy Outlook report (EIA 2020). In the United States, energy related GHG emissions in the reference scenario are projected to decrease over the short-term (4,674 MMT CO₂ in 2030) as the power sector transitions away from coal, but energy demands from the transportation and industrial sectors will cause emissions increases in later years through 2050 (4,922 MMT CO₂ in 2050). Economic growth is the biggest factor in national GHG emissions projections. For a high economic growth scenario, emissions are 13% higher than the reference scenario in 2050 and the emissions in the low growth scenario are 11% lower than the reference by 2050. The EIA also reports global emissions projections in the International Energy Outlook report (EIA 2019). Worldwide energy related GHG emissions are projected to increase by 0.6% per year from 2018 to 2050. Over the same time period annual energy sector emissions increases from about 35 billion metric tons CO₂e to about 43 billion metric tons CO₂e. GHG emissions from development of lease parcels would add cumulatively to other past, present, and foreseeable oil and gas emissions, as well as emissions from other sectors.

The University of Utah Kem C. Gardner Policy Institute developed The Utah Roadmap: Positive Solutions on Climate and Air Quality (Gardner 2020), which projects future GHG emissions in Utah. The report provides estimates for a “Business as Usual” scenario that considers population and energy demand increases with currently scheduled emissions reduction measures not being implemented, and a “Planned Reduction” scenario that includes foreseeable emissions reductions from the end of life of coal power plants and the increased use of electric vehicles. In the “Business as Usual” scenario, the annual emissions for Utah increase to approximately 95 MMT CO₂e by 2050, or a 32% increase above current emissions, whereas, the “Planned Reduction” scenario shows a decrease in Utah emissions to approximately 32 MMT CO₂e by 2050, which is about a 55% decrease below current emissions. The roadmap set a goal to reduce GHG emissions to about 15 MMT CO₂e, approximately 80% below current emissions, but additional action by the State of Utah is needed to reach this goal.

The IPCC developed various emissions scenarios, called Representative Concentration Pathways (RCP) to provide a consistent foundation for climate change modeling and impact assessment. The RCP's are a set of GHG emissions and concentrations trajectories based on potential future energy use, population, and changes to air pollution and land use. There are four scenarios named after the amount of radiative forcing in watts per square meter (RCP2.6, RCP4.5, RCP6, and RCP8.5) that is projected to occur by the year 2100 if actual atmospheric concentrations of GHG's follow one of these paths. There are several other pathways that lead to each level of radiative forcing, but these four RCPs provide plausible emissions paths for assessing the range of possible changes to the climate. Figure 5 shows the different RCP emissions scenarios (bold lines) though the year 2100. Global energy related GHG emissions projections tack closest to RCP6.0 and RCP4.5 though mid-century. 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 (nationally) normal and high emissions scenarios track closest to RCP 8.5 in 2020 and between RCP 2.5 and RCP 4.5 in 2030.

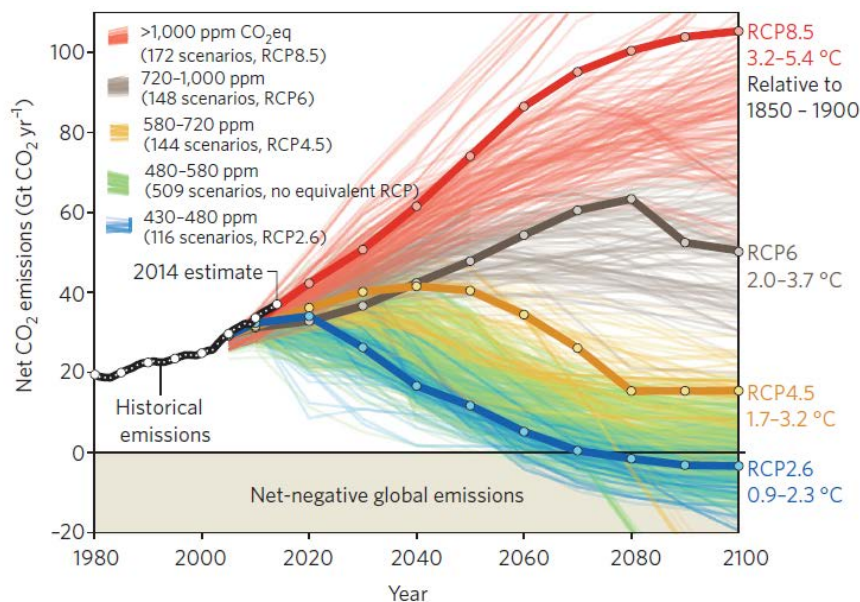


Figure 5 GHG emissions pathways for lead to radiative forcing of 8.5 W/m² (red), 6.0 W/m² (gray), 4.5 W/m² (yellow), and 2.6 W/m² (blue) by the year 2100. Source of figure: (Fuss, et al. 2014)

Climate Change

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. 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 the AMR (BLM 2020) and are summarized here.

For both the RCP8.5 and RCP4.5 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 5°F or warmer by 2100. For the RCP4.5 scenario, both maximum and minimum temperatures level off approximately 5°F warmer than historical temperatures, while the RCP8.5 scenario shows a continued increasing trend at year 2100. Projected changes to monthly precipitation for both emission scenarios are minimal (not statistically significant) with respect to historic precipitation but show a slight increase in precipitation for RCP8.5 during the winter. The historical precipitation falls within the upper and lower ranges for all projected 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. Further, the EPA report on What Climate Change Means for Utah (EPA 2016) states that there may be increased frequency of drought and wildfires, increase the demand for water while reducing the water supply, and increased impacts to human health.

The proposed action may result in emissions of (0.17 MMT CO₂e) over a 30 year period which would be that 0.02% of the low (1,086.27 MMT CO₂e) and 0.01% of the high (1,325.05 MMT CO₂e) aggregate emissions estimates based on EIA projections for oil and gas production growth. While annual GHG operation and combustion emissions would increase statewide emissions by 0.008% and national emissions by 0.0001% (Table 7). 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 development of those leases would not occur.

3.3.3 Issue 3: What are the potential impacts to social and economic conditions and Environmental Justice?

3.3.3.1 Affected Environment

The study area includes Grand, Iron, and Uintah counties in the State of Utah.

Socioeconomics

Because socioeconomic (SE) data are typically available at the county level, county boundaries are used to define the SE study area. Data were obtained from the U.S. Department of Labor, the Bureau of Labor Statistics, local area unemployment statistics, the U.S. Department of Commerce, and the Census Bureau, as compiled by the Headwaters Economics Socioeconomic Profiles Tool developed for the BLM.

Land Ownership

There are 7,353,416 total acres within the study area. Of those, 4,595,093 acres, 62.5 percent of the total, are federally-owned lands, and 3,864,127 of those acres are managed by the BLM. 1,368,999 acres within the study area are privately owned, 627,666 are Tribal lands, and 5,406,273 are owned by state, county, city, or other non-federal agencies.

Population, Employment, and Income

The total population in the study area was 97,977 in 2018, representing an increase of 44.9 percent from 2000 to 2018. The largest contributor to this change in total population was natural change. The number of employed workers in the study area in 2018 was 54,085. In 2019, the average annual unemployment rate was 3.5 percent. From 2000 to 2018, employment increased by 40.1 percent. In 2018, 90.0 percent of workers aged 16 and over within the study area worked in their county of residence. Per capita income in the study area in 2018 was \$34,756, as measured in 2019 dollars, an increase of 33.6 percent from 2000 to 2018.

Poverty, Minorities, and Other Demographic Indicators

In 2018, the total number of people living in poverty, as defined by the U.S. Census Bureau, was 14,719, or 15.6 percent of the population. In the same year, there were 2,502 families living in poverty, or 11.2 percent of all families. Out of all persons living within the study area in 2018, 15,301, or 16.0 percent, self-identified as being a member of a minority group. Of those, 4,201, or 4.4 percent of the total population, self-identified as American Indians. The mean median age within the study area in 2018 was 33.4 years. The total number of housing units was 39,753 of which 77.6 percent were occupied and 9.0 percent were seasonal, recreational, or occasionally-occupied properties. Of those living within the study area aged 25 or older, 23.5 percent had earned a bachelor's degree or higher in 2018.

Jobs by Industry

In 2018, there were approximately 10,900 total jobs in non-services industries in the study area. In the same year there were around 34,400 jobs in services related industries, and there were approximately 9,100 additional jobs in the government sector. This total includes federal, state, county, and local government jobs. In 2018, the industries employing the largest numbers of employees in the study area were: government (primarily state, county and local government); retail trade; accommodation and food services; health care and social assistance; and real estate, rental, and leasing.

Wages by Industry

Within the study area, the average annual wage for all reported jobs was \$38,328 in 2018 (2019 dollars). The highest paying industries, on average, were mining, finance, manufacturing, and federal government.

Non-labor Income

Non-labor income—which includes dividends, interest payments, rent, age-related transfer payments, hardship-related payments, and other transfer payments—can be important in local economies. Where non-labor income is a relatively high percentage of all income, it is likely that there are a higher number of retirees in comparison to other regions. In 2018, total non-labor income within the study area was \$1,432,706,000, representing 42.1 percent of all income, measured in 2019 dollars. The highest category of non-labor income in the same year was dividends, interest, and rent, with \$772,818,000 in total income.

Federal Land Payments

In fiscal year 2018, a total of \$8,788,935 (2019 dollars) was paid by federal land management agencies to state and local governments. Of those payments, \$7,790,905 were Payments In Lieu of Taxes (PILT), and \$245,379, or 2.8 percent of the total, were from the BLM.

Environmental Justice

“Environmental justice” is an initiative that culminated with President Clinton’s February 11, 1994, Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” and an accompanying Presidential memorandum. The Executive order requires that each federal agency consider environmental justice to be part of its mission. Its intent is to promote fair treatment of people of all races and income levels, so no person or group of people bears a disproportionate share of the negative effects from the country’s domestic and foreign programs. Specific to the EIS process, the Executive order requires that proposed projects be evaluated for “disproportionately high adverse human health and environmental effects on minority populations and low-income populations.”

The Environmental Protection Agency (EPA) guidelines for evaluating the potential environmental effects of projects require specific identification of minority populations when either: (1) a minority or low-income population exceeds 50 percent of the population of the affected area; (2) a minority or low-income population represents a meaningfully greater increment of the affected population than of the population of some other appropriate geographic unit, as a whole (the BLM typically uses 10 percentage points higher than the state population percentage for this measure); or (3) concentrated populations of American Indians.

Within the study area, all three EJ population types are present in one or more Census Blockgroups, based on analyses completed using the EPA’s EJScreen web mapping tool.

3.3.3.2 Environmental Consequences

Impacts of the Proposed Action

Socioeconomics

The only direct impact of issuing new oil and gas leases on socioeconomic values within the Analysis Area would be generation of revenue from the lease sale, as the State of Utah retains 49 percent of the proceeds. Revenues generated from both competitive and non-competitive oil and gas lease sales (winning bid “bonus” payments) in the study area for calendar year 2019 totaled just under \$9 million; bonus revenues from 2003 to 2019 totaled \$71.8 million. Revenues generated from rents on oil and gas parcels leased but not producing in the study area for calendar year 2019 totaled \$824,000; rent payments from 2003 to 2019 totaled \$21.8 million (ONRR 2020). Subsequent oil and gas exploration, development and production could affect the local economy in terms of additional jobs, income and tax revenues. Oil and gas companies typically provide in-house scientists and technicians for most pre-drilling exploration work. Subsequent oil and gas exploration and development activities could include road and drill pad construction, which could be contracted to local contractors. Wells would typically be drilled over a period of time and not at the same time. The crews, ranging from 20 to 30 people, would spend a portion of their salary (approximately \$200-\$250 per person per day) in local or regional communities for the duration of the project (four to eight weeks).

During development and production phases, the potential for local socioeconomic impacts could increase. More long-term roads and drill pads could be constructed, along with associated support facilities. Typically, most of this work is supplied by local contractors. Local businesses may realize increased revenue from the purchase of supplies, meals, rooms, etc. Local trucking and delivery companies may also benefit economically by transporting supplies, building materials and oil products. Oil production from federal lands is subject to a 12.5 percent royalty payment to the federal government. Half of that amount is provided to the state government, which then provides a portion to the counties.

Economic effects from oil and gas were estimated using IMPLAN regional economic impact modeling software using the most recent available data, which was for calendar year 2018. Because of recent changes in the U.S. and global economies and in the oil and gas sectors in particular, it is understood that none of the figures shown below will accurately reflect current economic conditions. In the future, as more data are made available showing how changes in economic conditions are being felt at state and county levels, updated modeling and analysis will be able to provide more accurate figures and estimates of economic effects (IMPLAN 2020).

Positive indirect impacts to socioeconomics from oil and gas production would likely be minor, given the RFD scenarios; however, bonus bids (the amount paid at time of auction), annual rent fees (for 10 years regardless of activity on a leased parcel), and royalties (if and when production occurs) may provide substantial income to county governments for schools and other expenditures. The Proposed Action would not be expected to induce substantial growth or concentration of population, displace a large number of people, cause a substantial reduction in employment, reduce wage and salary earnings, cause a substantial net increase in county expenditures, or create a substantial demand for public services. For every \$100,000 in new oil and gas output sold from the economic region, the aggregate economies of the counties in the study area are expected to support approximately 0.5 jobs, \$23,000 in labor income, and \$124,000 in total economic output. With a reduction in output from the oil and gas sector, converse effects would be expected to occur. Increased activity in oil and gas development and operations could

have an impact on the demand for community services as well as having some effect on available housing and demand for goods and services within the affected county or counties.

Regional economic effects are typically measured in direct, indirect, and induced impacts:

- Direct effects measure the economic impact of operating expenditures made by one or more economic enterprises within the study area (and within the specific industry or industries included in the study) on labor, materials, supplies, and productive capital.
- Indirect effects measure the purchases of goods and services and the hiring of labor to meet demand for inputs (factors of production) that are purchased within the study area in support of the economic activities accounted for in the direct impacts described above.
- Induced effects measure the economic impact that occurs as a result of household purchases of goods and services by employees of the economic enterprise(s) accounted for in direct impacts.

Multipliers express the total size of the economic effects, calculated by dividing total effects by direct effects. For example, an employment multiplier of 1.4 would mean that for each direct job supported by a specific change in economic activity, that activity would be expected to support an additional 0.4 jobs in indirect and induced employment.

Table 14. Oil and Gas Employment Effects

Oil and Gas (2018 data in 2020 dollars)					
Employment Effects (Marginal number of jobs supported per \$100,000 in new oil and gas production)					
County	Direct Effect	Indirect Effect	Induced Effect	Total Effect	Multiplier
Grand	0.3	0.1	0.1	0.4	1.72
Iron	0.6	0.1	0.1	0.8	1.25
Uintah	0.2	0.1	0.1	0.3	2.02
Study Area Mean	0.4	0.1	0.1	0.5	1.66
Labor Income Effects (Marginal labor income supported per \$100,000 in new oil and gas production)					
County	Direct Effect	Indirect Effect	Induced Effect	Total Effect	Multiplier
Grand	\$17,146	\$7,260	\$3,796	\$28,203	1.64
Iron	\$5,793	\$3,933	\$1,436	\$11,163	1.93
Uintah	\$21,595	\$4,003	\$3,162	\$28,760	1.33
Study Area Mean	\$14,845	\$5,065	\$2,798	\$22,709	1.63
Output Effects (Marginal economic output supported per \$100,000 in new oil and gas production)					
County	Direct Effect	Indirect Effect	Induced Effect	Total Effect	Multiplier
Grand	\$100,000	\$13,855	\$13,597	\$127,451	1.27
Iron	\$100,000	\$15,581	\$5,680	\$121,261	1.21
Uintah	\$100,000	\$9,480	\$12,257	\$121,737	1.22
Study Area Mean	\$100,000	\$12,972	\$10,511	\$123,483	1.23

In some parts of the study area, there is concern about effects on recreation and tourism activities due to oil and gas development. Within the economic region, based on 2018 data—the most recent data set available—it is estimated that every \$100,000 in new spending above the existing baseline in recreation and tourism-related industrial sectors would be expected to support an estimated average of 1.3 jobs, \$39,000 in labor income, and \$115,000 in total economic output. A reduction of spending within the same industrial sectors would have opposite effects. Examples of business types included in modeling the economic effects from recreation and tourism spending include gas stations, sporting goods stores, grocery stores, restaurants, hotels and motels, and so on.

The specific economic effects listed above vary widely from county to county within the study area. Where recreation and tourism play a greater role in a county's economy, the economic effects from an increase or reduction in spending would be greater than in the study area on average. The opposite is also true. Given the specific location of the nominated parcel in Grand County, it is not expected that leasing this parcel would have any current or future impact on the Grand County recreation and tourism economy.

Table 15. Recreation and Tourism Employment Effects

Recreation and Tourism (2018 data in 2020 dollars)					
Employment Effects (Marginal number of jobs supported per \$100,000 in new recreation and tourism spending)					
County	Direct Effect	Indirect Effect	Induced Effect	Total Effect	Multiplier
Grand	1.1	0.2	0.2	1.5	1.34
Iron	1.1	0.2	0.1	1.4	1.30
Uintah	0.7	0.1	0.1	0.9	1.27
Study Area Mean	1.0	0.2	0.2	1.3	1.30
Labor Income Effects (Marginal labor income supported per \$100,000 in new recreation and tourism spending)					
County	Direct Effect	Indirect Effect	Induced Effect	Total Effect	Multiplier
Grand	\$34,381	\$6,034	\$6,230	\$46,645	1.36
Iron	\$22,086	\$4,983	\$3,925	\$30,994	1.40
Uintah	\$30,802	\$4,545	\$3,536	\$38,883	1.26
Study Area Mean	\$29,090	\$5,187	\$4,564	\$38,841	1.34
Output Effects (Marginal economic output supported per \$100,000 in new recreation and tourism spending)					
County	Direct Effect	Indirect Effect	Induced Effect	Total Effect	Multiplier
Grand	\$91,671	\$24,745	\$22,303	\$138,718	1.51
Iron	\$85,601	\$20,011	\$15,504	\$121,116	1.41
Uintah	\$61,975	\$10,823	\$12,178	\$84,976	1.37
Study Area Mean	\$79,749	\$18,526	\$16,662	\$114,937	1.43

Unique to Iron County in this analysis is potential impacts to real estate values and real estate development. Due to the proximity of the nominated parcels to residential and commercial developments

as well as to developable lands near Cedar City, possible impacts to the real estate industrial sector are included here. It is uncertain as to how property values might be impacted by future oil and gas development should the nominated parcels eventually go from lease to production. The estimated impacts shown are for a \$100,000 increase in spending on the real estate industrial sector in Iron County. A \$100,000 decrease in spending in the same sector would be expected to result in similar impacts in the opposite direction of change.

Table 16. Iron County Real Estate Effects

Real Estate, Iron County (2018 data in 2020 dollars)					
Employment Effects (Marginal number of jobs supported per \$100,000 in new real estate spending)					
County	Direct Effect	Indirect Effect	Induced Effect	Total Effect	Multiplier
Iron	0.9	0.4	0.1	1.4	1.52
Labor Income Effects (Marginal labor income supported per \$100,000 in new real estate spending)					
Iron	\$6,860	\$9,394	\$2,370	\$18,624	2.71
Output Effects (Marginal economic output supported per \$100,000 in new real estate spending)					
Iron	\$100,000	\$40,356	\$9,365	\$149,721	1.50

Environmental Justice

Because all three types of EJ populations are known to exist within the counties included in the study area, future site development and production on leased parcels will require an additional Environmental Justice assessment to assess and evaluate potential disproportionate adverse impacts on any EJ population(s) present in the project area.

Impacts of the No Action Alternative

Socioeconomics

Under the No Action Alternative, current trends and conditions would continue without the influence of additional changes in oil and gas industry.

Environmental Justice

Under the No Action Alternative, it is not anticipated that there would be any specific disproportionate adverse impacts to EJ populations living within the study area.

3.3.3.3 Required Design Constraints/Mitigation Measures

Socioeconomics

There are no required design constraints or mitigation measures under socioeconomics.

Environmental Justice

No disproportionate adverse impacts to EJ populations are anticipated as a direct effect of the Proposed Action. The Environmental Justice Executive Order requires the BLM to minimize and/or mitigate any disproportionate adverse impacts to EJ populations. Should such adverse impacts be anticipated due to future exploration and development activities in connection with any parcels leased under the Proposed Action, these potential effects and any need for minimization or mitigation would be evaluated at the time of those activities.

3.3.3.4 Cumulative Impacts

Socioeconomics

To the extent that separate future activities within the study area affect the county economies included in this analysis, social and economic impacts could be compounded by those activities.

Environmental Justice

Should separate present and/or future actions undertaken by federal or non-federal entities be found to affect EJ populations within the study area, effects that could follow as a result of exploration, development, or production following the Proposed Action, could potentially compound those impacts.

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 16.

4.2.1 National Historic Preservation Act (NHPA) of 1966

The BLM is preparing a cultural resources report for the parcels nominated for the December 2020 sale 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).

Agreement:

- State Protocol Agreement Between the Utah State Director of the Bureau of Land Management and the Utah State Historic Preservation Office Regarding the Manner in which the BLM Will Meet its Responsibilities Under the National Historic Preservation Act as provided for in the National Programmatic Agreement (January 2020)

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 described in the report for the December 2020 lease sale undertakings 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.

In association with the December 2020 parcels, the BLM invited the following Native American tribes to participate in Government to Government consultations via certified letter sent July 16, 2020:

All Pueblo Council of Governors, Cedar Band of Paiutes, Colorado River Indian Tribes, Confederated Tribes of the Goshute, Eastern Shoshone, The Hopi Tribe, Indian Peaks Band of Paiutes, Kaibab Band of Paiute Indians, Konosh Band of Paiute, Moapa Band of Paiute Indians, Navajo Nation, Northwestern Band of Shoshone, Paiute Indian Tribe of Utah, Pueblo of Acoma, Pueblo of Cochiti, Pueblo of Isleta, Pueblo of Jemez, Pueblo of Kewa (Santo Domingo), Pueblo of Laguna, Pueblo of Nambe, Pueblo of Ohkay Owingeh, Pueblo of Picuris, Pueblo of Pojoaque, Pueblo of San Felipe, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Santa Clara, Pueblo of Taos, Pueblo of Tesuque, Pueblo of Ysleta del Sur, Pueblo of Zia, Pueblo of Zuni, San Juan Southern Paiute, Skull Valley Band of Goshute Indians, Southern Ute Indian Tribe, Ute Indian Tribe, Ute Mountain Ute Tribe, and White Mesa Ute.

The UTSO BLM also sent invitations to potential National Historic Preservation Act (NHPA) consulting parties on July 16, 2020. Invitations were sent to Friends of Cedar Mesa, the Utah Rock Art Research Association, School and Institutional Trust Lands Administration, Public Lands Policy Coordination Office, the Old Spanish Trail Association, Utah Professional Archaeological Council, Utah Statewide Archaeological Society, LDS Church History, Iron County, Grand County, San Juan County, and Uintah County. At this time Friends of Cedar Mesa, San Juan County, and the Utah Rock Art Research Association have requested consulting party status.

On August 2, the Pueblo of Santa Ana responded to the BLM that they are upset that a contact email address was not provided to them in the BLM letter dated July 16.

On August 3, the Hopi Tribe responded that due to the pandemic they are unable to adequately conduct review and government to government consultation on the September and December 2020 oil and gas lease sale. They additionally recommended that the September and December 2020 lease sales be cancelled. In their letter, they also noted that BLM's letter dated July 16 made references to both the September and December 2020 lease sales. On August 10, the BLM sent the Hopi Tribe an email to

clarify that any reference to the September sale in the July 16 letter was made in error and that the letter was intended to only discuss the December 2020 oil and gas lease sale. The Hopi Tribe responded to the BLM's clarification email on August 11 and provided a second copy of their August 3 letter which included an additional paragraph referencing the Advisory Council on Historic Preservation (ACHP) guidance for tribal consultation during the pandemic. Specifically, it references pausing consultation during the COVID-19 outbreak if a tribe is closed or work conditions are such that they are unable to perform Sec. 106 duties or statutory rights to consultation in a timely fashion.

On August 4, San Juan County requested consulting party status. Within their request, the county acknowledges that all parcels with the county have been deferred; however, they argue that they still have interests and concerns for the December 2020 lease sale.

On August 5, Friends of Cedar Mesa requested consulting party status limited to the parcels within the Monticello Field Office. Due to the deferral of all 17 parcels within the Monticello Field Office subsequent to when the BLM sent invitations to potential consulting parties and before Friends of Cedar Mesa made their request, the BLM has denied Friends of Cedar Mesa's consulting party request because it is no longer applicable to the sale. Additionally, Friends of Cedar Mesa has not demonstrated interest as a potential consulting party outside of San Juan County.

On August 10, the Utah Rock Art Research Association requested consulting party status.

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

4.2.2 Endangered Species Act of 1973

The effects of Oil and Gas leasing development on T&E species were analyzed through Section 7 consultation on, as follows:

- Existing Utah BLM Resource Management Plans: 2007 (Cons # 6-UT-07-F0018)
- Moab RMP: 2008 (Cons. # 6-UT-08-F-0022)
- Moab MLP: 2016 (Cons. # 6-UT-16-F-0223), Lease Notices applied throughout Moab FO through RMP Maintenance
- Monticello RMP: 2008 (Cons. # 6-UT-08-F-0024)
- Vernal RMP: 2008 (Cons. # 6-UT-08-F-0025)
- Ongoing Informal Consultation to incorporate lease notice for Yellow-billed cuckoo within Cedar City Field Office.

During the consultations, Lease Notices to inform the potential lessees of the potential that T&E species may be affected by oil and gas activities were developed and have been attached to parcels as appropriate. The December 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 existing consultations; and 2) would not exceed the effects contained in the associated USFWS concurrences with BLM's Not Likely to Adversely Affect (NLAA) determinations.

- December 2020
 - Email with preliminary shapefiles: on July 6, 2020.
 - Email with additional information supporting determination: July 30, 2020
 - USFWS Agreement with BLM Determinations: coordination is ongoing

When or if disturbance is proposed for parcels (development stage) that contain or affect ESA species, further evaluation and Section 7 consultation of these ESA species with the USFWS will occur as necessary.

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 July 2, 2020, 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 July 2, 2020. Emails were sent on transmitting the corresponding shapefiles on July 6, 2020 and additional information sent on July 30, 2020. Coordination is ongoing. 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 July 2, 2020. Comments or concerns were not expressed. Coordination is ongoing.
Public Lands Policy Coordination Office (PLPCO)/ Utah Division of Wildlife Resources (UDWR)	Coordinated with as leasing program partner.	Letters transmitting the preliminary list of parcels were sent on July 2, 2020. An e-mail with GIS shapefiles was sent to UDWR on July 16, 2020, to satisfy the requirements of IM-2012-43.
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 July 2, 2020. Comments or concerns were not expressed.
State Historic Preservation Office and Consulting Parties	Consultation as required by NHPA (16 USC 470)	On [ongoing], a No Adverse Effect determination was mailed to the SHPO. On [ongoing] SHPO concurrence was received. Coordination is ongoing.
Various Tribal Governments (see section (see section 4.2)	Consultation as required by the American Indian Religious Freedom Act of 1978 (42 USC 1996) and NHPA (16 USC 470)	On July 16, 2020 UTISO sent an invitation to consult letter to each tribe listed in the above section. On August 2, BLM received an email response from the Pueblo of Santa Ana which states that they are upset that a contact email address was not provided to them.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
		<p>On August 3, the Hopi Tribe responded in a letter stating that “because of the pandemic, at this time we are unable to adequately conduct review and government to government consultation on the September and December 2020 oil and gas lease sales.”</p> <p>Coordination and consultation will continue up until the lease auction, at the request of any tribe.</p>
City of Moab, and Grand County	Coordinated with as a leasing program partner.	<p>The City of Moab and Grand County each requested to be a cooperating agency on the December Lease Sale EA. The City of Moab and Grand County each signed Memorandums of Understanding to be a cooperating agency on this lease sale. Grand County submitted its concerns via email on August 4. Grand County requested the BLM to look at the negative socioeconomic impacts of oil and gas development to Grand County’s tourist-based economy. The City of Moab submitted its concerns via email on August 7, requesting that the BLM analyze impacts to recreational, economic, and water resources in the region of the parcel in Grand County. The BLM has completed analysis. Refer to section 3.3.3 and Table 3. Coordination is ongoing.</p>

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 16.

Comment Period

As introduced in Section 1.2, the preliminary EA and the unsigned Finding of No Significant Impact (FONSI) for the December Lease Sale were posted and made available for a 15-day public review and comment period on August 20, 2020. This announced the 15-day comment period (08/20/2020-09/04/2020) 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.

[Ongoing] comment letters were received. [Ongoing] comment letters were non-substantive comments are defined in the NEPA Handbook, H-1790-1, (section 6.9.2.), and the other [ongoing] comments letters did have substantive comments. The comment letters [ongoing] and BLM's responses [ongoing] to the points made in the letters will be contained in Appendix H. Minor changes to this EA may be made as a result of some comments that will be received during the 15-day public comment period.

NHPA Coordination

For the 21 parcels nominated for the December Lease Sale, on July 16, 2020, the BLM mailed letters 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 BLM has not received any consultation requests from members of the public or individuals or organizations with a demonstrated interest in the undertaking at this time.

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 provide a copy of the December 2020 Cultural Resources Report to Tribes who have requested consulting party status. Coordination and consultation will continue up until the lease auction, at the request of any tribe.

Modifications Based on Public Comment and Internal Review [Reserved]

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

4.4 Preparers

An IDPRT prepared the document and analyzed the impact of the proposed action upon the various resources (Table 15). 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
[vacant]	Natural Resource Specialist	Project Lead, Oil and Gas Leasing Program Coordinator
Tylia Varliek	Archaeologist	Oil and Gas Leasing Program, NHPA Compliance
Dave Cook	Natural Resource Specialist	Oil and Gas Leasing Program, Wildlife
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
Jared Dalebout	Hydrologist	Oil and Gas Leasing Program, Wetland, Riparian, Hydrology
Jared Reese	Wildlife Biologist	Oil and Gas Leasing Program, Greater Sage-Grouse
Aaron Roe	Botanist	Oil and Gas Leasing Program, USFWS Consultation
Erik Vernon	Air Quality Specialist	Oil and Gas Leasing Program, Air Quality; Greenhouse Gases.
Julie Suhr Pierce	Great Basin Socioeconomic Specialist	Oil and Gas Leasing Program, Socioeconomics, Environmental Justice
Melinda Moffitt	Acting 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 [Reserved]

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)	

001 Cedar City Field Office

UT1220 – 001 NFLSS Parcel ID UT-2020-12-0860 T. 34 S., R. 12 W., Salt Lake Meridian Secs. 1, 3, 11, and 12: All. 2550.96 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
UT-S-130: CSU – Water Bodies	T&E-26: Southwestern Willow Flycatcher Habitat – Riparian Areas
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	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-156: Pollinators and Pollinator Habitat

002 Cedar City Field Office

UT1220 - 002 NFLSS Parcel ID UT-2020-12-0862 T. 34 S., R. 12 W., Salt Lake Meridian Sec. 4: All; Sec. 5: Lots 1-4, S2NE, S2NW; Sec. 7: Lots 1, 2, and 4, N2NE, SWNE, E2NW; Secs. 8 and 9: All. 2558.58 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
UT-S-130: CSU – Water Bodies	T&E-27: Yellow-Billed Cuckoo
UT-S-263: TL – Crucial Raptor Nesting Area	T&E-26: Southwestern Willow Flycatcher Habitat – Riparian Areas
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	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-156: Pollinators and Pollinator Habitat

003 Cedar City Field Office

UT1220 – 003 NFLSS Parcel ID UT-2020-12-0871 T. 34 S., R. 12 W., Salt Lake Meridian Sec. 17: All; Sec. 18: Lot 4, NENE; Sec. 20: E2; Sec. 21: W2NE, W2, W2SE. 1532.08 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
UT-S-263: TL – Crucial Raptor Nesting Area	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	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-156: Pollinators and Pollinator Habitat

004 Cedar City Field Office

UT1220 – 004 NFLSS Parcel ID UT-2020-12-0874 T. 34 S., R. 12 W., Salt Lake Meridian Sec. 19: SESW; Sec. 28: All; Sec. 29: E2, S2NW, SW; Sec. 30: Lots 1-4, E2NW, E2SW, E2SE; Sec. 31: All. 2400.80 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog

UT1220 – 004 NFLSS Parcel ID UT-2020-12-0874 T. 34 S., R. 12 W., Salt Lake Meridian Sec. 19: SESW; Sec. 28: All; Sec. 29: E2, S2NW, SW; Sec. 30: Lots 1-4, E2NW, E2SW, E2SE; Sec. 31: All. 2400.80 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
UT-S-263: TL – Crucial Raptor Nesting Area	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	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-156: Pollinators and Pollinator Habitat

005 Cedar City Field Office

UT1220 - 005 NFLSS Parcel ID UT-2020-12-6924 T. 34 S., R. 12 W., Salt Lake Meridian Sec. 22: E2NE, E2SE; Sec. 23: S2NE, S2NW, S2; Sec. 25: S2; Secs. 26 and 27: All. 2240.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
	T&E-26: Southwestern Willow Flycatcher Habitat – Riparian Areas
	UT-LN-44: Raptors

UT1220 - 005 NFLSS Parcel ID UT-2020-12-6924 T. 34 S., R. 12 W., Salt Lake Meridian Sec. 22: E2NE, E2SE; Sec. 23: S2NE, S2NW, S2; Sec. 25: S2; Secs. 26 and 27: All. 2240.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-50: Habitat Restoration
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	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-156: Pollinators and Pollinator Habitat

006 Cedar City Field Office

UT1220 - 006 NFLSS Parcel ID UT-2020-12-6926 T. 34 S., R. 12 W., Salt Lake Meridian Sec. 33: All; Sec. 34: All, excepting patented mining claims; Sec. 35: All, excepting patented mining claims. 1961.264 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
UT-S-263: TL – Crucial Raptor Nesting Area	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species

UT1220 - 006

NFLSS Parcel ID UT-2020-12-6926

T. 34 S., R. 12 W., Salt Lake Meridian

Sec. 33: All;

Sec. 34: All, excepting patented mining claims;

Sec. 35: All, excepting patented mining claims.

1961.264 Acres

Iron County, Utah

Cedar City Field Office

EOI# UT00016195

Stipulations	Notices
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	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-156: Pollinators and Pollinator Habitat

010 Cedar City Field Office**UT1220 - 010**

NFLSS Parcel ID UT-2020-12-0890

T. 35 S., R. 12 W., Salt Lake Meridian

Sec. 30: Lots 4, 12-16, SESW, SE;

Sec. 31: Lots 1-4, NE, E2NW, E2SW, NWSE, excepting patented mining claims.

828.153 Acres

Iron County, Utah

Cedar City Field Office

EOI# UT00016195

Stipulations	Notices
	T&E-09: Utah Prairie Dog
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	UT-LN-65: Old Spanish Trail

UT1220 - 010 NFLSS Parcel ID UT-2020-12-0890 T. 35 S., R. 12 W., Salt Lake Meridian Sec. 30: Lots 4, 12-16, SESW, SE; Sec. 31: Lots 1-4, NE, E2NW, E2SW, NWSE, excepting patented mining claims. 828.153 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
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-156: Pollinators and Pollinator Habitat

011 Cedar City Field Office

UT1220 - 011 NFLSS Parcel ID UT-2020-12-0866 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 4: All; Sec. 9: E2. 960.32 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
UT-S-130: CSU – Water Bodies	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	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-156: Pollinators and Pollinator Habitat

012 Cedar City Field Office

UT1220 - 012 NFLSS Parcel ID UT-2020-12-0867 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 7: Lots 1 and 2. 50.17 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	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-156: Pollinators and Pollinator Habitat

013 Cedar City Field Office

UT1220 - 013 NFLSS Parcel ID UT-2020-12-6928 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 12: E2NE, E2SE; Sec. 13: NE, E2NW, E2SW, SE. 640.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
	T&E-27: Yellow-Billed Cuckoo
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-59: Erodible Soils and Steep Slopes

UT1220 - 013 NFLSS Parcel ID UT-2020-12-6928 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 12: E2NE, E2SE; Sec. 13: NE, E2NW, E2SW, SE. 640.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	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-156: Pollinators and Pollinator Habitat

014 Cedar City Field Office

UT1220 - 014 NFLSS Parcel ID UT-2020-12-0872 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 17: SE. 160.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
UT-S-130: CSU – Water Bodies	T&E-26: Southwestern Willow Flycatcher Habitat – Riparian Areas
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality

UT1220 - 014 NFLSS Parcel ID UT-2020-12-0872 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 17: SE. 160.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	UT-LN-102: Air Quality Analysis
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat

015 Cedar City Field Office

UT1220 - 015 NFLSS Parcel ID UT-2020-12-0873 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 19: Lots 3 and 4, E2SW, SE; Secs. 30 and 31: All. 1455.07 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
	T&E-26: Southwestern Willow Flycatcher Habitat – Riparian Areas
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-65: Old Spanish Trail
	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-156: Pollinators and Pollinator Habitat

016 Cedar City Field Office

UT1220 - 016 NFLSS Parcel ID UT-2020-12-0875 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 20: S2; Sec. 21: S2; Sec. 22: All. 1280.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
UT-S-130: CSU – Water Bodies	T&E-26: Southwestern Willow Flycatcher Habitat – Riparian Areas
	T&E-27: Yellow-Billed Cuckoo
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	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-156: Pollinators and Pollinator Habitat

017 Cedar City Field Office

UT1220 - 017 NFLSS Parcel ID UT-2020-12-6933 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 36: All. 640.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
UT-S-263: TL – Crucial Raptor Nesting Area	UT-LN-44: Raptors

UT1220 - 017 NFLSS Parcel ID UT-2020-12-6933 T. 34 S., R. 13 W., Salt Lake Meridian Sec. 36: All. 640.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	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-156: Pollinators and Pollinator Habitat

018 Cedar City Field Office

UT1220 - 018 NFLSS Parcel ID UT-2020-12-6938 T. 35 S., R. 13 W., Salt Lake Meridian Sec. 1: Lots 1, 5, 6, and 7. 94.59 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
	T&E-26: Southwestern Willow Flycatcher Habitat – Riparian Areas
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes

UT1220 - 018 NFLSS Parcel ID UT-2020-12-6938 T. 35 S., R. 13 W., Salt Lake Meridian Sec. 1: Lots 1, 5, 6, and 7. 94.59 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	UT-LN- 65 Old Spanish Trail
	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-156: Pollinators and Pollinator Habitat

022 Cedar City Field Office

UT1220 - 022 NFLSS Parcel ID UT-2020-12-6943 T. 35 S., R. 13 W., Salt Lake Meridian Sec. 19: All. 665.72 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	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-156: Pollinators and Pollinator Habitat

024 Cedar City Field Office**UT1220 - 024**

NFLSS Parcel ID UT-2020-12-6947

T. 35 S., R. 13 W., Salt Lake Meridian

Sec. 25: All, excepting patented mining claims, ROW UTSL046991, and ROW UTU01959;

Sec. 26: N2, N2SW, SE, excepting ROW UTU01959;

Sec. 27: All;

Sec. 35: E2, S2SW, excepting patented mining claims and ROW UTU01959;

Sec. 36: Lot 1, W2NE, NW, E2SW, excepting patented mining claims.

1850.938 Acres

Iron County, Utah

Cedar City Field Office

EOI# UT00016195

Stipulations	Notices
	T&E-09: Utah Prairie Dog
	T&E-26: Southwestern Willow Flycatcher Habitat – Riparian Areas
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-65: Old Spanish Trail
	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-156: Pollinators and Pollinator Habitat

025 Cedar City Field Office

UT1220 - 025 NFLSS Parcel ID UT-2020-12-6948 T. 35 S., R. 13 W., Salt Lake Meridian Sec. 28: All; Sec. 29: NESW, N2SE, SESE; Sec. 33: All. 1440.00 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	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-156: Pollinators and Pollinator Habitat

026 Cedar City Field Office

UT1220 - 026 NFLSS Parcel ID UT-2020-12-0903 T. 35 S., R. 13 W., Salt Lake Meridian Sec. 30: Lots 3 and 4, E2SW; Sec. 31: Lot 1. 220.97 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	T&E-09: Utah Prairie Dog
	UT-LN-44: Raptors
	UT-LN-45: Migratory Bird
	UT-LN-46: Pygmy Rabbit
	UT-LN-49: Utah Sensitive Species

UT1220 - 026 NFLSS Parcel ID UT-2020-12-0903 T. 35 S., R. 13 W., Salt Lake Meridian Sec. 30: Lots 3 and 4, E2SW; Sec. 31: Lot 1. 220.97 Acres Iron County, Utah Cedar City Field Office EOI# UT00016195	
Stipulations	Notices
	UT-LN-51: Special Status Plants: Not Federally Listed
	UT-LN-52: Noxious Weeds
	UT-LN-59: Erodible Soils and Steep Slopes
	UT-LN-60: Steep Slopes
	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-156: Pollinators and Pollinator Habitat

029 Vernal Field Office

UT1220 - 029 NFLSS Parcel ID UT-2020-12-0837 T. 9 S., R. 19 E., Salt Lake Meridian Sec. 11: Lots 1, 2, and 3. 78.94 Acres Uintah County, Utah Vernal Field Office EOI# UT00016396	
Stipulations	Notices
UT-S-01: Air Quality	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
UT-S-11: NSO – Pariette Wetlands ACEC	T&E-05: Listed Plant Species
UT-S-22: NSO/CSU/TL – Lower Green River ACEC	T&E-12: Pariette Cactus (<i>Sclerocactus Brevispinus</i>) and Uinta Basin Hookless Cactus [<i>Sclerocactus glaucus (brevispinus and wetlandicus)</i>]
UT-S-96: NSO – Fragile Soils/Slopes Greater Than 40%	T&E-31: Western Yellow-Billed Cuckoo
UT-S-99: CSU – Fragile Soils/Slopes	UT-LN-11: Crucial Deer Fawning Habitat
UT-S-100: CSU – Fragile Soils/Slopes (21%-40%)	UT-LN-13: Pronghorn Winter Habitat
UT-S-117: NSO – River Corridor: Lower Green River	UT-LN-44: Raptors

UT1220 - 029 NFLSS Parcel ID UT-2020-12-0837 T. 9 S., R. 19 E., Salt Lake Meridian Sec. 11: Lots 1, 2, and 3. 78.94 Acres Uintah County, Utah Vernal Field Office EOI# UT00016396	
Stipulations	Notices
UT-S-119: NSO – Lower Green River Corridor	UT-LN-45: Migratory Bird
UT-S-123: NSO – Riparian, Floodplains, and Public Water Reserves	UT-LN-49: Utah Sensitive Species
	UT-LN-51: Special Status Plants: Not Federally Listed
UT-S-159: CSU – Visual Resources - VRMII	UT-LN-52: Noxious Weeds
UT-S-218: CSU – White-Tailed Prairie Dog	UT-LN-53: Riparian Areas
UT-S-231: CSU – Crucial Deer Winter Range	UT-LN-56: Drinking Water Source Protection Zone
UT-S-261: TL – Raptor Buffers	UT-LN-83: Site ROW
UT-S-278: CSU – Bald Eagle Winter Roost	UT-LN-96: Air Quality Mitigation Measures
UT-S-326: NSO – Lower Green River Expansion	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-114: Viewshed, Light and Sound (Green River)
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat

046 Moab Field Office

UT1220 - 046 NFLSS Parcel ID UT-2020-12-6898 T. 20 S., R. 23 E., Salt Lake Meridian Sec. 9: NENW. 40.00 Acres Grand County, Utah Moab Field Office EOI# UT00016305	
Stipulations	Notices
UT-S-01: Air Quality	T&E-23: Colorado River Endangered Fish
UT-S-122: NSO – Floodplains, Riparian Areas, Springs, and Public Water Resources	T&E-28: California Condor – Potential Habitat
UT-S-183: NSO – Critical Habitat of the Endangered Colorado River Fishes	T&E-32: Cisco Milkvetch

UT1220 - 046 NFLSS Parcel ID UT-2020-12-6898 T. 20 S., R. 23 E., Salt Lake Meridian Sec. 9: NENW. 40.00 Acres Grand County, Utah Moab Field Office EOI# UT00016305	
Stipulations	Notices
UT-S-224: TL – Pronghorn Fawning Grounds	UT-LN-25: White-Tailed and Gunnison Prairie Dog
UT-S-272: CSU/TL – Burrowing Owl and Ferruginous Hawk Nesting	UT-LN-44: Raptors
UT-S-298: CSU – Kit Fox	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: Statewide Riparian Areas
	UT-LN-57: Public Water Reserve
	UT-LN-87: Existing Unplugged Well
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-101: Air Quality
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-156: Pollinators and Pollinator Habitat

Appendix B – Stipulations and Notices**Stipulation Summary Table**

	STANDARD STIPULATIONS (FROM H-3120 – COMPETITIVE LEASING HANDBOOK) *
CULTURAL RESOURCE PROTECTION STIPULATION	This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.
THREATENED AND ENDANGERED SPECIES ACT STIPULATION	The lease area may now or hereafter contain plants, animals or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that would contribute to a need to list such species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. 1531 et seq. including completion of any required procedure for conference or consultation.

*These stipulations are attached to all leases issued.

NUMBER	UTAH STIPULATIONS
UT-S-01	<p style="text-align: center;">AIR QUALITY</p> <p>All new stationary and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower shall not emit more than 2 grams of NO_x per horsepower-hour.</p> <p>Exception: This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower.</p> <p>Modification: None</p> <p>Waiver: None</p> <p>AND</p> <p>All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour.</p> <p>Exception: None</p> <p>Modification: None</p>

NUMBER	UTAH STIPULATIONS
	Waiver: None
UT-S-11	<p align="center">NO SURFACE OCCUPANCY – PARIETTE WETLANDS ACEC</p> <p>No surface occupancy will be allowed within the Pariette Wetlands ACEC.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
UT-S-22	<p align="center">NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATIONS – LOWER GREEN RIVER ACEC</p> <p>No surface disturbing activities for oil and gas leasing within the Lower Green River Corridor within line of sight or up to one-half mile from the centerline of the river, whichever is less and within approximately 8,079 acres. Approximately 71 acres will be open to leasing subject to moderate constraints such as timing limitations and controlled surface use.</p> <p>Exception: An exception will be granted if the disturbance complemented recreational goals and objectives.</p> <p>Modification: None</p> <p>Waiver: None</p>
UT-S-96	<p align="center">NO SURFACE OCCUPANCY – FRAGILE SOILS/SLOPES GREATER THAN 40%</p> <p>No surface occupancy for slopes greater than 40 percent.</p> <p>Exception: If after an environment analysis the authorized officer determines that it would cause undue or unnecessary degradation to pursue other placement alternatives; surface occupancy in the NSO area may be authorized. Additionally, a plan shall be submitted by the operator and approved by BLM prior to construction and maintenance and include:</p> <ul style="list-style-type: none"> • An erosion control strategy; • GIS modeling; • Proper survey and design by a certified engineer. <p>Modification: Modifications also may be granted if a more detailed analysis, i.e. Order I, soil survey conducted by a qualified soil scientist finds that surface disturbance activities could occur on slopes greater than 40% while adequately protecting the area from accelerated erosion.</p> <p>Waiver: None</p>
UT-S-99	<p align="center">CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES</p> <p>The surface operating standards for oil and gas exploration and development (Gold Book) shall be used as a guide for surface-disturbing proposals on steep slopes/hillsides.</p> <p>Exception: None</p>

NUMBER	UTAH STIPULATIONS
	Modification: None Waiver: None
UT-S-100	<p style="text-align: center;">CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES (21%-40%)</p> <p>If surface-disturbing activities cannot be avoided on slopes from 21-40% a plan will be required. The plan will be approved by BLM prior to construction and maintenance and include:</p> <ul style="list-style-type: none"> • An erosion control strategy; • GIS modeling; • Proper survey and design by a certified engineer. <p>Exception: None Modification: None Waiver: None</p>
UT-S-117	<p style="text-align: center;">NO SURFACE OCCUPANCY – RIVER CORRIDORS: LOWER GREEN RIVER</p> <p>Between the Indian trust land boundary at Ouray and the Carbon County line, surface disturbing activities within the Lower Green River Corridor and Lower Green River Expansion will be subject to NSO within line of sight or up to one-half mile from the centerline of the river, whichever is less.</p> <p>Exception: Future facilities will be placed within the existing ROW corridor near the Four Mile Bottom area where an existing pipeline crosses the Green River.</p> <p>Modification: None Waiver: None</p>
UT-S-119	<p style="text-align: center;">NO SURFACE OCCUPANCY – LOWER GREEN RIVER CORRIDOR</p> <p>No surface occupancy within a minimum of ¼ mile from the high-water mark on both banks up to ½ mile from the Ouray boundary to Carbon County line.</p> <p>Exception: Future facilities will be placed within the existing ROW corridor near the Four Mile Bottom area where an existing pipeline crosses the Green River.</p> <p>Modification: None Waiver: None</p>
UT-S-122	<p style="text-align: center;">NO SURFACE OCCUPANCY – FLOODPLAINS, RIPARIAN AREAS, SPRINGS AND PUBLIC WATER RESOURCES</p> <p>No surface-disturbing activities within 100-year floodplains or within 100 meters of riparian areas. Also, no surface-disturbing activities within public water reserves or within 100 meters of springs.</p>

NUMBER	UTAH STIPULATIONS
	<p>Exception: An exception could be authorized if: (a) there are no practical alternatives, (b) impacts could be fully mitigated, or (c) the action is designed to benefit and enhance the resource values.</p> <p>Modification: None</p> <p>Waiver: None</p>
UT-S-123	<p>NO SURFACE OCCUPANCY – RIPARIAN, FLOODPLAINS, AND PUBLIC WATER RESERVES</p> <p>No new surface-disturbing activities are allowed within active flood plains, wetlands, public water reserves, or 100 meters of riparian areas. Keep construction of new stream crossings to a minimum.</p> <p>Exception: An exception could be authorized if: (a) there are no practical alternatives (b) impacts could be fully mitigated, or (c) the action is designed to enhance the riparian resources.</p> <p>Modification: None</p> <p>Waiver: None</p>
UT-S-130	<p>CONTROLLED SURFACE USE – WATER BODIES</p> <p>No occupancy or other surface disturbance will be allowed within 400 feet of the water body.</p> <p>Exception: None</p> <p>Modification: This distance may be modified when specifically approved in writing by the authorized officer of the BLM.</p> <p>Waiver: None</p>
UT-S-157	<p>NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATION – VISUAL RESOURCES</p> <p>Visual resource management activities will comply with BLM Handbook 8410-1.</p> <p>Within VRM Class I areas, very limited management activity will be allowed, with the objective of preserving the existing character of the landscape, allowing for natural ecological changes. The level of change to the landscape should be very low and shall not attract attention.</p> <p>Within VRM Class II areas, surface-disturbing activities will retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any change to the landscape shall repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.</p> <p>Within VRM Class III areas, surface disturbing activities will partially retain the existing character of the landscape. The allowable level of change will be moderate, may attract attention, but should not dominate the view of the casual observer. Landscape changes should repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.</p>

NUMBER	UTAH STIPULATIONS
	<p>Within VRM Class IV areas, surface disturbing activities are allowed to dominate the view and the major focus of viewer attention. Major modifications to the existing character of the landscape are allowed. But every attempt should be made to minimize and mitigate the impacts.</p> <p>Exception: Exempted are recognized utility corridors.</p> <p>Modification: None</p> <p>Waiver: None</p>
<p>UT-S-159</p>	<p style="text-align: center;">CONTROLLED SURFACE USE – VISUAL RESOURCES - VRM II</p> <p>Within VRM II areas, surface-disturbing activities will retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Any change to the landscape must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.</p> <p>Exception: Exempted are recognized utility corridors.</p> <p>Modification: None</p> <p>Waiver: None</p>
<p>UT-S-183</p>	<p style="text-align: center;">NO SURFACE OCCUPANCY – CRITICAL HABITAT OF THE ENDANGERED COLORADO RIVER FISHES</p> <p>No surface-disturbing allowed within the 100-year floodplain of the Colorado River, Green River, and at the Dolores/Colorado River confluence or on lands within this watershed that contains tributaries with designated critical habitat for the Colorado River fish (bonytail, humpback chub, Colorado pike minnow, and razorback sucker) listed as endangered under the Endangered Species Act will be allowed. Critical habitat was designated for the four endangered Colorado River fishes on March 21, 1994 (59 FR 13374-13400). Designated critical habitat for all the endangered fishes includes those portions of the 100-year floodplain that contain primary constituent elements necessary for survival of the species. Avoidance or use restrictions may be placed on portions of the lease. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration, of and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 1. Surveys will be required prior to operations unless species occupancy and distribution information are 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.

NUMBER	UTAH STIPULATIONS
	<ol style="list-style-type: none"> 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 the Utah Oil and Gas Pipeline Crossing Guidance (from BLM National Science and Technology Center). 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 floodplains, 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 the Utah Oil and Gas Pipeline Crossing Guidance, to minimize the potential for equipment damage and resulting leaks or spills. <p>Water depletions from <i>any</i> portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect or adversely modify the critical habitat of the four resident endangered fish species, and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletion amounts must be reported to BLM.</p> <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the USFWS between the lease sale stage and lease development stage to ensure continued compliance with the ESA.</p> <p>Exception: An exception may be granted by the authorized officer if: 1) There is no practical alternative, and 2) the development would enhance riparian/aquatic values. This exception would require consultation with the USFWS. The authorized officer may also grant an exception if an environmental analysis indicates that the nature or the conduct of the actions, as proposed or conditioned, would not impair the primary constituent element determined necessary for the survival and recovery of the Endangered Colorado River Fishes.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if an environmental analysis indicates, and USFWS (through applicable provisions of the ESA) determines a portion of the area is not being used as Critical Habitat.</p> <p>Waiver: A waiver may be granted if the Endangered Colorado River Fishes are de-listed and the Critical Habitat is determined by USFWS as not necessary for the survival and recovery of the Endangered Colorado River Fishes.</p>
UT-S-218	<p style="text-align: center;">CONTROLLED SURFACE USE – WHITE-TAILED PRAIRIE DOG</p> <p>No surface-disturbing activities within 660 feet of prairie dog colonies identified within prairie dog habitat. No permanent aboveground facilities are allowed within the 660 feet buffer.</p>

NUMBER	UTAH STIPULATIONS
	<p>Exception: An exception may be granted by the authorized officer if the applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies the authorized officer will allow for loss of prairie dog colonies and/or habitat to satisfy terms and conditions of the lease.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if portions of the area does not include prairie dog habitat or <i>active</i> colonies are found outside current defined area, as determined by BLM.</p> <p>Waiver: May be granted if in the leasehold if it is determined that habitat no longer exists or has been destroyed.</p>
UT-S-224	<p style="text-align: center;">TIMING LIMITATION – PRONGHORN FAWNING GROUNDS</p> <p>No surface-disturbing activities from May 1 to June 15 within Cisco Desert and Hatch Point pronghorn fawning grounds to minimize stress and disturbance during critical pronghorn birthing time.</p> <p>Exception: May be granted to these dates by the authorized officer if the operator submits a plan which demonstrates that impacts from the proposed action can be adequately mitigated or if it is determined the habitat is not being utilized for fawning in any given year.</p> <p>Modification: The authorized officer may modify the boundaries of the stipulation area if a portion of the area is not being used as fawning grounds or if habitat is being utilized outside of stipulation boundaries as crucial fawning grounds and needs to be protected.</p> <p>Waiver: May be granted if the fawning grounds are determined to be unsuitable or unoccupied and there is no reasonable likelihood of future use of the fawning grounds.</p>
UT-S-231	<p style="text-align: center;">CONTROLLED SURFACE USE – CRUCIAL DEER WINTER RANGE</p> <p>Within crucial deer winter range, no more than 10% of such habitat will be subject to surface disturbance and remain unreclaimed at any given time.</p> <p>Exception: This stipulation may be excepted if either the resource values change, or the lessee/operator demonstrates to BLMs satisfaction that impacts can be mitigated.</p> <p>Modification: None</p> <p>Waiver: None</p>
UT-S-261	<p style="text-align: center;">TIMING LIMITATION – RAPTOR BUFFERS</p> <p>Raptor management will be guided by the use of "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A), utilizing seasonal and spatial buffers, as well as mitigation, to maintain and enhance raptor nesting and foraging habitat, while allowing other resource uses.</p> <p>Exception: None</p>

NUMBER	UTAH STIPULATIONS
	<p>Modification: Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the “<i>Raptor BMPs</i>”, would include the following:</p> <ol style="list-style-type: none"> 1. Completion of a site-specific assessment by a wildlife biologist or other qualified individual. See example (Attachment 1 of the Raptor BMPs in Appendix A) 2. Written documentation by the BLM Field Office Wildlife Biologist, identifying the proposed modification and affirming that implementation of the proposed modification(s) would not affect nest success or the suitability of the site for future nesting. Modification of the “BMPs” would not be recommended if it is determined that adverse impacts to nesting raptors would occur or that the suitability of the site for future nesting would be compromised. 3. Development of a monitoring and mitigation strategy by a BLM biologist, or other raptor biologist. Impacts of authorized activities would be documented to determine if the modifications were implemented as described in the environmental documentation or Conditions of Approval, and were adequate to protect the nest site. Should adverse impacts be identified during monitoring of an activity, BLM would follow an appropriate course of action, which may include cessation or modification of activities that would avoid, minimize or mitigate the impact, or, with the approval of UDWR and the USFWS, BLM could allow the activity to continue while requiring monitoring to determine the full impact of the activity on the affected raptor nest. A monitoring report would be completed and forwarded to UDWR for incorporation into the Natural Heritage Program (NHP) raptor database. <p>Waiver: None</p>
UT-S-263	<p style="text-align: center;">TIMING LIMITATION – CRUCIAL RAPTOR NESTING AREA</p> <p>In order to protect the crucial Raptor Nesting Area, exploration, drilling, and other development activity will not be allowed during the period from February 15 through June 30. This stipulation does not apply to maintenance and operation of producing wells.</p> <p>Exception: Exceptions to this stipulation in any year may be specifically authorized in writing by the authorized officer of the BLM if it can be shown that the activity would not impact any active raptor nests.</p> <p>Modification: None</p> <p>Waiver: None</p>
UT-S-272	<p style="text-align: center;">CONDITIONAL SURFACE USE/TIMING LIMITATION – BURROWING OWL AND FERRUGINOUS HAWK NESTING</p> <p>No surface disturbances or occupancy will be conducted during the breeding and nesting season (March 1 to August 31 for burrowing owl and March 1 – August 1 for ferruginous hawk) within spatial buffers (0.25 mile for burrowing owl and 0.5 mile for ferruginous hawk) of known nesting sites.</p> <p>Exception: An exception would be granted if protocol surveys determine that nesting sites, breeding territories, and winter roosting areas are not occupied.</p>

NUMBER	UTAH STIPULATIONS
	<p>Modification: The authorized officer may modify the boundaries of the stipulation area if portions of the area do not include habitat or are outside the current defined area, as determined by the BLM.</p> <p>Waiver: May be granted if it is determined the habitat no longer exists or has been destroyed.</p>
UT-S-278	<p style="text-align: center;">CONTROLLED SURFACE USE – BALD EAGLE WINTER ROOST</p> <p>Protect and restore cottonwood bottoms for bald eagle winter habitat along the Green and White Rivers, at Pelican Lake, and at the Cliff Creek Bald Eagle roost site, as well as any new roost sites discovered in the future.</p> <p>Exception: None</p> <p>Modification: None</p> <p>Waiver: None</p>
UT-S-298	<p style="text-align: center;">CONDITIONAL SURFACE USE – KIT FOX</p> <p>No surface disturbances within 200 meters of a kit fox den.</p> <p>Exception: An exception could be granted if protocol surveys determine that kit fox dens are not present.</p> <p>Modification: The authorized officer may modify the stipulation area if portions of the area do not contain habitat.</p> <p>Waiver: A waiver may be granted if it is determined that the habitat no longer exists.</p>
UT-S-326	<p style="text-align: center;">NO SURFACE OCCUPANCY – LOWER GREEN RIVER EXPANSION</p> <p>No Surface Occupancy will be allowed within line of sight or up to one-half mile from the centerline of the river, whichever is less.</p> <p>Exception: An exception will be granted if the disturbance complemented recreational goals and objectives.</p> <p>Modification: None</p> <p>Waiver: None</p>

Notice Summary Table

NUMBER	UTAH LEASE NOTICES
UT-LN-11	<p style="text-align: center;">CRUCIAL ELK CALVING AND DEER FAWNING HABITAT</p> <p>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.</p>
UT-LN-13	<p style="text-align: center;">PRONGHORN WINTER HABITAT</p> <p>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.</p>
UT-LN-25	<p style="text-align: center;">WHITE-TAILED AND GUNNISON PRAIRIE DOG</p> <p>The lessee/operator is given notice that this lease parcel has been identified as containing white-tailed or Gunnison prairie dog habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect white-tailed or Gunnison prairie dog from surface disturbing activities in accordance with the Endangered Species Act and 43 CFR 3101.1-2.</p>
UT-LN-44	<p style="text-align: center;">RAPTORS</p> <p>Appropriate seasonal and spatial buffers shall be placed on all known raptor nests in accordance with Utah Field Office Guidelines for Raptor Protection from Human and Land use Disturbances (USFWS 2002) and Best Management Practices for Raptors and their Associated Habitats in Utah (BLM 2006). All construction related activities will not occur within these buffers if pre-construction monitoring indicates the nests are active, unless a site-specific evaluation for active nests is completed prior to construction and if a BLM wildlife biologist, in consultation with USFWS and UDWR, recommends that activities may be permitted within the buffer. The BLM will coordinate with the USFWS and UDWR and have a recommendation within 3-5 days of notification. Any construction activities authorized within a protective (spatial and seasonal) buffer for raptors will require an on-site monitor. Any indication that activities are adversely affecting the raptor and/or its' young the on-site monitor will suspend activities and contact the BLM Authorized Officer immediately. Construction may occur within the buffers of inactive nests. Construction activities may commence once monitoring of the active nest site determines that fledglings have left the nest and are no longer dependent on the nest site. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
UT-LN-45	<p style="text-align: center;">MIGRATORY BIRD</p>

NUMBER	UTAH LEASE NOTICES
	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-46	<p style="text-align: center;">PYGMY RABBIT</p> <p>The lessee/operator is given notice that this lease has been identified as containing pygmy rabbit habitat. No surface use or otherwise disruptive activity allowed which would result in an aboveground facility or semi-permanent (e.g., roads, pipelines, reservoirs, etc.) within 300 feet of pygmy rabbit habitat. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
UT-LN-49	<p style="text-align: center;">UTAH SENSITIVE SPECIES</p> <p>The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, Migratory Bird Treaty Act and 43 CFR 3101.1-2.</p>
UT-LN-50	<p style="text-align: center;">HABITAT RESTORATION</p> <p>The lessee/operator is given notice that lands in this lease have an existing habitat restoration project present. Modifications to the Surface Use Plan of Operations may be required or other appropriate mitigation as deemed necessary by the BLM Authorized Officer.</p>
UT-LN-51	<p style="text-align: center;">SPECIAL STATUS PLANTS: NOT FEDERALLY LISTED</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing special status plants, not federally listed, and their habitats. Modifications to the Surface Use Plan of Operations may be required in order to protect the special status plants and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.</p>
UT-LN-52	<p style="text-align: center;">NOXIOUS WEEDS</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing or is near areas containing noxious weeds. Best management practices to prevent or control noxious weeds may be required for operations on the lease.</p>
UT-LN-53	RIPARIAN AREAS

NUMBER	UTAH LEASE NOTICES
	<p>The lessee/operator is given notice that this lease has been identified as containing riparian areas. No surface use or otherwise disruptive activity allowed within 100 meters of riparian areas unless it can be shown that (1) there is no practicable alternative; (2) that all long-term impacts are fully mitigated; or (3) that the construction is an enhancement to the riparian areas. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
UT-LN-56	<p style="text-align: center;">DRINKING WATER SOURCE PROTECTION ZONE</p> <p>This lease (or a portion thereof) is within a public Drinking Water Source Protection zone. Before application for a permit to drill (APD) submittal or any proposed surface-disturbing activity, the lessee/operator must contact the public water system manager to determine any zoning ordinances, best management or pollution prevention measures, or physical controls that may be required within the protection zones. Drinking Water Source Protection plans are developed by the public water systems under the requirements of R309-600. Drinking Water Source Protection for Ground-Water Sources. (Utah Administrative Code). There may also be county ordinances in place to protect the source protection zones, as required by Section 19-4-113 of the Utah Code.</p> <p>Incorporated cities and towns may also protect their drinking water sources using Section 10-8-15 of the Utah Code. This part of the Code gives cities and towns the extraterritorial authority to enact ordinances to protect a source of drinking water ... "For 15 miles above the point from which it is taken and for a distance of 300 feet on each side of such stream..." Class I cities (greater than 100,000 population) are granted authority to protect their entire watersheds.</p> <p>Some public water sources qualify for monitoring waivers which reduce their monitoring requirements for pesticides and volatile organic chemicals (VOCs). Exploration, drilling, and production activities within Source Protection zone 3 could jeopardize these waivers, thus requiring increased monitoring. Contact the public water system to determine what effect your activities may have on their monitoring waivers. Please be aware of other State rules to protect surface and ground water: the Utah Division of Water Quality Rules R317 Water Quality Rules; and Rules of the Utah Division of Oil, Gas and Mining, Utah Oil and Gas Conservation Rules R649.</p> <p>At the time of development, drilling operators will additionally conform to the operational regulations in Onshore Oil & Gas Order No. 2 (which requires the protection and isolation of all usable quality waters, $\leq 10,000$ mg/L Total Dissolved Solids), Onshore Oil and Gas Order No. 7 (which prescribes measures required for the handling of produced water to insure the protection of surface and ground water sources) and the Surface Operating Standards and Guidelines for Oil and Gas Development, The Gold Book, Fourth Edition-Revised 2007 (which provides information and requirements for conducting environmentally responsible oil and gas operations).</p> <p>Additional mitigation measures may be necessary to prevent adverse impacts from oil and gas exploration and development activities. Mitigation measures may include submitting an erosion control plan with best management practices (BMPs) that address rigorous interim reclamation which might include surface roughening, vegetative buffer strips, etc.; and sediment control through the use of sediment logs, silt fences, erosion control blankets, outlet/inlet</p>

NUMBER	UTAH LEASE NOTICES
	protection of water control features such as culverts or diversion ditches, sediment traps, run on/run off pad design features. If project activities are close to sensitive areas or water sources a semi or closed-loop drilling system should be required.
UT-LN-57	<p style="text-align: center;">PUBLIC WATER RESERVE</p> <p>The lessee/operator is given notice that lands in this lease have been identified as a designated Public Water Reserve. Surface occupancy or use is subject to the Public Water Reserve Executive Order No. 107. Modification to the Surface Use Plan of Operations may be required for the protection of the reserve up to and including no surface occupancy or use. Protection of a designated public water reserve as discussed in Public Water Reserve Executive Order No. 107. This limitation does not apply to operations and maintenance of producing wells.</p>
UT-LN-59	<p style="text-align: center;">ERODIBLE SOILS AND STEEP SLOPES</p> <p>The lessee/operator is given notice that the area is a municipal or non-municipal watershed and has steep slopes and erosive soils. New roads will be constructed to avoid soils that are highly erosive and / or in critical or severe erosion conditions. New roads will be constructed with water bars. Riprap may be required. Road grades in excess of 8 percent will normally not be allowed. In special circumstances, where a road grade of more than 10 percent is allowed, its maximum length will be 1,000 feet. Access grading along with exploration, drilling, construction, or other activities will be prohibited during wet or muddy conditions (usually during spring runoff and summer monsoon rains).</p> <p>Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
UT-LN-60	<p style="text-align: center;">STEEP SLOPES</p> <p>The lessee/operator is given notice that this lease has been identified as containing steep slopes. No surface use or otherwise disruptive activity allowed on slopes in excess of 30 percent without written permission from the Authorized Officer. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.</p>
UT-LN-65	<p style="text-align: center;">OLD SPANISH TRAIL</p> <p>The lessee/operator is given notice that lands in this lease are crossed by the Old Spanish Trail National Historic Trail [Old Spanish Trail Recognition Act of 2002, (Old Spanish Trail PLO 107-325) and/or are within two miles of a high potential segment of the foregoing. Modifications to the Surface Use Plan of Operations may be required to protect the historic integrity of the Trail, its resources, its values – such as landscape view sheds, and outdoor recreational opportunities associated with the Old Spanish Trail.</p>
UT-LN-83	SITE ROW

NUMBER	UTAH LEASE NOTICES
	The lessee/operator is given notice that lands in this lease have an existing site ROW present. Modifications to the Surface Use Plan of Operations may be required or other appropriate mitigation as deemed necessary by the BLM Authorized Officer in order to protect the valid existing rights.
UT-LN-87	<p style="text-align: center;">EXISTING UNPLUGGED WELL</p> <p>The lessee/operator is given notice that an existing unplugged well is located in NENW Sec. 9, T20S, R23E (API# 4301930713). An oil and gas bond adequate to cover plugging costs will be required prior to lease issuance. This well is in need of immediate attention and the successful bidder should plan to perform work on the well soon after lease issuance.</p>
UT-LN-96	<p style="text-align: center;">AIR QUALITY MITIGATION MEASURES</p> <p>The lessee is given notice that the Bureau of Land Management (BLM) in coordination with the U.S. Environmental Protection Agency and the Utah Department of Air Quality, among others, has developed the following air quality mitigation measures that may be applied to any development proposed on this lease. Integration of and adherence to these measures may help minimize adverse local or regional air quality impacts from oil and gas development (including but not limited to construction, drilling, and production) on regional ozone formation.</p> <ul style="list-style-type: none"> • All internal combustion equipment would be kept in good working order. • Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer. • Open burning of garbage or refuse would not occur at well sites or other facilities. • Drill rigs would be equipped with Tier II or better diesel engines. • Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater. • Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers. • During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible. • Well site telemetry would be utilized as feasible for production operations. • Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr for engines <300HP; and 1g NOx/bhp-hr for engines >300HP. <p>Additional site-specific measures may also be employed to avoid or minimize effects to local or regional air quality. These additional measures will be developed and implemented in coordination with the U.S. Environmental Protection Agency, the Utah Department of Air Quality, and other agencies with expertise or jurisdiction as appropriate based on the size of the project and magnitude of emissions.</p>
UT-LN-107	BALD EAGLE

NUMBER	UTAH LEASE NOTICES
	<p>The Lessee/Operator is given notice that the lands in this parcel contains nesting/winter roost habitat for the bald eagle. The bald eagle was de-listed in 2007; however, it is still afforded protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 1940). Therefore, avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside the bald eagle breeding or roosting season. A <u>temporary</u> action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> action continues for more than one breeding or roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease will not lead to the need to consider listing the eagle as threatened or endangered. Integration of, and adherence to the following measures will facilitate review and analysis of any submitted permits under the authority of this lease.</p> <p>Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s), and be conducted according to protocol. 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season of January 1 to August 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 5. Temporary activities within 0.5 miles of winter roost areas, e.g., cottonwood galleries, will not occur during the winter roost season of November 1 to March 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 6. No permanent infrastructure will be placed within 1.0 mile of nest sites. 7. No permanent infrastructure will be placed within 0.5 miles of winter roost areas. 8. Remove big game carrion from within 100 feet of lease roadways occurring within bald eagle foraging range. 9. Avoid loss or disturbance to large cottonwood gallery riparian habitats. 10. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species.

NUMBER	UTAH LEASE NOTICES
	Additional measures may also be employed to avoid or minimize effects to the species between the lease sale stage and lease development stage. These additional measures will be developed and implemented in coordination with the U.S. Fish and Wildlife Service.
UT-LN-115	<p style="text-align: center;">LIGHT AND SOUND</p> <p>In accordance with the Vernal RMP Decision MIN-5, the BLM will seek to minimize light and sound pollution within the project area using the best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to direct noise away from noise sensitive areas (e.g., sensitive habitat, campgrounds, river corridors, and Dinosaur National Monument). Light pollution will be mitigated by using methods such as limiting height of light poles, timing of lighting operations (meaning limiting lighting to times of darkness associated with drilling and work over or maintenance operations), limiting wattage intensity, and constructing light shields. If a determination is made that natural barriers or view sheds will meet these mitigation objectives, the above requirements may not apply.</p>
UT-LN-128	<p style="text-align: center;">FLOODPLAIN MANAGEMENT</p> <p>The lessee/operator is given notice that, in accordance with Executive Order 11988, to avoid adverse impact to floodplains 1) facilities should be located outside the 100 year floodplain, or 2) would be minimized or mitigated by modification of surface use plans within floodplains present within the lease.</p>
UT-LN-156	<p style="text-align: center;">POLLINATORS AND POLLINATOR HABITAT</p> <p>In order to protect pollinators and pollinator habitat, in accordance with BLM policy outlined in Instruction Memorandum No. 2016-013, Managing for Pollinators on Public Lands, and Pollinator-Friendly Best Management Practices for Federal Lands (2015), the following avoidance, minimization, and mitigation measures would apply to this parcel:</p> <ol style="list-style-type: none"> 1. Give a preference for placing well pads in previously disturbed areas, dry areas that do not support forbs, or areas dominated by nonnative grasses. 2. Utilize existing well pads where feasible. 3. Avoid disturbance to native milkweed patches within Monarch migration routes to protect Monarch butterfly habitat. 4. Avoid disturbance of riparian and meadow sites, as well as small depressed areas that may function as water catchments and host nectar-producing species, to protect Monarch butterfly habitat and nectaring sites. 5. Minimize the use of pesticides that negatively impact pollinators. 6. During revegetation treatments: <ol style="list-style-type: none"> a. Use minimum till drills where feasible. b. Include pollinator-friendly site-appropriate native plant seeds or seedlings in seed mixes. c. Where possible, increase the cover and diversity of essential habitat components for native pollinators by: <ul style="list-style-type: none"> ▪ Using site-appropriate milkweed seeds or seedlings within Monarch migration routes through priority sage-grouse habitat.

NUMBER	UTAH LEASE NOTICES
	<ul style="list-style-type: none">▪ Using seed mixes with annual and short-lived perennial native forbs that will bloom the first year and provide forage for pollinators.▪ Using seed mixes with a variety of native forb species to ensure different colored and shaped flowers to provide nectar and pollen throughout the growing season for a variety of pollinators.▪ Seeding forbs in separate rows from grasses to avoid competition during establishment.▪ Avoiding seeding non-native forbs and grasses that establish early and out compete slower-growing natives.

Threatened and Endangered Species Notices

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

NUMBER	UTAH THREATENED & ENDANGERED SPECIES NOTICES
	<p>Water depletions from <i>any</i> portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect or adversely modify the critical habitat of the four resident endangered fish species, and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletion amounts must be reported to BLM.</p> <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.</p>
T&E-05	<p style="text-align: center;">LISTED PLANT SPECIES</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for federally listed plant species under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease</p> <ol style="list-style-type: none"> 1. Site inventories: <ol style="list-style-type: none"> a. Must be conducted to determine habitat suitability, b. Are required in known or potential habitat for all areas proposed for surface disturbance prior to initiation of project activities, at a time when the plant can be detected, and during appropriate flowering periods, c. Documentation should include, but not be limited to individual plant locations and suitable habitat distributions, and d. All surveys must be conducted by qualified individuals. 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Project activities must be designed to avoid direct disturbance to populations and to individual plants: <ol style="list-style-type: none"> a. Designs will avoid concentrating water flows or sediments into plant occupied habitat. b. Construction will occur down slope of plants and populations where feasible; if well pads and roads must be sited upslope, buffers of 300 feet minimum between surface disturbances and plants and populations will be incorporated. c. Where populations occur within 300 ft. of well pads, establish a buffer or fence the individuals or groups of individuals during and post-construction. d. Areas for avoidance will be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc. e. For surface pipelines, use a 10-foot buffer from any plant locations: f. If on a slope, use stabilizing construction techniques to ensure the pipelines don't move towards the population. 4. For riparian/wetland-associated species, e.g. Ute ladies-tresses, avoid loss or disturbance of riparian habitats.

NUMBER	UTAH THREATENED & ENDANGERED SPECIES NOTICES
	<ol style="list-style-type: none"> 5. Ensure that water extraction or disposal practices do not result in change of hydrologic regime. 6. Limit disturbances to and within suitable habitat by staying on designated routes. 7. Limit new access routes created by the project. 8. Place signing to limit ATV travel in sensitive areas. 9. Implement dust abatement practices near occupied plant habitat. 10. All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area. 11. Post construction monitoring for invasive species will be required. 12. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in plant habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 13. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.</p>
T&E-09	<p style="text-align: center;">UTAH PRAIRIE DOG</p> <p>The lessee/operator is given notice that lands in this lease may contain historic and/or occupied Utah prairie dog habitat, a threatened species under the Endangered Species Act. 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 when prairie dogs are active or hibernating. A <u>temporary</u> action is completed prior to the following active season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> action continues for more than one activity/hibernation season and/or causes a loss of Utah prairie dog habitat or displaces prairie dogs 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:</p> <ol style="list-style-type: none"> 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s). 2. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce

NUMBER	UTAH THREATENED & ENDANGERED SPECIES NOTICES
	<p>surface disturbance and eliminate drilling in prairie dog habitat.</p> <ol style="list-style-type: none"> 4. Surface occupancy or other surface disturbing activity will be avoided within 0.5 mile of active prairie dog colonies. 5. Permanent surface disturbance or facilities will be avoided within 0.5 mile of potentially suitable, unoccupied prairie dog habitat, identified and mapped by Utah Division of Wildlife Resources since 1976. 6. The lessee/operator should consider if fencing infrastructure on well pad, e.g., drill pads, tank batteries, and compressors, would be needed to protect equipment from burrowing activities. In addition, the operator should consider if future surface disturbing activities would be required at the site. 7. Within occupied habitat, set a 25-mph speed limit on operator-created and maintained roads. 8. Limit disturbances to and within suitable habitat by staying on designated routes. 9. Limit new access routes created by the project. <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.</p>
T&E-12	<p style="text-align: center;">PARIETTE CACTUS (<i>SCLEROCACTUS BREVISPINUS</i>) AND UINTA BASIN HOOKLESS CACTUS [<i>SCLEROCACTUS GLAUCUS (BREVISPINUS AND WETLANDICUS)</i>]</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for the Pariette cactus and Uinta Basin hookless cactus, under the Endangered Species Act (ESA). The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease.</p> <p>In order to minimize effects to the federally threatened Pariette cactus and Uinta Basin hookless cactus, the BLM in coordination with the USFWS, developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the ESA. For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Uinta Basin hookless cactus. Habitat descriptions can be found in the U.S. Fish and Wildlife Service's 1990 Recovery Plan and Federal Register Notices for the Uinta Basin hookless cactus (http://www.fws.gov/endangered/wildlife.html). Occupied habitat is defined as areas currently or historically known to support Uinta Basin hookless cactus; synonymous with "known habitat." The following avoidance and minimization measures should be included in the Plan of Development:</p>

NUMBER	UTAH THREATENED & ENDANGERED SPECIES NOTICES
	<ol style="list-style-type: none"> 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable Pariette cactus and Uinta Basin hookless cactus habitat is present. 2. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories: <ol style="list-style-type: none"> a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols, b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected, and during appropriate flowering periods: <ol style="list-style-type: none"> i. <i>Sclerocactus brevispinus</i> surveys should be conducted March 15th to June 30th, unless extended by the BLM ii. <i>Sclerocactus wetlandicus</i> surveys can be done any time of the year, provided there is no snow cover, c. Will occur within 300' from the edge of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until March 15th the following year for <i>Sclerocactus brevispinus</i> and one year from the survey date for <i>Sclerocactus wetlandicus</i>. 3. Design project infrastructure to minimize impacts within suitable habitat²: <ol style="list-style-type: none"> a. Reduce well pad size to the minimum needed, without compromising safety, 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 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 habitat³, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: <ol style="list-style-type: none"> a. Follow the above (3.) recommendations for project design within suitable habitats, b. 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,

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	<p>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,</p> <p>d. Before and during construction, areas for avoidance should be visually identifiable in the field (e.g., flagging, temporary fencing, rebar, etc.),</p> <p>e. Where technically and economically feasible, use directional drilling or multiple wells from the same pad,</p> <p>f. Designs will avoid concentrating water flows or sediments into occupied habitat,</p> <p>g. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and</p> <p>h. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible.</p> <p>5. Occupied Pariette cactus and Uinta Basin hookless cactus habitats within 300' of the edge of the surface pipelines' right-of-ways, 300' of the edge of the roads' right-of-ways, and 100' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the USFWS. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the USFWS.</p> <p>6. Re-initiation of Section 7 consultation with the USFWS will be sought immediately if any loss of plants or occupied habitat for the Pariette cactus and Uinta Basin hookless cactus is anticipated as a result of project activities.</p> <p>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).</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.</p>
T&E-23	<p style="text-align: center;">COLORADO RIVER ENDANGERED FISH</p> <p>The lessee/operator is given notice in order to minimize effects to critical habitats of endangered fish in the Colorado and Green Rivers, surface-disturbing activities within the 100-year floodplain of the Colorado River, Green River, and all associated back waters would not be allowed. Other avoidance and minimization measures include:</p> <ul style="list-style-type: none"> • Surveys would be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individuals. Lease activities would require monitoring throughout the duration of the project.

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	<ul style="list-style-type: none"> • To ensure desired results are being achieved, minimization measures would be evaluated and, if necessary, Section 7 consultation reinitiated. • Water production would be managed to ensure maintenance or enhancement of riparian habitat. • Avoid loss or disturbance of riparian habitats. • Conduct watershed analysis for leases in designated critical habitat and overlapping major tributaries in order to determine toxicity risk from permanent facilities. • Implement the Utah Oil and Gas Pipeline Crossing Guidance. In areas adjacent to 100-year floodplains, 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 the Utah Oil and Gas Pipeline Crossing Guidance to minimize the potential for equipment damage and resulting leaks or spills. • Water depletions from any portions of the Upper Colorado River drainage basin are considered to adversely affect and adversely modify the critical habitat of the endangered fish species (bonytail, Colorado pikeminnow, humpback chub, and razorback sucker). Section 7 consultation would be completed with the U.S. Fish and Wildlife Service (USFWS) prior to any such water depletions. • Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the USFWS between the lease sale stage and lease development stage to ensure continued compliance with the ESA. <p>U.S. Fish and Wildlife Service (Service) Measures to Minimize Effects of Surface Water Pumping to Endangered Colorado River Fish</p> <p>Issue: Endangered larval fish are very small (<0.5 inches total length) and incapable of directed swimming from the time of hatching through the first 2-4 weeks of their life. Depending on the water year, larval fish may be present in the Green, Colorado, Gunnison, and Yampa Rivers from as early as April 1 to as late as August 31 (earlier in dry years; later in wet years). Young of the year endangered fish are the most susceptible to entrainment.</p> <p>Goal: Minimize entrainment of Federally listed species into pumps.</p> <p>Measures:</p> <ol style="list-style-type: none"> 1. The best method to avoid entrainment is to pump from an off-channel location – one that does not connect to the river during high spring flows. An infiltration gallery constructed in a Service approved location is best. 2. If the pump head is located in the river channel the following stipulations apply: <ol style="list-style-type: none"> a. Do not situate the pump in a low-flow or no-flow area, as these habitats tend to concentrate larval fishes. b. Limit the amount of pumping, to the greatest extent possible, during that period of the year when larval fish may be present (see above).

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	<p>c. Limit the amount of pumping, to the greatest extent possible, during the midnight hours (10 pm to 2 am), as larval drift studies indicate that this is a period of greatest daily activity. Dusk and the afternoon are the preferred pumping times, as larval drift abundance is lowest during this time.</p> <p>3. Screen all pump intakes with 3/32" mesh material.</p> <p>4. Approach velocities for intake structures should follow the National Marine Fisheries Service's document "Fish Screening Criteria for Anadromous Salmonids." For projects with an in-stream intake that operate in stream reaches where larval fish may be present, the approach velocity should not exceed 0.33 feet per second (ft/s).</p> <p>5. Report any fish impinged on the intake screen or entrained into irrigation canals to the Service (801-975-3330) or the Utah Division of Wildlife Resources:</p> <p>Northeastern Region 152 East 100 North, Vernal, UT 84078 Phone: 435-781-9453</p> <p>Southeastern Region 475 West Price River Drive, Suite C, Price, UT 84501 Phone: 435-636-0260</p>
T&E-26	<p style="text-align: center;">SOUTHWESTERN WILLOW FLYCATCHER HABITAT – RIPARIAN AREAS</p> <p>The lessee/operator is given notice that the lands in this parcel contains riparian habitat within the range for southwestern willow flycatcher. In order to protect southwestern willow flycatcher habitat and avoid negative impacts to the species, actions would be avoided or restricted that may cause stress and disturbance during nesting and rearing of their young. Appropriate measures would depend on whether the action is temporary or permanent, and whether it occurs within or outside the 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 habitat or displaces flycatchers through disturbances, i.e., creation of a permanent structure. Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 1. Surveys would be required prior to operations unless species occupancy and distribution information is complete and available. All surveys must be conducted by qualified individual(s) and be conducted according to protocol. 2. Activities would require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures would be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Water production would be managed to ensure maintenance or enhancement of riparian habitat. 4. 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. 5. Activities would maintain a 330 feet buffer from suitable riparian habitat year long. 6. Activities within 0.25-mile of occupied breeding habitat would not occur during the breeding season of April 15 to August 15.

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	<ol style="list-style-type: none"> 7. Noise emissions within 0.25-miles of suitable habitat for the southwestern willow flycatcher will not exceed baseline conditions during the breeding season of April 15 to August 15. 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 land. 10. Avoid loss or disturbance of riparian habitats. <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the USFWS between the lease sale stage and lease development stage to ensure continued compliance with the ESA.</p>
T&E-27	<p style="text-align: center;">YELLOW-BILLED CUCKOO</p> <p>The lessee/operator is given notice that the lands in or adjacent to this parcel contain potentially suitable habitat that falls within the range for western yellow-billed cuckoo, a Federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend 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 (ESA). 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 ESA, Section 7 consultation at the permit stage. Avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 1. Habitat suitability within the parcel and/or within a 0.5-mile buffer of the parcel will be identified prior to lease development to identify potential survey needs. Habitat suitability should be determined in accordance with <i>Guidelines for the identification of suitable habitat for WYBCU in Utah</i>. 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: <ol style="list-style-type: none"> a. If action occurs entirely outside of the cuckoo breeding season (June 1 to August 31), and leaves no structure or habitat disturbance, action can proceed without a presence/absence survey. b. If action is proposed between June 1 to 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.

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	<p>c. Eliminate access roads created by the project through such means as raking out scars, revegetation, gating access points, etc.</p> <p>4. For all permanent actions that may impact cuckoo or suitable habitat:</p> <p>a. Protocol level surveys by permitted individuals will be conducted prior to commencing activities.</p> <p>b. If cuckoos are detected, no activity will occur within 0.25-mile of occupied habitat.</p> <p>c. Avoid drilling and permanent structures within 0.25-mile of suitable habitat unless absence is determined according to protocol level survey conducted by permitted individual(s).</p> <p>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 the 0.25-mile buffer for suitable habitat.</p> <p>5. Temporary or permanent actions will require monitoring throughout the duration of the project to ensure that western yellow-billed cuckoo or its habitat is not affected in a manner or to an extent not previously considered. Avoidance and minimization measures will be evaluated throughout the duration of the project.</p> <p>6. Water produced as by-product of drilling or pumping will be managed to ensure maintenance or enhancement of riparian habitat.</p> <p>7. Where technically or economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers.</p> <p>8. Ensure that water extraction or disposal practices do not result in a change of hydrologic regime that would result in loss or degradation of riparian habitat</p> <p>9. Re-vegetate with native species all areas of surface disturbance within riparian areas and/or adjacent uplands.</p> <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.</p>
T&E-28	<p style="text-align: center;">CALIFORNIA CONDOR – POTENTIAL HABITAT</p> <p>The lessee/operator is given notice that the lands located in this parcel contain potential habitat for the California condor. Avoidance or use restrictions may be placed on portions on areas known or suspected to be used by condors. Application of appropriate measures would depend on whether the action is temporary or permanent, and whether it occurs within or outside potential habitat. A temporary action is completed prior to the following important season of use, leaving for habitat functionality. A permanent action continues for more than one season of habitat use, and/or causes a loss of condor habitat function or displaces condors through continued disturbance (i.e., creation of a permanent structure requiring repetitious maintenance or emits disruptive levels of noise).</p>

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	<p>Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 1. The Peregrine Fund will be contacted early and throughout project design and implementation to determine and monitor the locations and status of California condors in or near the project area. 2. Surveys would be required prior to operations in suitable habitat, unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s) approved by the BLM and must be conducted according to approved protocols. 3. All workers will be informed about potential condor presence. 4. If condors are present within the project area the Peregrine Fund will be contacted. If there is any potential that the project will affect condors the USFWS will be contacted immediately. 5. The project area will be kept clean (e.g., trash disposed of, tools and materials picked up) in order to minimize the possibility of condors accessing inappropriate materials. 6. To prevent water contamination and potential condor poisoning, a hazardous material (including vehicle fluids) leakage and spill plan will be developed and implemented. The plan will include provisions for immediate clean-up of any hazardous substance, and will outline how each hazardous substance will be treated in case of leakage or spill. The plan will be reviewed by the district biologist to ensure that condors are adequately addressed. 7. If surveys result in positive identification of condor use, all lease activities would require monitoring throughout the duration of the project to ensure desired results of applied mitigation and protection. Minimization measures would be evaluated during development and, if necessary, Section 7 consultation may be reinitiated. 8. Temporary activities within 1.0-mile of nest sites would not occur during the breeding season. 9. Temporary activities within 0.5-miles of established roosting sites or areas would not occur during the season of use, which is from August 1 to November 30; unless the area has been surveyed according to protocols consulted on with USFWS and determined to be unoccupied. 10. No permanent infrastructure would be placed within 1.0-mile of nest sites. 11. No permanent infrastructure would be placed within 0.5-miles of established roosting sites or areas. 12. Remove big game carrion to 100 feet from on lease roadways occurring within foraging range. 13. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 14. Re-initiation of Section 7 consultation with the USFWS would be sought immediately if mortality or disturbance to California condors is anticipated as a result of project activities. Additional site-specific measures may also be

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	<p>employed to avoid or minimize effects to the species. These additional measures would be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.</p> <p>Additional measures may also be employed to avoid or minimize effects to the species between the lease sale and lease development stages. These additional measures would be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.</p>
T&E-31	<p style="text-align: center;">WESTERN YELLOW-BILLED CUCKOO</p> <p>The Lessee/Operator is given notice that the lands in or adjacent to this parcel contain potentially suitable habitat that falls within the range for western yellow-billed cuckoo, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend upon whether the action is temporary or permanent, and whether it occurs within or outside the breeding and nesting season. A temporary action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action could continue for more than one breeding season and/or cause a loss of habitat or displace western yellow-billed cuckoos through disturbances. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to, these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 1. Habitat suitability within, and within a 0.5-mile buffer, of the proposed project analysis area will be identified prior to lease development to identify potential survey needs. 2. If suitable or proposed critical habitat is present, protocol Breeding Season Surveys will be required within, and within 0.5-mile buffer, of the proposed project analysis area prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by permitted individual(s), and be conducted according to protocol. 3. For all temporary actions that may impact cuckoo or suitable habitat: <ol style="list-style-type: none"> a. If action occurs entirely outside of the cuckoo breeding season (June 1 – Aug 31), and leaves no structure or habitat disturbance, action can proceed without a presence/absence survey. b. If action is proposed between June 1 and August 31, presence/absence surveys for cuckoo will be conducted prior to commencing activity. If cuckoo are detected, activity should be delayed until September 1. The cuckoo survey protocol requires four surveys across the breeding season to conclude absence, thus the survey cannot conclude absence of cuckoos until mid-August. c. Eliminate access routes created by the project through such means as raking out scars, revegetation, gating access points, etc. 4. For all permanent actions that may impact cuckoo or suitable habitat:

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	<ul style="list-style-type: none"> a. Habitat suitability within and within a 0.5-mile buffer of the proposed project analysis area will be identified prior to lease development to identify potential survey needs. b. Protocol level surveys by permitted individuals will be conducted within, or within a 0.5-mile buffer, of the proposed project analysis area prior to commencing activities. c. Avoid drilling and permanent structures within 0.5 miles of suitable or proposed critical habitat unless absence is determined according to protocol level surveys conducted by permitted individual(s). d. During construction and operation phases of the project, ensure noise levels at the edge of suitable habitat do not exceed baseline conditions. Placement of permanent noise-generating facilities should be determined by a noise analysis. <p>5. Temporary or permanent actions will require monitoring throughout the duration of the project to ensure that western yellow-billed cuckoo or its habitat is not affected in a manner or to an extent not previously considered. Avoidance and minimization measures will be evaluated throughout the duration of the project.</p> <p>6. Water produced as a by-product of drilling or pumping will be managed to ensure maintenance or enhancement of riparian habitat.</p> <p>7. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers.</p> <p>8. Ensure that water extraction or disposal practices do not result in change of hydrologic regime that would result in loss or degradation of riparian habitat.</p> <p>9. Re-vegetate with native species, where possible, all areas of surface disturbance within riparian areas and/or adjacent uplands.</p> <p>Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.</p>
T&E-32	<p style="text-align: center;">CISCO MILKVETCH</p> <p>The lessee/operator is given notice that the lands located in this parcel contain potential habitat for Cisco milkvetch (<i>Astragalus sabulosus</i>). The U.S. Fish and Wildlife Service (Service) was petitioned to list Cisco milkvetch under the Endangered Species Act (ESA) and the species' status is currently under review. Cisco milkvetch is currently a Bureau of Land Management (BLM) sensitive plant species.</p> <p>In order to minimize effects to the Cisco milkvetch, the BLM, in coordination with the Service has developed the following avoidance and minimization measures. Implementation of these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance</p>

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	<p>operations) avoids or minimizes impacts to the species.</p> <p>For the purposes of this document, the following terms are so defined: <i>Potential habitat</i> is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. <i>Suitable habitat</i> 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 Cisco milkvetch; habitat descriptions can be found in NatureServe links at http://explorer.natureserve.org/. <i>Occupied habitat</i> is defined as areas currently or historically known to support Cisco milkvetch; synonymous with “known habitat.”</p> <p>The following avoidance and minimization measures should be included in the plan of development:</p> <ol style="list-style-type: none"> 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 Cisco milkvetch habitat is present. 2. Species surveys will be conducted within suitable habitat to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc., suitable habitat will be assessed and mapped for avoidance (hereafter, “avoidance areas”); in such cases, 300 foot buffers will be maintained between surface disturbance and avoidance areas. Where conditions allow, surveys: <ol style="list-style-type: none"> a. Will be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols (USFWS 2011); 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 April 15th to May 31st; however, surveyors should verify that the plant is flowering by contacting a BLM or Service botanist or demonstrating that the nearest known population is in flower); c. Will occur within 300 feet from the edge of the proposed right-of-way and/or project disturbance for surface pipelines, roads, well pads, and other facilities requiring removal of vegetation; d. Will include, but not be limited to, plant species lists and habitat characteristics, and; e. Will be valid until April 15th of the following year. f. Clearance surveys in occupied habitat will be combined with historic plant location data for that particular site to delineate the outer boundary of occupied habitat. The 300-foot avoidance buffer will then be applied to the outer boundary of occupied habitat for that site. This evaluation will occur in coordination with the BLM and Service to ensure that the appropriate buffer is applied to protect both active and dormant Cisco milkvetch plants in occupied habitat. g. Electronic copies of clearance survey reports (included appendices) and GIS shape files will be sent no later than December 31st to each of the following: <ul style="list-style-type: none"> • Utah Natural Heritage Program (with copies of NHP field survey forms);

NUMBER	UTAH THREATENED & ENDANGERED SPECIES NOTICES
	<ul style="list-style-type: none"> • Applicable/affected landowners and/or management agencies; and, • U.S. Fish and Wildlife Service Utah Field Office (mailing address: 2369 West Orton Circle, Suite 50, West Valley City, Utah 84119). <p>3. Design project infrastructure to minimize impacts within suitable habitat:</p> <ul style="list-style-type: none"> a. Where standard surveys are technically infeasible, infrastructure and activities will avoid all suitable habitat (avoidance areas) and incorporate 300-foot buffers; b. Reduce well pad size to the minimum needed, without compromising safety; c. Where technically and economically feasible, use directional drilling or multiple wells from the same pad; d. Limit new access routes created by the project; e. Roads and utilities should share common right-of ways where possible; f. 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; g. Place signing to limit off-road travel in sensitive areas; h. Stay on designated routes and other cleared/approved areas; i. All disturbed areas will be revegetated with species native to the region, or seed mixtures approved by the action agency. <p>4. Where there is occupied habitat, project infrastructure will be designed to avoid direct disturbance and indirect impacts to populations and to individual plants:</p> <ul style="list-style-type: none"> a. Follow the above recommendations (#3, above) for project design within suitable habitats; b. To avoid water flow and/or sedimentation into occupied habitat and avoidance areas, silt fences, hay bales, and similar structures or practices will be incorporated into the project design; appropriate placement of fill is encouraged; c. Construction of roads will occur such that the edge of the right of way is at least 300 feet from: (1) any plant; (2) the outer boundary of occupied habitat; and (3) avoidance areas; d. Existing roads will be graveled within 300 feet of occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from April 15th to May 31st (flowering period); dust abatement applications will be comprised of water only; e. The edge of the well pad should be located at least 300 feet away from plants and avoidance areas, in general; f. Surface pipelines will be laid such that a 300 foot buffer exists between the edge of the right of way and plants and 300 feet between the edge of right of way and avoidance areas; use stabilizing and anchoring

NUMBER	UTAH THREATENED & ENDANGERED SPECIES NOTICES
	<p>techniques when the pipeline crosses suitable habitat to ensure pipelines don't move towards the population;</p> <ul style="list-style-type: none"> g. Construction activities will not occur within occupied habitat; h. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.; i. A qualified botanist will be on site during construction to monitor the surface disturbance activity and assist with implementation of applicable conservation measures (USFWS 2011); j. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat; and, k. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. <p>5. For projects that cannot implement the measures or avoidance buffers identified in #4, above, site specific conservation measures will be developed in coordination with the Service. Occupied Cisco milkvetch habitats within: (1) 300 ft of the edge of the surface pipeline right of ways; (2) 300 ft of the edge of the road right of ways; and (3) 300 ft from the edge of the well pads shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>6. Coordination with the Service will be sought immediately if any loss of plants or occupied habitat for the Cisco milkvetch is anticipated as a result of project activities. Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in coordination with the BLM and the Service.</p> <p><u>Literature Cited:</u> U.S. Fish and Wildlife Service (USFWS). 2011. Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed, and Candidate Plants. Utah Ecological Services Field Office, West Valley City, Utah. August 2011. Available at: http://www.fws.gov/utahfieldoffice/SurveyorInfo.html.</p>

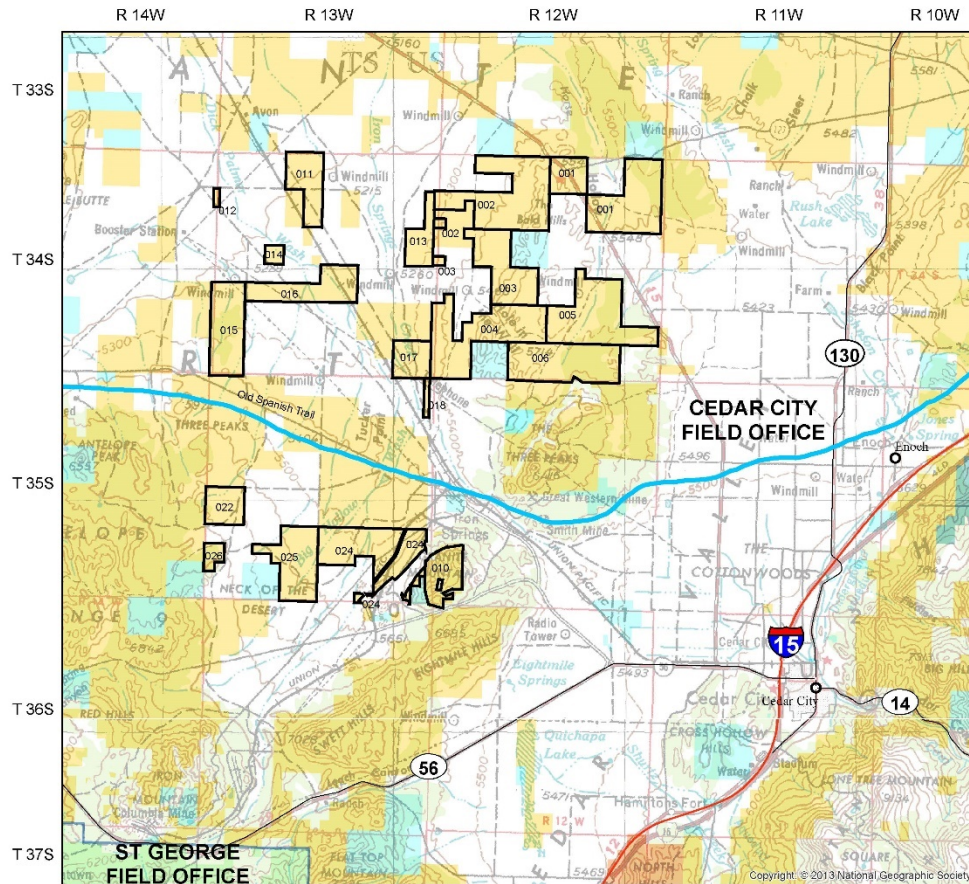
Appendix C – Figures/Maps

- Cedar City Field Office overview.
- Cedar City Field Office parcels and oil and gas leasing categories.
- Cedar City Field Office parcels and nearest authorized leases.
- Moab Field Office overview.
- Moab Field Office oil and gas lease categories.
- Moab Field Office parcel and BLM authorized leases.
- Vernal Field Office overview.
- Vernal Field Office oil and gas leasing categories.
- Vernal Field Office parcel and BLM authorized leases.

BLM Utah Competitive Oil and Gas Lease Sale



Overview Cedar City Field Office Parcels



Legend

- BLM UT - Old Spanish Trail (Arc)
- Dec 2020 nominated parcels
- Bureau of Land Management (BLM)
- Indian Reservation (IR)
- Private
- State
- State Parks and Recreation
- State Wildlife Reserve/Management Area
- US Forest Service (USFS)

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
Data compiled in NAD 1983 UTM Zone 12 North

0 1.5 3 6 Miles



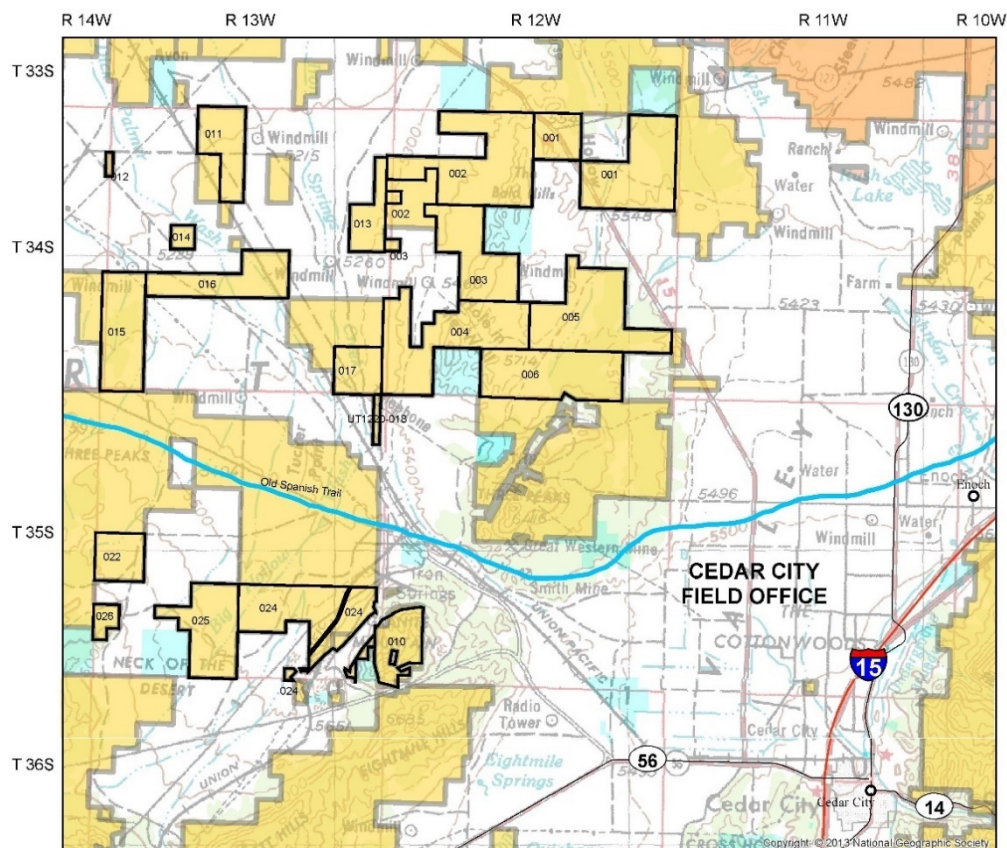
Map Date: 8/13/2020

Figure 6. Cedar City Field Office overview.

BLM Utah Competitive Oil and Gas Lease Sale



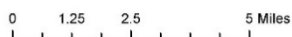
Overview Cedar City Field Office Parcels



Legend

- BLM UT - Old Spanish Trail (Arc)
- Dec 2020 nominated parcels
- No Surface Occupancy
- Standard Stipulations
- Bureau of Land Management (BLM)
- Private
- State
- State Parks and Recreation
- State Wildlife Reserve/Management Area

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
Data compiled in NAD 1983 UTM Zone 12 North



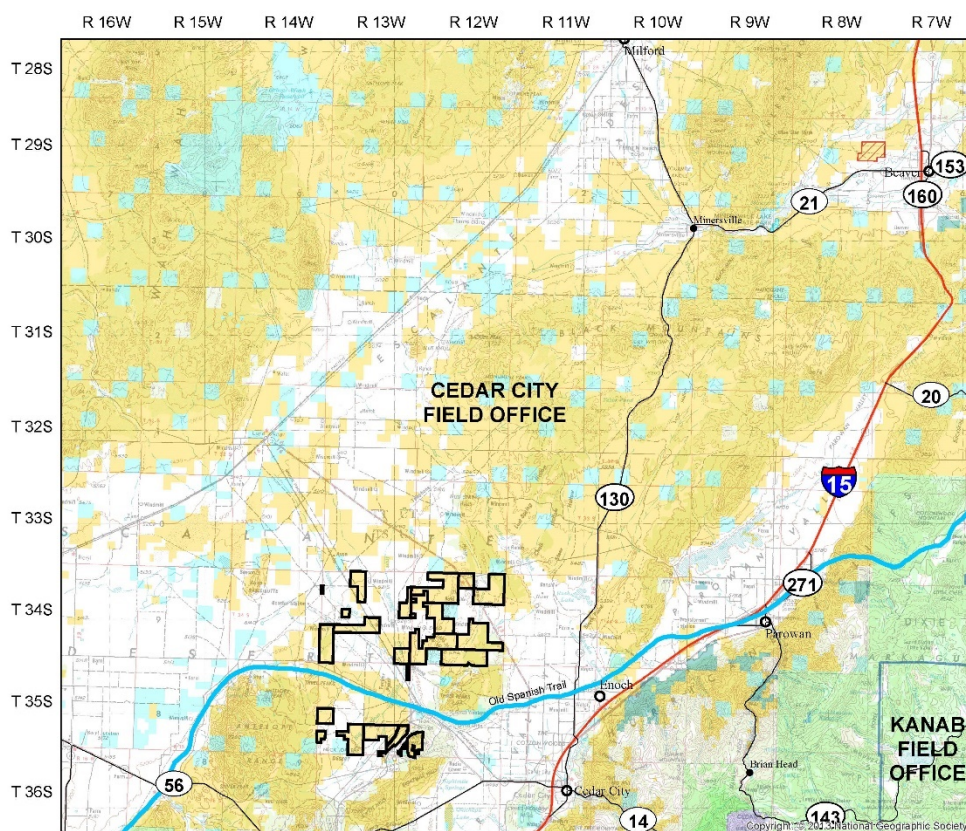
Map Date: 8/13/2020

Figure 7. Cedar City Field Office parcels and oil and gas leasing categories.

BLM Utah Competitive Oil and Gas Lease Sale



Overview Cedar City Field Office Parcels



Legend

- BLM UT - Old Spanish Trail (Arc)
- Dec 2020 nominated parcels
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- Private
- State
- State Parks and Recreation
- State Wildlife Reserve/Management Area
- US Forest Service (USFS)
- USFS Wilderness Area

BLM Utah Oil and Gas Leases

Case Disposition

- Authorized Leases

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
Data compiled in NAD 1983 UTM Zone 12 North

0 3.75 7.5 15 Miles



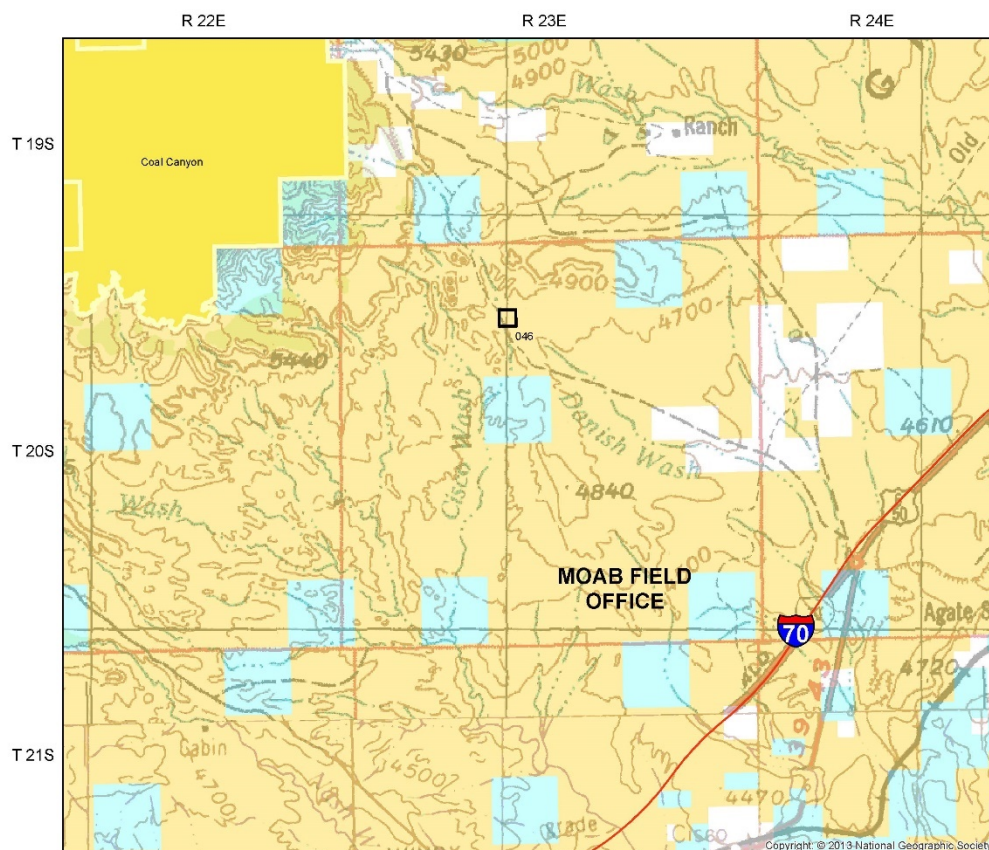
Map Date: 8/13/2020

Figure 8. Cedar City Field Office parcels and nearest BLM authorized lease.

BLM Utah Competitive Oil and Gas Lease Sale



Overview Moab Field Office Parcels



Legend

- Dec 2020 nominated parcels
- BLM UT - Wilderness Study Areas (Polygon)**
- BLM UT - Wilderness Study Areas (Polygon)
- Bureau of Land Management (BLM)
- Private
- State

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
Data compiled in NAD 1983 UTM Zone 12 North

0 0.75 1.5 3 Miles



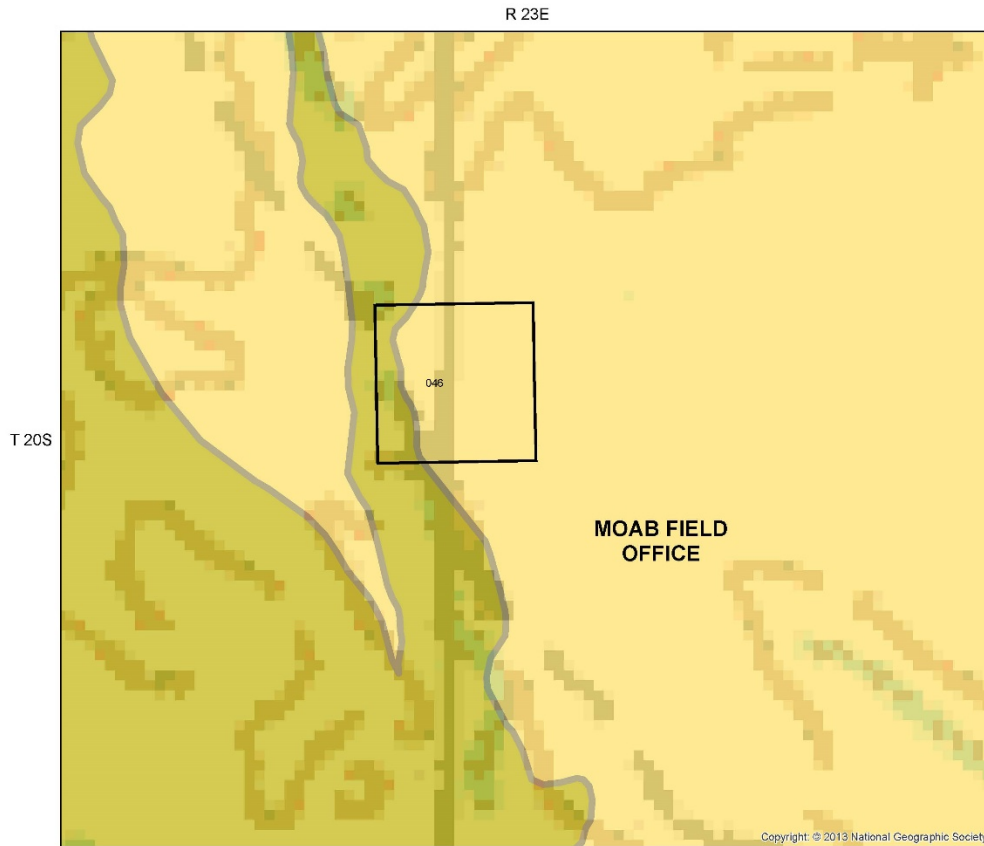
Map Date: 8/13/2020

Figure 9. Moab Field Office overview.

BLM Utah Competitive Oil and Gas Lease Sale



Overview Moab Field Office Parcels



Legend

- Dec 2020 nominated parcels
- Controlled Surface Use/Timing Limitation
- Standard Stipulations
- Bureau of Land Management (BLM)

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
Data compiled in NAD 1983 UTM Zone 12 North

0 0.075 0.15 0.3 Miles



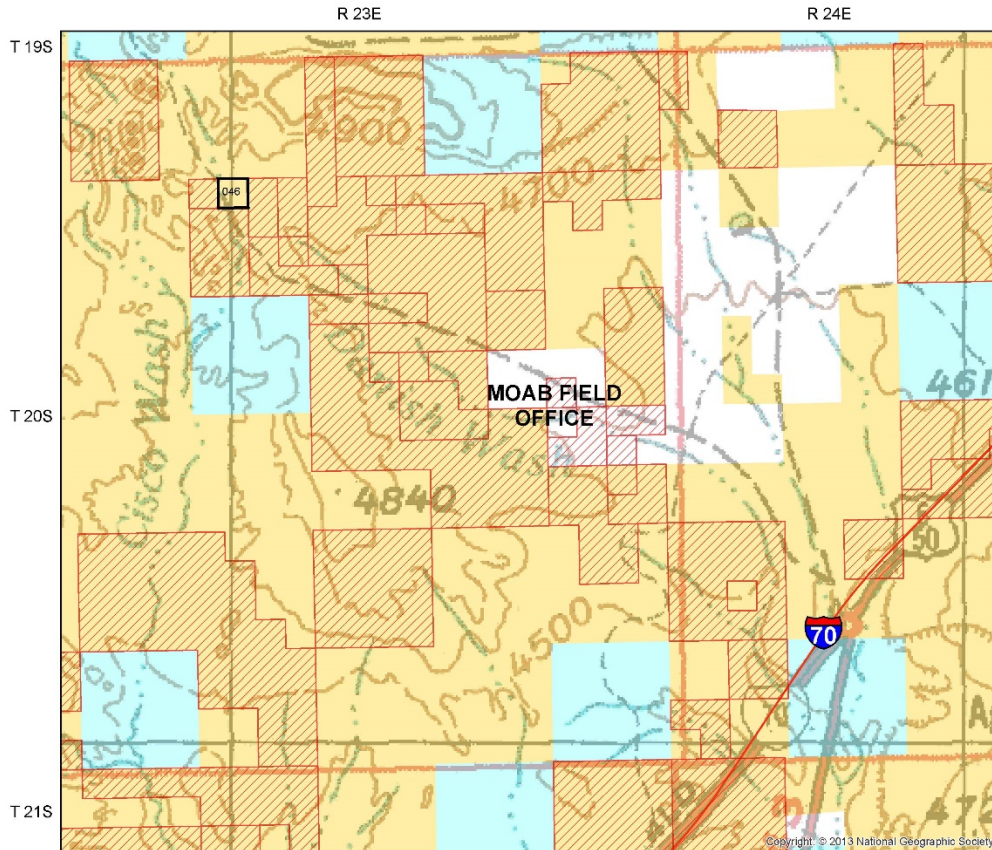
Map Date: 8/13/2020

Figure 10. Moab Field Office oil and gas lease categories.

BLM Utah Competitive Oil and Gas Lease Sale



Overview Moab Field Office Parcels



Legend

- Dec 2020 nominated parcels
- Bureau of Land Management (BLM)
- Private
- State
- BLM Utah Oil and Gas Leases**
- Case Disposition**
- Authorized Leases

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
Data compiled in NAD 1983 UTM Zone 12 North

0 0.5 1 2 Miles



Map Date: 8/13/2020

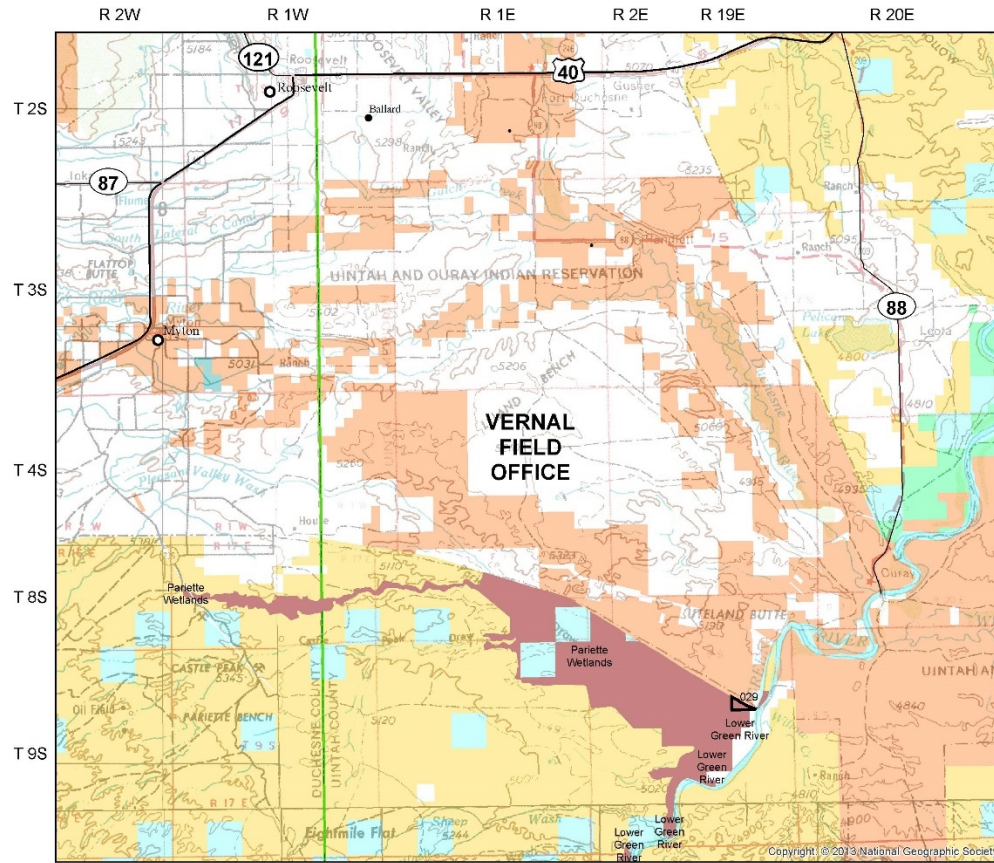
Figure 11. Moab Field Office parcel and BLM authorized leases.

August 2020

BLM Utah Competitive Oil and Gas Lease Sale



Overview Vernal Field Office Parcel



Legend

- Dec 2020 nominated parcels
- Designated ACEC
- Bureau of Land Management (BLM)
- Indian Reservation (IR)
- Private
- State
- State Wildlife Reserve/Management Area
- US Fish & Wildlife (USFW) National Wildlife Refuge

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
Data compiled in NAD 1983 UTM Zone 12 North

0 1.75 3.5 7 Miles



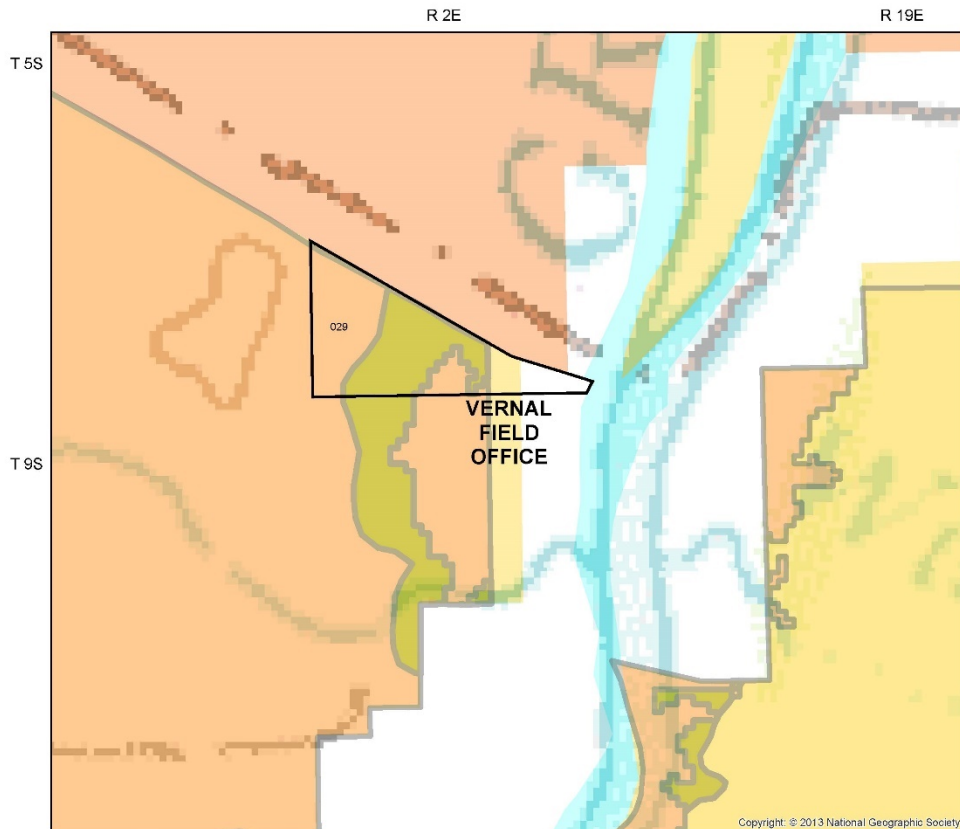
Map Date: 8/13/2020

Figure 12. Vernal Field Office overview.

BLM Utah Competitive Oil and Gas Lease Sale



Overview Vernal Field Office Parcel



Legend

- Dec 2020 nominated parcels
- No Surface Occupancy
- Controlled Surface Use/Timing Limitation
- Standard Stipulations
- Bureau of Land Management (BLM)
- Indian Reservation (IR)
- Private
- State

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
Data compiled in NAD 1983 UTM Zone 12 North

0 0.125 0.25 0.5 Miles



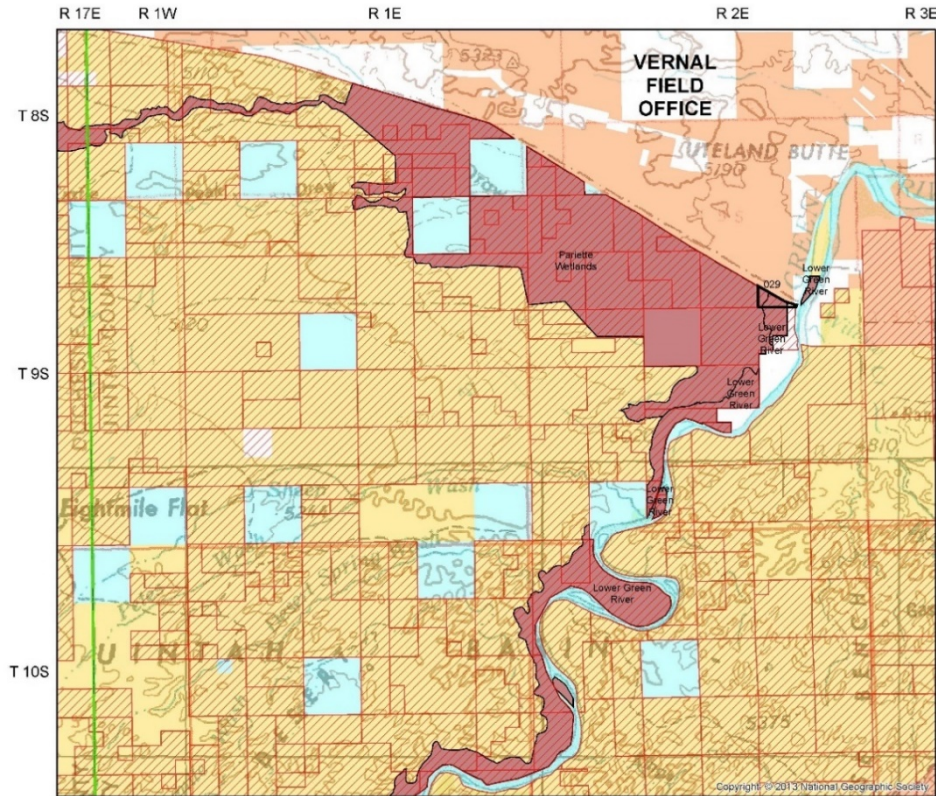
Map Date: 8/13/2020

Figure 13. Vernal Field Office oil and gas leasing categories.

BLM Utah Competitive Oil and Gas Lease Sale



Overview Vernal Field Office Parcel



Legend

- Dec 2020 nominated parcels
- Designated ACEC
- Bureau of Land Management (BLM)
- Indian Reservation (IR)
- Private
- State

BLM Utah Oil and Gas Leases

Case Disposition

- Authorized Leases

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.
Data compiled in NAD 1983 UTM Zone 12 North

0 1 2 4 Miles



Map Date: 8/13/2020

Figure 14. Vernal Field Office parcel and BLM authorized leases. Parcel 029 was previously leased and held by lease UTU080413 (1996-2019). The lease was suspended (2006-2014) and terminated February 2019. No development occurred during the 10-year primary lease term. The GIS layer has not yet been updated to reflect the lease closure.

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

Applicable to all Field Offices

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
Air			
PI	Air Quality	<p>Leasing is an administrative action and does not result in direct emissions of air pollutants. However, leasing of the parcels indirectly results in development that may include activities such as exploration, construction, drilling, completion, testing, and oil and gas production that could produce emissions of regulated air pollutants that could affect air quality. Development of all leased parcels is not expected given observed trends from past lease sales (BLM 2020). To mitigate impacts to air quality, the following stipulations and lease notices are applied to lease parcels:</p> <ul style="list-style-type: none"> • UT-S-01: Air Quality <ul style="list-style-type: none"> ○ Parcels: 029, 046 • UT-LN-96: Air Quality Mitigation Measures <ul style="list-style-type: none"> ○ Parcels: All • UT-LN-99: Regional Ozone Formation Controls <ul style="list-style-type: none"> ○ Parcels: All • UT-LN-101: Air Quality <ul style="list-style-type: none"> ○ Parcels: All • UT-LN-102: Air Quality Analysis <ul style="list-style-type: none"> ○ Parcels: All <p>Any wells developed on parcels being offered in the December 2020 lease sale must also comply with state permitting rules for the oil and gas industry (Utah Administrative Code R307-500 series). Stipulations and state permitting rules effectively mitigate impacts to air quality by requiring controls that limit emissions and ensuring compliance with air regulatory requirements. Before development can be approved on parcels in nonattainment areas, the Clean Air Act rules (40 CFR Part 93, Subpart B) require a State or Federal Implementation Plan conformity review to show that development won't worsen air quality or prevent the regulatory agencies from achieving attainment of the NAAQS. Lease</p>	<p>Erik Vernon 8/11/2020 James Miller 8/14/2020</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
		notice UT-LN-102 informs a lessee that additional air quality analysis, which includes a conformity analysis, may be needed before developing parcels.	
PI	Greenhouse Gases	<p>Greenhouse Gases are composed mostly of CO₂, CH₄, N₂O, HFCs, PFCs, & SF₆. Emissions of GHG's may occur if parcels are developed. Development activities that produce GHG emissions include tailpipe exhaust from heavy equipment used for well construction and drilling, well operations, venting or flaring, and fugitive leaks. Additional emissions may occur during the transportation, distribution, processing, and end-use of produced oil and gas. Anthropogenic emissions of GHG's are a leading contributor to global climate change.</p> <p>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 at the leasing stage. The RFD of acres of disturbance would be approximately 0.0001% of the 33 million acres of federal land in Utah. Changes to carbon storage and sequestration will likely be well below the natural variability from wildfires and other land change that is reported in the USGS Federal Fossil Fuel GHG emissions report (USGS 2018). Changes to the lands carbon storage capability will not be analyzed in detail.</p>	Erik Vernon 8/11/2020
Environmental Justice and Socioeconomics			
PI	Environmental Justice	<p>The 2008 Moab RMP and the 2016 MLP identified no EJ population likely to suffer disproportionate impacts. 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.</p> <p>EJ populations, including minority and low-income populations as well as concentrated populations of American Indians, are known to be present in the counties included in the study area. A lease sale by itself would not be expected to cause any disproportionate adverse impacts to these EJ populations. Should individual parcels move into exploration, development, and production, it will be necessary to evaluate the potential for EJ impacts on a case-by-case basis.</p>	Julie A. Suhr Pierce 8/14/2020
PI	Socioeconomics	The Proposed Action (lease sale) is not expected to cause any local or regional socioeconomic effects other than possible shares of bonus (winning bid) and rental payments that would go to the	Julie A. Suhr Pierce 8/14/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
		<p>counties after the sale. Should parcels move into exploration, development, and production, there could be regional socioeconomic effects caused primarily by a limited influx of workers. There is also a potential that socioeconomic effects could occur as a result of changes in recreation and tourism activities due to parcel site activities, although such changes in activity are not anticipated at this time.</p> <p>Refer to the Headwaters Economics BLM Socioeconomic Profile reports (Headwaters 2020) (Bureau of Land Management Socioeconomic Profile). Additional information is contained in the Grand County general plan and its corresponding resource management plan. Land uses in county and parcel areas would continue. Land use plan (as amended) allocations would not be altered. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.</p>	
Cultural			
NI	Cultural Resources	<p>BLM Archaeologists compiled cultural resource data from the Cedar City, Moab, and Vernal Field Offices cultural resource libraries, GIS data (CURES), the Utah Department of Heritage and Arts Archaeological Records Database (UDAM) and Sego database. These data sources contain information on all the recorded cultural resource sites and cultural resource surveys conducted within and adjacent to the proposed lease parcels.</p> <p>BLM Archaeologists at the Field and State Office level reviewed this data against the lease sale parcel locations to determine if oil and gas development could occur in accordance with the appropriate Reasonably Foreseeable Development Scenario for each parcel, without incurring adverse effects to historic properties, taking into consideration impacts to cultural resources as well. The parcels were also reviewed for the application of stipulations and lease notices as required by the Cedar City, Moab, and Vernal Field Office Resource Management Plans.</p> <p>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 the NEPA, the NHPA, and other authorities specific to those future undertakings. Consideration of impacts to cultural resources and potential adverse effects to historic properties will be taken into account during the review stage of site-specific development plans.</p> <p>The Cultural Resource Stipulation as required by Handbook H-3120-1 applies to all parcels. The stipulation reads as follows:</p> <p style="padding-left: 40px;">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</p>	Tylia Varilek 7/30/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
		<p>American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.</p> <p>As of today (7/30/2020), consultation with Utah State Historic Preservation Office is pending the completion of the December 2020 Oil and Gas Lease Sale Cultural Resources Report.</p> <p>BLM's consultation with Native American Tribes is ongoing</p>	
NI	Native American Religious Concerns	<p>The following Tribes were invited to consult on this project via certified letter on July 16, 2020: All Pueblo Council of Governors, Cedar Band of Paiutes, Colorado River Indian Tribes, Confederated Tribes of the Goshute, Eastern Shoshone, The Hopi Tribe, Indian Peaks Band of Paiutes, Kaibab Band of Paiute Indians, Konosh Band of Paiute, Moapa Band of Paiute Indians, Navajo Nation, Northwestern Band of Shoshone, Paiute Indian Tribe of Utah, Pueblo of Acoma, Pueblo of Cochiti, Pueblo of Isleta, Pueblo of Jemez, Pueblo of Kewa (Santo Domingo), Pueblo of Laguna, Pueblo of Nambe, Pueblo of Ohkay Owingeh, Pueblo of Picuris, Pueblo of Pojoaque, Pueblo of San Felipe, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Santa Clara, Pueblo of Taos, Pueblo of Tesuque, Pueblo of Ysleta del Sur, Pueblo of Zia, Pueblo of Zuni, San Juan Southern Paiute, Skull Valley Band of Goshute Indians, Southern Ute Indian Tribe, Ute Indian Tribe, Ute Mountain Ute Tribe, and White Mesa Ute.</p> <p>No BLM known Traditional Cultural Properties or Sacred Sites are located within the parcels. However, resources and locations of Native American religious and traditional concern may be present within the proposed parcels. 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.</p> <p>Tribal consultation is ongoing.</p>	Tylia Varilek 7/29/2020
Wildlife			

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
NP	Greater Sage-Grouse	The 21 lease parcels identified within the Cedar City, Moab, and Vernal Resource Management Areas are located outside designated Greater Sage-grouse Priority and General Habitat Management Areas (PHMA & GHMA) and do not pose a threat to this species.	Jared Reese 7/29/2020
NI	Migratory Birds	<p>The Migratory Bird Treaty Act (MBTA) protects migratory birds; Instructional Memorandum No. 2008-050 requires the BLM to address the potential effects of the projects on 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).</p> <p>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 A 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.</p> <p>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 opportunity to make adjustments, such as design modifications, at the site-specific level when an Application for Permit to Drill is received.</p> <p><u>Lease Notice:</u> UT-LN-45 to all parcels</p>	Dave Cook 8/12/2020
NI	Sensitive Wildlife Species	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 <i>et seq.</i> , 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. 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 wildlife Species	Dave Cook 8/12/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)</p> <p>lists for BLM-administered public lands in Utah and these species have been evaluated for potential impacts from the proposed lease sale, as documented in the parcel list found in Appendix A 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 resources.</p> <p><u>Stipulations and Lease Notices:</u></p> <p>UT-LN-44, UT-LN-49, UT-LN-156 applied to all parcels</p> <p>Parcel 046</p> <p>UT-S-272, UT-LN-107 applied to parcel 046</p> <p>UT-S-298: CSU– Kit fox</p> <p>UT-LN-25: White Tailed and Gunnison Prairie Dog</p> <p>Parcel 029</p> <p>UT-S-278: Controlled Surface Use – Bald Eagle Winter Roost</p> <p>UT-S-261</p> <p>UT-S-218: Controlled Surface Use-White Tailed Prairie Dog</p> <p>Parcels 001,002,003,004,005,006,010,011,012, 013, 014, 015, 016, 017, 018, 022, 024, 025, 026</p> <p>UT-LN-46: Pygmy Rabbit</p> <p>Parcels 002, 003, 004, 006, 017</p> <p>UT-S-263: Golden Eagle Nests</p>	
NI	Threatened, Endangered, Candidate or Proposed Animal Species	<p>The standard stipulations from the Competitive Leasing Handbook H-3120-1, Endangered Species Act (ESA), would be applied to all parcels. Applying the appropriate T&E Lease Notices developed through consultation with the USFWS are designed to mitigate potential impacts from mineral development on the identified lease parcels).</p> <p>For all parcels with Federal surface ownership, applying the appropriate T&E Lease Notices developed through consultation with the USFWS are designed to mitigate potential impacts from mineral development on the identified lease parcels. Requirements outlined in the relevant RMP / the2016 MLP Lease Notices, applied throughout the entire Moab and Monticello FOs through plan maintenance, will</p>	Aaron Roe 7/29/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
		<p>adequately mitigate potential impacts at the leasing stage to Threatened, Endangered or Candidate (ESA) animal species.</p> <p><u>Cedar City</u></p> <p>For each of the named species below, the BLM completed programmatic consultation in 2004, 2007, and 2020 related to impacts associated with fluid mineral leasing and development. Additional consultation with USFWS will be required prior to the implementation of any project that ‘may affect’ a listed species or habitat. Additional conditions of approval may also be applied to areas of development at that time to ensure protection of ESA animal species and mitigation of potential project impacts</p> <p>Southwestern Willow Flycatcher T&E-26: Southwestern Willow Flycatcher Habitat – Riparian Areas: 001, 002, 005, 014, 015, 016, 018 024</p> <p>Utah Prairie Dog T&E-09: Utah Prairie Dog: 001, 002, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 017, 018, 022, 024, 025, 026</p> <p>Yellow-Billed Cuckoo T&E-27: Yellow-Billed Cuckoo: 002, 013, 016</p> <p><u>Moab</u></p> <p>For each of the named species below, the 2008 Moab RMP and Section 3.16 of the 2016 MLP provided potential habitat information, and 4.17 provided potential impacts from mineral development and expected effects once appropriate conservation measures identified in the applicable lease notice are applied. Additional consultation with USFWS will be required prior to the implementation of any project that ‘may affect’ a listed species or habitat. Additional conditions of approval may also be applied to areas of development at that time to ensure protection of ESA animal species and mitigation of potential project impacts</p> <p>The following lease notices and/or stipulation will be applied to the list parcels:</p> <p>Colorado River Fish UT-S-183: No Surface Occupancy – Critical Habitat of the Endangered Colorado River Fishes: 048</p>	

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
		<p>T&E-23: Colorado River Endangered Fish: 048 T&E-28: California Condor – Potential Habitat: 046</p> <p><u>Vernal</u> For each of the named species below, the 2008 RMP provided potential habitat information potential impacts from mineral development and expected effects once appropriate conservation measures identified in the applicable lease notice are applied. Additional consultation with USFWS will be required prior to the implementation of any project that ‘may affect’ a listed species or habitat. Additional conditions of approval may also be applied to areas of development at that time to ensure protection of ESA animal species and mitigation of potential project impacts</p> <p>T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin: 029 T&E-31: Western Yellow-Billed Cuckoo: 029</p>	
NI	Fish and Wildlife Excluding USFWS Designated Species	<p>Parcels were evaluated for State identified game species and other wildlife, 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. Notices and stipulations for parcels are located in Appendix A. 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 resources.</p> <p>Parcel 029 UT-S-231: CSU – Crucial Deer Winter Range Parcel 046 UT-S-224</p>	Dave Cook 8/12/202
Plants			
NI	Sensitive Plant Species	Specific parcels have been identified as having occurrence, or potential occurrence of several species of plants that may require modification of surface use plans to avoid disruptive or harmful activities.	Aaron Roe 7/29/2020.

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)</p> <p>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.</p> <p>Each of the following parcels would have the following lease notices attached</p> <p>UT-LN-49: Utah Sensitive Species</p> <p>UT-LN-51: Special Status Plants: Not Federally Listed</p> <p><u>Cedar City</u></p> <p>Occupied habitat identified</p> <p>Penstemon franklinii:001, 003, 005</p> <p>Penstemon pinorum: 010, 026</p> <p>Potential habitat identified based upon broad soils data</p> <p>Astragalus oophorus lonchocalyx: 006, 009, 015, 016, 022, 024, 025, 026</p> <p>Ericameria crispa: 010, 024, 026</p> <p>Eriogonum pharnaceoides cervinum:006, 009, 010, 026</p> <p>Eriogonum soreidum:006,</p> <p>Eriogonum artificis:006,</p> <p>Eriogonum microthecium phoeniceum:006,</p> <p>Ivesia shockleyi sotleri:006,</p> <p>Trifolium friscanum: 006,</p> <p>Penstemon franklinii: 002, 004, 006, 010 011, 012, 013, 014, 015, 017, 018, 022, 024, 025, 026</p> <p>Penstemon pinorum: 015, 016, 018, 022, 024, 025</p> <p><u>Moab</u></p> <p>Potential Habitat</p> <p>Astragalus sabulosus var sabulosus: 046</p>	

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
		<p>T&E-32: Cisco Milkvetch would also be attached to this parcel</p> <p><u>Vernal</u> Yucca sterilis: 029</p>	
NI	Threatened, Endangered, Candidate or Proposed Plant Species	<p>For all parcels with Federal surface ownership, applying the appropriate T&E Lease Notices developed through consultation with the USFWS are designed to mitigate potential impacts from mineral development on the identified lease parcels. Requirements outlined in the relevant RMP / the 2016 MLP Lease Notices, applied throughout the entire Moab and Monticello FOs through plan maintenance, will adequately mitigate potential impacts at the leasing stage to Threatened, Endangered or Candidate (ESA) animal species.</p> <p><u>Cedar City</u> No federally listed plant species potentially impacted by the proposed lease parcels</p> <p><u>Moab</u> No federally listed plant species potentially impacted by the proposed lease parcels</p> <p><u>Vernal</u> For each of the named species below, the 2008 RMP provided potential habitat information potential impacts from mineral development and expected effects once appropriate conservation measures identified in the applicable lease notice are applied. Additional consultation with USFWS will be required prior to the implementation of any project that ‘may affect’ a listed species or habitat. Additional conditions of approval may also be applied to areas of development at that time to ensure protection of ESA animal species and mitigation of potential project impacts</p> <p>Uinta Basin <i>Sclerocactus</i> species T&E-05: Listed Plant Species: 029 T&E-12: Pariette cactus (<i>Sclerocactus brevispinus</i>) and Uinta Basin Hookless Cactus [<i>Sclerocactus glaucus</i> (<i>brevispinus</i> and <i>wetlandicus</i>)]</p>	Aaron Roe 7/29/2020.

Canyon Country District

Moab Field Office

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
Recreation			
NP	Areas of Critical Environmental Concern	Parcel 046 is not within or contain areas identified as an ACEC.	Sheri Wysong July 30, 2020
NP	National Historic Trails	The closest segment of the Old Spanish Trail to the parcel is the Book Cliffs high potential segment is more than 7.5 miles away.	Sheri Wysong July 30, 2020
NI	Recreation	Dispersed recreation may occur on the parcel, but there are no known areas heavily used by recreationalists.	Sheri Wysong July 30, 2020
NI	Travel/ Transportation	The parcel can be accessed from an unimproved road to Cisco Springs. There are no scenic byways in the area.	Sheri Wysong July 30, 2020
NI	Visual Resources	The area is VRM III and IV, which does not conflict with oil and gas leasing	Sheri Wysong July 30, 2020
NP	Wild and Scenic Rivers	No suitable or eligible WSR are in the vicinity of the parcel	Sheri Wysong July 30, 2020.
NP	Wilderness/ Wilderness Study Area	The parcel does not contain WAs or WSAs. Areas within WAs and WSAs are closed to leasing.	Sheri Wysong July 30, 2020
NP	Lands with wilderness characteristics	The parcel is not within an area identified as having wilderness characteristics.	Sheri Wysong July 30, 2020
Plants			
NP	Invasive Species/ Noxious Weeds (EO 13112)	Executive Order 13112 requires Federal Agencies to promote activities in a manner which avoids introduction of spread of invasive species. Invasive species introduced to Utah affect plant and animal communities Surface disturbing activities have the potential to introduce/spread invasive species/noxious weeds. The BLM "Partners Against Weeds, An Action Plan for the Bureau of Land Management" provides strategies to prevent and	Logan LeFevre 7/14/20

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>control spread of noxious weeds Invalid source specified. Noxious weeds are invasive exotic plants designated by the State of Utah as being hazardous to public health, the environment or the economy (Utah Code Title 4, Chapter 17).</p> <p>Noxious/invasive weed species may be present on the subject parcels. The BLM coordinates with County and local governments to conduct an active program for control of invasive species. The lessee/operator is given notice that lands in this lease have been identified as containing or are near areas containing noxious weeds. Standard operating procedures such as washing of vehicles and annual monitoring and spraying along with site specific mitigation applied as conditions of approval (COA) at the APD stage should be sufficient to prevent the spread or introduction of Invasive, Non-native species. All disturbed areas and piles of topsoil should be reseeded with weed free seed the first fall after the disturbance is made to provide competition against weeds.</p> <p>Other 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 conditions of approval. Control measures would be implemented during any ground disturbing activity. Treatment will occur as part of regular operations, BMPs, SOPs and site-specific mitigation applied at the APD stage as COAs. These expectations are required for all parcels in the lease. Application of UT-LN-52 is warranted on all parcels. Negligible impacts would be expected as a result of leasing and exploration.</p> <p><u>Lease Notice:</u></p> <p>UT-LN-52 on all parcels</p>	
NI	Vegetation Excluding Special Status Species	<p>Vegetation resources will not be impacted to the degree that will require detailed analysis in this EA. This proposed sale and issuance of an oil and gas leases would not authorize any ground disturbances which could affect vegetation resources. Leasing is an administrative action that does not result in any surface disturbance. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. There would be no impacts to vegetation resources through sale of leases. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an APD be filed. The applied lease stipulations and notices will notify buyers during sale of leases and allow for the opportunity to make adjustments at the site-specific level when an APD is received and will 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.</p>	Logan LeFevre 7/14/20
NP	Woodland / Forestry	<p>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</p>	Logan LeFevre 7/14/20

Determination	Resource	Rationale for Determination	Parcel Reviewer
		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.	
Water Resources			
NI	Water Resources/ Quality (drinking/ surface/ ground)	<p>There are no identified ground or surface drinking water protection zones in the area of the lease parcels. Multiple water rights held by both BLM and individuals are located in or near the lease parcels. These water rights have beneficial uses of stockwater, irrigation, and domestic. Water quality must continue to be acceptable to meet the beneficial uses of the water right. Exploration and development could cause impacts.</p> <p>The following notice would be added to all parcels to inform potential lessees of the requirements of EO 11988: UT-LN-128: Federal Flood Risk Management Standard.</p> <p>If an APD is filed, SOPs required by regulation and design features would be sufficient to isolate and protect all usable ground or surface water sources before drilling or exploration begin. The SOPs include the requirements for disposal of produced water contained in Onshore Oil and Gas Order (O.O.) No. 7 and the requirements for drilling operations contained in O.O No. 2. Potential 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.</p> <p>Potential impacts would be addressed, and a design feature would be included utilizing 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 possibility of releases (cased drill holes, no surface disturbance or occupancy would be maintained within 660 feet of any natural springs, new disturbance would be not be allowed in areas equal to the 100-year floodplain or 100 meters on either side of the center line of any stream, stream reach, or riparian area).</p> <p>BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.</p> <p><u>Notices</u> UT-LN-57 on parcels 046</p>	D. Pals 7/13/2020
NI	Wetlands/ Riparian Zones / Floodplains	Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, Moab RMP and MLP ROD data, Information for Planning and Consultation data (IPaC), local spring inventory and riparian data, parcel 46 was identified as containing riparian, springs, and/or wetland systems. Perennial, intermittent, and/or ephemeral floodplains (as defined in EO 11988) are present on all parcels. However, since these parcels would have the following stipulations attached, impacts from exploration/development to those resources would be prevented or minimized.	G.Bissonette 7/9/20

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<u>Stipulations</u> UT-S-122 (NSO) on parcel 046. <u>Notices</u> UT-LN-53 on parcel 046. UT-LN-128 on parcel 046. 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 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 wetland, riparian, and floodplain systems from oil and gas exploration and development activities. Wetland, riparian, and floodplain systems will not be impacted to the degree that will require detailed analysis in the EA.	
NI	Soils: Physical/ Biological	At this stage (lease sale) there would be no impacts to vegetation resources. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an APD be filed. If additional site-specific resource protection measures are needed to prevent unnecessary or undue degradation, these would be developed at the time of the site specific NEPA. It is expected that reclamation procedures would be required to ensure long-term vegetation impacts are minimized. Reclamation provisions/procedures 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</u> UT-S-109 on parcel 046	K. Diemer 7/8/20
Rangeland Health			
NP	Farmlands (Prime or Unique)	Soil map units that are classified by the NRCS as farmland may intersect these parcels. None of these would be irrigated due to exploration or development activities. These soils would not be utilized in agricultural practices while retained in BLM ownership. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	Logan LeFevre 7/14/20
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.	Angela Wadman 8/11/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
NP	Livestock Grazing	Some of the parcels are located within livestock grazing allotments or private pastures. Leasing or production activities would not cause changes to grazing permit terms and conditions. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis, at the APD stage. Impacts to livestock grazing may occur as a result of subsequent actions including exploration development, production, etc. Therefore, reclamation provisions/procedures including re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, range improvement project replacement/restoration (e.g., fences, troughs and cattle guards), noxious weed control, would be identified in future NEPA/decision documents on a case-by-case basis (at the APD stage). In addition, if any range improvement projects could be impacted by wells or associated infrastructure, well pads could be moved 200 meters to avoid rangeland improvements or vegetation monitoring plots as per 43 CFR 3101.1-2. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	Logan LeFevre 7/14/20
NP	Wild Horses and Burros	The parcels do not intersect herd areas or herd management areas.	K. Diemer 7/14/20
Lands and Minerals			
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. Subject to withdrawal: Public Water Reserve 107. Casefile UTU-41580. <u>Stipulations</u> UT-S-122	L. Wilkolak 7/6/2020
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 may become public record. This information promotes an understanding of mineral resources as well as geologic interpretation. While conflicts could arise between oil and gas operations and other mineral operations, these could generally be mitigated under 43 CFR 3101.1-2 and under standard lease terms (Sec. 6) where siting and design of facilities may be modified to protect other resources. Depending on the success of oil and gas drilling, non-renewable natural gas and/or oil would be extracted and delivered to market. Production would result in the irretrievable loss of these resources. The RFDS is documented at section 2.2.1. The proposed action would not exceed the level of activity predicted in the RFDS.	K. Diemer 7/8/2020 Angela Wadman 8/12/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>Any oil and gas development can be managed to avoid or work within other mineral resources. Mining claims and Mineral Materials were checked on 07/13/2020. No active placer claims, or Mineral Material sites were found to be associated within any parcel. An orphaned well is located on this parcel. The lessee/operator is given notice that an existing unplugged well is located in NENW Sec. 9, T20S, R23E (API# 4301930713). An oil and gas bond adequate to cover plugging costs will be required prior to lease issuance. This well is in need of immediate attention and the successful bidder should plan to perform work on the well soon after lease issuance.</p> <p>If the parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information is provided in Sections 2.2.2 through 2.2.6 “FracFocus,” is a database available to the public online at http://fracfocus.org/. Public has expressed concerns that:</p> <ul style="list-style-type: none"> • 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. <p>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.</p> <p>The majority of flow back water from hydraulic fracturing in Utah is recycled and used in future hydraulic fracturing completions. Therefore, the underground injection of hydraulic fracturing flow back in Utah is very limited and presents little potential for inducing seismic activity. In fact, there has been no reported induced seismicity in Utah that was from water injected into Class II wells. Oil and gas wells produce a great amount of wastewater. The majority this water has high salt brine content and must be disposed of in an environmentally safe manner. In Utah, a majority (95%) of this produced water is pumped into Class II injection wells. In certain parts of the country, water injection has caused some induced seismicity in the form of small earthquakes. Two major factors play a role in induced seismicity from water injection. First, the amount of water being injected. Secondly, the local geology of the water injection site. In Utah, the volumes are lower than those states experiencing induced seismicity. Also, the geology is different than those states experiencing induced seismicity. The injection zones are stratigraphically thousands of feet above the basement rock that may contain large unknown faults. Therefore, at this time it appears that induced seismicity from water injection is not a</p>	

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>problem in the oil fields of Utah. (Personal communication from John Rogers, Utah Division of Oil, Gas and Mining (UDOGM), March 27, 2018).</p> <p>In conclusion, there would be no negative affects to mineral resources. Lease Stipulation 87 would be applied to the parcel. Lease stipulations and notices are created to mitigate impacts of oil and gas development on other resources.</p> <p><u>Notices</u> UT-LN-87 on parcel 046</p>	
NP	Paleontology	<p>There are no known paleontological resources within the parcels. If an APD is filed, specific clearances would be conducted and incorporated into that NEPA process. If paleontological resources are located, the AO would be contacted. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.</p>	<p>D. Pals 7/13/2020</p>
NP	Wastes (hazardous or solid)	<p>Hazardous materials are not known to exist on the parcels. Refer also to the Air Quality discussion for specific information on hazardous air pollutants (HAPs). Hazardous materials, if not handled properly that are associated with operations, have the potential to be spilled at the lease/drill site. However, the spill would be contained, reported, and cleaned up by the operator. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.</p>	<p>K. Diemer 7/8/20</p>

**Color Country District
Cedar City Field Office**

Determi- nation	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
Recreation			
NP	Areas of Critical Environmental Concern	The parcels are not within any ACECs.	SheriWysong July 30, 2020
NI	National Historic Trails	The North Cedar City High Potential Segment of the Old Spanish Trail passes between the parcels. LN 065- The Old Spanish Trail, will be added to parcels 010, 015, 018 and 024 to inform potential lessees of potential conflicts when developing the lease. <u>Lease Notice:</u> UT-LN-65 and UT-LN-162 to 010, 015, 018, 024	SheriWysong July 30, 2020
NI	Recreation	Dispersed Recreation occurs on the parcels, but there are no high use areas.	SheriWysong July 30, 2020
NI	Travel/ Transportation	There are no scenic byways in the area.	SheriWysong July 30, 2020
NI	Visual Resources	VRM is Class IV.	SheriWysong July 30, 2020
NP	Wild and Scenic Rivers	There are no wild and scenic river sections within or approximate to the parcels.	SheriWysong July 30, 2020
NP	Wilderness/ Wilderness Study Area	There are no Wilderness or Wilderness Study Areas within or approximate to the parcels.	SheriWysong July 30, 2020
NP	Lands with wilderness characteristics	The parcels do not contain LWCs.	SheriWysong July 30, 2020
Plants			

Determination	Resource	Rationale for Determination	Parcel Reviewer
NI	Invasive Species/ Noxious Weeds (EO 13112)	<p>Executive Order 13112 requires Federal Agencies to promote activities in a manner which avoids introduction of spread of invasive species. Invasive species introduced to Utah affect plant and animal communities. Surface disturbing activities have the potential to introduce/spread invasive species/noxious weeds. The BLM “Partners Against Weeds, An Action Plan for the Bureau of Land Management” provides strategies to prevent and control spread of noxious weeds. Invalid source specified. Noxious weeds are invasive exotic plants designated by the State of Utah as being hazardous to public health, the environment or the economy (Utah Code Title 4, Chapter 17).</p> <p>Noxious/invasive weed species may be present on the subject parcels. The BLM coordinates with County and local governments to conduct an active program for control of invasive species. The lessee/operator is given notice that lands in this lease have been identified as containing or are near areas containing noxious weeds. Standard operating procedures such as washing of vehicles and annual monitoring and spraying along with site specific mitigation applied as conditions of approval (COA) at the APD stage should be sufficient to prevent the spread or introduction of Invasive, Non-native species. All disturbed areas and piles of topsoil should be reseeded with weed free seed the first fall after the disturbance is made to provide competition against weeds.</p> <p>Other 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 conditions of approval. Control measures would be implemented during any ground disturbing activity. Treatment will occur as part of regular operations, BMPs, SOPs and site-specific mitigation applied at the APD stage as COAs. These expectations are required for all parcels in the lease. Application of UT-LN-52 is warranted on all parcels. Negligible impacts would be expected as a result of leasing and exploration.</p> <p><u>Lease Notice:</u> UT-LN-52 on all parcels</p>	J. Bulloch 7/1/2020
NI	Vegetation Excluding Special Status Species	<p>Vegetation resources will not be impacted to the degree that will require detailed analysis in this EA. This proposed sale and issuance of an oil and gas leases would not authorize any ground disturbances which could affect vegetation resources. Leasing is an administrative action that does not result in any surface disturbance. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. There would be no impacts to vegetation resources through sale of leases. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an APD be filed. The applied lease stipulations and notices will notify buyers during sale of leases and allow for the opportunity to make adjustments at the site-specific level when an APD is received and will ensure impacts are addressed. Future development proposals on the leases would be subject to the standard</p>	M. Bayles July 6, 2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
		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. <u>Lease Notice:</u> UT-LN-50 on parcel: 005	
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.	C. Peterson July 6, 2020
Water Resources			
NI	Water Resources/ Quality (drinking/ surface/ ground)	<p>There are no identified ground or surface drinking water protection zones in the area of the lease parcels. Multiple water rights held by both BLM and individuals are located in or near the lease parcels. These water rights have beneficial uses of stockwater, irrigation, and domestic. Water quality and quantity must continue to be acceptable to meet the beneficial uses of the water right. Exploration and development could cause impacts. The following notice would be added to all parcels to inform potential lessees of the requirements of EO 11988: UT-LN-128: Federal Flood Risk Management Standard.</p> <p>If an APD is filed, SOPs required by regulation and design features would be sufficient to isolate and protect all usable ground or surface water sources before drilling or exploration begin. The SOPs include the requirements for disposal of produced water contained in Onshore Oil and Gas Order (O.O.) No. 7 and the requirements for drilling operations contained in O.O No. 2. Potential 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.</p> <p>Potential impacts would be addressed, and a design feature would be included utilizing 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 possibility of releases (cased drill holes, no surface disturbance or occupancy would be maintained within 660 feet of any natural springs, new disturbance would be not be allowed in areas equal to the 100-year floodplain or 100 meters on either side of the center line of any stream, stream reach, or riparian area).</p> <p>BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.</p> <p>See below Wetlands/Riparian Zones/Floodplains Section for Stipulations and Notices.</p>	<p>Erica Shotwell 07/10/2020</p> <p>Jared Dalebout 8/12/20</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
NI	Wetlands/ Riparian Zones / Floodplains	<p>Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, parcels 001, 002, 014, 016 were identified as containing freshwater bodies. Floodplains (as defined in EO 11988) were identified on parcels 014, 015, and 016 from the FEMA Iron County floodplain mapping data. However, since these parcels would have the following stipulations attached, impacts from exploration/development to those resources would be prevented.</p> <p><u>Notices and Stipulations</u></p> <p>UT-S-130 - on parcels 001, 002, 011,014, 016.</p> <p>UT-LN-128 – on parcels 014, 015, 016.</p> <p>Leasing of parcels would not directly affect these resources. BMPs, SOPs, and site-specific mitigation may be applied at the APD stage as COAs.</p>	<p>Erica Shotwell 07/10/2020</p> <p>Jared Dalebout 8/12/2020</p>
NI	Soils: Physical/ Biological	<p>At this stage (lease sale) there would be no impacts to vegetation resources. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an APD be filed. If additional site-specific resource protection measures are needed to prevent unnecessary or undue degradation, these would be developed at the time of the site specific NEPA. It is expected that reclamation procedures would be required to ensure long-term vegetation impacts are minimized. Reclamation provisions/procedures 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.</p> <p><u>Notices:</u></p> <p>UT-LN-60 on parcels 001, 002, 003, 004, 010, 022, 026</p> <p>UT-LN-59- All Parcels</p>	<p>M. Bayles 07/13/2020</p>
Rangeland Health			
NI	Farmlands (Prime or Unique)	<p>Soil map units that are classified by the NRCS as farmland may intersect these parcels. None of these would be irrigated due to exploration or development activities. These soils would not be utilized in agricultural practices while retained in BLM ownership. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.</p>	<p>E. Shotwell 07/10/2020</p>
NI	Fuels/Fire Management	<p>Exploration or development would not conflict with the Fire Management Plan goals and objectives. The implementation of appropriate reclamation standards at the APD stage would prevent an 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.</p>	<p>S. Peterson 07/14/2020</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
NI	Livestock Grazing	Some of the parcels are located within livestock grazing allotments or private pastures. Leasing or production activities would not cause changes to grazing permit terms and conditions. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis, at the APD stage. Impacts to livestock grazing may occur as a result of subsequent actions including exploration development, production, etc. Therefore, reclamation provisions/procedures including re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, range improvement project replacement/restoration (e.g., fences, troughs and cattle guards), noxious weed control, would be identified in future NEPA/decision documents on a case-by-case basis (at the APD stage). In addition, if any range improvement projects could be impacted by wells or associated infrastructure, well pads could be moved 200 meters to avoid rangeland improvements or vegetation monitoring plots as per 43 CFR 3101.1-2. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	M. Bayles July 6, 2020
NP	Wild Horses and Burros	The parcels do not intersect herd areas or herd management areas.	Chad Hunter 7/15/2020
Lands and Minerals			
NI	Lands/Access	<p>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.</p> <p>Any pending or authorized lands and realty actions in the project area would not be substantially affected by the proposed action as long as measures are taken to assure all rights by grant, permit or lease holders are upheld. Prior to any surface disturbing activities in the vicinity of potential lands projects, the lands and realty staff should be notified to assist in locating existing or pending lands actions that may be impacted. No roads providing access to public land would be closed for any extended period of time. The proposal would be subject to valid prior existing rights including county-maintained roads (See BLM internal/public Master Title Plat web site as there are various rights-of-way in the proposed areas). Any operations would be coordinated with right-of-way (ROW) holders and adjacent non-federal landowners. Off-lease ancillary facilities that cross public land, if any, may require a separate authorization (Generally Access Roads and utility ROW). Surface disturbance within and outside described project areas would need to be rehabilitated and reseeded. Plans should be made for removal of any generated trash/debris from public land and discarded at an authorized facility.</p>	M. Campeau 7/13/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>The below described parcels of land is on the land disposal list in the current CBGA Resource Management Plan, dated October 1984. The RMP states that we “assure that no major investments, such as seeding, fences, roads, etc., will be made on land identified for disposal”.</p> <ul style="list-style-type: none"> • T. 34 S., R. 13 W., section 4 ALL • T. 34 S., R. 13 W., section 7 W1/2NW1/4 • T. 34 S., R. 13 W., section 9 ALL • T. 34 S., R. 13 W., section 17 SE1/4 <p>155-acres in T. 35 S., R. 12 W., section 11 was patented to Iron County, Utah, patent number 43-2020-0005. Oil and Gas lease parcel in T. 34 S., R. 13 W., section 7 is within the West-wide Energy Corridor - designated section 368 corridor.</p>	
NI	Geology / Mineral Resources/ Energy Production	<p>Oil and gas exploration could lead to an increased understanding of the geologic setting, as subsurface data obtained through lease operations may become public record. This information promotes an understanding of mineral resources as well as geologic interpretation. While conflicts could arise between oil and gas operations and other mineral operations, these could generally be mitigated under 43 CFR 3101.1-2 and under standard lease terms (Sec. 6) where siting and design of facilities may be modified to protect other resources.</p> <p>Depending on the success of oil and gas drilling, non-renewable natural gas and/or oil would be extracted and delivered to market. Production would result in the irretrievable loss of these resources. The RFDS is documented at section 2.2.1. The proposed action would not exceed the level of activity predicted in the RFDS.</p> <p>Any oil and gas development can be managed to avoid or work within other mineral resources. Mining claims and Mineral Materials were checked on 7/1/2020. While portions of parcels 008 and 009 are encumbered by unpatented mining claims, any spatial conflicts which might arise at the time of lease operations could be resolved by the offsets allowed under the standard lease terms. A plan of operation, UTU-93783, has been approved to allow small-scale surface mining recovery of magnetite from a five-acre portion of parcel 008, but has yet to post the necessary reclamation bond and commence recovery.</p> <p>If the parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information is provided in Sections 2.2.2 through 2.2.6 “FracFocus,” is a database available to the public online at http://fracfocus.org/. Public has expressed concerns that:</p> <ul style="list-style-type: none"> • 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, 	<p>E. Ginouves 7/1/2020 Angela Wadman 8/12/2020</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<ul style="list-style-type: none"> Discharge of inadequately treated hydraulic fracturing wastewater to surface water resources. <p>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.</p> <p>The majority of flow back water from hydraulic fracturing in Utah is recycled and used in future hydraulic fracturing completions. Therefore, the underground injection of hydraulic fracturing flow back in Utah is very limited and presents little potential for inducing seismic activity. In fact, there has been no reported induced seismicity in Utah that was from water injected into Class II wells. Oil and gas wells produce a great amount of wastewater. The majority this water has high salt brine content and must be disposed of in an environmentally safe manner. In Utah, a majority (95%) of this produced water is pumped into Class II injection wells. In certain parts of the country, water injection has caused some induced seismicity in the form of small earthquakes. Two major factors play a role in induced seismicity from water injection. First, the amount of water being injected. Secondly, the local geology of the water injection site. In Utah, the volumes are lower than those states experiencing induced seismicity. Also, the geology is different than those states experiencing induced seismicity. The injection zones are stratigraphically thousands of feet above the basement rock that may contain large unknown faults. Therefore, at this time it appears that induced seismicity from water injection is not a problem in the oil fields of Utah. (Personal communication from John Rogers, Utah Division of Oil, Gas and Mining (UDOGM), March 27, 2018).</p> <p>In conclusion, there would be no negative affects to mineral resources.</p>	
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.	E. Ginouves 7/1/20
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 at 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.	T. Carlson 7/2/2020

**Green River District
Vernal Field Office**

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
Recreation			
NI	Areas of Critical Environmental Concern	The parcel is in the Pariette Draw and Lower Green River Corridor ACECs. <u>Stipulations:</u> Stipulation UT-S-22 No Surface Occupancy/Controlled Surface Use/Timing Limitations – Lower Green River ACEC and UT-S-11 No Surface Occupancy – Pariette Wetlands ACEC will be attached to the parcel 029	Sheri Wysong August 12, 2020
NP	Units of the National Park Service	The parcel is not in the vicinity of a national park or monument	Sheri Wysong. August 12, 2020
NI	Recreation/ Wild and Scenic Rivers	The adjacent segment of the Green River has been found as suitable as a Wild and Scenic River for recreation and fisheries. Development on the parcel may be seen and heard from recreationalists on the Green River. This may impair the enjoyment for some users. This impairment was disclosed in the Vernal Field Office FEIS. <u>Stipulations:</u> UT-S-117 No Surface Occupancy River Corridor and UT-S-119 No Surface Occupancy - Lower Green River Corridor will be applied to parcel 029. UT-LN-115 Light and Sound	Sheri Wysong August 12, 2020
NP	Travel/ Transportation	No scenic nor high use roads are in the parcel.	Sheri Wysong August 12, 2020
NI	Visual Resources	Parcel 029 is classified as VRM II. <u>Stipulation:</u> UT-S-159 Controlled Surface Use – Visual Resources – VRM II will be applied to parcel 029.	Sheri Wysong August 12, 2020
NP	Wilderness/Wilderness Study Area	None in vicinity.	Sheri Wysong August 12, 2020
NP	Lands with wilderness characteristics	None in vicinity.	Sheri Wysong August 12, 2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
Plants			
NI	Invasive Species/ Noxious Weeds (EO 13112)	<p>Executive Order 13112 requires Federal Agencies to promote activities in a manner which avoids introduction of spread of invasive species. Invasive species introduced to Utah affect plant and animal communities Surface disturbing activities have the potential to introduce/spread invasive species/noxious weeds. The BLM “Partners Against Weeds, An Action Plan for the Bureau of Land Management” provides strategies to prevent and control spread of noxious weeds Invalid source specified. Noxious weeds are invasive exotic plants designated by the State of Utah as being hazardous to public health, the environment or the economy (Utah Code Title 4, Chapter 17).</p> <p>Noxious/invasive weed species may be present on the subject parcel. The BLM coordinates with County and local governments to conduct an active program for control of invasive species. The lessee/operator is given notice that lands in this lease have been identified as containing or are near areas containing noxious weeds. Standard operating procedures such as washing of vehicles and annual monitoring and spraying along with site specific mitigation applied as conditions of approval (COA) at the APD stage should be sufficient to prevent the spread or introduction of Invasive, Non-native species. All disturbed areas and piles of topsoil should be reseeded with weed free seed the first fall after the disturbance is made to provide competition against weeds.</p> <p>Other 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 conditions of approval. Control measures would be implemented during any ground disturbing activity. Treatment will occur as part of regular operations, BMPs, SOPs and site-specific mitigation applied at the APD stage as COAs. These expectations are required for all parcel in the lease. Application of UT-LN-52 is warranted on all parcel. Negligible impacts would be expected as a result of leasing and exploration.</p> <p><u>Lease Notice:</u> UT-LN-52 on all parcels</p>	Lisa Boyd 7/13/2020
NI	Vegetation Excluding Special Status Species	<p>Vegetation resources will not be impacted to the degree that will require detailed analysis in this EA. This proposed sale and issuance of an oil and gas leases would not authorize any ground disturbances which could affect vegetation resources. Leasing is an administrative action that does not result in any surface disturbance. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. There would be no impacts to vegetation resources through sale of leases. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted</p>	Lisa Boyd 7/13/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
		should an APD be filed. The applied lease stipulations and notices will notify buyers during sale of leases and allow for the opportunity to make adjustments at the site-specific level when an APD is received and will 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 parcel 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.	David Palmer 10/13/2020
Water Resources			
NI	Water Resources/ Quality (drinking/ surface/ ground)	<p>There are no identified ground or surface drinking water protection zones in the area of the lease parcels with the exception of parcel 029 within the Vernal Field Office.</p> <p>Multiple water rights held by both BLM and individuals are located near the lease parcel. These water rights have beneficial uses of stockwater, and domestic. Water quality must continue to be acceptable to meet the beneficial uses of the water right. exploration and development could cause impacts.</p> <p>The following notice would be added to the parcel to inform potential lessees of the requirements of EO 11988: UT-LN-128: Federal Flood Risk Management Standard.</p> <p>If an APD is filed, SOPs required by regulation and design features would be sufficient to isolate and protect all usable ground or surface water sources before drilling or exploration begin. The SOPs include the requirements for disposal of produced water contained in Onshore Oil and Gas Order (O.O.) No. 7 and the requirements for drilling operations contained in O.O No. 2. Potential 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.</p> <p>Potential impacts would be addressed, and a design feature would be included utilizing 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 possibility of releases (cased drill holes, no surface disturbance or occupancy would be maintained within 660 feet of any natural springs, new disturbance would be not be allowed in areas equal to the 100-year floodplain or 100 meters on either side of the center line of any stream, stream reach, or riparian area).</p> <p>BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.</p>	Jerrad Goodell 7-10-2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<u>Stipulations</u> UT-S-123 on parcel 029 <u>Lease Notice</u> UT-LN-56 and UT-LN-128 on parcel 029	
NI	Wetlands/ Riparian Zones / Floodplains	Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, parcel 029 was identified as containing riparian and/or wetland systems. Floodplains (as defined in EO 11988) are also associated with these lentic and lotic systems on this parcel. However, since this parcel would have the following stipulations attached, impacts from exploration/development to those resources would be prevented. <u>Stipulations</u> UT-S-123 on parcel 029 <u>Notices</u> UT-LN-53 and UT-LN-128 on parcel 029 Leasing of parcel would not directly affect these resources. BMPs, SOPs, and site-specific mitigation may be applied at the APD stage as COAs.	Jerrad Goodell 7-10-2020
NI	Soils: Physical/ Biological	At this stage (lease sale) there would be no impacts to vegetation resources. There is some expectation that exploration or development could occur, at which time additional NEPA would be conducted should an APD be filed. If additional site-specific resource protection measures are needed to prevent unnecessary or undue degradation, these would be developed at the time of the site specific NEPA. It is expected that reclamation procedures would be required to ensure long-term vegetation impacts are minimized. Reclamation provisions/procedures would include re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, noxious weed controls, etc. The parcel contains steep topography. SOPs, BMPs and site-specific design features applied at the APD stage including reclamation, may be applied as COAs. <u>Stipulations</u> UT-S-96, UT-S-99, and UT-S-100 on parcel 029.	David Gordon 07/01/2020
Rangeland Health			
NI	Farmlands (Prime or Unique)	Soil map units that are classified by the NRCS as farmland may intersect the parcel. None of these would be irrigated due to exploration or development activities. These soils would not be utilized in agricultural practices while retained in BLM ownership. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	David Gordon 07/01/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
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 07/06/2020
NI	Livestock Grazing	Some of the parcel are located within livestock grazing allotments or private pastures. Leasing or production activities would not cause changes to grazing permit terms and conditions. Any activity that involves surface disturbance or direct resource impacts would have to be authorized as a lease operation through future NEPA analysis, on a case-by-case basis, at the APD stage. Impacts to livestock grazing may occur as a result of subsequent actions including exploration development, production, etc. Therefore, reclamation provisions/procedures including re-vegetation (utilizing appropriate seed mix based on the ecological site, elevation and topography), road reclamation, range improvement project replacement/restoration (e.g., fences, troughs and cattle guards), noxious weed control, would be identified in future NEPA/decision documents on a case-by-case basis (at the APD stage). In addition, if any range improvement projects could be impacted by wells or associated infrastructure, well pads could be moved 200 meters to avoid rangeland improvements or vegetation monitoring plots as per 43 CFR 3101.1-2. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	Travis Decker 07/09/2020
NP	Wild Horses and Burros	The parcel does not intersect herd areas or herd management areas.	David Gordon 07/01/2020
Lands and Minerals			
NI	Lands/Access	<p>Leasing parcel 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.</p> <p>Uintah County claimed roads are within lease parcel 029. Coordination with Uintah County will need to occur if the roads need to be upgraded and to determine if other/additional permits are required.</p> <p>Parcel 029 have existing rights-of-way, coordination with existing right-of-way holders in the proposed lease parcel would occur if their right-of-way would be affected.</p> <p><u>Notices:</u> UT-LN-83 on parcel 029.</p>	Patrick Ahrnsbrak 7/7/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
NI	Geology / Mineral Resources/ Energy Production	<p>Oil and gas exploration could lead to an increased understanding of the geologic setting, as subsurface data obtained through lease operations may become public record. This information promotes an understanding of mineral resources as well as geologic interpretation. While conflicts could arise between oil and gas operations and other mineral operations, these could generally be mitigated under 43 CFR 3101.1-2 and under standard lease terms (Sec. 6) where siting and design of facilities may be modified to protect other resources. The parcel has a Gilsonite vein penetrating it, the operator will provide a plan to isolate and protect the resource as per BLM Onshore Order # 2. Parcel 029 was previously leased. Acreages within parcel 029 were previously held by one lease UTU080413 (1996-2019). The lease was suspended (2006-2014) and terminated February 2019. No development occurred during the 10-year primary lease term.</p> <p>Depending on the success of oil and gas drilling, non-renewable natural gas and/or oil would be extracted and delivered to market. Production would result in the irretrievable loss of these resources. The RFDS is documented at section 2.2.1. The proposed action would not exceed the level of activity predicted in the RFDS.</p> <p>Any oil and gas development can be managed to avoid or work within other mineral resources. Mining claims and Mineral Materials were checked on 7/13/2020. No active placer claims, or Mineral Material sites were found to be associated within any parcel.</p> <p>If the parcel is developed, wells within the parcel 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:</p> <ul style="list-style-type: none"> • 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. <p>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.</p> <p>The majority of flow back water from hydraulic fracturing in Utah is recycled and used in future hydraulic fracturing completions. Therefore, the underground injection of hydraulic fracturing flow back in Utah is 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</p>	<p>Dallas F. Nutt 7/13/2020 Angela Wadman 8/12/2020</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>wastewater. The majority this water has high salt brine content and must be disposed of in an environmentally safe manner. In Utah, a majority (95%) of this produced water is pumped into Class II injection wells. In certain parts of the country, water injection has caused some induced seismicity in the form of small earthquakes. Two major factors play a role in induced seismicity from water injection. First, the amount of water being injected. Secondly, the local geology of the water injection site. In Utah, the volumes are lower than those states experiencing induced seismicity. Also, the geology is different than those states experiencing induced seismicity. The injection zones are stratigraphically thousands of feet above the basement rock that may contain large unknown faults. Therefore, at this time it appears that induced seismicity from water injection is not a problem in the oil fields of Utah. (Personal communication from John Rogers, Utah Division of Oil, Gas and Mining (UDOGM), March 27, 2018).</p> <p>In conclusion, there would be no negative affects to mineral resources.</p> <p><u>Stipulations:</u></p> <p>UT-S-117, UT-S-119, and UT-S-326 attached to parcel 029.</p>	
NI	Paleontology	<p>There are no known paleontological resources within the parcel. If an APD is filed, specific clearances would be conducted and incorporated into that NEPA process. If paleontological resources are located, the AO would be contacted. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.</p>	<p>Dallas F. Nutt 7/13/2020</p>
NI	Wastes (hazardous or solid)	<p>Hazardous materials are not known to exist on the parcel. Refer also to the Air Quality discussion for specific information on hazardous air pollutants (HAPs). Hazardous materials, if not handled properly that are associated with operations, have the potential to be spilled at the lease/drill site. However, the spill would be contained, reported, and cleaned up by the operator. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.</p>	<p>David Gordon 7/1/2020</p>

Appendix E – 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) leasing does not directly authorize pollutant emitting activities, and no direct emissions would result, 2) indirect 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, and 3) it is unknown what emissions sources would be included in an air quality permit and not subject to a general conformity review. 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,” such as the “granting of leases.” Leasing does not authorize emissions generating activities, and therefore does not directly result in an emissions increase. Additionally, 40 CFR § 93.153(c)(3) lists Initial Outer Continental Shelf leasing as not having reasonably foreseeable emissions and onshore leasing is similar where lease sales “are made on a broad scale and are followed by exploration and development plans on a project level.” At the leasing stage the BLM does not have a development plan for lease parcels and has determined that indirect emissions are not reasonably foreseeable until the project level.
- 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).

- 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 storage vessels, 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. Potential sources that would be permitted, and not subject to general conformity provisions, are identified 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).

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

Appendix F – Acronyms/Abbreviations

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

Appendix G – Reasonably Foreseeable Development of Leases Scenario

All nominated lease parcels fall within areas that are open to leasing under the RMPs indicated above, as amended. Lease parcels, lease parcel surface ownership, lease parcel legal descriptions and total acreage, and lease stipulations and notices that apply are detailed in Appendix A.

Purchasers of oil and gas lease parcels are required to comply with all applicable federal, state, and local laws and regulations, including obtaining all necessary permits prior to any lease development activities. A listing of applicable statutes, regulations, and other plans is provided in Table 16 Relationship to Statutes, Regulations, and Other Plans.

Table 19. Relationship to Statutes, Regulations, and Other Plans

Relevant Statute, Regulation, or Plan	Relationship to the Proposed Action
Federal Land Policy and Management Act (FLPMA)	<ul style="list-style-type: none"> Federal Land Policy and Management Act of 1976 (FLMPA) <p>The FLPMA established guidelines to provide for the management, protection, development, and enhancement of public lands (Public Law [PL] 94-579). Section 103(e) of FLPMA defines public lands as any lands and interest in lands owned by the United States. For split-estate lands where the mineral estate is an interest owned by the United States, the BLM has no authority over use of the surface by the surface owner; however, the BLM is required to disclose potential impacts connected to the authorization to lease and develop federal mineral estate and to declare how federal mineral estate is managed in the RMP, including identification of all appropriate lease stipulations (43 CFR 3101.1 and 43 CFR 1601.0-7(b); BLM Handbook H-1601.09 and H-1624-1)</p>
Mineral Leasing Act (MLA)	<ul style="list-style-type: none"> Mineral Leasing Act of 1920 (MSA) <p>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, the National Environmental Policy Act (NEPA) of 1969, as amended (PL 91-90, 42 United States Code [USC] 4321 et seq.), and other applicable laws, regulations, and policies.</p>
43 CFR 3100	These regulations govern onshore oil and gas leasing, development, and production of federal minerals.
43 CFR 3101.1-2	A lessee has surface rights subject to: Stipulations attached to the lease; restrictions deriving from specific nondiscretionary statutes; and such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed.
43 CFR 3101-1.3	The authorized officer may require stipulations as conditions of lease issuance. Stipulations shall become part of the lease and shall supersede inconsistent provisions of the standard lease form.
Federal Onshore Oil and Gas Leasing Reform Act	<ul style="list-style-type: none"> Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA) <p>This act directs the BLM to conduct quarterly oil and gas lease sales whenever eligible lands are available for leasing.</p>

Endangered Species Act (ESA)	<ul style="list-style-type: none"> • Endangered Species Act of 1973 (ESA) <p>The ESA requires all federal departments and agencies to conserve threatened, endangered, and critical and sensitive species and the habitats on which they depend, as well as consult with the U.S. Fish and Wildlife Service on all actions authorized, funded, or carried out by the agency to ensure that the action will not likely jeopardize the continued existence of any threatened and endangered species or adversely modify critical habitat.</p>
National Historic Preservation Act (NHPA)	<ul style="list-style-type: none"> • National Historic Preservation Act of 1966 (NHPA) <p>Leasing is considered an undertaking under Section 106 of the National Historic Preservation Act (NHPA) of 1966. Agencies may follow a phased approach to Section 106 compliance. At the leasing level, existing records reviews and consultation drive identification of historic properties. Class III field inventories are an important part of identification at the lease-development level. See the text of stipulation H-3120-1 for details.</p>

Plan Conformance

It is the policy of the BLM as derived from various laws, including the MLA and the Federal Land Policy and Management Act of 1976 (FLPMA), as amended, to promote the exploration and development of oil and gas on the public domain. Additionally, the Federal Onshore Oil and Gas Leasing Reform Act of 1987 states that lease sales shall be held for each State where eligible lands are available at least quarterly and more frequently if the Secretary of the Interior determines such sales are necessary.

Purchasers of oil and gas lease parcels are required to comply with all applicable federal, state, and local laws and regulations, including obtaining all necessary permits prior to any lease development activities. Stipulations attached to the lease, restrictions deriving from specific, nondiscretionary statutes, and such reasonable measures may be required to minimize adverse impacts to other resource values (43 CFR 3101.1-2).

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

Statutes (As Amended)

- Mining and Minerals Policy Act of 1970 (MMPA)
- National Historic Preservation Act of 1966 (NHPA)
- Bald and Golden Eagle Protection Act of 1962 (BGEPA)
- 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

Manuals¹²

- 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

Handbooks¹³

- Competitive Leasing Handbook (H-3120-1)

Policies/Instruction Memoranda (IM)¹⁴

- 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)
- 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)
- Guidance for Utah BLM to Meet Responsibilities under the Migratory Bird Treaty Act and Executive Order 13186 (UT IM 2017-007)

Agreements

- State Protocol Agreement Between the Utah State Director of the Bureau of Land Management and the Utah State Historic Preservation Office Regarding the Manner in which the BLM Will Meet its Responsibilities Under the National Historic Preservation Act as provided for in the National Programmatic Agreement (January 2020)
- 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 of Utah Plans/Rules

- Utah Wildlife Action Plan (2015)
- The Utah Oil and Gas Conservation Act (1955)

¹² BLM manuals can be accessed online at: <https://www.blm.gov/media/blm-policy/manuals>.

¹³ BLM handbooks can be accessed online at: <https://www.blm.gov/media/blm-policy/handbooks>.

¹⁴ 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>.

- 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 (BLM 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)
- Moab Field Office Programmatic Invasive Species Management Plan, August 2016

Other NEPA documents and relevant studies that are applicable to this analysis include:

- 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)
- Utah Greater Sage Grouse Proposed Land Use Plan Amendment and FEIS (BLM, USFS 2015) 2015 Oil and Gas Reasonably Foreseeable Development Scenario for Greater Sage Grouse Occupied Habitat in Utah Sub-region (BLM 2015)
- 2008 Vernal Field Office Proposed RMP/FEIS (BLM 2008)
- Biological Opinion for the Vernal RMP (USFWS 2008)
- 2016 Monument Butte Oil and Gas Development Project EIS (BLM 2016)
- 2017 Vernal Field Office Invasive Plant Management Plan (BLM-UT-G010-2016-011-EA) (BLM 2017)
- Price Field Office Proposed RMP/FEIS (BLM 2008)
- Biological Opinion for the Price RMP (USFWS 2008)
- Moab Field Office Proposed RMP and FEIS (PRMP) (BLM 2008)
- Biological Opinion for the Moab RMP (BLM 2008)
- Monticello Field Office Proposed RMP/FEIS (BLM 2008) as amended
- Biological Opinion for the Monticello Field Office RMP¹⁵ (BLM 2008)
- Moab MLP Final EIS and Proposed RMP Amendment (BLM 2016)
- Biological Opinion for the Moab Master Leasing Plan (BLM 2016)
- Reasonably Foreseeable Development Scenario for Oil and Gas in the Moab MLP Area, Canyon Country District. (BLM 2012)
- Reasonably Foreseeable Development Scenario for Oil and Gas. Moab Field Office. Moab, Utah. (BLM 2005)
- Final Environmental Impact Statement and Proposed Resource Management Plan for the House

¹⁵ MtFO ROD, RMP/FEIS is located on ePlanning at <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage¤tPageId=98873>

Range Resource Area (BLM 1989)

- BLM, House Range Resource Area RMP Oil and Gas Leasing Implementation EA (BLM 1989)
- EA for Oil and Gas Leasing in the Fillmore Field Office (BLM 2009)
- 2008 Richfield Field Office Proposed RMP/FEIS (BLM 2008)
- Biological Opinion for the Richfield RMP (BLM 2008)
- Reasonably Foreseeable Development Scenario for Oil and Gas. Richfield Field Office. Richfield, Utah. (BLM 2005)

Development

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. The amount of risk of groundwater contamination is based on site specific geologic factors and fracking procedures. The Environmental Protection Agency (EPA) recently conducted an assessment of fracking on drinking water resources (<https://www.epa.gov/hfstudy>) [EPA 2016]. Potential for groundwater contamination as a result of fracking is explained in further detail in this report. Proper horizontal and vertical separation and flow boundaries must exist. The risk and potential for contamination is dependent proper understanding of site-specific subsurface geology. Hydraulic fracturing plans are submitted and reviewed at the APD stage. Presently, there are no unconventional reservoirs within Utah 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 [Reserved]

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 EIS 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 will be incorporated fully into Appendix H. Not: paragraph numbering was added. The BLM received [ongoing] comments. [Ongoing] comment letters that were received was posted on ePlanning. Due to the length, the BLM has summarized comments to the headers of [ongoing]. The documents, in its entirety, are included in the [ongoing] comment letters that are published on ePlanning.

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