



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

November 2021

BLM Utah 2022 1st Quarter Competitive Oil and Gas Lease Sale

DOI-BLM-UT-0000-2021-0007-EA



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Table of Contents

Chapter 1	Purpose & Need	6
1.1	Project Location and Legal Description.....	6
1.2	Introduction.....	6
1.3	Background.....	7
1.4	Purpose and Need	9
1.5	Decision to be Made	9
1.6	Plan Conformance Review.....	9
	Green River District.....	11
	Canyon Country District.....	11
1.7	Other Planning and NEPA Documents.....	12
1.8	Relationship to Relevant Laws, Regulations, Policies and Other Plans	12
1.9	Issues Identified	13
1.10	Issue Statement Rationale for Not Further Discussing in Detail in the EA	16
1.11	Public Comment Period	22
Chapter 2	Description of Alternatives	23
2.1	Introduction.....	23
2.2	Analysis Assumptions.....	23
	Reasonably Foreseeable Development Scenario.....	23
	Green River District.....	25
	Canyon Country District.....	26
2.3	Alternative A – Proposed Action.....	26
2.4	Alternative B - Recreational Resources Preservation Alternative	27
2.5	Alternative C - No Action/Delayed Leasing.....	27
2.6	Other Alternatives Considered but Not Analyzed in Detail.....	27
2.6.1	Cultural Resource Preservation Alternative.....	27
2.6.2	Defer all parcels in Areas of Low to Moderate Potential for Development.....	28
2.6.3	Greenhouse Gas Emission Reductions Alternative.....	28
2.6.4	Implementing a Manage Decline of GHG Emissions/Imposing a Climate Requirement on Leases	28
2.6.5	Impose a Climate Impact Requirement on Leases	29
Chapter 3	Affected Environment.....	30
3.1	Introduction.....	30

3.2	General Setting.....	30
3.3	Resources/Issues Brought Forward for Analysis.....	31
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?.....	31
3.3.1.1	Affected Environment and Environmental Consequences.....	31
3.3.1.2	Environment Effects	36
3.3.1.3	Required Design Constraints/Mitigation Measures	39
3.3.2	Issue 2: How would future potential development of nominated lease parcels contribute to greenhouse gas (GHG) emissions and climate change?.....	39
3.3.2.1	Affected Environment and Environmental Consequences.....	40
3.3.2.2	Environmental Effects.....	41
3.3.2.3	Monetized Impacts from GHG Emissions	47
3.3.2.4	Estimated GHG Emissions for Reasonably Foreseeable Environmental Trends and Planned Actions	50
3.3.2.5	Mitigation Strategies	52
3.3.3	Issue 3: What are the potential impacts to social and economic conditions and Environmental Justice?	54
3.3.3.1	Affected Environment and Environmental Consequences.....	54
3.3.3.2	Environmental Effects.....	56
3.3.3.3	Required Design Constraints/Mitigation Measures	59
3.3.4	Issue 4: What are the potential impacts to Recreational Visitor Experiences to Parcels adjacent to the Green River, Old Spanish National Historic Trail and the recently designated San Rafael Reef Wilderness Area?	60
3.3.4.1	Affected Environment and Environmental Consequences.....	60
3.3.4.2	Environmental Effects.....	60
3.3.4.3	Required Design Features	61
Chapter 4	Consultation and Coordination	62
4.1	Introduction.....	62
4.2	Persons, Groups, and Agencies Contacted/Consulted	62
4.3	National Historic Preservation Act (NHPA) of 1966	62
4.4	Endangered Species Act of 1973	64
4.5	Public Participation.....	68
4.5.1	Modifications Based on Public Comment and Internal Review [Reserved].....	68

4.6	Preparers	68
Chapter 5	References.....	70
Chapter 6	Appendices.....	76
	Appendix A – BLM Parcel List with Stipulations and Notices	77
	Appendix B – Stipulations and Notices	83
	Stipulation Summary Table	83
	Threatened and Endangered Species Notices	92
	Lease Notices.....	117
	Appendix C – Figures/Maps	127
	Appendix D – Interdisciplinary Parcel Review Team Checklist.....	137
	Applicable to all Field Offices.....	137
	Green River District.....	146
	Vernal Field Office	146
	Price Field Office.....	154
	Canyon Country District.....	161
	Moab Field Office.....	161
	Appendix E – General Conformity Applicability	167
	Appendix F – Acronyms/Abbreviations.....	169
	Appendix G – Reasonably Foreseeable Development of Leases Scenario	172
	Oil and Gas Leasing in Context to Statutes, Regulations, and Other Plans.....	172
	Plan Conformance.....	173
	Reasonably Foreseeable Development of Leases Scenario	176
	Development.....	176
	Well Drilling and Completion Operations	177
	Production Operations.....	179
	Produced Water Handling.....	179
	Maintenance Operations	180
	Plugging and Abandonment.....	180
	Appendix H – Comments and Responses [Reserved].....	181
	Appendix I – Comments and Responses on the March 2021 Lease Sale. Only Parcel 1169 is Moving Forward	183

List of Tables

Table 1. Parcels by Field Office.....	6
Table 2 Issues Identified for Detailed Analysis	14
Table 3. Issues not included in Further Detail in the Environmental Assessment.....	16
Table 4. Assumptions for Analysis for the Nominated Parcels	25
Table 5. 2018 to 2020 Criteria Pollutant Design Values	32
Table 6. Estimated Annual Emissions Estimate from the Development of Lease Parcels (tons/year).....	37
Table 7. Estimated Annual Emissions Estimate from the Development of Lease Parcels (tons/year) in the Recreational Resources Preservation Alternative.	38
Table 8 Global and U.S. GHG Emissions 2015 - 2019 (Mt CO ₂ /yr)	41
Table 9 State GHG Emissions	41
Table 10 Estimated Life of Lease Emissions (On-Site) from Well Development and Production Operations (tonnes).....	42
Table 11 Estimated Life of Lease Indirect Emissions from the End-Use Combustion of Produced	43
Table 12 Estimated Direct and Indirect Emissions from the Lease Parcels on an Annual and Life of Lease basis (tonnes) 43	
Table 13 Comparison of Lease Sale Annual Emissions to Other Sources (megatonnes).....	44
Table 14 Comparison of the Life of Lease Emissions to other Federal Oil and Gas Emissions from Existing Wells, Development of Approved APDs, and Other Leasing Actions in the State and Nation (megatonnes). 45	
Table 15 Estimated Life of Lease Emissions (On-Site) from Well Development and Production Operations (tonnes).....	46
Table 16 Estimated Life of Lease Indirect Emissions from the End-Use Combustion of Produced.....	46
Table 17 Estimated Direct and Indirect Emissions from the Lease Parcels on an Annual and Life of Lease basis (tonnes) 46	
Table 18 SC-GHGs Associated with Future Potential Development of the Proposed Action	49
Table 19 SC-GHGs Associated with Future Potential Development of the Recreation Resource Preservation Alternative.....	50
Table 20 Reasonably Foreseeable Projected Emissions	51
Table 21. Oil and Gas Employment Effects	57
Table 22. Recreation and Tourism Employment Effects	58
Table 23. List of Contacts and Findings for the June Parcels (1121, 1125, 1129, 1135, and 7072) and for the 2022 1 st Quarter Lease Sale.....	65
Table 24. List of Contacts and Findings for the March Parcel (1169).....	66
Table 25. Preparers of This EA.....	68
Table 27. Relationship to Statutes, Regulations, and Other Plans	172

List of Figures

Figure 1 Estimated annual GHG emissions profile over the life of a lease.	44
Figure 2. Vernal Field Office parcels with land status.....	128
Figure 3. Vernal Field Office parcels with oil and gas lease categories.	129
Figure 4. Vernal Field Office parcels with BLM authorized leases.....	130
Figure 5. Price Field Office parcel with land status.....	131
Figure 6. Price Field Office parcel with oil and gas lease categories.	132
Figure 7. Price Field Office parcel with authorized leases.	133
Figure 8. Moab Field Office parcel with land status.....	134
Figure 9. Moab Field Office parcel with leasing categories.	135
Figure 10. Moab Field Office parcel with authorized leases.	136

Environmental Assessment
DOI-BLM-UT-0000-2021-0007-EA

Chapter 1 Purpose & Need

1.1 Project Location and Legal Description

The preliminary parcel list for the BLM Utah 1st Quarter 2022 Competitive Oil and Gas Lease Sale (Lease Sale) contains six (6) parcels covering 6,644.78 acres on public land administered by the Bureau of Land Management (BLM). The legal descriptions of the nominated parcels are found in Appendix A. Parcel 1121 is in the Price Field Office; Parcel 1169 is in the Moab Field Office; and Parcels 1135, 7072, 1129, and 1125 are in the Vernal Field Office.

Table 1. Parcels by Field Office

BLM District – Field Office	Parcels	Acreage
Green River -Vernal Field Office	4	4,582.12
Green River - Price Field Office	1	1,904.00
Canyon Country - Moab Field Office	1	158.66
Totals:	6	6,644.78

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 (FOOGLRA) 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, as designated in the applicable Resource Management Plan (RMP), and for which the BLM has received Expressions of Interest (EOIs) nominating lands to be offered for lease or which the BLM has identified as high priority for leasing to prevent drainage. For the Lease Sale, all parcels were nominated by the public.

Leasing is an administrative action that does not directly cause environmental consequences, although it is considered to be an irretrievable commitment of resources because once a lease is issued, generally the BLM 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 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 the 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, impacts to resources and uses could result from future exploration or development of

a lease, and these impacts must be considered before the BLM can make an irretrievable commitment allowing such development. The future levels of development are uncertain and undetermined; hence, analysis focuses on identifying reasonably foreseeable impacts.

Upon receiving the EOIs considered for leasing in the Lease Sale, 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 presented here is a step-down and issue-based analysis to identify potential reasonably foreseeable impacts that could result from the implementation of the Proposed Action or no action alternative and provides evidence to determine if BLM can make a Finding of No Significant Impact (FONSI). If the analysis indicates future development of some parcels would result in effects¹ beyond those defined as “reasonably foreseeable” in the selected alternatives of 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 FLPMA², 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) or LUP amendment, lands can be deemed open to leasing under standard terms and conditions, closed to leasing, or open under special operating constraints, including NSO, identified as lease stipulations at the lease stage. Lease stipulations (43 CFR 3101.1-2) are used to mitigate potential impacts to resources.

The BLM implements the LUP by processing public EOIs on a quarterly basis as discussed in Section 1.2. After the EOI cutoff date the UTSO reviews the nominations, removes lands not legally available for leasing, and compiles the remaining lands. The BLM determines whether or not the existing NEPA analyses prepared for the LUPs, provide a basis for leasing oil and gas resources within these parcels or if additional analysis is needed before making a leasing decision.

BLM sends the preliminary parcel list to the appropriate District Office where the parcels are located. Although 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 Resource Management Plan (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. If so, the BLM considers whether new information or circumstances 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.

¹ The degree of effects is considered relative to the proposed action. See Council on Environmental Quality definition in 40 Code of Federal Regulations (CFR) 1501.3 (2020).

² 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 administrative boundary of the plan. Older LUPs may be limited to managing part of a Field Office, or multiple Field Offices.

Field Office (BLM) staff review the legal descriptions of the parcels to confirm they are in areas open to leasing under the relevant LUPs, ensure 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 (LNs) (43 CFR 3101.1-3). Two mandatory stipulations for the statutory protection of cultural resources and threatened or endangered species (Handbook H-3120-1) are attached to all lease parcels.

BLM completed the interdisciplinary parcel review (IDPR) for the BLM-managed parcels and determined that preparation of an EA was necessary for considering the public nominated parcels. The 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).³ The UTSO Oil and Gas Leasing webpage is also updated and maintained for the lease sale.⁴ 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 the 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, scheduled in the 2022 first quarter, date to be determined.

If a 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 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).⁵ A producing lease can be held indefinitely by economic production.

Once a 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 and 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)

³ The NEPA Register is a BLM environmental information internet site and can be accessed online at: <https://eplanning.blm.gov/eplanning-ui/home>.

⁴ UTSO Oil and Gas Leasing program webpage can be accessed at: <http://go.usa.gov/xXk8c>

⁵ Unless the lease is within an Operating Unit and the Unit is held by production of wells on other leases within the Unit.

for approval and must possess an approved APD prior to any surface disturbance in preparation for drilling.⁶ 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 stipulations and notices before deciding whether to approve the APD, and what conditions of approval (COA) should apply.

Following 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 Authorized Officer (AO) 48 hours before starting any surface disturbing activity approved in the APD.

1.4 Purpose and Need

The purpose of this action is to offer oil and gas lease parcels for competitive sale that preliminary reviews have indicated are suitable for oil and gas development on BLM-managed lands. The need for the Proposed Action is established by the BLM mandate under the MLA, the Mining and Minerals Policy Act, as amended, the Federal Onshore Oil and Gas Leasing Reform Act, (FOOGLRA), as amended, and the Federal Land Policy and Management Act (FLPMA), as amended, to support the exploration and development of oil and gas owned by the Federal Government.

1.5 Decision to be Made

Following the completion of the NEPA process the BLM Authorized Officer will decide whether or not to offer to lease the nominated parcels and, if so, under what lease terms and conditions (stipulations and/or notices). Under the Proposed Action, the BLM Authorized Officer has the authority to selectively lease and subsequently issue leases, or to defer, in the light of the analysis of potential effects presented in this EA.

1.6 Plan Conformance Review

Under the 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 the various resources based on an approved land use plan or RMP. For split-estate lands where the mineral estate is an interest owned by the United States, the BLM has no authority over the use of surface lands 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 BLM RMPs indicated below, 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 and B. The alternatives described in Chapter 2 of this EA are in conformance with the following Land Use Plans, as amended.

This document is tiered to and incorporates by reference the Price Field Office RMP (RMP/EIS) (BLM 2008), the Vernal Field Office RMP/EIS (BLM 2008), the Moab Field Office RMP/EIS (BLM 2008), the Moab Master Leasing Plan (MLP) (BLM 2016), and the Monument Butte Oil and Gas Development Project/EIS (BLM 2016). Should a determination be made that implementation of the proposed or

⁶ 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/>

alternative actions would not result in “significant environmental impacts” or “significant environmental impacts beyond those already disclosed in the existing NEPA document”, a FONSI will be prepared to document that determination.

Green River District

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

The RMP designated approximately 1,910,000 acres of federal mineral estate open for continued oil and gas development and leasing (see RMP decisions Min-1, Min-2, Min-4 to Min-11 on pages 123 to 126). 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.

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 (ACECs).

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 Controlled Surface Use (CSU) or Timing Limitation (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 Moab Master Leasing Plan (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 is 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:

- 2020 Supplemental Analysis for Greenhouse Gas Emissions Related to Oil and Gas Leasing in Utah EA (DOI-BLM-UT-0000-2021-0001-EA) (BLM 2020)
- 2008 Vernal Field Office Proposed RMP/FEIS (BLM 2008)
- 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 Price Field Office Proposed RMP/FEIS (BLM 2008)
- 2008 Moab Field Office Proposed RMP/FEIS (PRMP) (BLM 2008)
- 2016 Moab MLP Final EIS and Proposed RMP Amendment (BLM 2016)
- 2016 Monument Butte Oil and Gas Development Project and FEIS (BLM 2016)
- 2005 Reasonably Foreseeable Development Scenario for Oil and Gas. Moab Field Office. Moab, Utah. (BLM 2005)

In order to reduce redundant paperwork and analysis in the NEPA process, (*See* 40 CFR 1501.11-12) 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, is 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. Six (6) parcels were nominated. Stipulations attached to the lease, restrictions deriving from specific, nondiscretionary statutes, and such reasonable measures may be required to minimize effects 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:

- 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)

- October 1, 2020 Memorandum from Utah Deputy State Director, Lands and Minerals regarding Preliminary List of Lands within Moab Field Office for Consideration in the June 2021 Competitive Oil and Gas Lease Sale
- October 28, 2020 Memorandum from Utah Deputy State Director, Lands and Minerals regarding Preliminary List of Lands within Vernal Field Office for Consideration in the June 2021 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

1.9 Issues Identified

The UTSO received the Lease Sale parcel nomination list on December 10, 2020, initially to be considered for the June 2021 lease sale.⁷ Internal scoping was initiated on December 22, 2020 when the nominated lease parcels for the June 2021 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 IDPRT Checklists, Appendix D – Interdisciplinary Parcel Review Team Checklist was also developed after consideration of the documents and their contents listed in section 1.6, 1.7 and Appendix E.

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 Coordinating 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 provided GIS shapefiles depicting the proposed sale parcels to contacts within the NPS and UDWR. Consultation and coordination efforts are summarized in Chapter 4.

A public scoping period was held from August 31, 2021 until October 1, 2021. The BLM-Utah received 1166 comments but few of them offered specific concerns for the parcels. Issues identified that were specific to the parcels were:

- Parcel 1121 is very close to popular recreation sites including the popular Temple Wash area and canyoneering areas. Furthermore, this lease overlays the approach road to Goblin Valley State Park—one of the most visited parks in the state—and is only a few hundred yards from a Wilderness Area recently designated in 2019 with the John D.

⁷ After the close of the 30-day public comment period for the March 2021 Lease Sale, the sale was postponed. There were nine (9) parcels slated for the March 2021 Lease Sale. Eight (8) of the March 2021 parcels (7,053.96 acres) including the four parcels located in Greater Sage-grouse habitat and the four parcels within the USFS Fishlake National Forest, were subsequently removed from consideration. Therefore, one parcel, 1169 (Moab Field Office) encompassing 158.66 acres is in this sale from the March 2021 Lease Sale. The other 5 parcels were nominated for the June 2021 Lease Sale.

Dingell Jr. Conservation, Management, and Recreation Act. Other resources that were suggested to be analyzed were:

- Water
- Greenhouse Gases
- Wildlife
- Cultural
- Parcel 1169 is within or near an area that Grand County was proposing as a National Conservation Area. Other resources that were suggested to be analyzed were:
 - Water
 - Greenhouse Gases
 - Wildlife
 - Cultural
- Parcels 1125, 1129, 1135 and 7072 had the following resources suggested to be analyzed:
 - Water
 - Greenhouse Gases
 - Wildlife
 - Air Quality
 - Threatened and Endangered Species
 - Cultural

The issues identified for detailed analysis were developed using the guidelines set forth in section 6.4.1 of the BLM NEPA Handbook. These issues are summarized in Table 2.

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 Particulate Matter (PM ₁₀), Particulate Matter (PM _{2.5}), Nitrous Oxide (NO _x), Sulfur Dioxide (SO ₂), Carbon Monoxide (CO), Volatile Organic Compounds (VOCs), Hazardous Air Pollutants (HAPs).
Greenhouse Gas/Climate Change	How would future potential development of nominated lease parcels contribute to greenhouse gas (GHG) emissions and climate change?	Metric tone's (t) or megatonnes (Mt), and social cost of greenhouse gases (\$)
Socioeconomics/ Environmental Justice	What are the potential impacts to social and economic conditions and Environmental Justice?	Income, revenue, and spending (dollars)

Recreational User Experiences	What Reasonably Foreseeable impacts could adversely affect the recreational user to the Green River, the Old Spanish Trail and newly Designated wilderness?	Sights and sounds could occur that some recreational users would consider to adversely impact their experiences.
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1.10 Issue Statement Rationale for Not Further Discussing in Detail in the EA

Table 3. Issues not included in Further Detail in the Environmental Assessment.⁸

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 future potential development of the nominated lease parcels?	<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 (see Appendix D).</p> <p>The Threatened and Endangered Species Act Stipulation, in accordance with 43 CFR 3101.1-2, is applied to 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 lessee/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 future potential development of the	<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</p>

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

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
	nominated lease parcels??	<p>lands in Utah and these species have been evaluated for potential impacts from the proposed lease sale, as documented by the checklist found in Appendix D of this EA.</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 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>
Greater sage-grouse	What are the potential impacts to Greater Sage Grouse future potential development of the	<p>None of the parcels are within GHMA or PHMA and no suitable habitat occurs within the parcels.</p> <p>The Vernal, Price, and Moab Field Office Resource Management Plans analyzed the effects of leasing and developing oil and gas resources on sage-grouse and other sensitive wildlife species. In 2015, the BLM approved the Utah Greater Sage-Grouse Approved Resource Management Plan Amendment (ARMPA). The ARMPA identifies priority and general habitat management areas (PHMA and GHMA, respectively) across Utah, and provides measures to minimize impacts to PHMA and GHMA where they cannot be avoided. Further</p>

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
	nominated lease parcels?	analysis of modifications proposed to the 2015 ARMPA are provided in the 2018 FEIS, with associated decisions not yet implemented (BLM 2018). Greater sage-grouse inhabit sagebrush plains, foothills, and mountain valleys. Greater sage-grouse are a sagebrush obligate species, therefore require quality sagebrush habitat, especially for brood rearing and wintering habitat.
Migratory Birds	What are the potential impacts to migratory birds future potential development of the nominated lease parcels?	<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-44 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-44 Raptors, and UT-LN-45: Migratory Birds.</p> <p>UT-LN-44 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 future potential	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
	development of the nominated lease parcels?	
Cultural Resources	What are the potential impacts from ground disturbing future potential development of the nominated lease parcels on cultural resources?	<p>The BLM has conducted an intensive literature search for the 2022 First Quarter Lease sale using survey and site information from the CURES geodatabase, Sego database, Utah DAM, 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).</p> <p>The Cultural Resource Protection Stipulation (H 3120-1) is applied to all lease parcels on lands administered by the BLM. 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>The BLM’s Cultural Resource Protection Stipulation (H 3120-1) states that “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, 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 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>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 future potential development of the nominated lease parcels disturbing activities on riparian,	<p>Any activities that affect the ecological condition of the watershed and its vegetative cover would directly or indirectly affect the aquatic environment. The degree of impact attributed to any one disturbance or series of disturbances is influenced by location within the watershed, time and degree of disturbance, existing vegetation, and hydrologic condition.</p> <p>RMPs 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</p>

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
	wetlands, and floodplains?	<p>3162.3-3, Section 404 of the 1972 Clean Water Act as amended, 1974 Safe Drinking Water Act as amended, and 1968 Floodplain Regulation Act as amended provide additional protection to water resources.</p> <p>Best management practices (BMPs), standard operating procedures (SOPs), and site-specific mitigation may be applied at the APD stage as COAs. Protective measures for riparian and wetland areas and floodplains may include no surface occupancy or disruptive activity within 100 meters of riparian resources (UT-LN-53), or no surface occupancy within 100-year floodplains and within 500 feet of intermittent and perennial streams, rivers, riparian area, wetland, water wells and springs (UT-S-386), no surface occupancy within 100 feet of ephemeral streams (UT-LN-387), or avoiding impacts to floodplains (UT-LN-128) or a combination of all of these.</p> <p>Applying these protective measures (stipulations and lease notices) at the time of leasing will inform the lessee of the resource. No further analysis is needed at the leasing stage, but additional mitigation measures and buffers may be applied at the APD stage, as necessary to protect these areas. Additional site-specific NEPA analysis will occur at that time.</p>
Hydrology/ Surface and Groundwater Resources	What are the potential impacts from future potential development of the nominated lease parcels on hydrology and hydrogeology?	<p>Water obtained from aquifers and surface water could result in the drawing down of the water table and reduction of available water resources for wildlife, vegetation, springs, streams, or public consumption. Withdrawal could affect local groundwater flow pattern and create changes in quality and quantity of the remaining groundwater. However, detailed impacts of this water use cannot be addressed until site specific operations identify the water source. Potential site-specific impacts relating to future authorizations will be reviewed and possibly analyzed in detail 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>

Issue	Issue Statement	Rationale for Not Further Discussing in Detail in the EA
		<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 Environmental Protection Agency (EPA) and State of Utah Drinking Water Division. The parcels were also reviewed for potential water right conflicts. Additional information and its applicability to potential impacts is provided in the Water Resources section of the IDPR checklist (Appendix D – Interdisciplinary Parcel Review Team Checklist).</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 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 SOPs required by regulation, stipulations attached to the lease, BMPs included in the APD submission, and COAs 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 30-day public comment period (refer to Appendix H – Comments and Responses [Reserved]). 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 three alternatives, Alternative A – Proposed Action, Alternative B – Recreation Preservation Alternative, and Alternative C – 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

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 well plans, access roads, and development plans 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 (USDOI and USDA 2007). In general, activities are anticipated to take place as described in Appendix G – Reasonably Foreseeable Development of Leases Scenario, including water use. 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.

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- to 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.

Typically, the RFDS focuses on number of wells and acres of disturbance in the planning area, these figures are derived from the RMPs and EISs written for the planning area. Included in those documents is an average amount of water needed to drill a typical well using expected target formation depths. Typical

water consumed during the drilling and completion phase is around 294,000 gallons of water or 0.9 acre-feet per oil well and up to 2.02 million gallons or 6.2 acre-feet for deep gas wells, refer to Monument Butte Oil and Gas Development Project FEIS 2 Chapter 4 through Attachment 2 (BLM 2016) and Moab Master Leasing Plan EIS (BLM 2016) which are incorporated by reference. Upon development of the six (6) oil wells within expected target formations, a total average of 5.4 acre-feet of water would be utilized, with lesser amounts if dry holes are encountered. The water is used as a drilling medium, for mixing cement, and for various cleanup operations. See Appendix G – Reasonably Foreseeable Development of Leases Scenario for more information.

Assumption for Analysis in this EA

The act of leasing six (6) nominated parcels covering 6,644.78 acres in and of itself would have no direct impacts on resources; however, for the purposes of this analysis, a development assumption is used based on the RFD(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 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.

The six (6) nominated parcels encompassing 6,644.78 acres on BLM-managed land could expect a maximum of 7 wells to be drilled (BLM 2005, BLM 2008) and up to 41.4 acres of potential disturbance associated with that development. It is assumed that the parcels in VFO have a higher probability of being acquired and developed (UDOGM 2018) but will also have a high 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). The PFO parcel has a moderate probability that it may be acquired and developed and a high probability of being a dry hole not capable of production. The MbFO parcel is considered low to moderate potential for development and a high probability of being a dry hole not capable of production, and a low probability that it may be acquired and developed.

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 10-year primary term (43 CFR 3135.1-5).

For the analysis of the six nominated parcels by the public, encompassing 6,644.78 acres, it was estimated a maximum of seven (7) wells would be drilled and the maximum new disturbance will be 41.4 acres (Table 4).

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 2020).

Table 4. Assumptions for Analysis for the Nominated Parcels

Field Office	Nominated Parcels	Nominated Area (Acres)	RFD Wells	Surface Disturbance (Acres)
Vernal	4	4,582.12	5	25
Price	1	1,904.00	1	8.2
Moab	1	158.66	1	8.2
Total:	6	6,644.78	7	41.4

In regard to Alternative B, because the one parcel in the alternative comprises only 160 of the 4582.12 VFO acres considered in the proposed action and is on the outskirts of the lease block, there would be no reasonably foreseeable development on the lease. Development could occur if economic and/or technological conditions change, but such changes are speculative.

Green River District

Vernal Field Office

The Vernal Field Office (VFO) nominated parcels are located south of the Green River, near the Horseshoe Bend Oil and Gas Field, approximately 10 miles south of Vernal, in an area open to leasing. All four of the parcels show evidence of having been drilled on previously; there were 28 plugged and abandoned wells, six wells are shut-in, and two wells are in producing status within one mile of the parcels.

The RFDS (BLM 2015) is based on current and past hydrocarbon production within a one-mile buffer of each parcel. The current and past hydrocarbon production in the immediate area is low for all parcels. Parcels 1135, 1129, 1125 would have a maximum of one well, and parcel 7072 would have a maximum of two wells. An unplugged well is located on this parcel 7072. The well is McLish # 3 and was completed on June 29, 1967. The lessee/operator is given notice that an existing shut-in well is located in SENW Sec. 1, T7S, R21E (API# 4304720243). 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 immediately after lease issuance. The lessee/operator will be required to get the well capable of producing in paying quantities or will need to promptly plug the well.

For the analysis of the four (4) nominated parcel encompassing 4,582.12 acres, it is estimated a maximum of five (5) wells would be drilled, and the maximum new disturbance will be 25 acres (5 acres for the well pad and access road).

Price Field Office

Appendix M in the Price RMP (BLM 2008), predicted a low potential for oil and gas for parcels located south of I-70. The area was explored in the 1960s. The wells drilled were found to be dry holes and /or produced at levels less than producing in paying quantities (43 CFR 3160.0-5) and were immediately plugged. The 2005 RFD (BLM, 2005) for oil and gas development categorizes the region where parcel 1121 is located as exploratory; there is, low potential for oil and/or natural gas development. Additionally, BLM Technical Note 408 (BLM, 2001) categorizes the region that parcel 1121 is located within as marginal to subeconomic helium reserves. Parcel 1121 has a high probability of being a dry hole not

capable of production. Oil and gas drilling has declined for the PFO and is unlikely to return to the activity levels of 1999-2001 due to field maturity. Development of the oil and gas fields has matured to the point where lower drilling rates will likely continue in the future.

For the analysis of the one (1) nominated parcel encompassing 1,904 acres, it is estimated a maximum of one (1) well would be drilled, and the maximum new disturbance will be 8.2 acres (6.4 acres for the well pad and 1.8 acres for the access road). This scenario is unlikely to occur since there has been no drilling activity or any production over the last 4 years in this area.

Canyon Country District

Moab Field Office

Over a five-year period from 2016 to 2020, including federal and non-federal lands, 43 percent of APDs received in Grand County were drilled (8 wells; 14 APDs), and 32 percent of APDs received in San Juan County were drilled (6 wells; 19 APDs) (UDOGM 2020). Parcel 1169, located in the Moab Field Office, is considered low to moderate potential for development, although there have been 15 wells drilled within a one-mile buffer of the lease parcel; of those wells, 13 have been plugged and abandoned and 2 are shut-in gas wells.

The Moab Field Office (MbFO) Reasonably Foreseeable Development (BLM 2005) is the basis for the assumption of analysis for parcel 1169. The parcel is located within the Greater Cisco development area. The 2005 RFDS for the MbFO 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 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 of disturbance (one well pad and access road disturbance at 8.2 acres).

2.3 Alternative A – Proposed Action

The BLM would offer all of the nominated parcels (covering 6,644.78 acres) for lease 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 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 LUPs 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 LUPs, as amended.

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

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

At the leasing stage it is uncertain whether development on all leased parcels will move forward; however, for the purposes of this analysis, and in order to assess potential impacts, RFDS is assumed wherein at least one well will be drill on five of the six parcels. The Reasonably Foreseeable Development used for analysis assumptions under this alternative is described in Section 2.2.

2.4 Alternative B - Recreational Resources Preservation Alternative

This Alternative was developed to preserve, to the extent practical, the recreational opportunities that could be impacted by development of the parcels. Only parcel 7072, which has an unplugged well on it would be offered in the lease sale, with notification to the potential lessees that liability to plug the well would be conferred upon issuing the lease.

2.5 Alternative C - No Action/Delayed Leasing

The No Action Alternative would not offer any of the nominated parcels in this lease sale. However, in the absence of a Land Use Plan Amendment closing the lands to leasing they could be considered for inclusion in future lease sales. Therefore, the disclosure of potential future impacts remains the same. Surface management would remain the same and ongoing oil and gas development would continue on surrounding private, state, and existing federal leases.

A Delayed Leasing Options or options value alternative suggested during public scoping is essentially the same as the no action alternative, except that it would require consideration of speculative future economic and regulatory conditions and available information on impacts in the analysis. The rule of reason dictates that only reasonably foreseeable changes in conditions and no guesswork of future information be incorporated in the analysis.

2.6 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).

2.6.1 Cultural Resource Preservation Alternative

An alternative was suggested that Under this alternative, BLM would not offer leases in areas where any of BLM's Class I – Existing Information Inventory Predictive Models would predict a high

probability for cultural resources. BLM could achieve this objective by adjusting lease boundaries to avoid such areas. This alternative was not considered in detail because the cultural resource analysis in this EA provides a more focused parcel-by-parcel analysis in relation to the RFD when considering impacts to cultural resources and potential effects to historic properties. Additionally, the Cultural Resource Stipulation attached to all parcels and existing regulatory requirements provide mechanisms to preserve cultural resources even if the parcels are leased.

2.6.2 Defer all parcels in Areas of Low to Moderate Potential for Development

An alternative was suggested eliminating oil and gas leasing in areas determined to have only moderate or low potential for oil and gas development to allow BLM to consider other uses for those lands.

As with the previous suggested alternative, the parameters for crafting this alternative are ambiguous. Future technologies and economic and resource demands can change the potential of development. In addition, the potential for development of parcels ostensibly leased for oil and gas could be increased by the presence of helium which can legally be extracted from oil and gas leases.

2.6.3 Greenhouse Gas Emission Reductions Alternative

An alternative was suggested wherein, BLM would require implementation of the best management practices and emissions reduction strategies discussed in the attached report prepared by Megan Williams. *See* Megan Williams, Comments on BLM's Supplemental Analysis for Greenhouse Gas Emissions Related to Oil and Gas Leasing in Utah Environmental Assessment, October 2020, DOI-BLM-UT-0000-2021-0001-EA at 9-11 (Oct. 26, 2020) (attached).

A review of the referenced document reveals that the author recommended methane and waste prevention, with enforcement through a "rigorous leak detection and repair (LDAR) program." Such an alternative is beyond the scope of this proposal. The mitigations suggested must be implemented through regulatory action that cannot be implemented through a decision made at the leasing stage. Analysis and subsequent findings and decisions are based on the impacts that consider the mitigations available to the authorized officer.

However, the possibility of such future mitigations is discussed in the No Action/Delayed Leasing Option Alternative

2.6.4 Implementing a Manage Decline of GHG Emissions/Imposing a Climate Requirement on Leases

According to the commenter suggesting this alternative: "BLM retains the authority to set a declining rate of production on leases over time that can accommodate lease rights but provide for an orderly phase-out of onshore fossil fuel production consistent with limiting warming to 1.5°C. The MLA allows BLM, under certain circumstances, to "alter or modify from time to time the rate of prospecting and development and the quantity and rate of production under such plan." 30 U.S.C. § 226(m). Moreover, nearly every BLM lease for onshore oil and gas contains a provision allowing BLM to "reserve the right to specify rates of development and production in the public interest."

This is beyond the scope of this analysis. As the commenter asserts, this potential mitigating measure is already in place.

2.6.5 Impose a Climate Impact Requirement on Leases

The commenter asserts: BLM must therefore analyze reasonable alternatives that add no new greenhouse gas emissions stemming from fossil fuel production—for example, by applying climate screens to leasing decisions or delaying leasing or development to account for option value.

The no action alternative already analyzes adding no new greenhouse gas emissions.

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. All resources are discussed in context to the affected environment. Resources that could potentially be impacted are identified as key issues. Resources for which key issues may be resolved or abated through stipulations or lease notices are described in Table 3, while those resources and key issues that may be impacted through implementation of the Proposed Action are discussed in Table 2. Once issues are identified, impact indicators are selected to assess the impacts of alternatives and are used as a basis for future monitoring (Table 2. Issues Identified for Detailed Analysis).

The Council on Environmental Quality (CEQ) Regulations state “In consideration whether the effects of the Proposed Action are significant, agencies shall analyze the potentially affected environment and degree of the effects of the action.” (40 CFR 1501.3(b)(1)). 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 affect, 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 six (6) nominated parcels by the public, encompassing 6,644.78 acres in and of itself would have no direct impacts on resources in the VFO, PFO, or MbFO. 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.

BLM must describe existing and projected future conditions for the affected environment with respect to the Proposed Action. The environmental effects of the Proposed Action are focused on those effects that are reasonably foreseeable with a reasonably close causal relationship to the Proposed Action. When considering the degree of effects, significance varies with the setting of the Proposed Action and may include short- and long-term effects, both beneficial and adverse effects, effects to public health and safety, and effects that would violate Federal, State, Tribal, or local law protecting the environment.

3.2 General Setting

The Proposed Action would result in additional leasing of acres in Green River District and in Canyon Country District. 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, March 2020,

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

September 2020 lease sale have not been issued, the June 2020 lease sale was cancelled, and the December 2020 lease sale occurred on December 15, 2020. The March 2021 and June 2021 lease sales were cancelled.

3.3 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 and are documented in 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 or to a degree not already considered in previous analyses. 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 and Environmental Consequences

The impact analysis area for air quality is the airshed in which the lease parcels are located, which includes Emery, Grand and Uintah Counties. The BLM Utah 2021 Air Monitoring Report (AMR) (BLM 2021) discusses past, present, and foreseeable emissions and air quality data for counties in Utah. Information from the AMR is incorporated by reference to help describe the air quality affected environment in airsheds where lease parcels are located.

The Environmental Protection Agency (EPA) has primary responsibility for regulating air quality, including six nationally regulated ambient air pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter⁸ (PM₁₀ & PM_{2.5}), sulfur dioxide (SO₂) and lead (Pb). Every three years the Utah Division of Air Quality (UDAQ) compiles statewide emission inventories to assess the level of pollutants released into the air from different sources. Statewide and County 2017 emissions inventories are provided in Section 3.1 of the AMR (BLM 2021) and listed below for counties in which lease parcels are located. In Utah, the largest sources of criteria air pollutants (CAP) emitted by humans are area sources for PM₁₀, PM_{2.5} and ammonia (NH₃), on-road sources for CO and NO₂, point sources for SO₂, and oil and gas sources for VOCs. The largest sources in individual counties may vary from state total emissions.

The EPA has established National Ambient Air Quality Standards (NAAQS) for CAPs (incorporated by reference from Section 2.2.1 of the AMR (BLM 2021)). The NAAQS are protective of human health and the environment. Compliance with the NAAQS is typically demonstrated through monitoring of ground-level concentrations of atmospheric air pollutants. Areas where pollutant concentrations are below the NAAQS are designated as attainment or unclassifiable. Locations where monitored pollutant concentrations are higher than the NAAQS are designated nonattainment, and air quality is considered unhealthy (BLM 2021). 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 airsheds in Utah are provided in Section 3.2 of the AMR. Based on design values the EPA has designated nonattainment areas along the

Wasatch Front and in portions of Duchesne and Uintah Counties below 6,250 ft elevation (i.e., Uinta Basin). It is assumed that counties without reported design values have air pollutant concentrations below the NAAQS and good air quality since air monitoring is usually needed only when concentrations exceed 80% of the NAAQS (40 CFR § 58.14 (c)(1)).

Parcels 1125, 1129, 1135, and 7072, in the Vernal Field Office, are in a nonattainment area for ozone. Parcels 1121 and 1169 in the Price Field Office and Moab Field Office, respectively, are located in an area designated as attainment or unclassifiable.

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 5. 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. 2018 to 2020 Criteria Pollutant Design Values

Pollutant	Location	Averaging Time	Concentration ²	NAAQS
O ₃	San Juan County ¹	8-hour	0.066 ppm	0.070 ppm
O ₃	Uintah County	8-hour	0.076 ppm	0.070 ppm
NO ₂	Uintah County	Annual	4 ppb	53 ppb
PM _{2.5}	Mesa County, CO ¹	Annual	5.7 µg/m ³	12.0 µg/m ³
PM _{2.5}	Uintah County	Annual	5.8 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}	Uintah County	24-hour	19 µg/m ³	35 µg/m ³

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

² Concentrations in parts per million (ppm), parts per billion (ppb), microgram per cubic meter (µg/m³)

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 2021). 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 and gas sources for VOCs.

Hazardous Air Pollutants

Hazardous air pollutants (HAPs) are known or suspected to cause cancer or other serious health effects, or adverse environmental effects, and 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 UDAQ^[000]. The 2017 emissions for common oil and gas related HAPs are listed for each field office in Section 3.1 of the AMR (BLM 2021).

The EPA National Toxics Assessment tool is used to evaluate impacts from existing HAP 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, incorporated by reference from Section 3.1 of the AMR (BLM 2021). 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. Oil and gas development and other foreseeable emission sources would contribute to HAP emissions and associated carcinogenic and noncancer risks.

Air Quality Related Values

All areas managed by the BLM in Utah are located within Prevention of Significant Deterioration (PSD) Class II areas. However, many BLM managed lands are within close proximity to Class I National Parks in Utah.

The Clean Air Act (CAA) PSD requirements give more stringent air quality and visibility protection to national parks and wilderness areas that are designated as Class I areas, but a PSD designation 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 an adverse impact on the AQRVs. Each of the parcels in this lease sale is located within Prevention of Significant Deterioration (PSD) Class II areas. None of the VFO parcels is located within 50 kilometers of Class I National Parks in Utah. Parcel 1169 in the MbFO is located approximately 25 kilometers northeast of Arches National Park. Parcel 1121 in the PFO is approximately 60 kilometers northeast of Capitol Reef National Park, 45 kilometers west of Canyonlands NP, and 80 kilometers west of Arches National Park.

Visibility trends based on air monitoring data from four Utah monitoring sites for the clearest, haziest, and most impaired categories is incorporated by reference from the AMR (Section 3.3.1 and Figures 3 through 6 of the AMR). Visibility on the clearest days improved consistently at Bryce Canyon, whereas haziest days have shown little improvement due to many years with large wildfire smoke episodes. Progress toward Regional Haze Rule goals is demonstrated by the marked improvement on the most impaired days at Bryce Canyon – those with high amounts of pollutants emitted by humans – over the same time frame. Visibility in all three categories at Canyonlands, Capitol Reef, and Zion National Parks improved over the respective period of record at each location.

The National Park Service monitors and evaluates deposition to determine which parks are most at risk from air pollution and where conditions are declining or improving. Nitrogen deposition conditions in Utah National Parks are fair to poor with no trend for improving or worsening conditions, while sulfur deposition conditions are good and generally improving (See Section 3.3.2 of the AMR).

Reasonably Foreseeable Environmental Trends and Planned Actions

This document incorporates by reference the projected changes to air quality and AQRVs that are evaluated in the BLM's Air Resource Modeling Study (ARMS). This modeling study provides a

reference for potential changes to the affected environment occurring from existing and foreseeable emissions producing activities, including oil and gas development.

Emissions trends

Past and present actions that have affected and would likely continue to affect air quality in the analysis area 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 that have affected and would likely continue to affect air quality are too numerous to list here but would include the development or conversion of power plants; the development of energy sources such as oil, gas, and coal; the development of highways and railways; 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. Future trends in oil and gas production growth for the Rocky Mountain region are used from the U.S. Energy Information Administration (EIA) 2020 Annual Energy Outlook (AEO) (EIA 2020) to provide an estimate of the change in emissions from oil and gas sources in Utah. In the AEO reference scenario projected oil and gas production growth remains relatively flat in coming years. Oil production is anticipated to decrease annually by an average of approximately 0.3% and gas production could 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 flat compared to those reported in the 2017 National Emissions Inventory (UDAQ 2020).

Modeled Air Quality Projections

In 2017, the BLM initiated the ARMS regional modeling study to evaluate foreseeable changes to air quality and AQRVs. The ARMS 2017 modeling study uses the best available information on oil and gas emissions and future development plans and incorporates the latest photochemical model improvements. However even with these improvements, photochemical models still have trouble replicating wintertime ozone concentrations. This is due to the model having difficulty replicating meteorological conditions (inversions and snow cover), and the need for improved estimates VOC speciation profiles used as model inputs.

ARMS 2017 projected oil and gas emissions for Low and High development scenarios using the UDAQs Uinta Basin Oil and Gas Emissions Model. Foreseeable emissions for non-oil and gas emissions sources are incorporated from the Intermountain Data Warehouse WAQS 2011b air quality modeling dataset. Compared to the base year, the Low scenario shows a decline in oil and gas production, and the High scenario shows a production increase. Analysis of ARMS 2017 emissions projections indicate that it is very likely that the High scenario overestimates oil and gas VOC and NO_x emissions for the future year estimates. Source apportionment is used in the modeling study to evaluate changes to air quality and AQRVs from all sources including: Biogenic sources, BLM Uinta Basin Oil and Gas sources, other oil and gas sources (including BLM authorized sources outside Duchesne and Uinta Counties), and non-oil and gas anthropogenic sources. Future year modeling results are compared with the NAAQS for criteria pollutants (O₃, PM_{2.5}, PM₁₀, NO₂ and SO₂) throughout the State

of Utah. The contributions of BLM oil and gas development emissions to air quality and AQRVs at Utah Class I and Class II sites and at sensitive lakes are also compared against PSD increment concentrations, and visibility and deposition thresholds of concern. The model performed very well in simulating O₃ at some representative sites in Utah over entire the year but failed to capture wintertime O₃ exceedances associated with inversions in the Uinta Basin. To address the underestimation of winter O₃ concentration, the relative change in the modeled concentrations between the current and future year simulations are used to scale the observed current year ozone Design Value to obtain a projected future year Design Value.

The ARMS 2017 model shows potential exceedances of the O₃ NAAQS along the Wasatch Front, Uintah Basin, and portions of southern Utah. O₃ exceedances along the Wasatch Front are mainly due to non-oil and gas anthropogenic sources, exceedances in the Uinta Basin are mainly due to oil and gas sources (Federal and non-Federal), and exceedances in the southern part of the state are due to local and out-of-state non-oil and gas anthropogenic activities. Observed O₃ design values in southern Utah are below the NAAQS and continued monitoring is warranted so modeled exceedances do not become reality. Evaluation of the Annual and 24-hour PM_{2.5}, and 24-hour PM₁₀ NAAQS show exceedances only occurring due to exceptional events such as wildfires. The model showed no exceedances of the SO₂ or NO₂ NAAQS. The PSD analysis showed exceedance of the Class II NO₂ threshold (13.3 ppb) at the Uintah and Ouray Indian Reservation, primarily from non-BLM oil and gas development.

The ARMS 2017 impact analysis results indicate that air impacts of emissions from projected oil and gas development activities under BLM jurisdiction in Uintah and Duchesne Counties (BLM-OGD) for both High and Low Development Scenarios were strongly confined to the Uinta Basin and did not contribute to the long-range transport of impacts outside of the Basin. This conclusion holds true for all pollutants. Emissions from BLM oil and gas development were not responsible for any violations of the NAAQS, PSD, visibility and deposition thresholds of concern predicted by the 2025 High and Low Development Scenarios in areas outside of the Uinta Basin. The contributions of BLM oil and gas development emissions to all air quality and AQRVs were minor in comparison to other emission sectors. The BLM oil and gas development emissions contributed 8.88% and 4.22% respectively to the total 2025 High and Low simulated daily 8-hour maximum O₃ concentrations in the Uinta Basin, and contributed less than 0.01% to simulated daily 8-hour maximum O₃ outside the Uinta Basin. The maximum contribution of BLM oil and gas development emissions to total PM_{2.5} concentrations are less than 1% and were four times less than contributions from other oil and gas development activities that are not on BLM lands. The ARMS 2017 model results do not reveal any new air quality impacts to those already disclosed in the Monument Butte FEIS (BLM 2016) and in the Moab Master Leasing Plan FEIS (BLM 2016).

Air Quality Related Values

Air quality related values were also analyzed in the ARMS 2017 modeling study. Future year projections (both High and Low Scenarios) show improvements of AQRVs at Class I, Class II, and sensitive lakes in Utah compared to 2011 Base Year emissions. Since the air quality impacts from Uinta Basin oil and gas development were well contained within the basin as discussed previously, this emission source sector was not responsible for any exceedances of the 0.5 and 1.0 deciview (Δdv) thresholds occurring at Class I National Parks in Utah. Biogenic emissions and non-OG emissions are the main contributors to Δdv exceedances in Utah National Parks. Bryce Canyon and Capitol Reef National Park experienced visibility improvements in the future year scenarios compared to base year for both the worst 20% and the best 20% visibility days. Arches and Canyonlands National Park, which are located closer to oil and gas development distributions experienced visibility improvement for best 20% days but

slight visibility worsening for worst 20% days. Other oil and gas development, including BLM development outside the Uinta Basin, are projected to produce visibility impacts exceeding the 0.5 and 1.0 dv thresholds for 21 and 2 days, respectively, at Canyonlands National Park.

The ARMS 2017 future year simulated sulfur and nitrogen depositions at sensitive areas were substantially less than those simulated during the base year. The simulated total annual nitrogen depositions by both base year and future year were below the corresponding critical loads at all assessed areas. All of Class I, Class II areas and sensitive lakes experienced nitrogen deposition improvements in future year compared to base year simulations. Similar conclusions are applicable to source impacts on total annual sulfur deposition. Base year and future year simulated sulfur depositions for all Class I, Class II and sensitive lakes were well below the critical load of 5 kgS/ha/yr. The future year also resulted in improvements on sulfur deposition at all areas.

The ARMS 2017 model results do not reveal any new AQRV impacts to those already disclosed in the Monument Butte FEIS (BLM 2016) and in the Moab Master Leasing Plan FEIS (BLM 2016).

3.3.1.2 Environment Effects

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 APD. Any APD received would be subject to site-specific NEPA review. However, development assumptions have been made in this EA to inform the decision because an issued lease must be developed to keep it from expiring.

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 operations 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.

Single well emissions estimates for well development and production operations are based on typical development and production operations scenarios identified for each field office in the BLM Utah 2021 Air Monitoring Report (BLM 2021). The single well emissions and assumptions for analysis from this lease sale are input into the BLM Lease Sale Emissions Tool to provide the maximum year and average year emissions over the anticipated production life of lease parcels, see Table

6. Actual 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, differences in pace of development, different development methods and control technology used by a lessee, and other reasons. A lessee has 10 years to establish production on a lease and if production is not attempted within the 10-year timeframe, the lease will be terminated with no development or emissions occurring. Additionally, the plugging of the unplugged well on parcel 7072 would potentially reduce VOC emissions that leak into the atmosphere. The BLM is unable to quantify the reductions in VOCs as there are no measurements of what is being emitted from the unplugged well.

Table 6. Estimated Annual Emissions Estimate from the Development of Lease Parcels (tons/year)

Activity	Field Office	PM ₁₀	PM _{2.5}	VOC	NO _x	CO	SO ₂	HAPs
Max Year	Moab	11.7	1.8	19.4	5.7	9.5	0.099	1.676
	Price	7.6	1.1	4.1	8.0	4.7	0.009	0.378
	Vernal	9.0	1.4	15.2	10.9	8.1	0.014	1.863
Average Year	Moab	1.4	0.2	12.7	0.5	1.0	0.008	1.203
	Price	0.2	0.0	0.1	0.2	0.1	0.000	0.010
	Vernal	2.3	0.5	10.8	3.7	3.8	0.005	1.428

At the leasing stage it is not possible to accurately estimate potential air quality impacts by modeling due to the variation in emission control technologies as well as construction, drilling, and production technologies applicable to oil versus gas production and utilized by various operators. Should development on the parcels be proposed, and prior to authorizing specific proposed projects on the subject leases, emission inventories would need to be developed. Nearfield air quality dispersion modeling, which may also be required at that time, includes direct and cumulative impact analysis for demonstrating compliance with the NAAQS, plus analysis of impacts to AQRVs (i.e. deposition, visibility), particularly as they might affect nearby Class I areas (some National Parks and Wilderness areas) and Class II areas of interest.

Air quality and AQRV impacts from the development of exploration and production wells were modeled in the RFDS for Fishlake National Forest (USDA 2007), and are incorporated by reference to provide an indication of what parcels may need additional air quality analysis at the APD stage. 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 Class I airsheds 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 km, respectively. Results predicted no potential compliance problems for Class II airsheds. Similar results and recommendations are made about visibility standards. Parcel 1121 in the PFO is likely exploratory for helium and much greater than 5 kilometers from any Class I area. Parcel 1169 in the MbFO is also greater than 5 kilometers from any Class I area. Accordingly, no new significant impacts to air resources would occur at Arches National Park, Canyonlands National Park, or Capitol Reef National Park from development of the MbFo or PFO parcels.

Studies have demonstrated that oil and gas activity is a primary contributor to wintertime ozone NAAQS exceedances in the Uinta Basin. While emissions from an individual well or well pad are too small to have a substantial impact on O₃ concentrations, they contribute with emissions from other regional oil and gas operation to produce a cumulative O₃ impact. These impacts were previously discussed in Reasonably Foreseeable Environmental Trends and Planned Actions.

The CAA general conformity rule (40 CFR § 93) provides Federal agencies a method for determining if the emissions in a nonattainment area, from an action under consideration, will delay an area from attaining the NAAQS. This is done by showing that emissions are either *de minimis* or conform to a State or Federal Implementation Plan. Parcels 1125, 1129, 1135, and 7072 are located within the Uinta Basin ozone nonattainment area and thus require a general conformity applicability assessment, documented in Appendix E: General Conformity Applicability. This assessment demonstrates the emissions associated with this lease sale are not reasonably foreseeable as defined by the Clean Air Act and general conformity is not applicable to this leasing action.

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 6, 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 Recreational Resources Preservation Alternative

Estimate of maximum year and average year emissions for this alternative are estimated in Table 7 and are calculated using the same methodology as described for the Proposed Action emissions. Impacts to air quality and AQRVs from development of this alternative will be less than those discussed for the Proposed Action. General conformity is not applicable for this alternative for the same reasons discussed for the Proposed Action. Additionally, the plugging of the unplugged well on parcel 7072 would potentially reduce VOC emissions that leak into the atmosphere. The BLM is unable to quantify the reductions in VOCs as there are no measurements of what is being emitted from the unplugged well.

Table 7. Estimated Annual Emissions Estimate from the Development of Lease Parcels (tons/year) in the Recreational Resources Preservation Alternative.

Activity	Field Office	PM ₁₀	PM _{2.5}	VOC	NO _x	CO	SO ₂	HAPs
Max Year	Vernal	7.6	1.1	4.1	8.0	4.7	0.009	0.378
Average Year	Vernal	0.5	0.1	2.2	0.7	0.8	0.001	0.286

Impacts of the No Action Alternative

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. Potential impacts to air quality would not occur because the leases would not be developed, and no new emissions of pollutants would occur. The unplugged well

on parcel 7072 may continue to leak air pollutants into the atmosphere until an unknown time in the future when it can be plugged.

3.3.1.3 Required Design Constraints/Mitigation Measures

Design constraints and mitigation measures for reducing air emissions could include requiring that new stationary and replacement internal combustion gas field engines, smaller than 300 horsepower, to not emit more than 2 grams of NO_x per horsepower-hour (UT-S-01), or that engines are kept in good working order, use of Tier II or higher diesel engines, dust control, flaring and other best practices as described in UT-LN-96, using regional ozone formation controls (UT-LN-99), and air dispersion modeling (UT-LN-102), or a combination of all of these. 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 listed in Appendix A 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, BMPs, 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).

3.3.2 Issue 2: How would future potential development of nominated lease parcels contribute to greenhouse gas (GHG) emissions and climate change?

The proposed leasing action could lead to emissions of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), the three most common greenhouse gases associated with oil and gas development. These GHG emissions would be emitted from leased parcels if developed, and from the consumption of any fluid minerals that may be produced. However, the BLM cannot reasonably determine at the leasing stage whether, when, and in what manner a lease would be explored or developed. The uncertainty that exists at the time the BLM offers a lease for sale includes crucial factors that would affect actual GHG emissions and associated impacts, including but not limited to the future feasibility of developing the lease, well density, geological conditions, development type (vertical, directional, or horizontal), hydrocarbon characteristics, specific equipment used during construction, drilling, production,

abandonment operations, production and transportation, and potential regulatory changes over the 10-year primary lease term.

For the purposes of this analysis, the BLM has evaluated the potential effects of the proposed leasing action on climate change by estimating and analyzing potential GHG emissions from projected oil and gas development on the parcels proposed for leasing using estimates based on past oil and gas development and available information from existing development within the State.

Additional discussion of climate change science and predicted impacts as well as the reasonably foreseeable and cumulative GHG emissions associated with BLM's oil and gas leasing actions are included in the *BLM Specialist Report on Annual Greenhouse Gas Emissions and Climate Trends* (BLM 2021) (hereinafter referred to as the Annual GHG Report). This report presents the estimated emissions of greenhouse gases attributable to fossil fuels produced on lands and mineral estate managed by the BLM. The Annual GHG Report is incorporated by reference as an integral part of the analysis for this proposed lease sale and is available at <https://www.co.blm.gov/AirResourcesReport/ghg/>.

3.3.2.1 Affected Environment and Environmental Consequences

Climate change is a global process that is affected by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from a single proposed land management action cannot be accurately translated into its potential effect on global climate change or any localized effects in the area specific to the action. Currently, global climate models are unable to forecast local or regional effects on resources. However, there are general projections regarding potential impacts on natural resources and plant and animal species that may be attributed to climate change from GHG emissions over time. GHGs influence the global climate by increasing the amount of solar energy retained by land, water bodies, and the atmosphere. GHGs can have long atmospheric lifetimes, which allows them to become well mixed and uniformly distributed over the entirety of the Earth's surface no matter their point of origin. Therefore, potential emissions from the proposed action can be compared to state, national and global GHG emission totals to provide context of their significance and potential contribution to climate change impacts.

Table 8 shows the total estimated GHG emissions from fossil fuels at the global and national scales over the last five years. Emissions are shown in megatonnes (Mt) per year of carbon dioxide equivalent (CO₂e). Chapter 3 of the Annual GHG Report contains additional information on greenhouse gases and an explanation of CO₂e. Table 8 shows GHG emissions data from the largest greenhouse gas emitting facilities as reported to the U.S. Environmental Protection Agency (EPA) through its Greenhouse Gas Reporting Program (GHGRP) for those states associated with this potential leasing action. Table 8 also shows energy-related CO₂ emissions reported by the U.S. Energy Information Administration (EIA) in its annual State Energy-Related Carbon Dioxide Emissions Tables (EIA 2021). State energy-related CO₂ emissions include emissions from fossil fuel use across all sectors (residential, commercial, industrial, transportation, and electricity generation) and are released at the location where the fossil fuels are consumed.

Additional information on current state, national, and global GHG emissions as well as the methodology and parameters for estimating emissions from BLM fossil fuel authorizations and cumulative GHG emissions is included in the Annual GHG Report (see Chapters 4, 5, and 6).

Table 8 Global and U.S. GHG Emissions 2015 - 2019 (Mt CO₂/yr)

Scale	2015	2016	2017	2018	2019
Global	52,700	52,800	53,500	55,300	59,100
U.S.	5,249	5,153	5,083	5,244	5,107

Source: Annual GHG Report, Chap. 6, Table 6-1.

Mt (megatonne) = 1 million metric tons.

Table 9 State GHG Emissions

State	EPA - GHGRP Large Emitters (Mt CO ₂ /yr)			EIA Energy-related CO ₂ Emissions (Mt/yr)
	Total Reported	Power Plants	Petroleum and Natural Gas Systems	
Utah	36	28	0.9	60.3

Sources: Annual GHG Report, Chap. 6, Table 6-3; Energy Information Administration

The continued increase of anthropogenic GHG emissions over the past 60 years has contributed to global climate change impacts. A discussion of past, current, and projected future climate change impacts is described in Chapters 8 and 9 of the Annual GHG Report. These chapters describe currently observed climate impacts globally, nationally, and in each State, and present a range of projected impact scenarios depending on future GHG emission levels. These chapters are incorporated by reference in this analysis.

3.3.2.2 Environmental Effects

While the leasing action itself does not directly generate GHG emissions, such emissions are a reasonably foreseeable consequences of oil and gas development. There are three general phases of post-lease development that would generate GHG emissions that include 1) well development (well site construction, well drilling, and well completion), 2) production operations (processing, storage, and transport/distribution), and 3) end-use (combustion) of the fuels produced.

The BLM cannot develop a precise emissions inventory at the leasing stage due to uncertainties including the type (oil, gas, or both) scale, and duration of potential development, the types of related equipment (drill rig engine tier rating, horsepower, fuel type), and the mitigation measures that a future lessee may propose in their development plan. In order to estimate reasonably foreseeable on-lease emissions at the leasing stage, the BLM uses estimated well numbers based on State data for past lease development combined with per-well drilling, development, and operating emissions data from representative wells in the area. The amount of oil or gas that may be produced if the offered parcels are developed is unknown. For purposes of estimating production and end-use emissions, reasonably foreseeable wells are assumed to produce oil and gas in similar amounts as existing nearby wells. While the BLM has no authority to direct or regulate the end-use of the products, for this analysis, the BLM assumes all produced oil or gas will be combusted (such as for domestic heating or energy production). The BLM acknowledges that there may be additional sources of GHG emissions along the distribution, storage, and processing chains

(commonly referred to as midstream operations) associated with production from the lease parcels. These sources may include emissions of methane (a more potent GHG than CO₂ in the short term) from pipeline and equipment leaks, storage, and maintenance activities. At the leasing stage, these sources of emissions are highly speculative, and the BLM has therefore chosen to assume, for the purposes of this analysis, that all produced oil or gas will be combusted. We note, however, that the potential emissions from these sources have been estimated and are accounted for in the cumulative assessment of GHGs from BLM's fossil fuel leasing program.

The emissions used in this analysis are estimated as described above using the BLM Lease Sale Emissions Tool. Emissions are presented for each of the three phases described above.

- Well development emissions occur over a short period and include heavy equipment and vehicle exhaust, drill rig engine emissions, completion equipment, pipe venting, and emissions from any well treatments such as hydraulic fracturing that may be used.
- Production operations and end-use emissions occur over the entire production life of a well, which is assumed to be 30 years for this analysis based on the productive life of a typical oil/gas field. Production emissions may result from storage tank breathing and flashing, truck loading, pump engines, heaters and dehydrators, pneumatic instruments or controls, flaring, fugitives, and vehicle exhaust.
- Single well emissions estimates for well development and production operations are based on typical development and production scenarios identified in the BLM Utah 2021 Air Monitoring Report (BLM 2021).
- End-use emissions occur from the downstream combustion of produced oil or gas. End-use emissions are estimated by multiplying the estimated ultimate recovery (EUR) of produced oil and gas with emissions factors for combustion established by the EPA (Tables C-1 and C-2 to Subpart C of 40 CFR § 98). Additional information on emission factors and EUR factors can be found in the Annual GHG Report (Chapter 4).

Table 10 and Table 11 list the estimated direct and indirect GHG emissions in metric tons (tonnes) for the proposed lease sale over the average 30-year production life of the lease. The plugging of the unplugged well on parcel 7072 would potentially reduce GHG emissions that leak into the atmosphere. The BLM is unable to quantify the reductions in GHGs at this time since there are no measurements of what is being emitted from the unplugged well.

Table 10 Estimated Life of Lease Emissions (On-Site) from Well Development and Production Operations (tonnes)

Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e (100-yr)	CO ₂ e (20-yr)
Well Development	6,541	9.08	0.076	6,891	7,361
Production Operations	68,757	1,972.85	0.331	139,878	242,456

Source: BLM Lease Sale Emissions Tool

Table 11 Estimated Life of Lease Indirect Emissions from the End-Use Combustion of Produced

	EUR (bbl or mcf)	CO₂	CH₄	N₂O	CO₂e (100-yr)	CO₂e (20yr)
Oil	354,072	152,971	6.16	1.231	153,558	153,841
Gas	3,685,844	200,656	3.78	0.378	200,904	201,089
Total End-Use	-	353,627	9.94	1.609	354,462	354,931

Source: BLM Lease Sale Emissions Tool

GHG emissions vary annually over the production life of a well due to declining production over time. Table 12 provides maximum year and average year emissions over the life of the lease. Figure 1 shows the estimated annual GHG emissions profile over the production life of a typical lease including well development, well operation, end-use, and gross (total of well development, well production, and end-use) emissions.

Table 12 Estimated Direct and Indirect Emissions from the Lease Parcels on an Annual and Life of Lease basis (tonnes)

	CO₂	CH₄	N₂O	CO₂e (100-yr)	CO₂e (20-yr)
Max Year	38,764	66.84	0.225	41,229	44,698
Average Year	12,615	58.58	0.059	14,742	17,787
Life of Lease	428,925	1,991.87	2.017	501,231	604,748

Source: BLM Lease Sale Emissions Tool

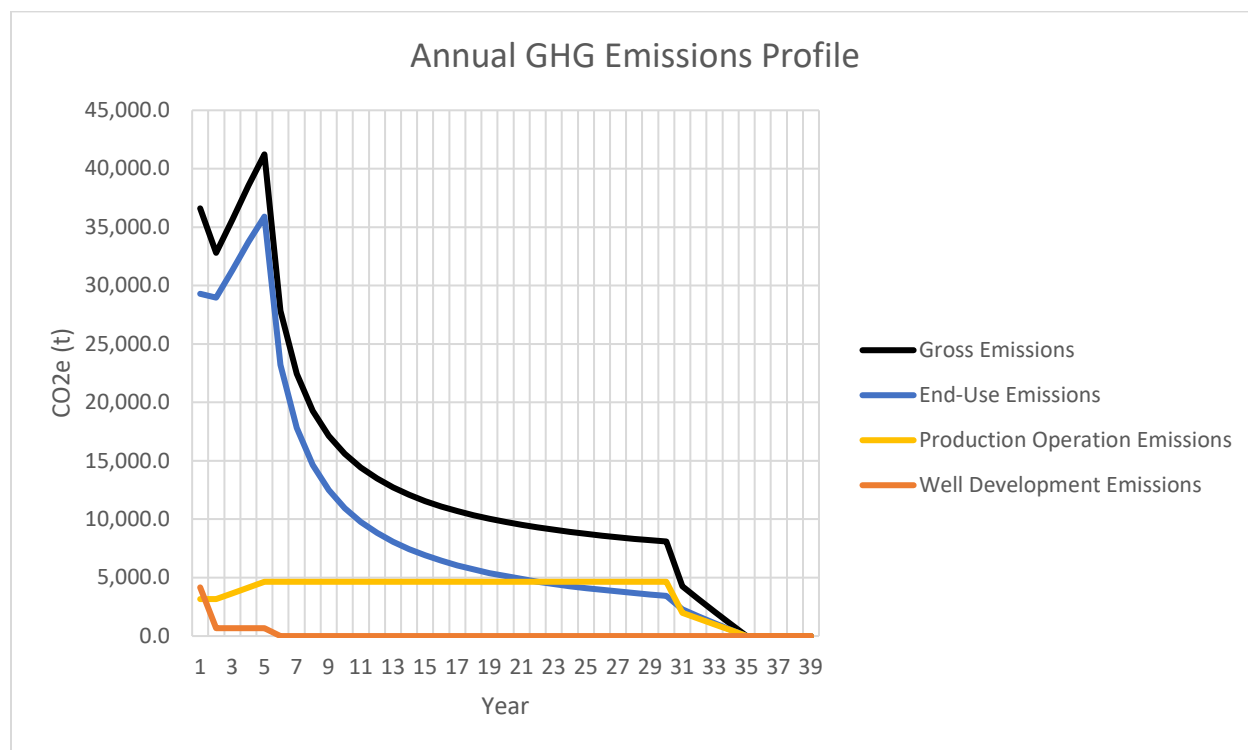


Figure 1 Estimated annual GHG emissions profile over the life of a lease.

Source: BLM Lease Sale Emissions Tool

In order to put the estimated GHG emissions for this lease sale in context, potential emissions that could result from development of the lease parcels for this sale can be put into relatable terms by comparing to other common activities that generate GHG emissions as well as to emissions at state and national scales. The EPA GHG equivalency calculator can be used (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> (EPA 2021)) to express the potential average year GHG emissions on a scale relatable to everyday life. For instance, the projected average annual GHG emissions from expected development following the proposed lease sale are equivalent to 3,205 gasoline-fueled passenger vehicles driven for one year, or the emissions that could be avoided by operating 3 wind turbines as an alternative energy source or offset by the carbon sequestration of 17,978 acres of forest land.

Table 13 compares estimated maximum and average annual lease-sale emissions to existing State GHG emissions, federal BLM fossil fuel (oil, gas, and coal) emissions, and U.S. fossil fuel and total GHG emissions reported in the EPA Inventory of U.S. GHG Emissions and Sinks: 1990-2019 (EPA 2021).

Table 13 Comparison of Lease Sale Annual Emissions to Other Sources (megatonnes)

Reference	Mt CO ₂ e ¹ (Per Year)	Average Year % of Reference	Max Year % of Reference
Max Year	0.041	-	-
Average Year	0.015	-	-

UT Federal (Oil & Gas)²	14.2	0.104%	0.291%
UT Federal (Oil, Gas and Coal)²	45.6	0.032%	0.090%
U.S. Federal (Oil & Gas)²	427.7	0.003%	0.010%
U.S. Federal (Oil, Gas and Coal)²	918.6	0.002%	0.004%
U.S. Total³	6,558.35	0.000%	0.001%

1 – Estimates are based on 100-GWP values provided by AR-5.

2 - Federal values come from the BLM Specialist Report on Annual Greenhouse Gas Emissions Table ES-1.

3 - U.S. Total Values comes from the EPA Inventory of U.S. GHG Emissions and Sinks: 1990-2019 (EPA 2021): <https://cfpub.epa.gov/ghgdata/inventoryexplorer/#allsectors/allsectors/allgas/gas/current>; 6,814.8MT CO₂e using AR5 GWP.

Table 14 compares emission estimates over the 30-year life of the lease compared to the 30-year projected Federal emissions in the state and nation from existing wells, the development of approved APDs, and emissions related to reasonably foreseeable lease actions.

Table 14 Comparison of the Life of Lease Emissions to other Federal Oil and Gas Emissions from Existing Wells, Development of Approved APDs, and Other Leasing Actions in the State and Nation (megatonnes).

Reference	Mt CO₂e (30-yr)	Life of Lease % of Reference
Life of Lease	0.501	100.000%
UT Reasonably Foreseeable Short-term Federal (O&G)	150.980	0.332%
UT EIA Projected Long-term Federal (O&G)	665.300	0.075%
U.S. Reasonably Foreseeable Short-term Federal (O&G)	4,307.510	0.012%
U.S. EIA Projected Long-term Federal (O&G)	13,960.990	0.004%

Source: U.S. and Federal emissions from BLM Lease Sale Emissions Tool and Annual GHG Report Tables 5-17 and 5-18.

In summary, potential GHG emissions from the Proposed Action could result in GHG emissions of 0.501 Mt CO₂e over the life of the lease. Compared to emissions from other existing and foreseeable Federal oil and gas development, the life of lease emissions for the Proposed Action is between 0.075% to 0.332% of Federal fossil fuel authorization emissions in the state and between 0.004% to 0.012% of Federal fossil fuel authorization emission in the nation.

Impacts of the Recreational Resources Preservation Alternative

The emissions for this alternative are derived in Table 15, Table 16, and Table 17 and are calculated using the same methodology as described for the Proposed Action emissions. Potential GHG emissions from the Recreational Resources Preservation Alternative could result in GHG emissions of 0.075 Mt CO₂e over the life of the lease. The plugging of the unplugged well on parcel 7072 would potentially reduce GHG emissions that leak into the atmosphere. The BLM is unable to quantify the reductions in GHGs at this time since there are no measurements of what is being emitted from the unplugged well. Compared to emissions from other existing and foreseeable Federal oil and gas development, the life of lease emissions for the Recreational Resources Preservation Alternative is between 0.011% to 0.049% of Federal fossil fuel authorization emissions in the state and between 0.001% to 0.002% of Federal fossil fuel authorization emission in the nation. The projected average annual GHG emissions from expected development following the proposed lease sale are equivalent to 541 gasoline-fueled passenger vehicles driven for one year, or the emissions that could be avoided by operating 1 wind turbines as an alternative energy source or offset by the carbon sequestration of 3,036 acres of forest land.

Table 15 Estimated Life of Lease Emissions (On-Site) from Well Development and Production Operations (tonnes)

Activity	CO ₂	CH ₄	N ₂ O	CO ₂ e (100-yr)	CO ₂ e (20-yr)
Well Development	676	0.11	0.005	681	686
Production Operations	11,632	91.50	0.022	14,933	19,690

Table 16 Estimated Life of Lease Indirect Emissions from the End-Use Combustion of Produced

	EUR (bbl or mcf)	CO ₂	CH ₄	N ₂ O	CO ₂ e (100-yr)	CO ₂ e (20yr)
Oil	59,012	25,495	1.03	0.205	25,593	25,640
Gas	614,307	33,443	0.63	0.063	33,484	33,515
Total End-Use	-	58,938	1.66	0.268	59,077	59,155

Source: BLM Lease Sale Emissions Tool

Table 17 Estimated Direct and Indirect Emissions from the Lease Parcels on an Annual and Life of Lease basis (tonnes)

	CO ₂	CH ₄	N ₂ O	CO ₂ e (100-yr)	CO ₂ e (20-yr)
Max Year	15,664	3.62	0.087	15,820	16,005
Average Year	2,375	3.11	0.010	2,490	2,651
Life of Lease	71,245	93.27	0.296	74,691	79,532

Source: BLM Lease Sale Emissions Tool

Impacts of the No Action Alternative

Under the No Action Alternative, the parcel(s) would not be leased, and no new foreseeable oil and gas development would occur on the subject lease parcels. As a result, no new GHG emissions from the development of these lease parcels would occur and no emissions from development activities on the parcels would contribute to national and global GHG emissions that influence climate change. The unplugged well on parcel 7072 may continue to leak GHGs (primarily CH₄) into the atmosphere until an unknown time in the future when it can be plugged.

EIA studies regarding short-term “supply disruptions” suggest that reducing domestic supply (in the near-term under the current supply / demand scenario) would lead to the import of more oil and natural gas from other countries, including countries with lower environmental and emission control standards than the United States (EIA 2021). The EIA 2021 AEO long-term energy outlook for the high U.S. domestic natural gas supply scenario describes a potential 1.2% growth in natural gas-related GHG emissions for the power sector through year 2050 and an almost 3% decline in coal-related emissions over the 30-year period. For the EIA projected low oil and gas supply scenario, power sector related GHG emissions are reduced for both natural gas and coal through the period though at a smaller relative percentage for coal resulting in coal-related emissions still being higher than those associated with natural gas at year 2050 (EIA 2020).

3.3.2.3 Monetized Impacts from GHG Emissions

The “social cost of carbon”, “social cost of nitrous oxide”, and “social cost of methane” – together, the “social cost of greenhouse gases” (SC-GHG) are estimates of the monetized damages associated with incremental increases in GHG emissions in a given year.

On January 20, 2021, President Biden issued E.O. 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*.¹¹ Section 1 of E.O. 13990 establishes an Administration policy to, among other things, listen to the science; improve public health and protect our environment; ensure access to clean air and water; reduce greenhouse gas emissions; and bolster resilience to the impacts of climate change.¹² Section 2 of the E.O. calls for Federal agencies to review existing regulations and policies issued between January 20, 2017, and January 20, 2021, for consistency with the policy articulated in the E.O. and to take appropriate action.

Consistent with E.O. 13990, the Council on Environmental Quality (CEQ) rescinded its 2019 “Draft National Environmental Policy Act Guidance on Considering Greenhouse Gas Emissions” and has begun to review for update its “Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews” issued on August 5, 2016 (2016 GHG Guidance).¹³ While CEQ works on updated guidance, it has instructed agencies to consider and use all tools and resources available to them in assessing GHG emissions and climate change effects including the 2016 GHG Guidance.¹⁴

¹¹ 86 FR 7037 (Jan. 25, 2021).

¹² *Id.*, sec. 1.

¹³ 86 FR 10252 (February 19, 2021).

¹⁴ *Id.*

Regarding the use of Social Cost of Carbon or other monetized costs and benefits of GHGs, the 2016 GHG Guidance noted that NEPA does not require monetizing costs and benefits.¹⁵ It also noted that “the weighing of the merits and drawbacks of the various alternatives need not be displayed using a monetary cost-benefit analysis and should not be when there are important qualitative considerations.”¹⁶

Section 5 of E.O. 13990 emphasized how important it is for federal agencies to “capture the full costs of greenhouse gas emissions as accurately as possible, including by taking global damages into account” and established an Interagency Working Group on the Social Cost of Greenhouse Gases (the “IWG”).¹⁷ In February of 2021, the IWG published *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide: Interim Estimates under Executive Order 13990* (IWG, 2021).¹⁸ This is an interim report that updated previous guidance from 2016. The final report is expected in January 2022.

In accordance with this direction, this subsection provides estimates of the monetary value of changes in GHG emissions that could result from selecting each alternative. Such analysis should not be construed to mean a cost determination is necessary to address potential impacts of GHGs associated with specific alternatives. These numbers were monetized; however, they do not constitute a complete cost-benefit analysis, nor do the SC-GHG numbers present a direct comparison with other impacts analyzed in this document. For instance, the BLM’s overall economic analysis for this lease sale does not monetize most of the major costs or benefits and does not include all revenue streams from the proposed action but seeks to quantify certain impacts related to employment numbers, labor income and output. SC-GHG is provided only as a useful measure of the benefits of GHG emissions reductions to inform agency decision-making.

For Federal agencies, the best currently available estimates of the SC-GHG are the interim estimates of the social cost of carbon dioxide (SC-CO₂), methane (SC-CH₄), and nitrous oxide (SC-N₂O) developed by the Interagency Working Group (IWG) on the SC-GHG. Select estimates are published in the Technical Support Document (IWG 2021)¹⁹ and the complete set of annual estimates are available on the Office of Management and Budget’s website²⁰.

The IWG’s SC-GHG estimates are based on complex models describing how GHG emissions affect global temperatures, sea level rise, and other biophysical processes; how these changes affect society through, for example, agricultural, health, or other effects; and monetary estimates of the market and nonmarket values of these effects. One key parameter in the models is the discount rate, which is used to estimate the present value of the stream of future damages associated with emissions in a particular year. A higher discount rate assumes that future benefits or costs are more heavily discounted than benefits or costs occurring in the present (i.e., future benefits or costs are a less significant factor in present-day

¹⁵ 2016 GHG Guidance, p. 32, available at: https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf

¹⁶ *Id.*

¹⁷ E.O. 13990, Sec. 5.

¹⁸ https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf

¹⁹ IWG 2021. *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under Executive Order 13990*. Interagency Working Group on Social Cost of Greenhouse Gases, February 2021.

²⁰ <https://www.whitehouse.gov/omb/information-regulatory-affairs/regulatory-matters/#scghgs>

decisions). The current set of interim estimates of SC-GHG have been developed using three different annual discount rates: 2.5%, 3%, and 5% (IWG 2021).

As expected with such a complex model, there are multiple sources of uncertainty inherent in the SC-GHG estimates. Some sources of uncertainty relate to physical effects of GHG emissions, human behavior, future population growth and economic changes, and potential adaptation (IWG 2021). To better understand and communicate the quantifiable uncertainty, the IWG method generates several thousand estimates of the social cost for a specific gas, emitted in a specific year, with a specific discount rate. These estimates create a frequency distribution based on different values for key uncertain climate model parameters. The shape and characteristics of that frequency distribution demonstrate the magnitude of uncertainty relative to the average or expected outcome.

To further address uncertainty, the IWG recommends reporting four SC-GHG estimates in any analysis. Three of the SC-GHG estimates reflect the average damages from the multiple simulations at each of the three discount rates. The fourth value represents higher-than-expected economic impacts from climate change. Specifically, it represents the 95th percentile of damages estimated, applying a 3% annual discount rate for future economic effects. This is a low probability, but high damage scenario, represents an upper bound of damages within the 3% discount rate model. The estimates below follow the IWG recommendations.

The SC-GHGs associated with estimated emissions from future potential development of the lease parcels are reported in Table 18. These estimates represent the present value (from the perspective of 2021) of future market and nonmarket costs associated with CO₂, CH₄, and N₂O emissions from potential well development and operations, and potential end-use, as described in Subsection 3.3.2.2. Estimates are calculated based on IWG estimates of social cost per metric ton of emissions for a given emissions year and BLM's estimates of emissions in each year. They are rounded to the nearest \$1,000. The estimates assume development will start in 2023 and end-use emissions complete in 2056, based on experience with previous lease sales.

Table 18 SC-GHGs Associated with Future Potential Development of the Proposed Action

	Social Cost of GHG (2020\$)			
	Average Value, 5% discount rate	Average Value, 3% discount rate	Average Value, 2.5% discount rate	95 th Percentile Value, 3% discount rate
Development and Operations	\$1,850,000	\$6,074,000	\$8,853,000	\$17,408,000
End-Use	\$4,341,000	\$16,493,000	\$25,010,000	\$49,827,000
Total	\$6,191,000	\$22,567,000	\$33,863,000	\$67,235,000

The SC-GHGs associated with estimated emissions from future potential development of the lease parcels under the Recreational Resources Preservation Alternative are reported in Table 19. These SC-GHG estimates are calculated using the same methodology as described for the Proposed Action.

Table 19 SC-GHG Associated with Future Potential Development of the Recreation Resource Preservation Alternative

	Social Cost of GHG (2020\$)			
	Average Value, 5% discount rate	Average Value, 3% discount rate	Average Value, 2.5% discount rate	95 th Percentile Value, 3% discount rate
Development and Operations	\$183,000	\$668,000	\$1,002,000	\$1,981,000
End-Use	\$749,000	\$2,803,000	\$4,237,000	\$8,447,000
Total	\$932,000	\$3,471,000	\$5,239,000	\$10,428,000

3.3.2.4 Estimated GHG Emissions for Reasonably Foreseeable Environmental Trends and Planned Actions

The analysis of GHGs contained in this EA includes estimated emissions from those parcels being offered in this lease sale as described above. In addition to this lease sale, the BLM is offering parcels in six other BLM administrative units within the first quarter of 2022. The estimated GHG emissions from parcels being offered in each of those individual sales is contained in the associated EA for each sale. When analyzing the potential impacts from multiple lease sales, it is important to note that it is the actual production of fossil fuel commodities on leased parcels that generates GHG emissions and not the offering of acres or parcels for lease in a particular grouping of lease sales. Parcels offered in a lease sale may or may not be sold, and sold parcels may or may not go into production for several years if at all. Typically, lease sales in different BLM administrative units are not offered on the same date and each administrative unit has discretion to defer its sale or defer or add parcels as a result of scoping and protests. The dynamic nature of the lease sale process and independence of each administrative unit for constructing its lease sales, precludes an analysis of potential GHG emissions that could occur from other lease sales that might occur in the same quarter. In addition, combining all of the offered parcels from multiple lease sales that may occur over a 3-month period, assuming all acres will be sold and produce immediately, and estimating GHG emissions from development on the offered acreage based on these assumptions would result in an inflated, unrealistic, quantity of estimated emissions that would not be useful to the decision maker and would not accurately inform the public of the magnitude of probable cumulative emissions and impacts.

An assessment of GHG emissions from BLM's fossil fuel authorizations including coal leasing and oil and gas development is included in the BLM Specialist Report on Annual GHG Emissions (referred to as Annual Report, see Chapter 5). The Annual Report includes estimates of reasonably foreseeable GHG emissions related to BLM lease sales anticipated during the calendar year, as well as the best estimate of emissions from ongoing production, and development of parcels sold in previous lease sales. It is, therefore, an estimate of cumulative GHG emissions from the BLM fossil fuel leasing program based on actual production and statistical trends.

The Annual Report provides an estimate of short-term and long-term GHG emissions from lease sale activity across the BLM. The short-term methodology presented in the Annual Report includes a trends

analysis of (1) leased federal lands that are held-by-production, (2) approved applications for permit to drill (APDs), and (3) leased lands from competitive lease sales occurring over the next annual reporting cycle (12 months), to provide a 30-year projection of potential emissions from Federal lease actions over the next 12 months. The long-term methodology uses oil and gas production forecasts from the Energy Information Administration (EIA) to estimate GHG emissions out to 2050 that could occur from past, present, and future oil and gas development. These analyses are the basis for projecting GHG emissions from lease parcels that are likely to go into production during the analysis period of the Annual Report and represent both a hard look at GHG emissions from fossil fuel leasing and the best available estimate of reasonably foreseeable cumulative emissions related to any one lease sale or set of quarterly lease sales. Table 20 shows the cumulative estimated GHG emissions from the development of the projected lease sale acres in 2021 using the methodology described above. The 5-year lease averages include all types of oil and gas development related leases, including leases granted under the Mineral Leasing Act as well as other authorities, that have been issued over the last five years. As such the projections made from the 5-year averages represent the potential for all types of future potential oil and gas leasing activity. However, they may also over-estimate the potential emissions from the 12-month cycle of competitive oil and gas leasing activities if the projected lease sale activity does not actually occur.

Table 20 Reasonably Foreseeable Projected Emissions

State (BLM Administrative Unit)	Annual Report Table 4-8 Projected Lease Acres 2021	Annual Report Figure 5-1 GHG Emissions from Projected Lease Acres 2021 (Mt CO ₂ e per year)
Alabama (ES)	1	0.00
Alaska	356,021	9.33
Arkansas (ES)	536	0.04
California	184	0.02
Colorado	67,268	10.21
Idaho	1,881	0.03
Kansas (ES)	287	0.02
Kentucky (ES)	37	0.01
Louisiana (ES)	9,334	2.59
Michigan (ES)	5,006	0.17
Mississippi (ES)	2,609	0.06
Montana	60,807	2.48
Nebraska (WY)	19	0.01
Nevada	155,583	0.29

New Mexico	38,926	22.90
North Dakota (MT)	2,477	0.07
Ohio (ES)	681	0.18
Oklahoma (NM)	2,052	0.05
South Dakota (MT)	1,543	0.02
Texas (NM)	1,602	0.09
Utah	141,832	9.13
West Virginia (ES)	42	0.01
Wyoming	562,985	88.87
<i>Total</i>	<i>1,411,713</i>	<i>146.56</i>

3.3.2.5 Mitigation Strategies

GHG emissions contribute to changes in atmospheric radiative forcing resulting in climate change impacts. GHGs act to contain solar energy loss by trapping longer wave radiation emitted from the Earth's surface and act as a positive radiative forcing component. The buildup of these gases has contributed to the current changing state of the climate equilibrium towards warming. Chapters 8 and 9 of the Annual Report provides a detailed discussion of climate change science, trends, and impacts. The relationship between GHG emissions and climate impacts is complex, but a project's potential to contribute to climate change is reduced as its net emissions are reduced. When net emissions approach zero, the project has little or no contribution to climate change. Net-zero emissions can be achieved through a combination of controlling and offsetting emissions. Emission controls (e.g., vapor recovery devices, no-bleed pneumatics, leak detection and repair, etc.) can substantially limit the amount of GHGs emitted to the atmosphere, while offsets (e.g., sequestration, low carbon energy substitution, plugging abandoned or uneconomical wells, etc.) can remove GHGs from the atmosphere or reduce emissions in other areas. Chapter 10 of the Annual Report provides a more detailed discussion of GHG mitigation strategies.

The Federal government has issued regulations that will reduce GHG emissions from any development related to the proposed leasing action. These regulations include the New Source Performance Standard for Crude Oil and Natural Gas Facilities (49 CFR 60, subpart OOOOa) which imposes emission limits, equipment design standards and monitoring requirements on oil and gas facilities.

In addition to these Federal regulations, states have also implemented air quality and greenhouse gas regulations for the oil and gas industry. The State of Utah also regulates GHG emissions from oil and gas facilities under the following rules: Administrative Code R307-500 Series which applies to all oil and natural gas exploration, production, and transmission operations; well production facilities; natural gas compressor stations; and natural gas processing plants in Utah. These rules require emissions control standards for pneumatic controllers, venting and flaring, tank truck loading, storage vessels, dehydrators, volatile organic compound (VOC) control devices, stationary natural gas engines, and leak detection and repair requirements.

The BLM's regulatory authority is limited to those activities authorized under the terms of the lease which primarily occur in the "upstream" portions of natural gas and petroleum systems. This decision authority is applicable when development is proposed on public lands and BLM assesses its specific location, design and proposed operation. In carrying out its responsibilities under NEPA, the BLM has developed Best Management Practices (BMPs) designed to reduce emissions from field production and operations. BMPs may include limiting emissions on stationary combustion sources, mobile combustion sources, fugitive sources, and process emissions occurring on a lease parcel. Analysis and approval of future development 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. Additional information on mitigation strategies, including emissions controls and offset options, are provided in the Annual GHG Report.

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

3.3.3.1 Affected Environment and Environmental Consequences

The study area includes Grand, Emery, 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 8,102,941 total acres within the study area. Of those, 5,656,001 acres, 69.8 percent of the total, are federally-owned lands, and 4,963,987 of those acres are managed by the BLM. 850,564 acres within the study area are privately owned, 625,215 are Tribal lands, and 971,166 are owned by state, county, city, or other non-federal agencies.

Population, Employment, and Income

The total population in the study area was 55,114 in 2020, representing an increase of 23.9 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 2019 was 31,964. In 2019, the average annual unemployment rate was 4.1 percent. This increased to an average of 8.4 percent during the pandemic year of 2020, but has since returned to pre-pandemic levels or lower. In 2018, 87.6 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 2019 was \$37,958, as measured in 2020 dollars, an increase of 35. percent from 2014 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 6,508, or 9.8 percent of the population. In the same year, there were 1,136 families living in poverty, or 6.8 percent of all families. Out of all persons living within the study area in 2019, 9,233, or 16.5 percent, self-identified as being a member of a minority group. Of those, 3,072, or 5.5 percent of the total population, self-identified as American Indians. The total number of housing units was 23,785 of which 77.5 percent were occupied and 5.0 percent were seasonal, recreational, or occasionally-occupied properties. Of those living within the study area aged 25 or older, 18.5 percent had earned a bachelor's degree or higher in 2019.

Jobs by Industry

In 2019, there were approximately 6,952 total jobs in non-services industries in the study area. In the same year there were around 19,150 jobs in services related industries, and there were approximately 5,368 additional jobs in the government sector. This total includes federal, state, county, and local government jobs. In 2019, the industries employing the largest numbers of employees in the study area were: government (primarily state, county and local government); trade, transportation, and utilities; and leisure and hospitality.

Wages by Industry

Within the study area, the average annual wage for all reported jobs was \$42,684 in 2020 . The highest paying industries, on average, were mining, construction, transportation and public utilities, retail trade, and 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 2019, total non-labor income within the study area was \$854,382,000, representing 40.6 percent of all income measured in 2020 dollars. The highest category of non-labor income in the same year was dividends, interest, and rent, with \$453,017,000 in total income.

Federal Land Payments

In fiscal year 2019, a total of \$6,603,802 (2020 dollars) was paid by federal land management agencies to state and local governments. Of those payments, 5,720,740 were Payments In Lieu of Taxes (PILT), and \$192,467, or 3.0 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. 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.

3.3.3.2 Environmental Effects

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 is for calendar year 2019. 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 21. Oil and Gas Employment Effects

Oil and Gas (2019 data)					
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
Emery	0.3	0.0	0.0	0.3	1.33
Uintah	0.2	0.1	0.1	0.3	2.02
Study Area Mean	0.4	0.1	0.1	0.5	1.69
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
Emery	\$16,257	\$1,744	\$1,087	\$19,088	1.17
Uintah	\$21,595	\$4,003	\$3,162	\$28,760	1.33
Study Area Mean	\$18,332	\$4,335	\$2,682	\$25,350	1.38
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
Emery	\$100,000	\$6,468	\$6,153	\$112,621	1.13
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 2019 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 22. Recreation and Tourism Employment Effects

Recreation and Tourism (2019 data)					
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
Emery	0.6	0.1	0.0	0.7	1.15
Uintah	0.7	0.1	0.1	0.9	1.27
Study Area Mean	0.80	0.13	0.1	1.03	1.25
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
Emery	\$12,702	\$2,344	\$904	\$15,950	1.26
Uintah	\$30,802	\$4,545	\$3,536	\$38,883	1.26
Study Area Mean	\$25,962	\$4,308	\$3,557	\$33,826	1.29

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
Emery	\$44,304	\$8,878	\$5,111	\$58,293	1.32
Uintah	\$61,975	\$10,823	\$12,178	\$84,976	1.37
Study Area Mean	\$65,983	\$14,815	\$13,197	\$93,996	1.40

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

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.

3.3.4 Issue 4: What are the potential impacts to Recreational Visitor Experiences to Parcels adjacent to the Green River, Old Spanish National Historic Trail and the recently designated San Rafael Reef Wilderness Area?

3.3.4.1 Affected Environment and Environmental Consequences

Parcels 1129 and 1135 are adjacent to the Green River in an area that is currently heavily leased, but lightly developed.

Parcel 1169 is approximately 3.25 miles from the Bookcliffs segment of the Old Spanish National Trail in an area that is moderately leased. A moderate level of oil and gas development has occurred between the Trail and the parcel in addition to the Interstate Highway and railroad in the vicinity.

The 2019 “John D. Dingell, Jr. Conservation, Management, and Recreation Act” designated the San Rafael Reef Wilderness Area (SRRWA) and the San Rafael Recreation Area in the southwestern section of Emery County in the Price Field Office. Management of the SRRWA and MCWA is now prescribed by BLM Manual 6340 *Management of BLM Wilderness*. The Manual states:

“NEPA analysis for a lease of public lands outside the boundary of a wilderness should address impacts to adjacent wilderness values; mitigation measures should be considered to the extent reasonable and feasible (see also 1.6.D.2.a in this manual)...In general, the BLM does not prohibit uses outside a wilderness on public lands solely to protect the wilderness character of the designated lands. When activities on adjacent public lands are proposed, the potential impacts, if any, of those activities upon the wilderness resource and upon public use of the adjacent wilderness area must be analyzed in the applicable NEPA document.”

The cumulative impact analysis area (CIAA) is the entire and a six mile “buffer” around the WA. Other actions that could affect the CIAA is development of sixteen authorized Federal leases to the east of 1121 parcel as well as two SITLA leases. However, most impacts would be short-term and would not be expected to impair the WAs.

3.3.4.2 Environmental Effects

Impacts of the Proposed Action

Development of Parcels 1125, 1129 1135 and 7072 is projected to be three to four wells. Impacts to the visitor experience from development of the parcels is within the scope of the reasonably foreseeable impacts described in the VFO PRMP/FEIS: “...minerals related exploration, development, access road, and infrastructure construction on BLM administered land within the VPA would create surface disturbances, noise, and light pollution that would adversely and beneficially affect recreation resources in the long-term.” (BLM 2008, 4-315)

Parcel 1169 is outside the two-mile constrained development area along either side of the Old Spanish National Trail alignment. Given that the area surrounding the alignment, although remote, is not pristine, development of the parcel would not be expected to change the quality of the Trail’s setting. 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). No further impacts are anticipated.

Parcel 1121 is just outside the SRRWA, and development activities on the parcel could be seen or heard from inside the SRRWA, and to a lesser extent the San Rafael Recreation Area. These impacts would potentially affect only the very southern portion of the SRRWA.

Impacts of the Recreation Preservation Alternative

Due to its small size (160 acres) and large amount of surrounding leased lands, it is unlikely that parcel 7072 would experience any development unless technological and economic conditions changed to stimulate full field development of the Horseshoe Bend Oil and Gas Field. It is not currently reasonably foreseeable that such development will take place, so no impacts to recreation are anticipated. Should a well be drilled on the lease, the impacts would be qualitatively the same as for the proposed action.

Impacts of the No Action Alternative

Under the No Action Alternative, the parcels would not be sold but surrounding lands with currently active oil and gas leases could be developed and affect the sights and sounds that may occur to recreationalists.

3.3.4.3 Required Design Features

UT-LN-114 Viewshed, Light and Sound (Green River) will be applied to all Vernal parcels (1125, 1129, 1135, and 7072).

As stated in the Interdisciplinary Checklist (Appendix D – Interdisciplinary Parcel Review Team Checklist), Congress specifically legislated that activities that can be seen or heard from outside the wilderness boundary were not to be precluded from approval for that reason alone. However, BLM Manual 6340 states:

“In authorizing new uses, as long as the purpose and need can be met, a reasonable effort must be made to protect the character and values of the nearby wilderness.

“If allowed by law and regulation, the BLM may require actions to mitigate potential impacts on public lands (such as minor changes to location, limited timing restrictions, using certain paint schemes on equipment, or requiring shades on lights) as identified through the NEPA process if they would not impose additional undue financial burden on the operator.”

Lease Notice, UT-LN-125, Light Pollution developed from the Moab Master Leasing Plan is applied to Parcel 1121, and UT-LN-164 Noise Mitigation in Sensitive Areas will be applied to all parcels to inform the lessee/operator that COAs may be applied to exploration/development permits to reduce the impacts to the wilderness areas, and in doing so will also reduce impacts to other nearby sensitive resources.

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 23 and Table 24.

4.3 National Historic Preservation Act (NHPA) of 1966

The BLM is preparing a comprehensive literature review and analysis of cultural resources within and next to the parcels nominated for the 2022 First Quarter lease sale as part of its reasonable and good faith effort to identify historic properties and any potential adverse effects this undertaking may have on historic properties, as required by the National Historic Preservation Act of 1966 54 U.S.C 306108 (commonly and hereto after referred to as Section 106). BLM is conducting this work in accordance with the *State Protocol Agreement Between the Bureau of Land Management and the Utah State Historic Preservation Office* (State Protocol) Appendix E: Supplemental Procedures for Oil and Gas Leasing.

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/Tribal Historic Preservation Officer 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 "literature review," which is a 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 June 2021 lease sale undertakings are consistent with the direction provided in multiple 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 2022 First Quarter parcels, the BLM invited the following Native American tribes to participate in government-to-government consultations via certified letter sent August 31, 2021:

Confederated Tribes of the Goshute Reservation, Eastern Shoshone, Jicarilla Apache Nation, Hopi Tribe, Kaibab Band of Paiute Indians, Moapa Band of Paiute Indians, Navajo Nation, Northwestern Band of Shoshone Nation, Paiute Indian Tribe of Utah, Pueblo of Acoma, Pueblo of Jemez, Pueblo of Laguna, Pueblo of San Felipe, Pueblo of Santa Clara, Pueblo of Tesuque, Pueblo of Zia, Pueblo of Zuni, San Juan Southern Paiute, Shoshone-Bannock Tribes, Southern Ute Indian Tribe, Ute Indian Tribe, Ute Mountain Ute Tribe, and White Mesa.

The BLM UTSO also sent invitations to potential NHPA consulting parties on January 7, 2021. Invitations were sent to Utah Rock Art Research Association, School and Institutional Trust Lands Administration, Public Lands Policy Coordination Office, Utah Professional Archaeological Council, LDS Church History, Emery County, Grand County, and Uintah County.

The Hopi Tribe responded in a letter dated September 8, 2021, and requested consultation on any proposal in Utah with potential to adversely affect prehistoric cultural resources. As a part of this request, they asked for a copy of the literature review for their review and comment to determine if the proposed lease sale may affect cultural resources significant to the Tribe.

PLPCO sent a letter dated September 13, 2021 requesting to participate in the Section 106 process as a consulting party pursuant to 36 CFR 800.2(c)(5). PLPCO provided information about four potential historical road features which they suggest being recorded as archaeological sites and evaluated for the National Register of Historic Places in the future should these parcels be subject to future oil and gas exploration activities.

The Pueblo of Acoma sent a letter to the BLM Utah State Office dated September 23, 2021 expressing appreciation that BLM did not include “any land within southeast Utah both in and around the original boundaries of the Bears Ears National monument, and more specifically, to the east of Bears Ears in an area between Bears Ears, Hovenweep, and the Canyons of the Ancients National Monuments” in its August 31 announcement of oil and gas leases for public scoping.

The Southern Ute Indian Tribe responded in a letter dated September 27, 2021, and requested additional information about the parcels.

The Pueblo of Laguna responded in a letter dated September 27, 2021. They requested a Class III cultural resource survey of the parcels and to review the results before determining if they will consult on the undertaking. BLM responded to this letter by sending them the literature review for their review and comment.

On [ongoing], BLM sought concurrence regarding our determination of affect in the 2022 First Quarter Lease Sale Cultural Resources Report with Utah SHPO. On [ongoing], BLM received [ongoing] from SHPO.

4.4 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:

- 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
- Vernal RMP: 2008 (Cons. # 6-UT-08-F-0025)
- Price RMP: 2008 (Cons. # 6-UT-08-F-0026)

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 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 determinations.

- 2022 1st Quarter Lease Sale
 - Email with preliminary parcel list and supporting determinations for the parcel in the Moab Field Office sent on November 12, 2020.
 - Email with geospatial data on the Moab parcel sent on November 30, 2020.
 - USFWS Agreement with BLM Determinations for the Moab Parcel: December 15, 2020
 - Email with preliminary geospatial data and supporting determination for parcels in the Vernal and Price Field Offices: October 10, 2021.
 - 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 23. List of Contacts and Findings for the June Parcels (1121, 1125, 1129, 1135, and 7072) and for the 2022 1st Quarter Lease Sale

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 January 6, 2021. On August 31, 2021, another memo was sent informing the agency of the scoping period.
United States Fish and Wildlife Service	Coordinated/consulted with for compliance with the Endangered Species Act.	A memorandum transmitting the preliminary list of parcels and the corresponding shapefiles were transmitted on January 4, 2021. Species specific determinations were transmitted on January 21, 2020. On August 31, 2021, another memo was sent informing the agency of the scoping period. Coordination is ongoing.
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 January 6, 2021. On August 31, 2021, another memo was sent informing the agency of the scoping period.
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 January 6, 2021. An e-mail with GIS shapefiles was sent to UDWR on November 3, 2020, to satisfy the requirements of IM-2012-43. Comments or concerns were not expressed. On August 31, 2021, another memo was sent informing the agency of the scoping period.
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 November 5, 2020. Comments or concerns were not expressed. On August 31, 2021, another memo was sent informing the agency of the scoping period.
State Historic Preservation Office and Consulting Parties	Consultation as required by NHPA (54 USC 306108)	On [ongoing], a No Adverse Effect determination was submitted 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	On August 31, 2021 UTSO sent an invitation to consult letter to each tribe listed in the above section.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
	1996) and NHPA (54 USC 306108)	Coordination and consultation will continue up until the lease auction, at the request of any tribe.
City of Moab, and Grand County	Coordinated with as a leasing program partner.	The City of Moab and Grand County each requested to be a cooperating agency on the March Lease Sale EA and each signed MOUs to be a cooperating agency on this lease sale.

Table 24. List of Contacts and Findings for the March Parcel (1169)

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 November 3, 2020. On August 31, 2021, another memo was sent informing the agency of the scoping period.
United States Fish and Wildlife Service	Coordinated/consulted with for compliance with the Endangered Species Act.	A memorandum transmitting the preliminary list of parcels, the corresponding shapefiles, and determinations occurred on November 12, 2020. Coordination is ongoing. On August 31, 2021, another memo was sent informing the agency of the scoping period.
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 November 3, 2020. On August 31, 2021, another memo was sent informing the agency of the scoping period.
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 November 3, 2020. An e-mail with GIS shapefiles was sent to UDWR on November 3, 2020, to satisfy the requirements of IM-2012-43. On August 31, 2021, another memo was sent informing the agency of the scoping period. Comments or concerns were not expressed.
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 in November 2020. Comments or concerns were not expressed.

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
State Historic Preservation Office and Consulting Parties	Consultation as required by NHPA (54 USC 306108)	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 (54 USC 306108)	On August 31, 2021, UTSO sent an invitation to consult letter to each tribe listed in the above section. Consultation for this parcel had been done in conjunction with those parcels originally proposed for lease in June 2021.
City of Moab, and Grand County	Coordinated with as a leasing program partner.	The City of Moab and Grand County each requested to be a cooperating agency on the March Lease Sale EA and each signed MOUs to be a cooperating agency on this lease sale.

4.5 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 23 and Table 24.

Comment Period

Reserved

NHPA Coordination

For the 6 parcels included in the 2022 First Quarter Lease Sale, on October 26, 2021, the BLM mailed letters to interested parties to consult in order to satisfy the public involvement requirements under Section 106 of the NHPA [54 USC 306108 pursuant to 36 CFR 800.2(d)(3)]. The BLM additionally solicited on ePlanning for any members of the public or individuals or organizations with demonstrated interest in the undertaking to request consulting party status for the undertaking. The BLM has received one 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 2022 First Quarter Cultural Resources Report to Tribes who have requested government-to-government consultation. Coordination and consultation will continue up until the lease auction, at the request of any tribe.

4.5.1 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.

4.6 Preparers

An IDPRT prepared the document and analyzed the impact of the Proposed Action upon the various resources (Table 25). 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 25. Preparers of This EA.

Name	Title	Responsible for the Following Section(s) of this Document
Tylia Varilek	Archaeologist	Oil and Gas Leasing Program, NHPA Compliance

Name	Title	Responsible for the Following Section(s) of this Document
Dave Cook	Wildlife Biologist	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.
James Miller	Air Quality Specialist	Oil and Gas Leasing Program, Air Quality; Greenhouse Gases.
Julie Suhr Pierce Bill Stevens	Great Basin Socioeconomic Specialists	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.

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Chapter 6 Appendices

Appendix A – Parcel List with Stipulations and Notices

Appendix B – Stipulations and Notices

Appendix C – Figures/Maps

Appendix D – Interdisciplinary Parcel Review Team Checklist

Appendix E - Air Quality and Green House Gas Information and General Conformity Applicability

Appendix F – Acronyms/Abbreviations

Appendix G – Reasonably Foreseeable Development of Leases Scenario

Appendix H – Comments and Responses [Reserved]

Appendix I – Comments and Responses on the March Lease Sale. Only Parcel 1169 is Moving Forward

Appendix A – BLM 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** BLM parcels:

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

1121 Price

UT-2021-06-1121 UT, Price Field Office, Bureau of Land Management, PD <u>T. 25 S., R. 12 E., SALT LAKE MER</u> Sec. 3, Lots 1, 2, 6 thru 8, S1/2NE1/4, S1/2NW1/4, S1/2; Sec. 10, All; Sec. 15, All. 1,904.00 Acres Emery County EOI# UT00016881	
Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-PFO-127: NSO – Intermittent and Perennial Streams	UT-LN-45: Migratory Bird
UT-S-PFO-269: NSO – Mexican Spotted Owl Nests	UT-LN-49: Utah Sensitive Species
	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-102: Air Quality Analysis
	UT-LN-125: Light Pollution (Night Skies)
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	UT-LN-164: Noise Mitigation Proximate to Sensitive Areas
	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
	T&E-06: Mexican Spotted Owl
	T&E-11: California Condor
	T&E-13: Barneby Reed-Mustard (<i>Schoenocrambe barnebyi</i>)
	T&E-15: Wright Fishhook cactus (<i>Sclerocactus wrightiae</i>)
	T&E-17: San Rafael Cactus (<i>Pediocactus despainii</i>)
	T&E-19: Jones Cycladenia

1135 Vernal

UT-2021-06-1135 UT, Vernal Field Office, Bureau of Land Management, PD T. 6 S., R. 21 E., SALT LAKE MER Sec. 13, Lots 13, 14, S1/2SE1/4. 123.78 Acres Uintah County EOI# UT00016830	
Stipulations	Notices
UT-S-01: Air Quality	UT-LN-11: Crucial Elk Calving and Deer Fawning Habitat
UT-S-VFO-96: NSO–Fragile Soils/Slopes Greater than 40%	UT-LN-13: Pronghorn Winter Habitat
UT-S-VFO-99: CSU-Fragile Soils/Slopes	UT-LN-44: Raptors
UT-S-VFO-100: CSU-Fragile Soils/Slopes (21%-40%)	UT-LN-45: Migratory Bird
UT-S-VFO-123: NSO – Riparian, Floodplains, and Public Water Reserves	UT-LN-49: Utah Sensitive Species
UT-S-VFO-157: NSO/CSU/TL-Visual Resources	UT-LN-51: Special Status Plants: Not Federally Listed
UT-S-VFO-230: TL-Crucial Deer and Elk Winter Range	UT-LN-52: Noxious Weeds
UT-S-VFO-231: CSU – Crucial Deer Winter Range	UT-LN-53: Riparian Areas
UT-S-VFO-261: TL–Raptor Buffers	UT-LN-89: Horseshoe milkvetch (<i>Astragalus equisolensis</i>)
UT-S-VFO-278: CSU – Bald Eagle Winter Roost	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-114: Viewshed, Light and Sound (Green River)
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
	T&E-31: Western Yellow-Billed Cuckoo

7072 Vernal

UT-2021-06-7072 UT, Vernal Field Office, Bureau of Land Management, PD <u>T. 7 S., R. 21 E., SALT LAKE MER</u> Sec. 1, Lots 1, 2, S1/2NE1/4. 160.00 Acres Uintah County EOI# UT00016830	
Stipulations	Notices
UT-S-01: Air Quality	UT-LN-11: Crucial Elk Calving and Deer Fawning Habitat
UT-S-VFO-96: NSO–Fragile Soils/Slopes Greater than 40%	UT-LN-13: Pronghorn Winter Habitat
UT-S-VFO-99: CSU-Fragile Soils/Slopes	UT-LN-44: Raptors
UT-S-VFO-100: CSU-Fragile Soils/Slopes (21%-40%)	UT-LN-45: Migratory Bird
UT-S-VFO-123: NSO – Riparian, Floodplains, and Public Water Reserves	UT-LN-49: Utah Sensitive Species
UT-S-VFO-157: NSO/CSU/TL-Visual Resources	UT-LN-51: Special Status Plants: Not Federally Listed
UT-S-VFO-230: TL-Crucial Deer and Elk Winter Range	UT-LN-52: Noxious Weeds
UT-S-VFO-231: CSU – Crucial Deer Winter Range	UT-LN-87: Existing Unplugged Well
UT-S-VFO-261: TL–Raptor Buffers	UT-LN-89: Horseshoe milkvetch (<i>Astragalus equisolensis</i>)
UT-S-VFO-278: CSU – Bald Eagle Winter Roost	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-114: Viewshed, Light and Sound (Green River)
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
	T&E-31: Western Yellow-Billed Cuckoo

1129 Vernal**UT-2021-06-1129**

UT, Vernal Field Office, Bureau of Land Management, PD

T. 6 S., R. 22 E., SALT LAKE MER

Sec. 8, Lots 10;

Sec. 17, SE1/4;

Sec. 18, Lots 5 thru 9, NE1/4, E1/2SW1/4, SE1/4;

Sec. 19, All;

Sec. 30, Lots 5 thru 7, NE1/4, E1/2NW1/4, NE1/4SW1/4.

1,738.34 Acres

Uintah County

EOI# UT00016830

Stipulations	Notices
UT-S-01: Air Quality	UT-LN-11: Crucial Elk Calving and Deer Fawning Habitat
UT-S-VFO-96: NSO–Fragile Soils/Slopes Greater than 40%	UT-LN-13: Pronghorn Winter Habitat
UT-S-VFO-99: CSU-Fragile Soils/Slopes	UT-LN-44: Raptors
UT-S-VFO-100: CSU-Fragile Soils/Slopes (21%-40%)	UT-LN-45: Migratory Bird
UT-S-VFO-123: NSO – Riparian, Floodplains, and Public Water Reserves	UT-LN-49: Utah Sensitive Species
UT-S-VFO-157: NSO/CSU/TL-Visual Resources	UT-LN-51: Special Status Plants: Not Federally Listed
UT-S-VFO-230: TL-Crucial Deer and Elk Winter Range	UT-LN-52: Noxious Weeds
UT-S-VFO-231: CSU – Crucial Deer Winter Range	UT-LN-53: Riparian Areas
UT-S-VFO-261: TL–Raptor Buffers	UT-LN-83: Site Right of Way
UT-S-VFO-278: CSU – Bald Eagle Winter Roost	UT-LN-89: Horseshoe milkvetch (<i>Astragalus equisolensis</i>)
	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-114: Viewshed, Light and Sound (Green River)
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
	T&E-31: Western Yellow-Billed Cuckoo

1125 Vernal

UT-2021-06-1125 UT, Vernal Field Office, Bureau of Land Management, PD T. 6 S., R. 22 E., SALT LAKE MER	
Sec. 20, All; Sec. 21, All; Sec. 22, All; Sec. 27, All. 2,560.00 Acres Uintah County EOI# UT00016830	
Stipulations	Notices
UT-S-01: Air Quality	UT-LN-13: Pronghorn Winter Habitat
UT-S-VFO-96: NSO–Fragile Soils/Slopes Greater than 40%	UT-LN-44: Raptors
UT-S-VFO-99: CSU-Fragile Soils/Slopes	UT-LN-45: Migratory Bird
UT-S-VFO-100: CSU-Fragile Soils/Slopes (21%-40%)	UT-LN-49: Utah Sensitive Species
UT-S-VFO-123: NSO – Riparian, Floodplains, and Public Water Reserves	UT-LN-51: Special Status Plants: Not Federally Listed
UT-S-VFO-157: NSO/CSU/TL-Visual Resources	UT-LN-52: Noxious Weeds
UT-S-VFO-230: TL-Crucial Deer and Elk Winter Range	UT-LN-89: Horseshoe milkvetch (<i>Astragalus equisolensis</i>)
UT-S-VFO-231: CSU – Crucial Deer Winter Range	UT-LN-96: Air Quality Mitigation Measures
UT-S-VFO-261: TL–Raptor Buffers	UT-LN-99: Regional Ozone Formation Controls
UT-S-VFO-278: CSU – Bald Eagle Winter Roost	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
	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
	T&E-31: Western Yellow-Billed Cuckoo

1169 Moab

UT-2021-03-1169 UT, Bureau of Land Management, PD T. 21 S., R. 23 E., Salt Lake Meridian Sec. 6 LOTS 1, 2; Sec. 6 E2SW. Grand County 158.66 Acres EOI# UT00016679	
Stipulations	Notices
UT-S-01: Air Quality	UT-LN-44: Raptors
UT-S-MbFO-122: NSO — Floodplains, Riparian Areas, Springs, and Public Water Resources	UT-LN-45: Migratory Bird
UT-S-MbFO-218A: CSU – White-Tailed Prairie Dog	UT-LN-49: Utah Sensitive Species
UT-S-MbFO-224: TL – Pronghorn Fawning Grounds	UT-LN-51: Special Status Plants: Not Federally Listed
UT-S-MbFO-272: CSU/TL – Burrowing Owl and Ferruginous Hawk Nesting	UT-LN-52: Noxious Weeds
UT-S-MbFO-298: CSU – Kit Fox	UT-LN-96: Air Quality Mitigation Measures
	UT-LN-99: Regional Ozone Formation Controls
	UT-LN-102: Air Quality Analysis
	UT-LN-107: Bald Eagle
	UT-LN-128: Floodplain Management
	UT-LN-156: Pollinators and Pollinator Habitat
	T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
	T&E-23: Colorado River Endangered Fish
	T&E-28: California Condor – Potential Habitat
	T&E-32: Cisco Milkvetch

Appendix B – Stipulations and Notices

Stipulation Summary Table

	STANDARD STIPULATIONS (FROM H-3120 – COMPETITIVE LEASING HANDBOOK) *
HQ-CR-1	<p align="center">CULTURAL RESOURCE PROTECTION</p> <p>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.</p>
HQ-TES-1	<p align="center">THREATENED AND ENDANGERED SPECIES ACT</p> <p>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.</p>
HQ-MLA-1	<p align="center">NOTICE TO LESSEE – MINERAL LEASING ACT SECTION 2(A)(2)(A)</p> <p>Provisions of the Mineral Leasing Act (MLA) of 1920, as amended by the Federal Coal Leasing Amendments Act of 1976, affect an entity's qualifications to obtain an oil and gas lease. Section 2(a)(2)(A) of the MLA, 30 U.S.C. 201(a)(2)(A), requires that any entity that holds and has held a Federal Coal Lease for 10 years beginning on or after August 4, 1976, and which is not producing coal in commercial quantities from each such lease, cannot qualify for the issuance of any other lease granted under the MLA. Compliance by coal lessees with Section 2(a)(2)(A) is explained in 43 CFR 3472.</p> <p>In accordance with the terms of this oil and gas lease with respect to compliance by the initial lessee with qualifications concerning Federal coal lease holdings, all assignees and transferees are hereby notified that this oil and gas lease is subject to cancellation if: (1) the initial lessee as assignor or as transferor has falsely certified</p>

	STANDARD STIPULATIONS (FROM H-3120 – COMPETITIVE LEASING HANDBOOK) *
	<p>compliance with Section 2(a)(2)(A) because of a denial or disapproval by a State Office of a pending coal action, i.e., arms-length assignment, relinquishment, or logical mining unit, the initial lessee as assignor or as transferor is no longer in compliance with Section 2(a)(2)(A). The assignee or transferee does not qualify as a bona fide purchaser and, thus, has no rights to bona fide purchaser protection in the event of cancellation of this lease due to noncompliance with Section 2(a)(2)(A).</p> <p>Information regarding assignor or transferor compliance with Section 2(a)(2)(A) is contained in the lease case file as well as in other Bureau of Land Management records available through the State Office issuing this lease.</p>

*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> <p>Waiver: None</p>
UT-S-VFO-96	<p style="text-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</p>

NUMBER	UTAH STIPULATIONS
	<p>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-VFO-99	<p style="text-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> <p>Modification: None</p> <p>Waiver: None</p>
UT-S-VFO-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</p> <p>Modification: None</p> <p>Waiver: None</p>

NUMBER	UTAH STIPULATIONS
UT-S-MbFO-122	<p 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> <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-VFO-123	<p align="center">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-PFO-127	<p align="center">NO SURFACE OCCUPANCY – INTERMITTENT AND PERENNIAL STREAMS</p> <p>No new surface disturbance (excluding fence lines) will be allowed in areas within the 100-year floodplain or 100 meters (330 feet) on either side from the centerline, whichever is greater, along all perennial and intermittent streams, streams with perennial reaches, and riparian areas.</p> <p>Exception: The authorized officer could authorize an exception if it could be shown that the project as mitigated eliminated the need for the restriction.</p> <p>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-VFO-157	<p align="center">NO SURFACE OCCUPANCY/CONTROLLED SURFACE USE/TIMING LIMITATION – VISUAL RESOURCES</p>

NUMBER	UTAH STIPULATIONS
	<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> <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>
UT-S-MbFO-218A	<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> <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>

NUMBER	UTAH STIPULATIONS
	Waiver: May be granted if in the leasehold if it is determined that habitat no longer exists or has been destroyed.
UT-S-MbFO-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-VFO-230	<p style="text-align: center;">TIMING LIMITATION – CRUCIAL DEER AND ELK WINTER RANGE</p> <p>No surface disturbing activities in deer and elk crucial winter range from December 1 - April 30.</p> <p>Exception: This restriction would not apply if and/or elk are not present, or if it is determined through analysis and coordination with UDWR that impacts could be mitigated. Factors to be considered would include snow depth, temperature, snow crusting, location of disturbance, forage quantity and quality, animal condition, and expected duration of disturbance.</p> <p>Modification: The stipulation could be modified based on findings of collaborative monitoring and analysis. For example, the winter range configuration and time frames could be changed if current animal use patterns are determined to be inconsistent with the dates and boundaries established.</p> <p>Waiver: This stipulation could be waived if it is determined through collaborative monitoring and analysis that the area is not crucial winter range or that timing restrictions are unnecessary.</p>
UT-S-VFO-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 un-reclaimed at any given time.</p>

NUMBER	UTAH STIPULATIONS
	<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-VFO-261	<p style="text-align: center;">TIMING LIMITATION – RAPTOR BUFFERS</p> <p>Raptor management will be guided by the use of "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A), utilizing seasonal and spatial buffers, as well as mitigation, to maintain and enhance raptor nesting and foraging habitat, while allowing other resource uses.</p> <p>Exception: None</p> <p>Modification: Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the “<i>Raptor BMPs</i>”, would include the following:</p> <ol style="list-style-type: none"> 1. Completion of a site-specific assessment by a wildlife biologist or other qualified individual. See example (Attachment 1 of the Raptor BMPs in Appendix A) 2. Written documentation by the BLM Field Office Wildlife Biologist, identifying the proposed modification and affirming that implementation of the proposed modification(s) would not affect nest success or the suitability of the site for future nesting. Modification of the “BMPs” would not be recommended if it is determined that adverse impacts to nesting raptors would occur or that the suitability of the site for future nesting would be compromised. 3. Development of a monitoring and mitigation strategy by a BLM biologist, or other raptor biologist. Impacts of authorized activities would be documented to determine if the modifications were implemented as described in the environmental documentation or Conditions of Approval and were adequate to protect the nest site. Should adverse impacts be identified during monitoring of an activity, BLM would follow an appropriate course of action, which may include cessation or modification of activities that would avoid, minimize or mitigate the impact, or, with the approval of UDWR and the USFWS, BLM could allow the activity to continue while requiring monitoring to determine the full impact of the activity on the affected raptor nest. A monitoring report would be completed and forwarded to UDWR for incorporation into the Natural Heritage Program (NHP) raptor database. <p>Waiver: None</p>
UT-S-PFO-269	NO SURFACE OCCUPANCY – MEXICAN SPOTTED OWL NESTS

NUMBER	UTAH STIPULATIONS
	<p>No surface occupancy within 1/2 mile of known Mexican Spotted Owl (MSO) nests.</p> <p>Exception: The authorized officers may grant an exception if an environmental analysis demonstrates that the action would not impair the function or utility of the site for nesting or other owl-sustaining activities.</p> <p>Modification: The authorized officers may modify the NSO area in extent if an environmental analysis finds that a portion of the area is nonessential to site utility or function or if natural features provide adequate visual or auditory screening.</p> <p>Waiver: A waiver may be granted if the MSO is de-listed and the area is determined as not necessary for the survival and recovery of the MSO.</p>
UT-S-MbFO-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> <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-VFO-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-MbFO-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>

NUMBER	UTAH STIPULATIONS
	<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>

Threatened and Endangered Species Notices

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
T&E-03	<p data-bbox="604 321 1745 354">ENDANGERED FISH OF THE UPPER COLORADO RIVER DRAINAGE BASIN</p> <p data-bbox="441 367 1908 516">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).</p> <p data-bbox="441 524 1908 792">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 data-bbox="464 808 1908 1422" 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

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>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.</p> <p>Water depletions from <i>any</i> portion of the Upper Colorado River drainage basin above Lake Powell are considered to adversely affect or adversely modify the critical habitat of the four resident endangered fish species and must be evaluated with regard to the criteria described in the Upper Colorado River Endangered Fish Recovery Program. Formal consultation with USFWS is required for all depletions. All depletion amounts must be reported to BLM. 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-06	<p style="text-align: center;">MEXICAN SPOTTED OWL</p> <p>The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for Mexican spotted owl, a federally listed species. The Lessee/Operator is given notice that the lands in this lease contain Designated Critical Habitat for the Mexican spotted owl, a federally listed species. Critical habitat was designated for the Mexican spotted owl on August 31, 2004 (69 FR 53181-53298). Avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside the owl nesting season.</p> <p>A <u>temporary</u> action is completed prior to the following breeding season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> action continues for more than one breeding season and/or causes a loss of owl habitat or displaces owls through disturbances, i.e., creation of a permanent structure.</p> <p>The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures, will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 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).

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<ol style="list-style-type: none"> 2. Assess habitat suitability for both nesting and foraging using accepted habitat models in conjunction with field reviews. Apply the conservation measures below if project activities occur within 0.5 mile of suitable owl habitat. Determine potential effects of actions to owls and their habitat. <ol style="list-style-type: none"> a. Document type of activity, acreage and location of direct habitat impacts, type and extent of indirect impacts relative to location of suitable owl habitat. b. Document if action is temporary or permanent. 3. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 4. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in canyon habitat suitable for Mexican spotted owl nesting. 6. For all temporary actions that may impact owls or suitable habitat: <ol style="list-style-type: none"> a. If the action occurs entirely outside of the owl breeding season (March 1 – August 31), and leaves no permanent structure or permanent habitat disturbance, action can proceed without an occupancy survey. b. If action will occur during a breeding season, survey for owls prior to commencing activity. If owls are found, activity must be delayed until outside of the breeding season. c. Rehabilitate access routes created by the project through such means as raking out scars, re-vegetation, gating access points, etc. 7. For all permanent actions that may impact owls or suitable habitat: <ol style="list-style-type: none"> a. Survey two consecutive years for owls according to accepted protocol prior to commencing activities. b. If owls are found, no actions will occur within 0.5 mile of identified nest site. If nest site is unknown, no activity will occur within the designated Protected Activity Center (PAC). c. Avoid drilling and permanent structures within 0.5 mi of suitable habitat unless surveyed and not occupied. d. Reduce noise emissions (e.g., use hospital-grade mufflers) to 45 dBA at 0.5 mile from suitable habitat, including canyon rims. Placement of permanent noise-generating facilities should be determined by a noise analysis to ensure noise does not encroach upon a 0.5-mile buffer for suitable habitat, including canyon rims. e. Limit disturbances to and within suitable habitat by staying on approved routes. f. Limit new access routes created by the project.

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the Endangered Species Act.
T&e-11	<p style="text-align: center;">CALIFORNIA CONDOR</p> <p>The Lessee/Operator is given notice that the lands located in this parcel contain potential habitat for the California Condor, a federally listed species. Avoidance or use restrictions may be placed on portions of the lease if the area is known or suspected to be used by condors. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside potential habitat. A <u>temporary</u> action is completed prior to the following important season of use, leaving no permanent structures and resulting in no permanent habitat loss. This would include consideration for habitat functionality. A <u>permanent</u> 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> <p>The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 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) approved by the BLM and must be conducted according to approved protocol. 2. If surveys result in positive identification of condor use, all lease activities will require monitoring throughout the duration of the project to ensure desired results of applied mitigation and protection. Minimization measures will be evaluated during development and, if necessary, Section 7 consultation may be reinitiated. 3. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season. 4. Temporary activities within 0.5 miles of established roosting sites or areas will not occur during the season of use, August 1 to November 31, unless the area has been surveyed according to protocol and determined to be unoccupied.

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<ol style="list-style-type: none"> 5. No permanent infrastructure will be placed within 1.0 mile of nest sites. 6. No permanent infrastructure will be placed within 0.5 miles of established roosting sites or areas. 7. Remove big game carrion 100 feet from lease roadways occurring within foraging range. 8. 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. 9. Re-initiation of section 7 consultation with the Service will 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 employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA. <p>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 will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the Endangered Species Act.</p>
T&E-13	<p style="text-align: center;">BARNEBY REED MUSTARD (<i>Schoenocrambe Barnebyi</i>)</p> <p>In order to minimize effects to the federally threatened Barneby Reed Mustard, the Bureau of Land Management (BLM), in coordination with the U.S. Fish and Wildlife Service (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 operations) are in compliance with the endangered Species Act (ESA). 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 Barneby Reed Mustard; habitat descriptions can be found in Federal Register Notice and species recovery plan links at <http://www.fws.gov/endangered/wildlife.html>.</p> <p><i>Occupied habitat</i> is defined as areas currently or historically known to support Barneby Reed Mustard; synonymous with “known habitat.” The following avoidance and minimization measures should be included in the Plan of Development:</p>

NUMBER	UTAH THREATENED AND 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 habitat¹ prior to any ground disturbing activities (including ATV use) to determine if suitable Barneby Reed Mustard habitat is present. 2. Site inventories will be conducted within suitable habitat to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc. suitable habitat will be assessed and mapped for avoidance (hereafter, “avoidance areas”); in such cases, in general, 300’ buffers will be maintained between surface disturbance and avoidance areas. However, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat. Where conditions allow, inventories: <ol style="list-style-type: none"> a. Must be conducted by qualified individuals(s) and according to BLM and Service accept survey protocols, b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (usually April 15th to June 5th, however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower), c. Will occur within 300’ from the centerline of the proposed right-of-way for surface pipelines or roads; and within 300’ from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until April 15th the following year. 3. Design project infrastructure to minimize impacts within suitable habitat: <ol style="list-style-type: none"> a. Where standard surveys are technically infeasible, infrastructure and activities will avoid all suitable habitat (voidance areas) and incorporate 300’ buffers, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, b. Reduce well pad size to the minimum needed, without compromising safety, c. 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 rights-of-way where possible, f. Reduce the width of rights-of-way 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, and

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<ul style="list-style-type: none"> h. Stay on designated routes and other cleared/approved areas, i. All disturbed areas will be revegetated with native species comprised of species indigenous to the area and non-native species that are not likely to invade other areas. <p>4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:</p> <ul style="list-style-type: none"> a. Follow the above recommendations (3.) 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' from any plant and 300' from avoidance areas, d. Roads will be graveled with occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from April 15th to June 5th (flowering period); dust abatement applications will be comprised of water only, e. The edge of the well pad should be located at least 300' away from plants and avoidance areas, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, f. Surface pipelines will be laid such that a 300' buffer exists between the edge of the right of way and plants and 300' between the edge of right of way and avoidance areas; use stabilizing and anchoring techniques when the pipeline crossed suitable habitat to ensure pipelines don't move towards the population; site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, g. Construction activities will not occur from April 15th through June 5th 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. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and j. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. <p>5. Occupied Barneby Reed Mustard habitats within 300' of the edge of the surface pipelines' rights-of-way, 300' of the edge of the roads' rights-of-way, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to</p>

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>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. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the Barneby Reed Mustard is anticipated as a result of project activities.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p>
T&E-15	<p style="text-align: center;">WRIGHT FISHHOOK CACTUS (<i>SCLEROCACTUS WRIGHTIAE</i>)</p> <p>In order to minimize effects to the federally threatened Wright Fishhook Cactus, the Bureau of Land Management (BLM), in coordination with the U.S. Fish and Wildlife Service (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 operations) are in compliance with the endangered Species Act (ESA). 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 Wright Fishhook Cactus; habitat descriptions can be found in Federal Register Notice and species recovery plan links at <http://www.fws.gov/endangered/wildlife.html>. <i>Occupied habitat</i> is defined as areas currently or historically known to support Wright Fishhook Cactus; synonymous with “known habitat.” The following avoidance and minimization measures should be included in the Plan of Development:</p> <ol style="list-style-type: none"> 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat¹ prior to any ground disturbing activities (including ATV use) to determine if suitable Wright Fishhook Cactus habitat is present. 2. Site inventories will be conducted within suitable habitat to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc. suitable habitat will be assessed and mapped for avoidance (hereafter, “avoidance areas”); in such cases, in general, 300’ buffers will be maintained between surface disturbance and avoidance areas. However, site-specific distances will

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>need to be approved by FWS and BLM when disturbance will occur upslope of habitat. Where conditions allow, inventories:</p> <ol style="list-style-type: none"> a. Must be conducted by qualified individuals(s) and according to BLM and Service accept survey protocols, b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (usually April 15th to June 5th, however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower), c. Will occur within 300' from the centerline of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until April 15th the following year. <p>3. Design project infrastructure to minimize impacts within suitable habitat:</p> <ol style="list-style-type: none"> a. Where standard surveys are technically infeasible, infrastructure and activities will avoid all suitable habitat (voidance areas) and incorporate 300' buffers, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, b. Reduce well pad size to the minimum needed, without compromising safety, c. 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 rights-of-way where possible, f. Reduce the width of rights-of-way 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, and h. Stay on designated routes and other cleared/approved areas, i. All disturbed areas will be revegetated with native species comprised of species indigenous to the area and non-native species that are not likely to invade other areas. <p>4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:</p> <ol style="list-style-type: none"> a. Follow the above recommendations (3.) for project design within suitable habitats,

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<ul style="list-style-type: none"> 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' from any plant and 300' from avoidance areas, d. Roads will be graveled with occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from April 15th to June 5th (flowering period); dust abatement applications will be comprised of water only, e. The edge of the well pad should be located at least 300' away from plants and avoidance areas, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, f. Surface pipelines will be laid such that a 300' buffer exists between the edge of the right of way and plants and 300' between the edge of right of way and avoidance areas; use stabilizing and anchoring techniques when the pipeline crossed suitable habitat to ensure pipelines don't move towards the population; site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, g. Construction activities will not occur from April 15th through June 5th 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. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and j. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. <p>5. Occupied Wright Fishhook Cactus habitats within 300' of the edge of the surface pipelines' rights-of-way, 300' of the edge of the roads' rights-of-way, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>6. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the Wright Fishhook Cactus is anticipated as a result of project activities.</p>

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p>
T&E-17	<p style="text-align: center;">SAN RAFAEL CACTUS (<i>PEDIOCACTUS DESPAINII</i>)</p> <p>In order to minimize effects to the federally threatened San Rafael Cactus, the Bureau of Land Management (BLM), in coordination with the U.S. Fish and Wildlife Service (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 operations) are in compliance with the endangered Species Act (ESA). 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 San Rafael Cactus; habitat descriptions can be found in Federal Register Notice and species recovery plan links at <http://www.fws.gov/endangered/wildlife.html>. <i>Occupied habitat</i> is defined as areas currently or historically known to support San Rafael Cactus; 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 habitat¹ prior to any ground disturbing activities (including ATV use) to determine if suitable San Rafael Cactus habitat is present. 2. Site inventories will be conducted within suitable habitat to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc. suitable habitat will be assessed and mapped for avoidance (hereafter, “avoidance areas”); in such cases, in general, 300’ buffers will be maintained between surface disturbance and avoidance areas. However, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat. Where conditions allow, inventories: <ol style="list-style-type: none"> a. Must be conducted by qualified individuals(s) and according to BLM and Service accept 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

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>detected (usually April 15th to June 5th, however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower),</p> <ul style="list-style-type: none"> c. Will occur within 300' from the centerline of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until April 15th the following year. <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' buffers, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, b. Reduce well pad size to the minimum needed, without compromising safety, c. 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 rights-of-way where possible, f. Reduce the width of rights-of-way 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, and h. Stay on designated routes and other cleared/approved areas, i. 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. <p>4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:</p> <ul style="list-style-type: none"> a. Follow the above recommendations (3.) 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' from any plant and 300' from avoidance areas,

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>d. Roads will be graveled with occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from April 15th to June 5th (flowering period); dust abatement applications will be comprised of water only,</p> <p>e. The edge of the well pad should be located at least 300' away from plants and avoidance areas, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,</p> <p>f. Surface pipelines will be laid such that a 300' buffer exists between the edge of the right of way and plants and 300' between the edge of right of way and avoidance areas; use stabilizing and anchoring techniques when the pipeline crossed suitable habitat to ensure pipelines don't move towards the population; site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,</p> <p>g. Construction activities will not occur from April 15th through June 5th within occupied habitat,</p> <p>h. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging temporary fencing, rebar, etc.,</p> <p>i. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and</p> <p>j. 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 San Rafael Cactus habitats within 300' of the edge of the surface pipelines' rights-of-way, 300' of the edge of the roads' rights-of-way, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>6. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the San Rafael Cactus is anticipated as a result of project activities.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p>
T&E-19	JONES CYCLADENIA (<i>CYCLADENIA HYMILIS</i> VAR <i>JONESII</i>)

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>In order to minimize effects to the federally threatened Jones Cycladenia, the Bureau of Land Management (BLM), in coordination with the U.S. Fish and Wildlife Service (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 operations) are in compliance with the endangered Species Act (ESA). 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 Jones Cycladenia; habitat descriptions can be found in Federal Register Notice and species recovery plan links at <http://www.fws.gov/endangered/wildlife.html>. <i>Occupied habitat</i> is defined as areas currently or historically known to support Jones Cycladenia; 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 habitat¹ prior to any ground disturbing activities (including ATV use) to determine if suitable Jones Cycladenia habitat is present. 2. Site inventories will be conducted within suitable habitat to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc. suitable habitat will be assessed and mapped for avoidance (hereafter, “avoidance areas”); in such cases, in general, 300’ buffers will be maintained between surface disturbance and avoidance areas. However, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat. Where conditions allow, inventories: <ol style="list-style-type: none"> a. Must be conducted by qualified individuals(s) and according to BLM and Service accept survey protocols, b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (usually April 15th to June 5th, however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower), c. Will occur within 300’ from the centerline of the proposed right-of-way for surface pipelines or roads; and within 300’ from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>e. Will be valid until April 15th the following year.</p> <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 (voidance areas) and incorporate 300' buffers, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, b. Reduce well pad size to the minimum needed, without compromising safety, c. 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 rights-of-way where possible, f. Reduce the width of rights-of-way 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, and h. Stay on designated routes and other cleared/approved areas, i. 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. <p>4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:</p> <ul style="list-style-type: none"> a. Follow the above recommendations (3.) 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' from any plant and 300' from avoidance areas, d. Roads will be graveled with occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from April 15th to June 5th (flowering period); dust abatement applications will be comprised of water only, e. The edge of the well pad should be located at least 300' away from plants and avoidance areas, in general; however, site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,

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	<p>f. Surface pipelines will be laid such that a 300' buffer exists between the edge of the right of way and plants and 300' between the edge of right of way and avoidance areas; use stabilizing and anchoring techniques when the pipeline crossed suitable habitat to ensure pipelines don't move towards the population; site-specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat,</p> <p>g. Construction activities will not occur from April 15th through June 5th within occupied habitat,</p> <p>h. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging temporary fencing, rebar, etc.,</p> <p>i. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and</p> <p>j. 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 Jones Cycladenia habitats within 300' of the edge of the surface pipelines' rights-of-way, 300' of the edge of the roads' rights-of-way, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>6. Re-initiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the Jones Cycladenia is anticipated as a result of project activities.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.</p>
T&E-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>

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<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. • 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 affected 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>

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<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). 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. 3. Screen all pump intakes with 3/32” mesh material. 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). 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>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-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> <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.

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<ol style="list-style-type: none"> 2. Surveys would be required prior to operations in suitable habitat, unless species occupancy and distribution information are 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

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>measures may also be 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 the cuckoo is detected, activity should be delayed until

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>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.</p> <p>c. Eliminate access routes 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. 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.</p> <p>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.</p> <p>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).</p> <p>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> <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	CISCO MILKVETCH

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<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 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

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>population is in flower);</p> <ul style="list-style-type: none"> 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); • 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 rights-of-way 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

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>the action agency.</p> <ol style="list-style-type: none"> 4. Where there is occupied habitat, project infrastructure will be designed to avoid direct disturbance and indirect impacts to populations and to individual plants: <ol 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 techniques when the pipeline crosses suitable habitat to ensure pipelines don't move towards the population; 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. 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

NUMBER	UTAH THREATENED AND ENDANGERED SPECIES NOTICES
	<p>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>

Lease Notices

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-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>

NUMBER	UTAH LEASE NOTICES
UT-LN-45	<p style="text-align: center;">MIGRATORY BIRD</p> <p>The lessee/operator is given notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within priority habitats. Surveys should focus on identified priority bird species in Utah. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations.</p>
UT-LN-49	<p style="text-align: center;">UTAH SENSITIVE SPECIES</p> <p>The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, Migratory Bird Treaty Act and 43 CFR 3101.1-2.</p>
UT-LN-51	<p style="text-align: center;">SPECIAL STATUS PLANTS: NOT FEDERALLY LISTED</p> <p>The lessee/operator is given notice that lands in this lease have been identified as containing special status plants, not federally listed, and their habitats. Modifications to the Surface Use Plan of Operations may be required in order to protect the special status plants and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.</p>
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	<p style="text-align: center;">RIPARIAN AREAS</p> <p>The lessee/operator is given notice that this lease has been identified as containing riparian areas. No surface use or otherwise disruptive activity allowed within 100 meters of riparian areas unless it can be shown that (1) there is no practicable alternative; (2) that all long-term impacts are fully mitigated; or (3) that the construction is an</p>

NUMBER	UTAH LEASE NOTICES
	enhancement to the riparian areas. Modifications to the Surface Use Plan of Operations may be required in accordance with section 6 of the lease terms and 43CFR3101.1-2.
UT-LN-83	<p style="text-align: center;">SITE RIGHT OF WAY</p> <p>The lessee/operator is given notice that lands in this lease have an existing site ROW present. Modifications to the Surface Use Plan of Operations may be required or other appropriate mitigation as deemed necessary by the BLM Authorized Officer in order to protect the valid existing rights.</p>
UT-LN-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 SENE, Sec. 1, T. 7 S., R. 21 E. (API# 4304720243). An oil and gas bond adequate to cover plugging costs will be required prior to lease issuance. The 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-89	<p style="text-align: center;">HORSESHOE MILKVETCH (<i>ASTRAGALUS EQUISOLENSIS</i>)</p> <p>In order to minimize effects to the federal candidate horseshoe milkvetch, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service) developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) will not result in a trend toward federal listing of the species. For the purposes of this document, the following terms are so defined: Potential habitat is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment. Suitable habitat is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain horseshoe milkvetch; characteristics include sagebrush, shadscale, horse brush, and other mixed desert shrub communities in Duchesne River Formation soils at 4,790 to 5,185 feet. Occupied habitat is defined as areas currently or historically known to support horseshoe milkvetch; synonymous with “known habitat.” The following avoidance and minimization measures should be included in the Plan of Development:</p> <ol style="list-style-type: none"> 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable horseshoe milkvetch habitat is present.

NUMBER	UTAH LEASE NOTICES
	<ol style="list-style-type: none"> 2. Within suitable habitat, site inventories will be conducted to determine occupancy. Inventories: <ol style="list-style-type: none"> a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols, b. Will be conducted in suitable and occupied habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (usually May 1st to June 5th in the Uintah Basin; however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower), c. Will occur within 300' from the centerline of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until May 1st the following year. 3. Design project infrastructure to minimize impacts within suitable 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 rights-of-way where possible, d. Reduce the width of rights-of-way and minimize the depth of excavation needed for the roadbed; where feasible, use the natural ground surface for the road within habitat, e. Place signing to limit off-road travel in sensitive areas, and f. Stay on designated routes and other cleared/approved areas. 4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: <ol style="list-style-type: none"> a. Follow the above (3.) recommendations for project design within suitable habitats, b. Construction of roads will occur such that the edge of the right of way is at least 300' from any plant, c. Roads will be graveled within occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from May 1st to June 5th (flowering period); dust abatement applications will be comprised of water only, d. The edge of the well pad should be located at least 300' away from plants,

NUMBER	UTAH LEASE NOTICES
	<ul style="list-style-type: none"> e. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline crosses suitable habitat to ensure pipelines don't move towards the population, f. Construction activities will not occur from May 1st through June 5th within occupied habitat, g. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc., h. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, i. Designs will avoid concentrating water flows or sediments into occupied habitat, j. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and k. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. <p>5. Occupied horseshoe milkvetch habitats within 300' of the edge of the surface pipelines' right of ways, 300' of the edge of the roads' right of ways, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.</p> <p>Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in coordination with the U.S. Fish and Wildlife Service.</p>
UT-LN-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.

NUMBER	UTAH LEASE NOTICES
	<ul style="list-style-type: none"> • Water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer. • Open burning of garbage or refuse would not occur at well sites or other facilities. • Drill rigs would be equipped with Tier II or better diesel engines. • Vent emissions from stock tanks and natural gas TEG dehydrators would be controlled by routing the emissions to a flare or similar control device which would reduce emissions by 95% or greater. • Low bleed or no bleed pneumatics would be installed on separator dump valves and other controllers. • During completion, flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible. • Well site telemetry would be utilized as feasible for production operations. • Stationary internal combustion engine would comply with the following standards: 2g NOx/bhp-hr for engines <300HP; and 1g NOx/bhp-hr for engines >300HP. <p>Additional site-specific measures may also be employed to avoid or minimize effects to local or regional air quality. These additional measures will be developed and implemented in coordination with the U.S. Environmental Protection Agency, the Utah Department of Air Quality, and other agencies with expertise or jurisdiction as appropriate based on the size of the project and magnitude of emissions.</p>
UT-LN-99	<p style="text-align: center;">REGIONAL OZONE FORMATION CONTROLS</p> <p>To mitigate any potential impact oil and gas development emissions may have on regional ozone formation, the following Best Management Practices (BMPs) would be required for any development projects:</p> <ul style="list-style-type: none"> • Tier II or better drilling rig engines • Stationary internal combustion engine standard of 2g NOx/bhp-hr for engines <300HP and 1g NOx/bhp-hr for engines >300HP • Low bleed or no bleed pneumatic pump valves • Dehydrator VOC emission controls to +95% efficiency • Tank VOC emission controls to +95% efficiency
UT-LN-102	<p style="text-align: center;">AIR QUALITY ANALYSIS</p> <p>The lessee/operator is given notice that prior to project-specific approval, additional air quality analyses may be required to comply with the National Environmental Policy Act, Federal Land Policy Management Act, and/or other applicable laws and regulations. Analyses may include dispersion modeling and/or photochemical modeling</p>

NUMBER	UTAH LEASE NOTICES
	for deposition and visibility impacts analysis, control equipment determinations, and/or emission inventory development. These analyses may result in the imposition of additional project-specific air quality control measures.
UT-LN-107	<p style="text-align: center;">BALD EAGLE</p> <p>The Lessee/Operator is given notice that the lands in this parcel contains nesting/winter roost habitat for the bald eagle. The bald eagle was de-listed in 2007; however, it is still afforded protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 1940). Therefore, avoidance or use restrictions may be placed on portions of the lease. Application of appropriate measures will depend on whether the action is temporary or permanent, and whether it occurs within or outside the bald eagle breeding or roosting season. A <u>temporary</u> action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A <u>permanent</u> action continues for more than one breeding or roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances, i.e., creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease will not lead to the need to consider listing the eagle as threatened or endangered. Integration of, and adherence to the following measures will facilitate review and analysis of any submitted permits under the authority of this lease.</p> <p>Current avoidance and minimization measures include the following:</p> <ol style="list-style-type: none"> 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) 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.

NUMBER	UTAH LEASE NOTICES
	<p>7. No permanent infrastructure will be placed within 0.5 miles of winter roost areas.</p> <p>8. Remove big game carrion from within 100 feet of lease roadways occurring within bald eagle foraging range.</p> <p>9. Avoid loss or disturbance to large cottonwood gallery riparian habitats.</p> <p>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.</p> <p>11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species.</p> <p>Additional measures may also be employed to avoid or minimize effects to the species between the lease sale stage and lease development stage. These additional measures will be developed and implemented in coordination with the U.S. Fish and Wildlife Service.</p>
UT-LN-114	<p style="text-align: center;">VIEWSHED, LIGHT AND SOUND (GREEN RIVER)</p> <p>In accordance with section 6 of the lease terms and 43 CFR 3101.1-2, modifications to Surface Use Plan of Operations, such as moving well locations, roads, pipelines, etc., may be required in order to preserve the immediate viewshed of recreational users of the nearby Green River. Also, the measures listed in Lease Notice 115 and any reasonable newly available technologies will be required in order to minimize light and noise impacts to recreational users of the Green River. The lessee/operator is encouraged to include all such measures in the Plans of Development; however, they will not be applicable when their implementation would adversely affect human health and safety.</p>
UT-LN-125	<p style="text-align: center;">LIGHT POLLUTION (NIGHT SKIES)</p> <p>Due to the relatively pristine character of the region, and the proximity of identified dark sky parks, the lessee/operator may be required to go beyond best management practices and use the best available technology in order to minimize/mitigate light pollution impacts. In accordance with section 6 of the lease terms and 43 CFR 3101.1-2, modifications to Surface Use Plan of Operations (regardless of surface ownership) may be required to minimize the impacts to night skies to adjacent communities, visitors of parks, monuments, river corridors and other destinations where light impacts would mar the visitor experience. The lessee/operator may be required to utilize such methods such as limiting the height of light poles, limiting wattage intensity, constructing light shields and/or adhering to prescribed restrictions on the timing for conducting artificially illuminated operations in order</p>

NUMBER	UTAH LEASE NOTICES
	to minimize/mitigate light pollution impacts. However, the above-described requirements will not be applicable when their implementation would adversely affect human health and safety.
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. ▪ 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.

NUMBER	UTAH LEASE NOTICES
	<ul style="list-style-type: none"> ▪ 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.
UT-LN-157	<p style="text-align: center;">SAN RAFAEL SWELL SRMA</p> <p>The lessee/operator is given notice that this lease occurs within the San Rafael Swell Special Recreation Management Area (SRMA). The Price Field Office Resource Management Plan (RMP) requires the SRMA to be managed to provide the following benefits, experiences, and opportunities: undeveloped recreation tourism with portions that are destination strategy associated with OHV routes (<i>REC-11: Within SRMAs, manage for Recreation Opportunity Spectrum (ROS), as identified in the ROS inventory. Recreation facilities will be developed only in response to resource management needs and will be appropriate to the managerial setting identified for each ROS class.</i> Development that interferes with the SRMAs goals and objectives should be avoided to the extent practicable. Modifications to the Surface Use Plan of Operations may be required in order to protect remote, expansive, intact landscapes from surface disturbing activities in accordance with section 6 of the lease terms and 43 CFR 3110.1-2.</p>
UT-LN-164	<p style="text-align: center;">NOISE MITIGATION PROXIMATE TO SENSITIVE AREAS</p> <p>To reduce auditory impacts from mineral operations, projects within 6.1-miles (9,800 meters) of any sensitive area (National Park, wilderness area, etc.) may be required to comply with noise mitigation efforts or demonstrate that the project would not negatively impact the soundscapes. The project may be required to reduce sound levels to a maximum level of 55 decibels for production equipment (measured from the direction of the affected area at a distance of 350 feet from source). These sound levels could be achieved by replacement diesel engine exhaust silencers (mufflers) noise barriers, and other noise control measures. Additionally, the operator may need to use 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 the affected area. Movement of operations to mitigate sound impacts may be required to be at least 200 meters in accordance with section 6 of the lease terms and 43 CFR 3101.1-2.</p>

Appendix C – Figures/Maps

Figure 2. Vernal Field Office parcels with land status.

Figure 3. Vernal Field Office parcels with oil and gas lease categories.

Figure 4. Vernal Field Office parcels with BLM authorized leases.

Figure 5. Price Field Office parcel with land status.

Figure 6. Price Field Office parcel with oil and gas lease categories.

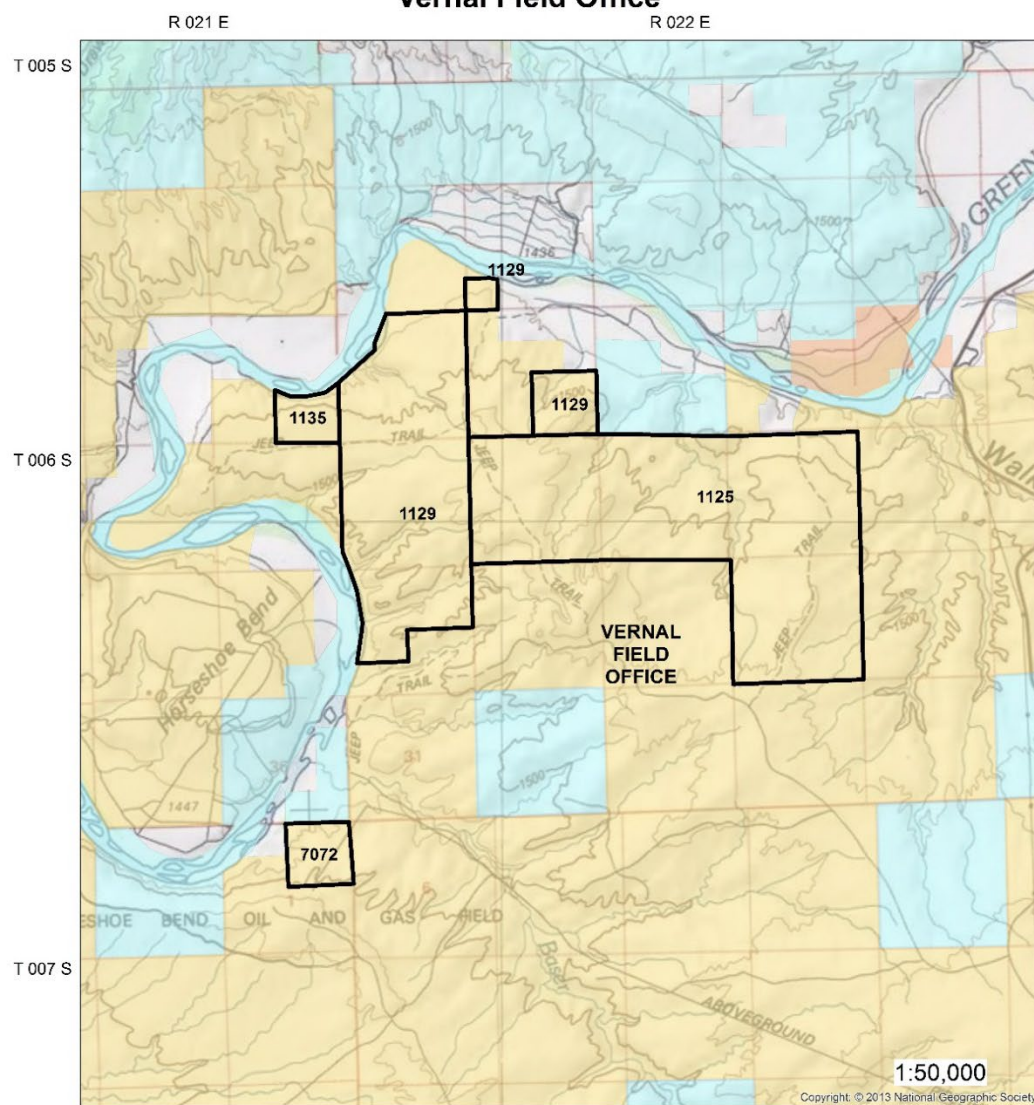
Figure 7. Price Field Office parcel with authorized leases.

Figure 8. Moab Field Office parcel with land status.

Figure 9. Moab Field Office parcel with leasing categories.

Figure 10. Moab Field Office parcel with authorized leases.

BLM Utah Competitive Oil and Gas Lease Sale Lease Sale Parcels Vernal Field Office



Legend

- Parcels
- 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.
Date compiled in NAD 1983 UTM Zone 12 North

0 0.4 0.8 1.6 Miles

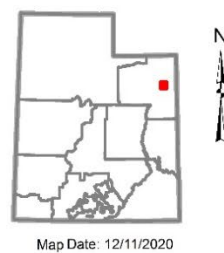
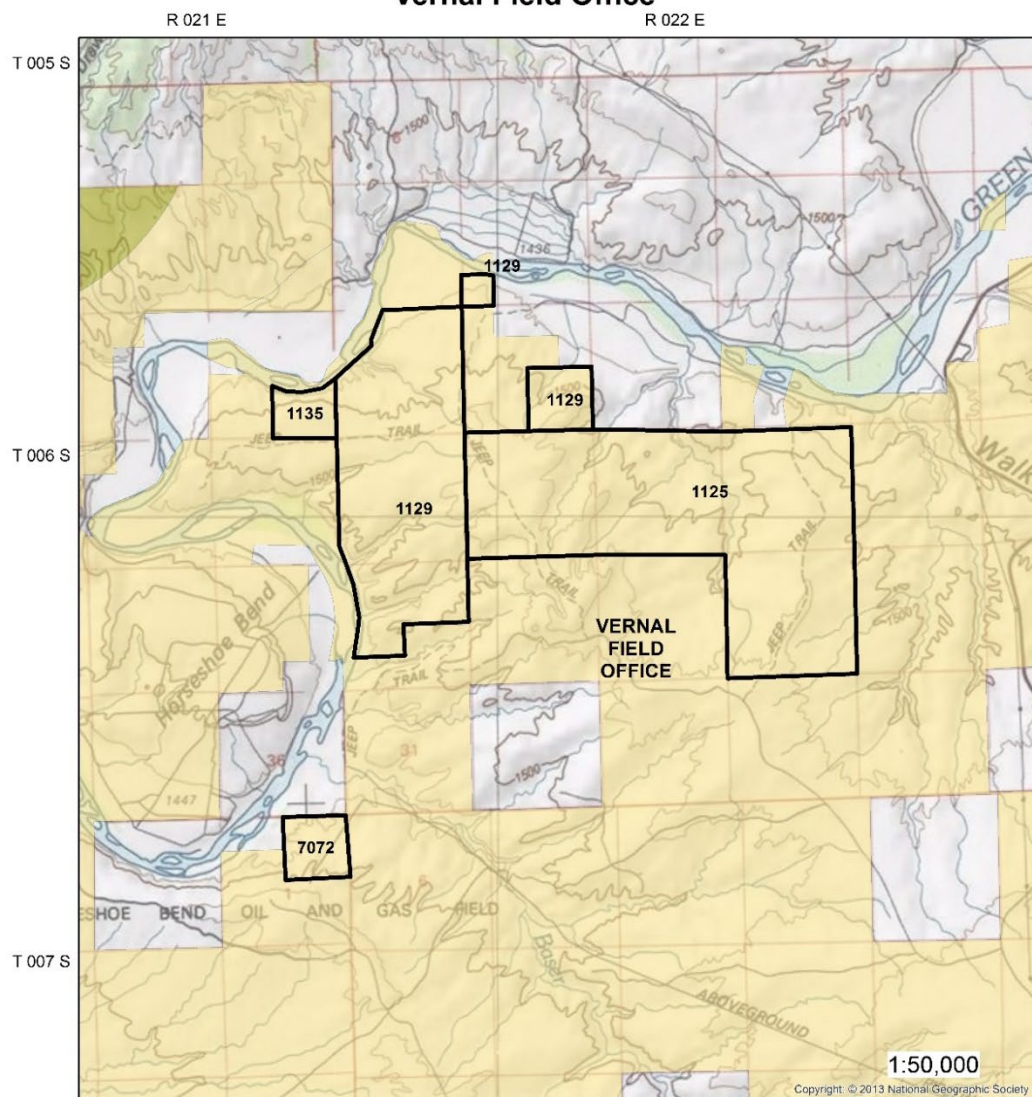


Figure 2. Vernal Field Office parcels with land status.

BLM Utah Competitive Oil and Gas Lease Sale Lease Sale Parcels Vernal Field Office



Legend

- _Parcels
- Controlled Surface Use / Timing Limit
- Standard Stipulations

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

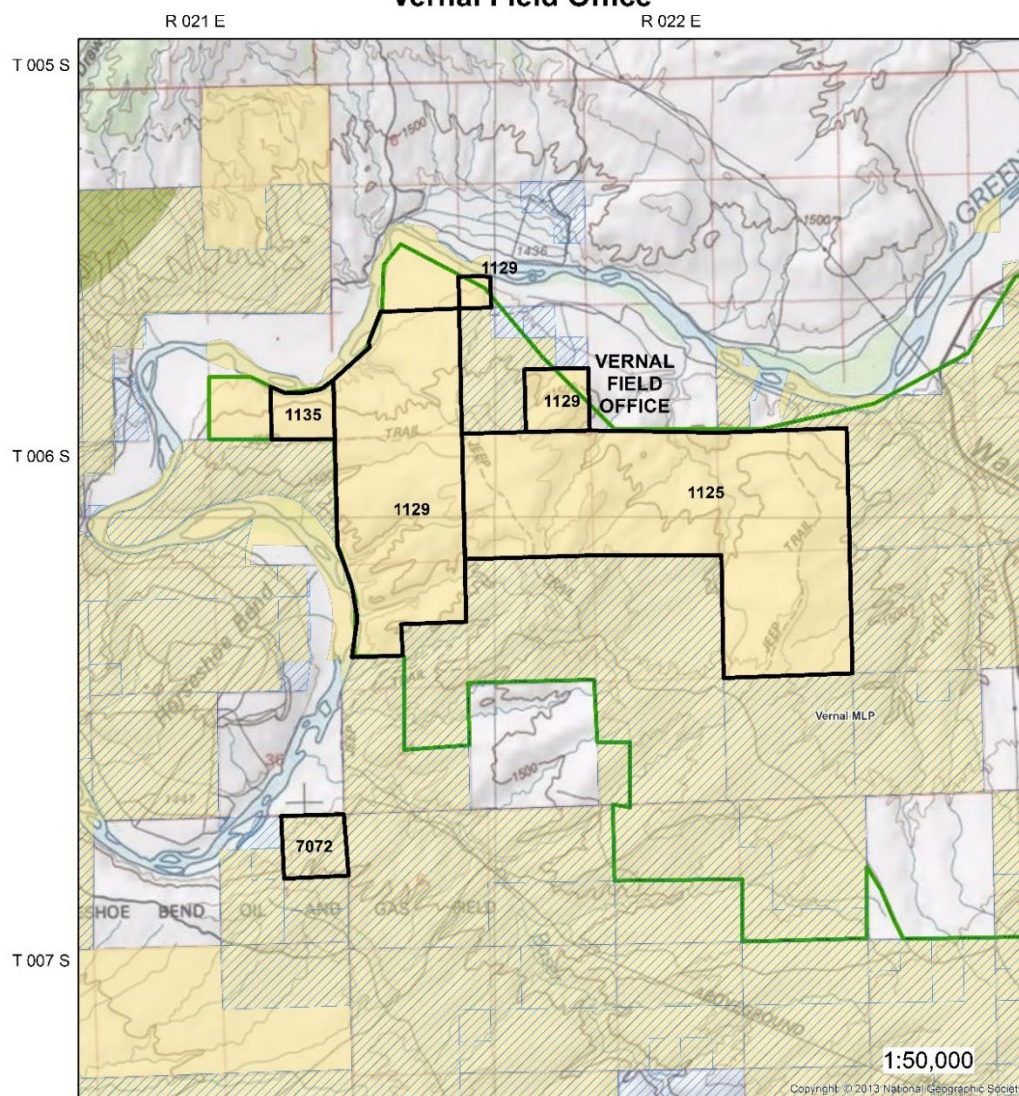
0 0.4 0.8 1.6 Miles



Map Date: 12/11/2020

Figure 3. Vernal Field Office parcels with oil and gas lease categories.

BLM Utah Competitive Oil and Gas Lease Sale Lease Sale Parcels Vernal Field Office



Legend

- Parcels
- Authorized Leases
- Authorized Leases
- Controlled Surface Use / Timing Limit
- Standard Stipulations
- Utah Master Leasing Plans August 2015
- Vernal MLP

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 0.4 0.8 1.6 Miles

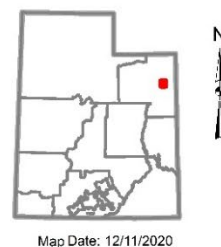
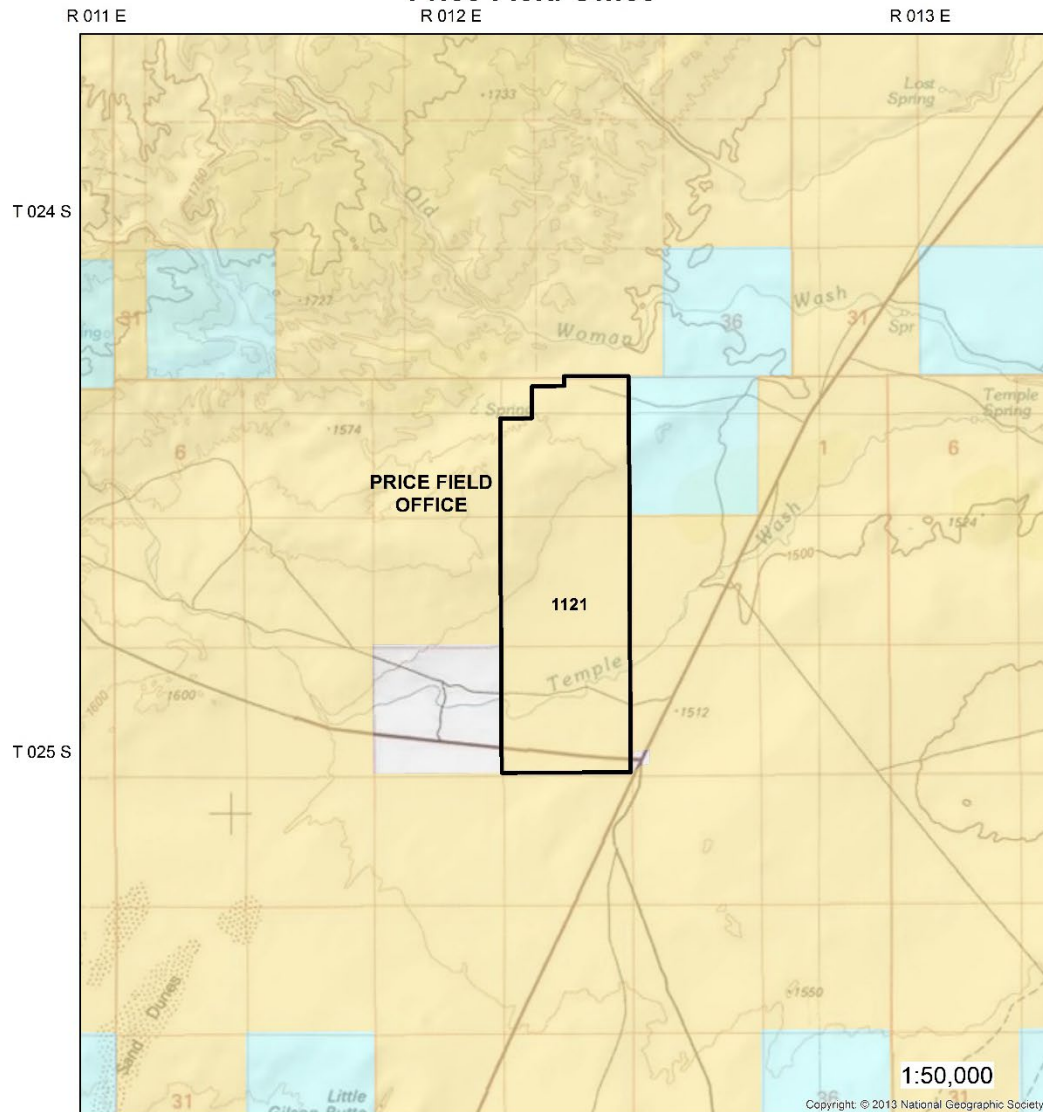


Figure 4. Vernal Field Office parcels with BLM authorized leases.

BLM Utah Competitive Oil and Gas Lease Sale Lease Sale Parcels Price Field Office



Legend

- _Parcels
- County Boundary
- 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 0.4 0.8 1.6 Miles



Map Date: 12/11/2020

Figure 5. Price Field Office parcel with land status.

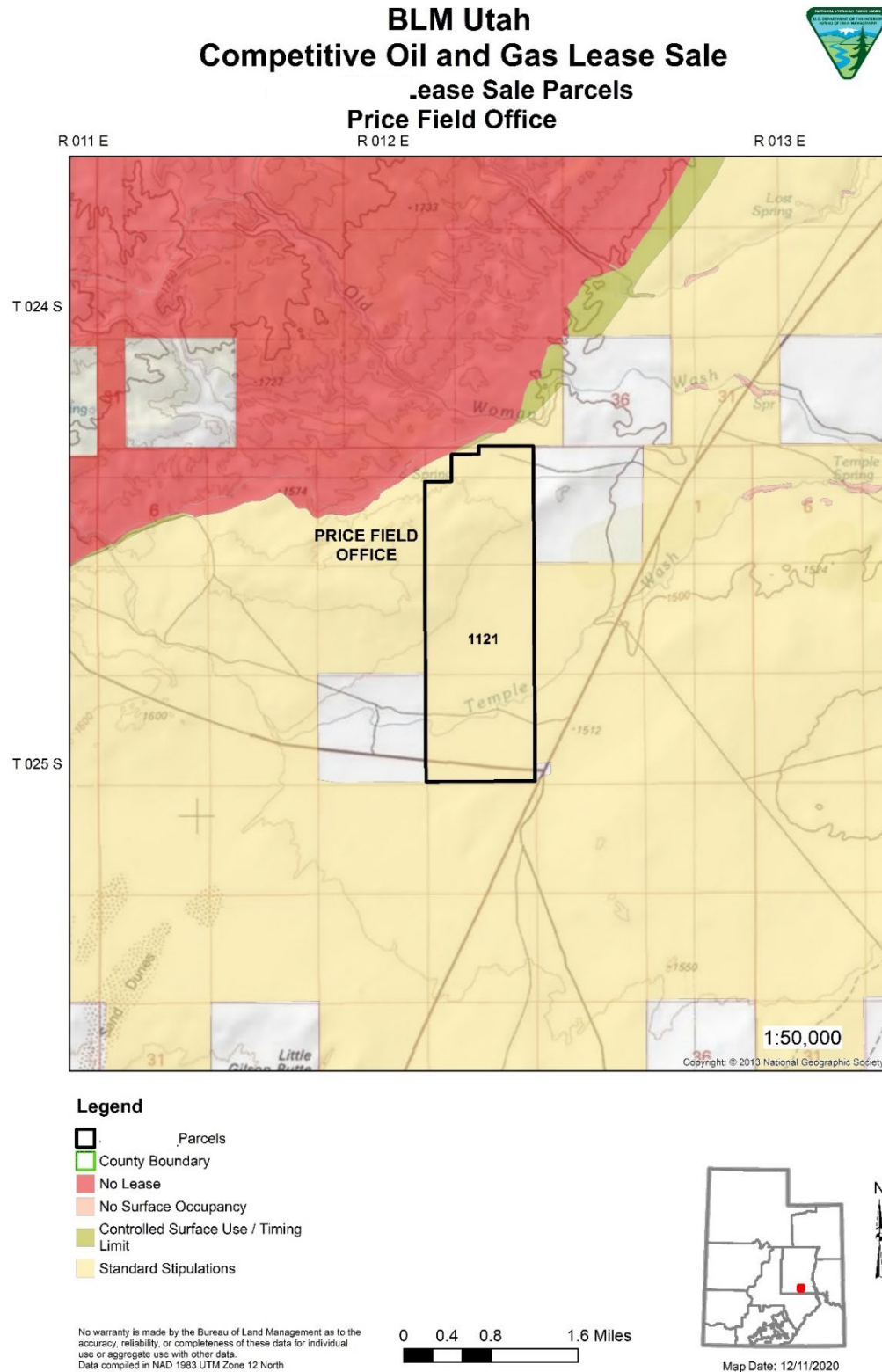
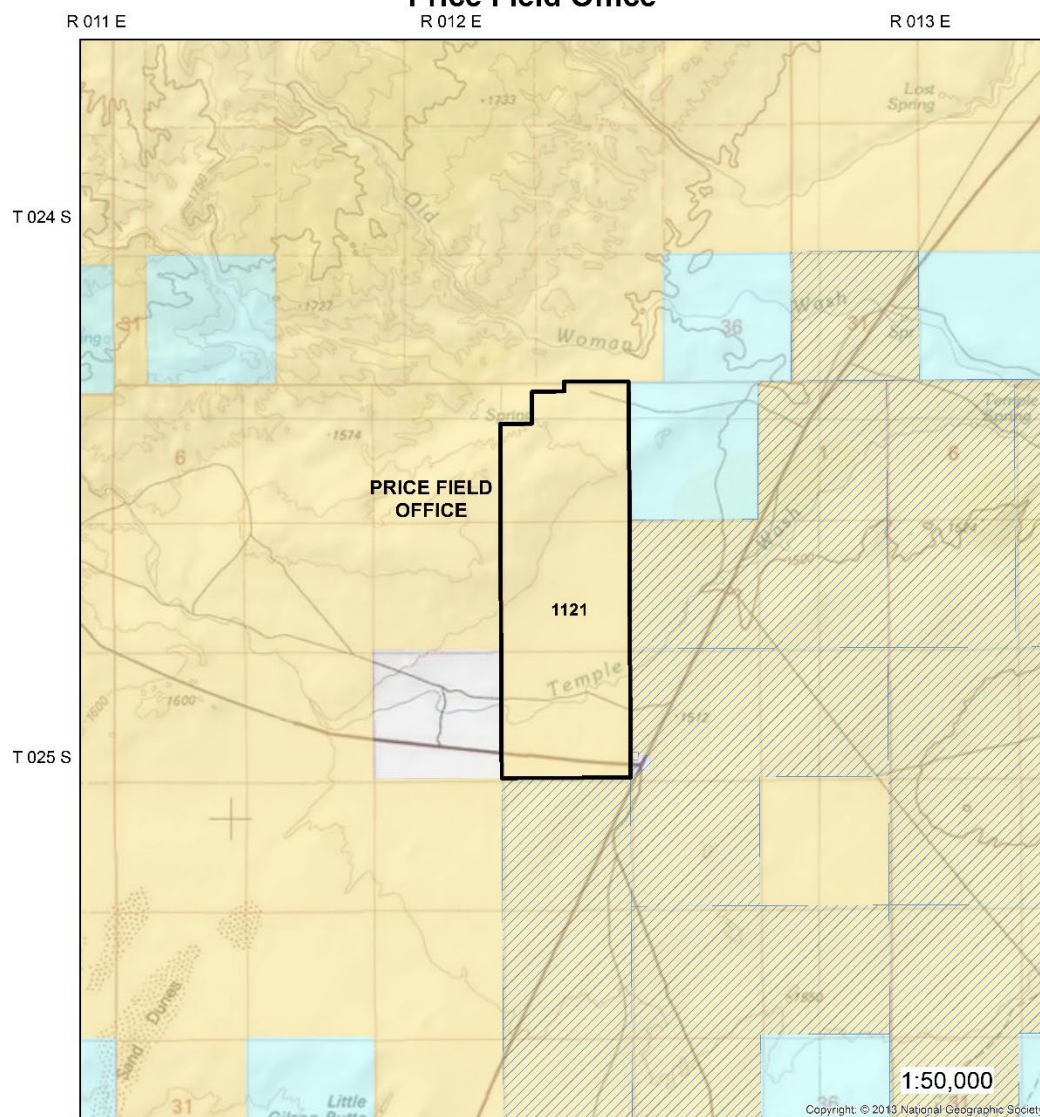


Figure 6. Price Field Office parcel with oil and gas lease categories.

BLM Utah Competitive Oil and Gas Lease Sale Lease Sale Parcels Price Field Office



Legend

- _Parcels
- County Boundary
- Private
- State
- BLM Utah Oil and Gas Leases**
 - Authorized Leases
 - Pending
 - 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 0.4 0.8 1.6 Miles



Map Date: 12/11/2020

Figure 7. Price Field Office parcel with authorized leases.



Figure 8. Moab Field Office parcel with land status.

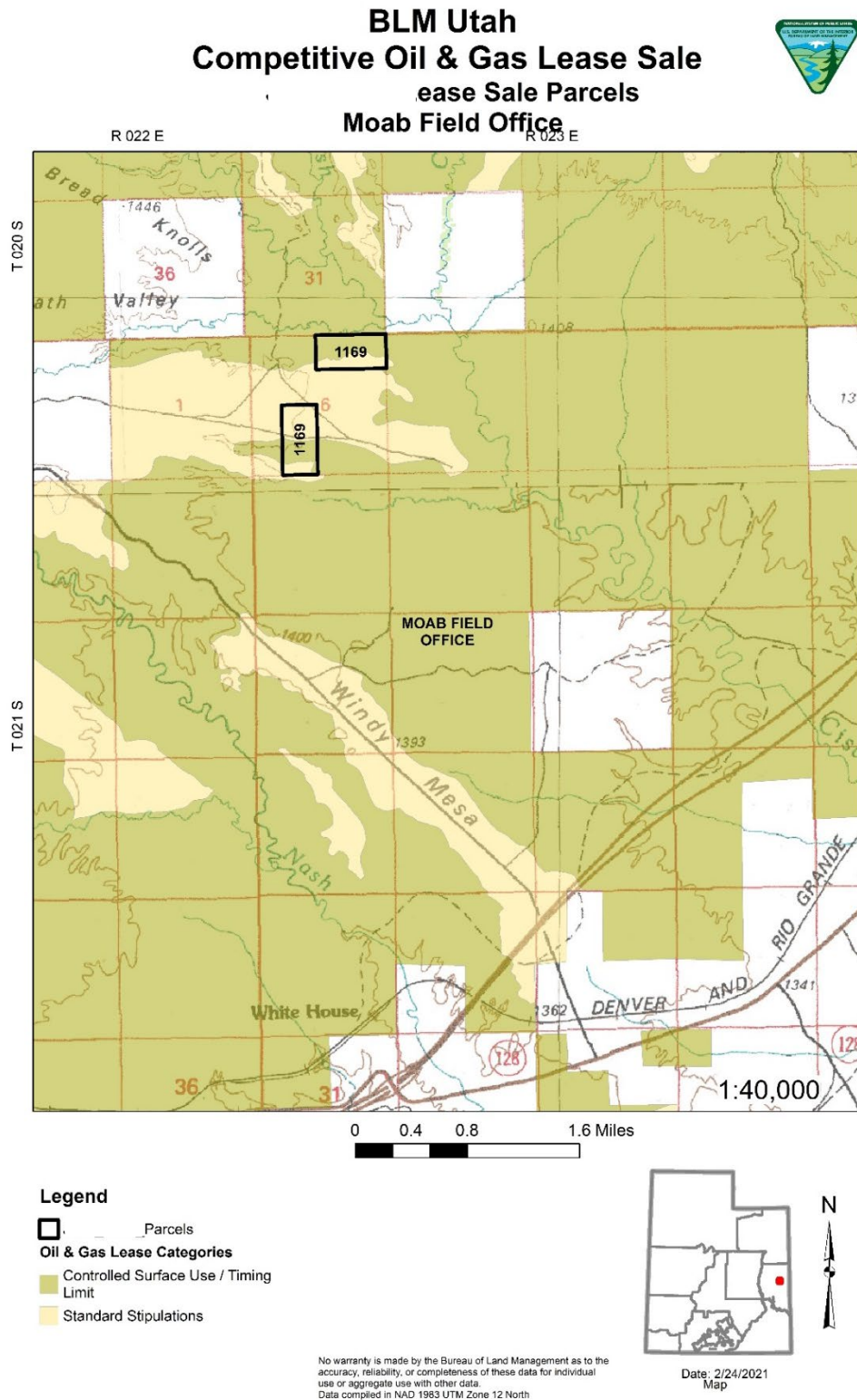
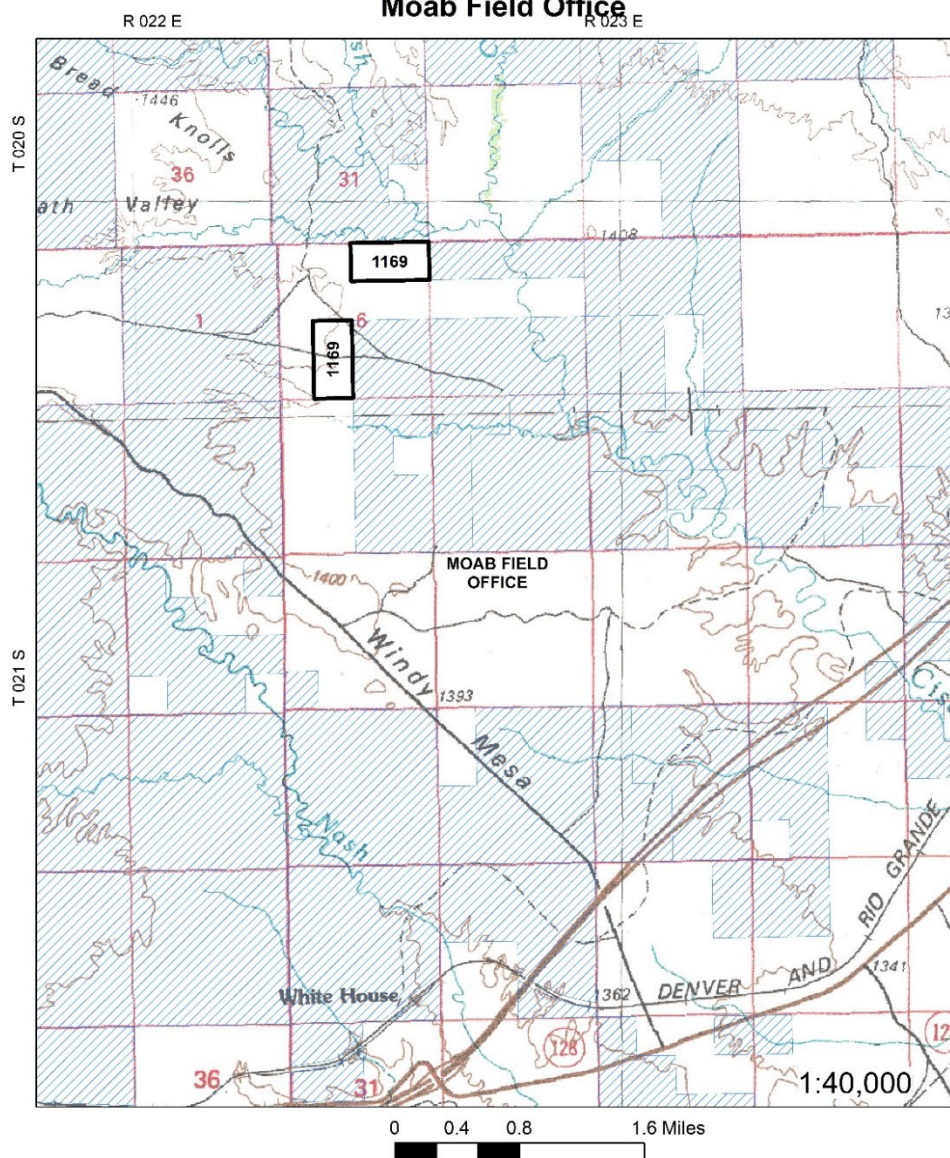


Figure 9. Moab Field Office parcel with leasing categories.

BLM Utah Competitive Oil & Gas Lease Sale Lease Sale Parcels Moab Field Office



Legend
 Parcels
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

Date: 2/24/2021
Map

Figure 10. Moab Field Office parcel with authorized leases.

Appendix D – Interdisciplinary Parcel Review Team Checklist**DETERMINATION OF STAFF:**

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

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

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

Applicable to all Field Offices

Determi- nation	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> <p>UT-S-01: Air Quality Parcels: All</p> <p>UT-LN-96: Air Quality Mitigation Measures Parcels: All</p> <p>UT-LN-99: Regional Ozone Formation Controls Parcels: All</p> <p>UT-LN-102: Air Quality Analysis Parcels: All</p> <p>Any wells developed on parcels being offered in the first quarter 2022 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 10/20/2021</p> <p>James Miller 10/20/2021</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	Greenhouse Gases are composed mostly of CO ₂ , CH ₄ , N ₂ O, HFCs, PFCs, & SF ₆ . Emissions of GHGs 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 GHGs are a leading contributor to global climate change.	Erik Vernon 10/20/2021 James Miller 10/20/2021
Environmental Justice and Socioeconomics			
PI	Environmental Justice	As defined in EO 12898, minority and low-income populations do occur within or use areas within County. All citizens can file an expression of interest or participate in the bidding process (43 CFR 3120.3-2). The stipulations and notices applied to the subject parcels do not place an undue burden on these groups. Leasing the nominated parcels would not cause any disproportionately high and adverse effects on minority or low-income populations. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	Joseph Rodarme 1/8/2021 Bill Stevens 10/18/21
PI	Socioeconomics	Based on the RFDS, no quantifiable additional or decreased economic impact to the local area/counties would be caused by exploration or development. The parcel areas would still receive use by county residents and other visitors including recreationists regardless of alternative selected. Refer to the Socioeconomic Profile Report prepared on June 2, 2020 (EPS 2020). Additional information is contained in the county general plan and its corresponding resource management plan. Land uses in county and parcel areas would continue. Land use plan (as amended) allocations would not be altered. BMPs, SOPs and site-specific mitigation may be applied at the APD stage as COAs.	Joseph Rodarme 1/8/2021 Julie A. Suhr Pierce 2/23/2021 Bill Stevens 10/18/21
Cultural			
NI	Cultural Resources	BLM archaeologists completed a literature review with data from the Moab, Vernal, and Price 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	Tylia Varilek 10/01/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)	
		<p>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 Moab, Vernal, and Price 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 and historic properties 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 on lands managed by BLM. The stipulation reads as follows:</p> <p>This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.</p> <p>As of today (10/01/2021), consultation with Utah State Historic Preservation Office is pending the completion of the 2022 First Quarter Oil and Gas Lease Sale Cultural Resources Report.</p> <p>BLM's consultation with Native American Tribes is ongoing.</p>	

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
NI	Native American Religious Concerns	<p>The following Tribes were invited to consult on this undertaking via certified letter on August 31, 2021: Confederated Tribes of the Goshute Reservation, Eastern Shoshone, Jicarilla Apache Nation, Hopi Tribe, Kaibab Band of Paiute Indians, Moapa Band of Paiute Indians, Navajo Nation, Northwestern Band of Shoshone Nation, Paiute Indian Tribe of Utah, Pueblo of Acoma, Pueblo of Jemez, Pueblo of Laguna, Pueblo of San Felipe, Pueblo of Santa Clara, Pueblo of Tesuque, Pueblo of Zia, Pueblo of Zuni, San Juan Southern Paiute, Shoshone-Bannock Tribes, Southern Ute Indian Tribe, Ute Indian Tribe, Ute Mountain Ute Tribe, and White Mesa.</p> <p>The BLM does not know of any documented Traditional Cultural Properties or Sacred Sites located within the parcels. However, resources and locations of Native American religious and traditional concern may be present within the proposed parcels. The BLM, as appropriate, 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. Tribal consultation is ongoing.</p>	Tylia Varilek 10/01/2021

Wildlife			
NP	Greater Sage-Grouse	The 6 lease parcels identified within the Vernal, Price, and Moab 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.	Christine Fletcher 1/26/2021
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-44 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-44 provides that if raptor habitat exists in a given parcel 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>Stipulations</u></p> <ul style="list-style-type: none"> • UT-S-261 TL– Raptor Buffers: Parcels 1125, 1129, 1135 and 7072. <p><u>Lease Notices</u></p> <ul style="list-style-type: none"> • UT-LN-44: Raptors: All parcels • UT-LN-45: Migratory Birds: All parcels 	Dave Cook 2/8/2021

NI	Sensitive Wildlife Species	<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. 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 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.</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 resources.</p> <p><u>Stipulations:</u></p> <ul style="list-style-type: none"> • UT-S-298 Kit Fox: Parcel 1169 • UT-S-272 Burrowing Owl: Parcel 1169 • UT-S-218A White Tailed Prairie Dog: Parcel 1169 • UT-S-278 CSU – Bald Eagle Winter Roost: Parcels 1125, 1129, 1135, and 7072 <p><u>Lease Notices:</u></p> <ul style="list-style-type: none"> • UT-LN-11 Crucial Elk Calving and Deer Fawning Habitat: Parcels 1129, 1135, and 7072 • UT-LN-13 Pronghorn Winter Habitat: Parcels 1125, 1129, 1135, and 7072 • UT-LN-44 Raptors: All Parcels • UT-LN-49 Utah Sensitive Species: All Parcels • UT-LN-156 Pollinators and Pollinator Habitat: All Parcels • UT-LN-107 Bald Eagle: Parcels 1169, 1125, 1129, 1135, and 7072 	Dave Cook 2/8/2021
NI	Threatened, Endangered, Candidate or	<p>The standard stipulations from the Competitive Leasing Handbook H-3120-1, Endangered Species Act (ESA), would be applied to all parcels. 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</p>	Aaron Roe 1/21/2021

	Proposed Animal Species	<p>outlined in the relevant RMP will adequately mitigate potential impacts at the leasing stage to Threatened, Endangered or Candidate (ESA) animal species.</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><u>Lease Notices:</u></p> <ul style="list-style-type: none"> • T&E-23: Colorado River Endangered Fish: Parcel 1169 • UT-LN-156: Pollinators and Pollinator Habitat: All Parcels <p><u>Vernal & Price</u></p> <p>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><u>Stipulations:</u></p> <ul style="list-style-type: none"> • UT-S-269: No Surface Occupancy – Mexican Spotted Owl Nests: Parcel 1121 <p><u>Lease Notices:</u></p> <ul style="list-style-type: none"> • T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin: All Parcels • T&E-06: Mexican Spotted Owl: Parcel 1121 • T&E-11: California condor: Parcel 1121 • T&E-28: California Condor: Parcel 1169 • T&E-31: Western yellow-billed cuckoo: Parcel 1125, 1129, 1135, 7072 • UT-LN-156: Pollinators and Pollinator Habitat: All Parcels 	
NI	Fish and Wildlife Excluding USFWS	<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</p>	<p>Dave Cook 2/8/2021</p>

	Designated Species	<p>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><u>Stipulations:</u></p> <ul style="list-style-type: none"> • UT-S-224: TL – Pronghorn Fawning Grounds: Parcel 1169 • UT-S-230 TL-Crucial Deer and Elk Winter Range: Parcels 1125, 1129, 1135, and 7072 • UT-S-231 CSU – Crucial Deer Winter Range: Parcels 1125, 1129, 1135, and 7072 <p>Lease notice UT-LN-49 is applied for the following species: Monarch butterfly (<i>Danaus plexippus</i>), Great Plains toad (<i>Bufo cognatus</i>), Fringed myotis (<i>Myotis thysanodes</i>), Kit fox (<i>Vulpes macrotis</i>), Spotted Bat (<i>Euderma maculatum</i>), Townsend's big-eared bat (<i>Corynorhinus townsendii</i>), Grasshopper sparrow (<i>Ammodramus saannarum</i>), Long-billed curlew (<i>Numenius americanus</i>), Mountain plover (<i>Charadrius montanus</i>), Short-eared owl (<i>Asio flammeus</i>), Big free-tailed bat (<i>Nyctinomops macrotis</i>), White-tailed prairie dog (<i>Cynomys leucurus</i>), Great Plains ratsnake (<i>Elaphe emoryi</i>), Bluehead sucker (<i>Catostomus discobolus</i>), Flannelmouth sucker (<i>Catostomus latipinnis</i>), Roundtail chub (<i>Gila robusta</i>), Western Bumblebee (<i>Bombus occidentalis</i>).</p> <p><u>Lease Notices:</u></p> <ul style="list-style-type: none"> • UT-LN-44: Raptors: Parcel 1121 • UT-LN-45: Migratory Bird: Parcel 1121 • UT-LN-49: Utah Sensitive Species: All Parcels • UT-LN-104: Burrowing Owl Habitat: Parcel 1121 	
Plants			
NI	Sensitive Plant Species	<p>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. 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</p>	<p>1/21/2021 Aaron Roe</p>

		<p>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>Lease notice UT-LN-49 is applied for the following species: Flat top Buckwheat (<i>Eriogonum corymbosum</i> var. <i>smithii</i>), Utah Spurge (<i>Euphorbia nephradenia</i>), Entrada Rushpink (<i>Lygodesmia grandiflora</i> var. <i>entrada</i>), Psorlea Globemallow (<i>Sphaeralcea psoraloides</i>), Hamilton's milkvetch (<i>Astragalus hamiltonii</i>), Sterile yucca (<i>Yucca sterilis</i>).</p> <p><u>Lease Notices:</u></p> <ul style="list-style-type: none"> • T&E-32: Cisco Milkvetch: Parcel 1169 • UT-LN-49: Utah Sensitive Species: All Parcels • UT-LN-51: Special Status Plants Not Federally Listed: All Parcels • UT-LN-89: Horseshoe milkvetch (<i>Astragalus equisolensis</i>): Parcels 1125, 1129, 1135, 7072 	
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 will adequately mitigate potential impacts at the leasing stage to Threatened, Endangered or Candidate (ESA) plant species.</p> <p><u>Lease Notices:</u></p> <ul style="list-style-type: none"> • T&E-13: Barneby Reed-Mustard (<i>Schoenocrambe barnebyi</i>): Parcel 1121 • T&E-15: Wright Fishhook cactus (<i>Sclerocactus wrightiae</i>): Parcel 1121 • T&E-17: San Rafael Cactus (<i>Pediocactus despainii</i>): Parcel 1121 • T&E-19: Jones Cycladenia (<i>Cycladenia hymilis</i> var. <i>Jonesii</i>): Parcel 1121 	1/21/2021 Aaron Roe
NI	Hydrology Water Use/Consumption	<p>Water usage for drilling 359.4 wells per year (Monument Butte Field Development Plan EIS: "Under this drilling scenario, construction, drilling, and completion of up to 5,750 wells would occur for approximately 16 years." Page ES-6 (BLM 2016) and 8.5 wells per year for 15 years (Moab MLP RFDS p. 2 (BLM 2005) was analyzed in the forementioned EIS and the EIS prepared for the MLP. Drilling activity for the entire State of Utah has been well under 368 wells per year for the five years since both EISs were approved in 2016, and the rate is not anticipated to increase above 368 wells per year for the foreseeable future. Therefore, the analyses of water use and consumption from the EISs adequately disclose the impacts from water use for drilling for the entire Green River/Colorado River watershed within the State of Utah. Those impacts included depletion quantities for each well and the resulting associated impacts of reduced surface water flow in the Green River and drawdown of</p>	Jared Dalebout 3/5/2021

		groundwater aquifers in the region. However, the Monument Butte EIS analysis described both these effects as negligible based upon the total volume of water needed.	
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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)			
NP	Areas of Critical Environmental Concern	Not present.	Jessica Farmer 1/7/2021
NP	National Historic Trails	Not present.	Jessica Farmer 1/7/2021
NI	Recreation	Development of parcels 1129 and 1135 may result in a lesser quality experience for recreational users on the Green River. Stipulations: UT-S-157 NSO/CSU/TL-Visual Resources: Parcels 1125, 1129, 1135, and 7072. Lease Notices: UT-LN-114 Viewshed, Light and Sound (Green River): Parcels 1125, 1129, 1135 and 7072	Sheri Wysong 2/22/2021
NP	Travel/Transportation	Not present.	Jessica Farmer 1/7/2021
NI	Visual Resources	Parcel 1125 is within Visual Resource Management (VRM) Class III area. Parcel 1129 is within VRM Class III and Class IV areas. Parcels 7072 is completely within Class IV. Parcel 1135 contains a small strip of Class III but is mostly within Class IV area.	Melissa Jennings 1/25/2021
NP	Wild and Scenic Rivers	Not present.	Jessica Farmer 1/7/2021
NP	Wilderness/ Wilderness Study Area	Not present.	Jessica Farmer 1/7/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
NI	Lands with wilderness characteristics	538 acres of Lease Parcel 1125 falls in land that has not been surveyed for Wilderness Character, however the total area contiguous that has been un-surveyed is less than 5,000 acres and as such is not eligible to be designated with wilderness character.	Jessica Farmer 1/7/2021
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) Additional control and procedural information is documented in the Programmatic EIS Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States and its Record of Decision, (BLM 2007, BLM 2016). 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. 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>	Sandra Robins 1/12/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<ul style="list-style-type: none"> UT-LN-52 on Parcels: 1125, 1129, 1135, 7072, 1121, and 1169. 	
NI	Vegetation Excluding Special Status Species	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. 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.	Sandra Robins 1/12/2021
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.	David Palmer 1/8/2021
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.</p> <p>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>Jerrad Goodell 1/5/2021</p> <p>Groundwater: Garrett Manion 1/12/2021</p>

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<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 design features 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>Stipulations</u></p> <ul style="list-style-type: none"> • UT-S-123 on Parcels: 1125, 1129, 1135, and 7072. <p><u>Notices</u></p> <ul style="list-style-type: none"> • UT-LN-128 on Parcels: 1125, 1129, 1135, and 7072. 	
NI	Wetlands/ Riparian Zones / Floodplains	<p>Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, parcels 1129, and 1135 were identified as containing riparian and/or wetland systems, and portions of the Green river floodplain. Intermittent streams and their associated floodplains (as defined in EO 11988) occur on all parcels. However, since these parcels would have the following stipulations attached, impacts from exploration/development to those resources would be prevented. 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><u>Stipulations</u></p> <ul style="list-style-type: none"> • UT-S-123 on Parcels: 1125, 1129, 1135, and 7072. <p><u>Notices</u></p> <ul style="list-style-type: none"> • UT-LN-128 on parcels 1125, 1129, 1135, and 7072 • UT-LN-53 on parcels 1129 and 1135 	Jerrad Goodell 1/5/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
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. The parcels contain steep topography. SOPs, BMPs and site-specific design features applied at the APD stage including reclamation, may be applied as COAs.</p> <p><u>Stipulations Applied to Parcels: 1125, 1129, 1135, and 7072.</u></p> <ul style="list-style-type: none"> • UT-S-96 No surface occupancy – fragile soils/slopes greater than 40% • UT-S-99 Controlled Surface Use – Fragile Soils/Slopes • UT-S-100 Controlled Surface Use – Fragile Soils/Slopes (21%-40%) 	David Gordon 01/08/2021
Rangeland Health			
NI	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.	David Gordon 01/08/2021
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 1/5/2021
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-	Travis Decker 1/5/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		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.	
NP	Wild Horses and Burros	The parcels do not intersect herd areas or herd management areas per GIS review.	David Gordon 01/08/2021
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>Uintah County claimed roads are within lease parcels 1125, 1129, and 7072. Coordination with Uintah County will need to occur if the roads need to be upgraded and to determine if other permits are required.</p> <p>Parcel 1125 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. Parcels 1125 and 7072 are within the Utility Corridor.</p> <p><u>Notices:</u></p> <ul style="list-style-type: none"> • UT-LN-83 on parcel 1129 	Janet Allred 01/12/2021
NI	Geology / Mineral Resources/	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	Garrett Manion 1/12/2021 Angela Wadman

Determination	Resource	Rationale for Determination	Parcel Reviewer
	Energy Production	<p>generally be mitigated under 43 CFR 3101.1-2 and under standard lease terms (Sec. 6) where sitting and design of facilities may be modified to protect other resources.</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 November 24, 2020. No active placer claims, or Mineral Material sites were found to be associated within any parcel.</p> <p>An unplugged well is located on this parcel 7072. The well is McLish # 3 and was completed on June 29, 1967. The lessee/operator is given notice that an existing unplugged gas well is located in SENW Sec. 1, T7S, R21E (API# 4304720243). 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 immediately 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 Appendix H – Reasonably Foreseeable Development of Leases Scenario. “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</p>	2/11/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>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><u>Notices:</u></p> <ul style="list-style-type: none"> • UT-LN-87 on parcel 7072 	
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>	Garrett Manion 1/12/2021
NI	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>	David Gordon 01/08/2021

Price Field Office

Determination	Resource	Rationale for Determination	Parcel Reviewer
Resources and Issues Considered (Includes Supplemental Authorities Appendix 1 H-1790-1)			
NP	Areas of Critical Environmental Concern	There are no ACECs present.	Sheri Wysong 2/22/2021
NP	National Historic Trails	No historic trails present.	Sheri Wysong 2/22/2021
NI	Recreation	Parcel UT-2021-06-1121 is located within the San Rafael Swell SRMA and Temple Mountain RMZ; parcel is within ROS classes of roaded natural and semi-primitive motorized. While the parcel is within the SRMA, it is in an outlier area of little recreation resource value or important opportunities. The parcel spans a paved County road. This road is heavily used and is the primary access to the Temple Mountain area, San Rafael Reef, and Little Wild Horse Canyon (popular BLM sites) and Goblin Valley State Park. <u>Lease Notice:</u> <ul style="list-style-type: none"> • UT-LN-125 Light Pollution: Parcel 1121 • UT-LN-164 Noise Mitigation: Parcel 1121 	Sheri Wysong 2/22/2021
NP	Scenic or Backcountry Byways	Not present.	Sheri Wysong 2/22/2021
NI	Visual Resources	The entire parcel is within VRM Class IV.	Sheri Wysong 2/22/2021
NP	Wild and Scenic Rivers	Not present.	Sheri Wysong 2/22/2021
NI	Wilderness/ Wilderness Study Area	None of the parcels are in the proximity of wilderness study areas. Parcel 1121 is adjacent to the San Rafael Reef Wilderness Area that was designated in Subtitle C part II of the John D. Dingell, Jr. Conservation, Management and Recreation Act. Section 1232(e) of the Act states: <p>(1) IN GENERAL—Congress does not intend for the designation of the wilderness areas to create protective perimeters or buffer zones around the wilderness areas.</p> <p>(2) NONWILDERNESS ACTIVITIES-The fact that non-wilderness activities or uses can be seen or heard from areas within a wilderness area shall not preclude the conduct of those activities or uses outside the boundary of the wilderness area.</p> <u>Lease Notice:</u>	Sheri Wysong 2/22/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<ul style="list-style-type: none"> UT-LN-125 Light Pollution: Parcel 1121 UT-LN-164 Noise Mitigation: Parcel 1121 	
NP	Lands with wilderness characteristics	No WC Unit designated.	Sheri Wysong 2/22/2021
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). 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 Notices:</u></p> <ul style="list-style-type: none"> UT-LN-52 on all parcels. 	Stephanie Bauer 1/14/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
NI	Vegetation Excluding Special Status Species	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. 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.	Stephanie Bauer 1/14/2021
NP	Woodland / Forestry	After visiting the proposed lease sale area, it has been determined that there are no merchantable woodland/forestry products within the proposed lease sale area.	Stephanie Bauer 1/14/2021
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.</p> <p>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.</p>	Rebecca Anderson 12/28/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>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. 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>Stipulations:</u></p> <ul style="list-style-type: none"> • UT-S-127 on Parcel UT-2021-06-1121 <p><u>Lease Notices:</u></p> <ul style="list-style-type: none"> • UT-LN-128 on all parcels. 	
NI	Wetlands/ Riparian Zones / Floodplains	<p>Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, no parcels were identified as containing riparian and/or wetland systems. Floodplains (as defined in EO 11988) are associated with intermittent streams on all parcels. However, since these parcels would have the following notice attached, impacts from exploration/development to those resources would be prevented.</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><u>Lease Notices:</u></p> <ul style="list-style-type: none"> • UT-LN-128 on all parcels. 	Rebecca Anderson 12/28/2020
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),</p>	Stephanie Bauer 1/14/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
		<p>road reclamation, noxious weed controls, etc. The parcels contain steep topography, additional discussion of steep slopes. SOPs, BMPs and site-specific design features applied at the APD stage including reclamation, may be applied as COAs.</p> <p><u>Stipulations:</u></p> <ul style="list-style-type: none"> UT-S-97 & UT-S-101 on parcel UT-2021-06-1121 <p><u>Lease Notices:</u></p> <ul style="list-style-type: none"> UT-LN-60 on Parcel UT-2021-06-1121 	
Rangeland Health			
NP	Farmlands (Prime or Unique)	According the NRCS soil survey and knowledge of the area, there are no prime/unique farmlands within the lease parcel.	Stephanie Bauer 1/14/2021
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. Follow seasonal fire restrictions at Utahfireinfo.gov	Stuart Bedke 1/5/2021
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.	Mike Tweddell 1/4/2021

Determination	Resource	Rationale for Determination	Parcel Reviewer
NP	Wild Horses and Burros	The parcels do not intersect herd areas or herd management areas per GIS review.	Mike Tweddell 1/4/2021
Lands and Minerals			
NP	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.	Veronica Kratman 12/29/2020
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. 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. Any oil and gas development can be managed to avoid or work within other mineral resources. Mining claims and Mineral Materials were checked on December 28, 2020. No active placer claims, or Mineral Material sites were found to be associated within any parcel.</p> <p>If the parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information is provided in Appendix H – Reasonably Foreseeable Development of Leases Scenario. “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>Rebecca Anderson 12/28/2020</p> <p>Angela Wadman 2/11/2021</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. 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>	
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.	Rebecca Anderson 12/28/2020
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 waste would not be present on parcels at the leasing stage only during development and operations. Hazardous	Rebecca Anderson 12/22/2020

Determination	Resource	Rationale for Determination	Parcel Reviewer
		materials, if not handled properly that are associated with drilling and operations of wells, 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.	

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)			
NP	Areas of Critical Environmental Concern	Parcel 1169 is not within or contain areas identified as an ACEC.	Sheri Wysong 11/24/2020
NI	National Historic Trails	Parcel 1169 is over three miles from the mapped alignment of the Old Spanish Trail.	Sheri Wysong 11/24/2020
NI	Recreation	See the rationale in Table 3. Issues not included in Further Detail in the Environmental Assessment.	Sheri Wysong 11/24/2020
NI	Travel/Transportation	There are no scenic byways in the area.	Sheri Wysong 11/24/2020
NI	Visual Resources	Parcels 1169 is partially within Visual Resource Management (VRM) Class III and Class IV, which do not conflict with oil and gas leasing because they allow for moderate changes to the landscape.	Sheri Wysong 11/24/2020
NP	Wild and Scenic Rivers	No suitable or eligible WSR are in the vicinity of the parcel	Sheri Wysong 11/24/2020
NP	Wilderness/Wilderness Study Area	The parcel does not contain WAs or WSAs. Areas within WAs and WSAs are closed to leasing.	Sheri Wysong 11/24/2020
NP	Lands with wilderness characteristics	The parcel is not within an area identified as having wilderness characteristics.	Sheri Wysong 11/24/2020
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) Additional control and procedural information is documented in the Programmatic EIS Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States and its Record of Decision, (BLM 2007, BLM 2016). 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 GDP 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. Other constraints, including the use of certified weed free seed and vehicle/equipment wash stations, would be applied as necessary at the GDP 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 GDP 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>	Aaron Vollmer 10/14/20
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. 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</p>	For L.L. David Pals 10/21/20

		onshore orders in existence at the time of lease issuance. Additional detailed analysis in this EA is not necessary.	
NP	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.	For LL David Pals 10/21/20
Water Resources			
NI	Water Resources/ Quality (drinking/ surface/ ground)	<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. There are no identified ground or surface drinking water protection zones in the area of the lease parcels.</p> <p>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 Parcel 1169 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.</p> <p>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 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>	David Pals 10/15/20 Jared Dalebout 11/23/20

NI	Wetlands/ Riparian Zones / Floodplains	<p>Through resource knowledge and/or GIS analysis of the National Wetlands Inventory layer, Moab RMP data, Information for Planning and Consultation data (IPaC), local spring inventory and riparian data, no parcels were 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 these parcels would have the following stipulations attached, impacts from exploration/development to those resources would be prevented.</p> <p><u>Stipulations</u> UT-S-122 NSO- Floodplains, Riparian Areas, Springs, and Public Water Resources: Parcel 1169</p> <p><u>Lease Notices</u> UT-LN-128 Floodplain Management: Parcel 1169</p>	Gabriel J. Bissonette 10/7/20
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.	Aaron Vollmer 10/14/20
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.	Aaron Vollmer 10/14/20
NP	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.	For JR David Pals 10/21/20
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	Aaron Vollmer 10/14/20

		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.	
NP	Wild Horses and Burros	The parcels do not intersect herd areas or herd management areas.	Melissa Jennings 11/24/2020
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.	Lisa Wilkolak 10/13/20
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 sitting and design of facilities may be modified to protect other resources. Depending on the success of oil and gas drilling, non-renewable natural gas and/or oil would be extracted and delivered to market. Production would result in the irretrievable loss of these resources. The RFDS is documented at section 2.2.1. The Proposed Action would not exceed the level of activity predicted in the RFDS. Any oil and gas development can be managed to avoid or work within other mineral resources. Mining claims and Mineral Materials were checked on November 24, 2020. No active placer claims, or Mineral Material sites were found to be associated within any parcel. If the parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information is provided in Appendix G – Reasonably Foreseeable Development of Leases Scenario. “FracFocus,” is a database available to the public online at http://fracfocus.org/ . Public has expressed concerns that:	David Pals 10/15/20 Angela Wadman 11/19/2020 Melissa Jennings 11/24/2020

		<p>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> <p>Discharge of inadequately treated hydraulic fracturing wastewater to surface water resources.</p> <p>Before operators or service companies perform hydraulic fracturing treatment, a series of tests are performed 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>	
NP	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.	David Pals 10/15/20
NP	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.	David Pals 10/20/20

Appendix E – General Conformity Applicability

The Clean Air Acts (CAA) 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 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

Term	Meaning
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council for Historic Preservation
AGGI	Annual Greenhouse Gas Index
AMR	Air Resource Management Strategy Monitoring Report
AO	Authorized Officer
APD	Application for Permit to Drill
APE	Area of Potential Effects
ARMPA	Approved Resource Management Plan Amendment
AQRV	Air Quality Related Values
ARMS	Air Resource Management Strategy
BCR	Bird Conservation Region
BLM	Bureau of Land Management
BMP	Best Management Practice
CAA	Clean Air Act
CCFO	Cedar City Field Office
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIAA	Cumulative Impact Analysis Area
COA	Condition of Approval
CSU	Controlled Surface Use
DOE	Department of Energy
DOI	Department of Interior
DR	Decision Record
EA	Environmental Assessment
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Statement
EJ	Environmental Justice
EOI	Expression of Interest
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FFO	Fillmore Field Office
FLPMA	Federal Land Policy and Management Act
FOOGLRA	Federal Onshore Oil and Gas Leasing Reform Act
FONSI	Finding of No Significant Impact
GAO	Government Accountability Office
GHG	Greenhouse Gas
GHMA	General Habitat Management Area
GIS	Geographic information System
GRSG	Greater Sage-Grouse
GWP	Global Warming Potential
H	Handbook

Term	Meaning
HAP	Hazardous Air Pollutant
IBLA	Interior Board of Land Appeals
ID	Interdisciplinary
IDPRT	Interdisciplinary Parcel Review Team
IM	Instruction Memorandum
IPCC	Intergovernmental Panel on Climate Change
LWC	Lands with Wilderness Characteristics
LN	Lease Notice
LR2000	Legacy Rehost System
LRMP	Land and Resource Management Plan
LUP	Land use Plan
MbFO	Moab Field Office
MLA	Mineral Leasing Act
MLP	Master Leasing Plan
MOU	Memorandum of Understanding
MT	Metric Tons
MMT	Million Metric Tons
MtFO	Monticello Field Office
NAAQS	National Ambient Air Quality Standards
NCA	National Climate Assessment
NCLS	Notice of Competitive Lease Sale
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards For Hazardous Air Pollutants
NFS	National Forest System
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
NSO	No Surface Occupancy
O.O.	Onshore Oil and Gas Order
PD	Public Domain
PFO	Price Field Office
PHMA	Priority Habitat Management Area
PL	Public Law
PLPCO	Public Lands Policy Coordinating Office
PM	Particulate matter (diameter 2.5 micron or 10 micron follows)
PRMP	Proposed Resource Management Plan
PSD	Prevention of Significant Deterioration
RCP	Representative Concentration Pathways (scenario number follows, i.e. RCP-2)
RFD	Reasonably Foreseeable Development
RFDS	Reasonably Foreseeable Development Scenario
RFO	Richfield Field Office
RMP	Resource Management Plan
ROD	Record of Decision

Term	Meaning
ROW	Right of Way
S	Stipulation
SLFO	Salt Lake Field Office
SHPO	State Historic Preservation Office
SITLA	State Institutional Trust Lands Administration
SLFO	Salt Lake Field Office
SOP	Standard Operating Procedure
THPO	Tribal Historic Preservation Office
TL	Timing Limitation
UDAQ	Utah Division of Air Quality
UDOGM	Utah Division of Oil Gas and Mining
UDWR	Utah Division of Wildlife Resources
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish & Wildlife Service
UT	Utah
UTSO	Utah State Office
VFO	Vernal Field Office
WA	Wilderness Area
WO	Washington Office

Appendix G – Reasonably Foreseeable Development of Leases Scenario

Oil and Gas Leasing in Context to Statutes, Regulations, and Other Plans

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 26. Relationship to Statutes, Regulations, and Other Plans

Relevant Statute, Regulation, or Plan	Relationship to the Proposed Action
Federal Land Policy and Management Act (FLPMA)	Federal Land Policy and Management Act of 1976 (FLPMA) 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).
Mineral Leasing Act (MLA)	Mineral Leasing Act of 1920 (MLA) 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.
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	Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA) This act directs the BLM to conduct quarterly oil and gas lease sales whenever eligible lands are available for leasing.
Endangered Species Act (ESA)	Endangered Species Act of 1973 (ESA) 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.
National Historic Preservation Act (NHPA)	National Historic Preservation Act of 1966 (NHPA) 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.

Plan Conformance

It is the policy of the BLM as derived from various laws, including the MLA and the FLPMA, as amended, to promote the exploration and development of oil and gas in the public domain. Additionally, the FOOGLRA 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
- 36 CFR 60.4
- 36 CFR 261

Manuals¹

- 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

Handbooks²

- Competitive Leasing Handbook (H-3120-1)

Policies/Instruction Memoranda (IM)³

- 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)
- MOU Between United States Department of the Interior and United States Department of Agriculture Forest Service Concerning Oil and Gas Leasing and Operations (2006)

¹ BLM manuals can be accessed online at: <https://www.blm.gov/media/blm-policy/manuals>.

² BLM handbooks can be accessed online at: <https://www.blm.gov/media/blm-policy/handbooks>.

³ 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>.

State of Utah Plans/Rules

- Utah Wildlife Action Plan (2015)
- The Utah Oil and Gas Conservation Act (1955)
- The Utah Oil and Gas Conservation General Rules
- The State of Utah Resource Management Plan (State of Utah 2018)
- Utah Administrative Code R649-3. Drilling and Operating Practices

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 RMP4 (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

⁴ MtFO ROD, RMP/FEIS is located on ePlanning at <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage¤tPageId=98873>

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 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)

Reasonably Foreseeable Development of Leases Scenario

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 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

If the well is not dry, it goes on to the completion process, which often includes hydraulic fracturing (also known as fracking). Fracking is a well stimulation technique used to increase oil and gas production from many underground rock formations. If warranted for the geologic formation targeted, fracking would be proposed and 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. Recent technological developments (including horizontal drilling along with advanced fracking techniques) are now in use in hydrocarbon containing geologic formations that previously could not be profitably produced. Because Utah is not known to have these “unconventional” formations, these technological developments are not in widespread use in the State, however horizontal drilling is being utilized in conventional formations to reduce the number of wells required to fully exploit a reservoir.

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 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.

Water Quality and Consumption During Drilling and Completion

The State of Utah has primacy with regards to management of water quality and distribution of water (quantity). The BLM manages public land and management of these lands can affect the quality, quantity, and timing of flows of the waters through them. Because the State must comply with Federal laws, compliance with State laws includes compliance with Federal rules and regulations, including the Clean Water Act, Colorado River Salinity Compact, Safe Drinking Water Act, and others. Therefore, it is assumed that any discharged water would meet water quality standards at the point of discharge.

O.O. #1 requires the operator to develop and follow a Surface Use Plan of Operations (SUPO) for safe operations during drilling and adequate protection of surface resources, groundwater, and other environmental components. The SUPO requires the operator of disclose the source, access route, and transportation method for all water anticipated for use in drilling the proposed well. If the operator indicates it plans to drill a water supply well on the lease it must go through the permitting process with the Utah Division of Water Rights. If it plans to obtain water from an outside source, it must provide the source and a description of how water will be transported. In addition to water supply, the operator must provide plans for the eventual disposal of drilling fluids and any produced oil or water recovered during testing operation (see produced water handling below).

In the lease parcel areas oil and gas wells drilled to the primary target formation would average about 294,000 gallons of water or 0.9 acre-feet. These figures include water for dust suppression at each well pad, access road, and pipeline/utility corridor during construction activities (~0.08 acre-feet). The geologic formation targeted affects the actual amount of water consumed for each well by determining the

depth of the well and whether fracking is required. Other factors are borehole diameter, drilling method and equipment used. The water is used as a drilling and completion medium, for mixing cement, and for various cleanup operations. The source of this water is primarily obtained from municipalities and private sources with valid existing water rights, of which depletion and consumption has been considered by the State of Utah Division of Water Rights (BLM 2016).

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 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, 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 (USDOJ and USDA 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.

The earthquake rate increased in Oklahoma, southern Kansas, central Arkansas, and multiple parts of Texas (Rubinstein 2015) and is thought to be due to underground injection; however, 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. 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 I. Note: paragraph numbering was added. The BLM received [ongoing] comments. [Ongoing] comment letters that were received will be 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.

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
1.			
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<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
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Appendix I – Comments and Responses on the March 2021 Lease Sale. Only Parcel 1169 is Moving Forward

After the close of the March Lease Sale public comment period, a total of eight (8) parcels (7,053.96 acres) were removed from the lease sale. These eight (8) parcels included the four parcels located in Greater Sage-grouse habitat and the four parcels within the USFS Fishlake National Forest, three of USFS are also located in Greater-Sage grouse habitat. Therefore, a total of one parcel, 1169 (Moab Field Office) encompassing 158.66 acres is being considered for the 1st qtr. 2022 Lease Sale.

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 I. Note: paragraph numbering was added. The BLM received 11 comments. All the comment letters that were received will be posted on ePlanning. Due to the length, the BLM has summarized comments to the headers of WildEarth Guardians. The document, in its entirety, are included in the 11 comment letters that are published on ePlanning.

Note: After the close of the public comment period, a total of eight (8) parcels (7,053.96 acres) were removed from the lease sale. These eight (8) parcels included the four parcels located in Greater Sage-grouse habitat and the four parcels within the USFS Fishlake National Forest, three of USFS are also located in Greater-Sage grouse habitat. Therefore, a total of one parcel, 1169 (Moab Field Office) encompassing 158.66 acres is being considered for the June Lease Sale.

Number	Commenter	Comment	Response
1.	Adena Rice	This area holds intrinsic value to me as I recreate here frequently...in particular, parcels UT-2021-03-0708, UT-2021-03-0709, UT-2021-03-0711, UT-2021-03-0713, and UT-2021-03-0723 are within 10-mile buffer zones of a National Park or Monument. Every one of these parcels is also Greater Sage Grouse habitat (UTDWR 2016, BLM 2017, UTSGID 2001) and Mule Deer Crucial Winter Habitat (DWR 2015).	<p>There are no buffer zones around National Parks and Monuments. The National Park Service is provided information on lease sale parcels, and requested to express concerns about resources within the park that may be affected by development of the parcels. The NPS did not express concerns about these parcels.</p> <p>The parcels located in GRSG habitat were reviewed and analyzed using criteria identified in the 2015 Greater Sage-Grouse Approved Resource Management Plan Amendment (2015 ARMPA). As part of that plan, the parcels located in GRSG habitat were vetted through Utah's GRSG prioritization process. Refer to Appendix I. Those parcels identified as high priority for leasing at this time were allowed to move forward with the appropriate leasing stipulations identified in the 2015 ARMPA. Those identified as low priority for leasing at this time were deferred from further consideration.</p>
2.	Angie Prather	Please protect the wildlife and wild lands in this region by removing affected areas from the proposed parcels list...so that they will flourish, and our world will be enriched by biodiversity.	Comment noted. No response required.
3.	Christopher Lish	I strongly urge you to cancel the upcoming March 2021 lease sale in Utah... it could destroy important habitat for threatened wildlife, like the greater sage grouse. Indigenous communities are already disproportionately impacted from fossil fuel projects; adding more hydraulic fracturing and drilling near their communities will only add fuel to the fire.	The parcels located in GRSG habitat were reviewed and analyzed using criteria identified in the 2015 Greater Sage-Grouse Approved Resource Management Plan Amendment (2015 ARMPA). Parcels located in GRSG habitat were vetted through Utah's GRSG prioritization process. Those parcels identified as high priority for leasing at this time were allowed to move forward with the appropriate leasing stipulations identified in the 2015 ARMPA.

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
			<p>Those identified as low priority for leasing at this time were deferred from further consideration.</p> <p>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 (FOOGLRA) 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 the BLM has identified as high priority for leasing to prevent drainage. For the March 2021 Lease Sale, all parcels were nominated by the public.</p>
4.	Duchesne County Commissioners	<p>The Proposed Action conforms to the fluid mineral leasing decisions in the Vernal RMP and subsequent amendments, and are consistent with the RMP's goals and objectives for natural and cultural resources. BLM is bound by FLPMA to make decisions that are consistent, to the greatest degree possible, with state and county plans.</p> <p>Given the provisions in Utah Code associated with the Uintah Basin Energy Zone, there is no valid reason to withhold the parcels in Uintah County from the lease sale. It appears that the stipulations and lease notices for these parcels will be more than adequate to mitigate potential impacts to the environment, should the leases be</p>	Comment noted. No response required.

Number	Commenter	Comment	Response
		<p>developed in the future. Recent University of Wyoming study found that banning new oil and gas development on federal lands would have disastrous economic impacts over four years:</p> <ul style="list-style-type: none"> • Loss of 72,818 jobs across the West; 3,232 jobs annually in Utah. • Lost wages of \$19.6 billion across the West; including \$664 million in Utah. • Declining economic activity of \$43.8 billion across the West; including losses of \$1.3 billion in oil and gas investments, \$650 million in lost production, and \$1.4 billion in gross domestic product in Utah. • Reduced tax revenue of \$10.8 billion across the West; including a decrease of \$255 million in tax revenue to Utah. <p>This nation simply cannot afford the negative socio-economic impacts of stopping new oil and gas leasing on federal lands.</p>	
5.	Friends of the Earth (27,182 comments from individuals)	The Bureau of Land Management should be proactive in protecting threatened and endangered species throughout Utah, and not negatively impacting Indigenous communities... stop the proposed leasing of lands that contain Greater sage-grouse, and big game habitats which are slated for March 2021.	Comment noted, not substantive. No response required.
6.	Old Spanish Trail Association	OSTA is concerned by the apparent lack of action by BLM Field Offices to establish the required National Trail Management Corridor across Utah and legitimate determinations of OSNHT trail corridor widths.	This is beyond the scope of EA comments. Table 3 of the EA documents the consideration of impacts to the OSNHT from the proposal.
7.	Utah Public Lands Policy Coordinating Office	The State supports the proposed 9 parcels covering 7,212.62 acres located on public lands in Grand, Uintah, and Wayne counties. Uintah County supports the oil and gas industry and	Comment noted. No response required.

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
		considers development critical to the local economy. Wayne and Grand counties also recognize oil and gas development as providing high wage jobs and economic development for the local economies.	
8.	WildEarth Guardians/ Southern Utah Wilderness Alliance	<i>FONSI</i> The link BLM provided for the FONSI for the March 2021 lease sale was broken, and we request BLM provide this document and re-open both the FONSI and EA for public comment.	BLM made the unsigned, short FONSI available for an additional seven days, from January 21 to January 28, for comments.
9.	WildEarth Guardians/ Southern Utah Wilderness Alliance	<i>Airborne Radiation</i> Significant new information concerning ambient particle radioactivity from unconventional oil and gas development is also now available, which BLM must consider and assess. Researchers conducted a study using data collected from 157 radiation-monitoring stations across the U.S., which were built during the cold war in response to the nuclear threat. Scientists looked at data from these stations collected between 2001 and 2017 and compared it with the position and production records of 120,000 fracking wells. Analysis of this data shows that airborne radioactivity, particularly in areas within 20km of large fracking sites, is greater as compared with background levels. BLM must analyze this significant new information to determine whether the projected oil and gas development of the March 2021 lease sale, in conjunction with existing and reasonably foreseeable oil and gas development, may significantly impact public health in nearby	A recent study suggests that unconventional oil and gas development involving hydraulic fracturing (fracking) can create elevated particle radiation downwind (Longxiang, et al 2020). However, it has not been determined whether significant health impacts stemming from the increased particle radiation exist. Radioactive particles are EPA-regulated pollutants under National Emissions Standards for Hazardous Air Pollutants (NESHAP). If monitoring data were to suggest an unacceptable risk for a population, EPA could investigate the root cause and require contributing sources to come into compliance. This is not the case here and while the study showed the potential for increased emissions due to fracking it does not make a link between the concentrations and potential dose or exposure to downwind populations. The processes cited in the paper (drilling and completions) are short lived and the study also makes assumptions about development that are inconsistent with data obtained from operators and utilized by BLM in subsequent development analyses, mainly that the drilling and fluids flow back processes rely on open reserve pits. Many of the BLM projects authorized in high production areas employ green completion or closed loop systems (some of which are regulatory requirements that would limit the potential for particle radionuclide formation in the open

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
		communities in Utah, including communities in which BLM staff live and work.	<p>environment. As a broad area study, it suffers from a lack of project specific data that the BLM relies on in making subsequent analysis determinations for federally authorized projects.</p> <p>Finally, the peer reviews of the study are critical of the fact that the results may not merit any significance with respect to health concerns. The review prompted the authors to revise several elements of the draft language in response. We note that the potential health affects tied to specific dose rates the study relies upon are from findings published by the co-authors, not independent third parties which would provide a more robust assertion of the study in general. The peer reviews note that the elevated backgrounds associated with unconventional development are negligible relative to U.S. EPA and World Health Organization (WHO) background estimates of radiation in the indoor and outdoor environments. For example, the U.S. EPA reports that average indoor radon activity concentrations at 1300 Bq/m³, while the referenced study suggests an unconventional development increase of just 0.00014 Bq/m³.</p>
10.	WildEarth Guardians/ Southern Utah Wilderness Alliance	<p><i>Orphaned & Abandoned Wells</i></p> <p>It is reasonably foreseeable that many of the wells to be developed on the lands leased by BLM will ultimately be orphaned or abandoned before the wells are plugged and above-ground resources are fully remediated. BLM needs to take a hard look at the indirect environmental impacts from orphaned wells that are likely to be left unplugged and unreclaimed on the leased parcels, as well as the cumulative impacts from orphaned wells across Utah.</p>	<p>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. Part of that process is supplying adequate bonding for reclamation of such drilling plans. Best management practices are used in the drilling and abandonment of wells. Bond requirements follow 43 CFR 3154.1; however, additional bonding may be required if additional coverage is needed. The BLM is currently conducting an active reclamation program for abandoned wells per the WO Instruction Memorandum No. 2012-181. It is important to understand the terminology for plugged and abandoned wells as used by the BLM. Once the well is plugged (properly plugged downhole), the well is identified as abandoned because it is properly abandoned, and the</p>

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
			<p>well is no longer capable of any production. Immediately after the well is abandoned, final surface reclamation begins. Once the surface reclamation meets the BLM standards, the well is considered Plugged and Abandoned (P&A), the lessee is released from all future liability for the well, well-pad and access road, and their bond is released. Surface reclamation can last as long as 10 years or as short as 5 years due to the climate and drought cycles. The BLM mandates a 75 percent basal coverage for a successful reclamation and for approval of releasing liability from the lessee (Refer IM UTG000-2014-004, dated May 21, 2014, Green River District Reclamation Guidelines). The BLM will not relinquish the liability from the lessee prematurely or as a result of the number of years in abandonment status regardless of if it is 5, 10, 20 or 25 years until the criteria has been met. The BLM may require the lessee to reseed the reclaimed site more than once to ensure proper reclamation.</p> <p>Orphaned wells are those wells that have no lessee, owner, or bond, and were likely drilled prior to those requirements.</p> <p>Well abandonment is a formal process, much like drilling and production, the proper abandonment of a well requires BLM to perform onsite inspections and witness the plugging process.</p> <p>Cumulative impacts were analyzed in the applicable RMPs and EISs as detailed in the Reasonably Foreseeable Development scenarios.</p>
11.	WildEarth Guardians/ Southern Utah Wilderness Alliance	<p><i>Quantification of Cumulative GHG & Significance Assessment</i></p> <p>We request BLM correct and explain why the number from new well construction emissions for the Moab Field went from 2,733 MT CO₂e/yr in Utah BLM's January 2021 Supplemental Analysis for Greenhouse Gas Emissions Related to Oil and Gas Leasing in Utah, DOI-BLM-UT-0000-2021-0001-EA, to 0 MT CO₂e/yr in the March 2021 lease sale EA.</p>	<p>It is unclear to what the commenter is referring to with the new well construction emissions for the Moab Field Office. In Table 16, the single well construction value for Moab is listed as 2,733 MT CO₂e/y, not 0 MT CO₂e/y as is claimed.</p> <p>The commenter's claim that "Absent in the EA is an accounting of past GHG emissions from federal and non-federal oil and gas development in Utah and all other oil and gas producing states" is not factual. Estimates of GHG emissions from all (state, federal,</p>

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		Absent in the EA is an accounting of past GHG emissions from federal and non-federal oil and gas development in Utah and all other oil and gas producing states.	tribal, private) existing wells that have been developed on parcels offered in past lease sales is provided in Table 10. Emissions resulting from the development wells on Federal parcels in the region and nationally are incorporated by reference in Section 3.3.2.1 from the USGS report on GHG emissions from Federal Lands (USGS 2018). The commenter is encouraged to review Tables 13-15. Table 13 shows 2015 to 2018 GHG Emissions from Oil and Gas Development in Utah. Table 14 shows 2020 to 2050 Average Annual Long-term Foreseeable Oil and Gas Emissions. Table 15 provides aggregate Long-term Foreseeable Oil and Gas Emissions for Utah, including each field office within the state. Furthermore, information provided in Appendix F: Regional and National Federal Emissions, evaluates existing and potential future Federal fossil fuel emissions in the region and nation. Regional emissions include those that occur in Utah and neighboring fossil fuel producing states (Wyoming, Colorado, and New Mexico).
12.	WildEarth Guardians/ Southern Utah Wilderness Alliance	<p><i>Quantification of Significance of GHG & Climate Change</i></p> <p>BLM's assessment of the significance of direct, indirect, and cumulative impacts of climate change (based only on estimates of GHG emissions as a proxy) is incomplete and unhelpful to the public and the decisionmaker. The cumulative impact analysis of GHGs and climate change fails to add the potential emissions from the March 2021 lease sale to other past, present, and reasonably foreseeable emissions, in aggregate.</p> <p>We request BLM use other available and credible tools, including the social cost of carbon proto[co]l and/or carbon budgeting. If BLM declines this request, we further request BLM</p>	The EA already discloses the cumulative impacts of the other actions, including other state and Federal lease sales. Additionally, lease sales do not produce GHG emissions or authorize emissions producing activities. Emissions only occur after a drilling permit is approved and development occurs on a lease parcel. Estimates of GHG emissions from all (state, Federal, tribal, private) existing wells that have been developed on parcels offered in past lease sales is provided in Table 10. Emissions resulting from the development wells on Federal parcels in the region and nationally are incorporated by reference in Section 3.3.2.1 from the USGS report on GHG emissions from Federal Lands (USGS 2018). The commenter is encouraged to review Tables 13-15. Table 13 shows 2015 to 2018 GHG Emissions from Oil and Gas Development in Utah. Table 14 shows 2020 to 2050 Average Annual Long-term

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
		<p>explain how carbon budgets are helpful and appropriate to use in the context of RCPs but unhelpful and inappropriate to use in general.</p> <p>BLM determined it was appropriate to discuss RCPs in this EA but, at the same time, determined a discussion of carbon budgets would not be.</p>	<p>Foreseeable Oil and Gas Emissions. Table 15 provides aggregate Long-term Foreseeable Oil and Gas Emissions for Utah, including each field office within the state. Furthermore, information provided in Appendix F: Regional and National Federal Emissions, evaluates existing and potential future Federal fossil fuel emissions in the region and nation. Regional emissions include those that occur in Utah and neighboring fossil fuel producing states (Wyoming, Colorado, and New Mexico).</p> <p>NEPA does not require an economic cost-benefit analysis (40 CFR 1502.23), although NEPA does require consideration of “effects” that include “economic” and “social” effects (40 CFR 1508.8(b)).</p>
13.	WildEarth Guardians/ Southern Utah Wilderness Alliance	<p><i>Assessment of Significance of GHG & Climate Change Arbitrary & Capricious</i></p> <p>BLM analyzed GHG emission estimates from the March 2021 lease sale and other cumulative emissions, but GHG emissions are not the environmental effects of climate change, and an analysis thereof does not satisfy NEPA’s core requirements regarding impact analysis. By relying solely on volume estimates, BLM is precluded from meaningfully assessing the incremental impacts of climate change as required by NEPA. BLM must consider and measure “stock” in addition to “flow” of GHG emissions.</p>	<p>The commenter disagrees with the BLM methodology, which derives from case law. Emissions estimates themselves are presented for disclosure purposes and as a proxy for impacts. The impacts of GHG are qualitatively stated as contributing to climate change. Climate impacts are a result of global emissions as a whole and at present there are no informative methods for expressing the climate impacts from a single projects’ GHG emissions. In the EA, direct and indirect GHG emissions are used as a proxy for climate impacts, compared to state and national emissions, and expressed in terms of the equivalent amount of vehicles and home energy use to make the impacts from emissions relatable to public life. This approach is consistent with the Council on Environmental Quality draft Guidance on Consideration of GHG Emissions. In the absence of an ability to quantify that contribution, BLM uses proxy quantifications in accordance with case law.</p> <p>Foreseeable emissions from leasing can be compared to state and national emissions for context.</p>
14.	WildEarth Guardians/ Southern Utah	<p><i>Social Cost of Carbon</i></p> <p>The requirement to analyze the social cost of carbon is supported by the general requirements of NEPA and is specifically supported in federal case law. BLM’s analysis of the volume of GHG</p>	<p>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</p>

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	Wilderness Alliance	emissions in the EA fails to provide an assessment of the incremental impact of climate change. The social cost of carbon would and BLM should use this tool.	<p>estimates of any benefits or costs. NEPA does not require an economic cost-benefit analysis (40 CFR § 1502.23), although NEPA does require consideration of “effects” that include “economic” and “social” effects (40 CFR 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.</p> <p>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.</p>
15.	WildEarth Guardians/ Southern Utah Wilderness Alliance	<p><i>Carbon Budget</i></p> <p>We request BLM use a carbon budget to assess the significance of the direct, indirect, and cumulative climate change impacts from the challenged lease sales.</p> <p>BLM argues that carbon budgets are too uncertain to be a useful tool for evaluating the significance of GHG emissions, but forecasts and models can still be useful tools even though there may be uncertainties involved.</p>	<p>The commenter disagrees with BLM’s rationale for not preparing a carbon budget because the fact that there is uncertainty is not sufficient given that the BLM uses climate model projections based on the RCP scenarios that also contain uncertainty. However, the commenter misunderstands BLM’s rationale.</p> <p>The issue with carbon budgets is not that there is uncertainty in the budget but rather that the uncertainty is “substantial,” as identified by the IPCC (IPCC, 2018). The IPCC states that the uncertainty from the climate response from CO₂ and non-CO₂ emissions is ±</p>

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		BLM determined it was appropriate to discuss RCPs in this EA but, at the same time, determined a discussion of carbon budgets would not be.	<p>400 gigatons (Gt) CO₂, the level of historic warming contributes ± 250 Gt CO₂ of uncertainty, and another ± 250 Gt CO₂ from future non-CO₂ mitigation efforts. For the 50% probability budget of 580 Gt CO₂ for 1.5 °C, these uncertainties could mean that the budget has already been expended or is up to 900 Gt larger. This level of uncertainty is not useful and does not serve to inform the decision maker. By comparison, climate model projections are “quite accurate” (NASA, 2020) and the uncertainty in the models are not on the same scale as the uncertainty of carbon budgets.</p> <p>Additionally, carbon budgets were not developed for use as a consumption analysis for individual projects. The value the carbon budget shows how much emissions, or time, remains before carbon neutrality (net-zero emissions) must be achieved to limit warming to a certain threshold (e.g., 1.5°C or 2.0°C). To further determine the usefulness of carbon budgets the BLM has evaluated the time it would take to expend the budget with emissions from the lease parcels compared to the time it would take to expend the budget without emissions from the lease parcels. If annual global emissions remain at 46,140.95 MMT CO₂e (Table 9) it would take 12.57 years to consume the 1.5°C budget of 580 GT CO₂, and 32.51 years to consume the 2.0°C budget of 1500 Gt CO₂. Including lifetime emissions (1.067 MMT CO₂e) from the lease parcels would reduce the time it takes to consume the 1.5°C budget by 0.0036 days (5 minutes) and the 2.0°C budget by 0.0085 days (12 minutes). This method of carbon budget evaluation also shows that emissions from the proposed action have a minimal effect on the consumption of the total budget and is consistent with the information already presented in the EA.</p> <p>While the BLM finds that a carbon budget analysis is not useful for evaluating GHG emissions that may result from the development</p>

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
			of these parcels, the BLM sees value in discussing carbon budgets and their uncertainty in a global context as is done in section 3.3.2 of this EA.
16.	WildEarth Guardians/ Southern Utah Wilderness Alliance	<p><i>Site-specific Impacts Required in an EIS</i></p> <p>BLM defers site-specific analysis on a range of potential impacts in Table 3 despite providing a high level of site-specific analysis for other issues, such as its well assumption analysis. BLM must analyze the site-specific impacts from its decision to lease federal minerals at the lease sale stage.</p> <p>If BLM fails to perform site-specific analysis at the lease stage, its authority thereafter is limited to imposing mitigation measures consistent with the terms of the lease. In other words, BLM will not be able to impose conditions inconsistent with the lease terms and cannot deny the developer the right to drill altogether. Consequently, if BLM discovers significant impacts at the APD stage, they may no longer be able to prevent them.</p>	BLM conducts a site-specific review at every lease proposal and decides as to whether or not analysis of a particular resource is warranted separately from previous determinations. It provides the rationale for the determination in the interdisciplinary checklist. Site-specific analysis is not required unless reasonably foreseeable impacts were inadequately identified in previous analyses.
17.	WildEarth Guardians/ Southern Utah Wilderness Alliance	<p><i>BLM Fails to Take A “Hard Look” at the Impacts of Hydraulic Fracturing, Horizontal Drilling, and Associated Processes.</i></p> <p>If BLM plans to allow a new oil and gas extraction technique, the agency must analyze the impacts of this technique in either a programmatic or project-specific NEPA document. Fracking has not only opened up vast areas of minerals that were previously uneconomical to extract—thereby expanding the total land area impacted by development—the process of fracking also causes different and more intense impacts to our public health, air, water, land, and wildlife. We request BLM produce an EIS or revise the EA to provide more analysis</p>	This EA does not authorize any well drilling including hydraulic fracturing or horizontal drilling or other new technique. Such concerns would be analyzed in future site specific NEPA if the parcels are leased and if development is proposed. However, this EA does identify a reasonably foreseeable development scenario should the leases be issued and considers a “no leasing” alternative within the scope of the subject parcels. Site-specific effects cannot be analyzed until an exploration or development application is received, after leasing has occurred. However, any development proposal on the leases would be subject to the standard lease terms, and all applicable laws, regulations and onshore orders in existence at the time of lease issuance.

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
		<p>of the impacts of fracking on different resources.</p> <p><i>Water Quality</i></p> <p>BLM must not only quantify potential direct and indirect water usage but calculate cumulative water usage for the proposed lease sale and surrounding reasonably foreseeable actions, assess the current conditions and sustainability of water resources, and assess wastewater disposal methods.</p> <p><i>Produced Water</i></p> <p>The BLM is required to take a hard look at the impacts of fracking related waste under NEPA, as well as analyzing the cumulative impacts of the March 2021 lease sale in the context of existing and reasonably foreseeable future development in the area.</p>	<p>The occurrence of hydraulic fracturing is explained in the summary below.</p> <p>Refer to Appendix D. If the parcels are developed, wells within the parcels may be completed using hydraulic fracturing techniques. Additional information is provided in Appendix G. “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 are in proper order and will safely withstand the application of the fracture treatment pressures and flow rates. Operators must comply with O.O. #2 and O.O. # 7. If fracking should occur in an area where there is no vertical separation between the hydraulically fractured rock formation and the bottom of the potential underground drinking water source, fracking fluid may be introduced into the source. The potential impacts to groundwater resources in particular drinking water resources has been extensively studied by the EPA (EPA,2016). The amount of vertical and horizontal distances from fracturing activities to groundwater sources is determined at the APD stage. BMP’s, plugging and casing requirements shall be required to prevent flow back. In instances where no safe vertical or horizontal separation distances from fracturing and groundwater sources cannot be safely determined, fracturing activity will not be permitted and the APD denied.</p>

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
			<p>As disclosed in Appendix D, 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>Any hydraulic fracturing methods used is provided at the APD stage. Any assumption of methods used would be speculative as to what impacts to water resources would occur. The amounts of water required is highly variable. The appropriate state approved water right is required for industrial uses associated prior to drilling activities. Indirect impacts as a result of water use is speculative without water management information that is provided at the APD stage. In addition, the permitting of water use is beyond the scope and authority of the BLM. The BLM has the responsibility to</p>

Number	Commenter	Comment	Response
			monitor water impacts to other resources; however, water permitting is bound by state authority.
The comments below were provided after the extended comment period, January 21-28, see Section 1.11 for more information.			
18.	Old Spanish Trail Association (OSTA)	It is our recommendation and hope that BLM defers the lease sale of the two #1169 parcels managed by the Moab Field Office in proximity to the Old Spanish National Historic Trail (OSNHT).	Comment noted. Please see the discussion of Parcel 1169 in Table 3 of the EA.
19.	Old Spanish Trail Association (OSTA)	The Environment Assessment failed to acknowledge that the nearby trail segment is considered a component of the Book Cliffs High Potential Segment as published in the 2017 OSNHT Comprehensive Administrative Strategy.	The designation of a segment of the OSNHT as “high potential” is not relevant to this proposal. The same lease notice informing potential lessees of a constrained two-mile development area is applied to the entire alignment identified in the CAS, unless BLM is aware of or provided specific information about trail resources that may warrant a larger area.
20.	WildEarth Guardians/ Southern Utah Wilderness Alliance	BLM should not apply the [CEQ] Final Rule to this proposed lease sale because the Final Rule is significantly flawed and unlawful for the reasons we describe below. <ul style="list-style-type: none"> • CEQ acted arbitrarily, capriciously, and contrary to NEPA, in violation of the APA, 5 U.S.C. § 706(2), by failing to prepare an EA or Environmental Impact Statement (“EIS”) on the Final Rule, and by failing to evaluate alternatives to, and the full direct, indirect, and cumulative impacts of, the Final Rule; • CEQ acted arbitrarily, capriciously, and contrary to law by failing to analyze how the Final Rule and its implementation would affect the directive of Executive Order 12898 and CEQ’s longstanding policy and practice of fully analyzing the environmental justice impacts of its actions; 	This is beyond the scope of EA or FONSI comments.

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
		<ul style="list-style-type: none"> • CEQ violated NEPA and the APA by issuing regulations that are inconsistent with the statutory purpose and language of NEPA; and • CEQ acted in excess of statutory authority by issuing the Final Rule. 	
21.	Guardians/ Southern Utah Wilderness Alliance	We request BLM publish the FONSI complete with the rationale for its determination(s) and initiate a new 30-day public comment period for the complete version of the FONSI; and if BLM declines the request explain why it only provided the public an “unsigned short” version, and the legal basis.	There is no regulatory requirement to issue an unsigned FONSI with a preliminary EA, BLM issues a preliminary undetailed FONSI with its preliminary Lease Sale EAs, but waits to issue a detailed unsigned FONSI until after it has assessed public comments, Section 106 consulting party comments, and sufficient Section 7 coordination with the Fish and Wildlife Service has occurred. Information from these sources may result in the deferral of problematic parcels from the Notice of Competitive Lease Sale (NCLS). The revised version of the EA and detailed FONSI are subject to public review during the NCLS protest period.
22.	Guardians/ Southern Utah Wilderness Alliance	<p>BLM did not include a rationale for its determination that Alternative A would not result in significant impacts on the human environment.</p> <ol style="list-style-type: none"> 1. Specifically identifying the “adverse effects” BLM considered, as well as the effects from climate change it considered, when it evaluated the NEPA intensity factors; 2. Explaining, in detail, the methodology and/or significance threshold BLM used to determine that the adverse impacts from the proposed actions direct, indirect, and cumulative emissions are insignificant; 3. Explaining how the proposed action is not related to other actions with individually insignificant but cumulatively significant impacts, given that the U.S. Geological Survey Reports that emissions from fossil fuels produced on Federal lands represent, on average, 23.7% of national emissions for CO₂; 	See the response to comment 21.

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
		<p>4.Explaining the change in rate of climate change or the change in magnitude of the effects of climate change that BLM would consider significant and that BLM used as a threshold to determine the significance of the cumulative impacts associated with the proposed action; and</p> <p>5.Explaining, in detail, BLM’s reasoning for declining to weigh the significance of the proposed action’s cumulative impacts on the stock of GHG emissions currently in the atmosphere and the stock forecasted to exist in the atmosphere in the foreseeable future.</p>	
23.		<p>BLM failed to provide public notice of the March 2021 lease sale EA and FONSI by publication in the Federal Register and failed to explain why the cumulative impacts associated with the greenhouse gas emissions from the March 2021 lease are not of national concern.</p> <p>1.Initiate a new public comment period for the March 2021 EA and FONSI and publish notice of the comment opportunity and the environmental documents in the Federal Register; and</p> <p>2.If BLM declines the request above, explain why BLM is not obligated by 40 C.F.R. § 1506.6(b)(2) to publish notice in the Federal Register of the comment opportunity and environmental documents associated with the March 2021 lease sale.</p>	<p>BLM posts all NEPA related actions in its National ePlanning NEPA Register, and other venues that may be required by specific regulations and policies. It posts Federal Register Notices (FRN) when, among other actions, it prepares Resource Management Plans that result in decisions which lands will be open for leasing, and under which terms. It does not routinely post FRNs for actions implementing those decisions.</p> <p>During the comment period for the preliminary EA, BLM received a comment consisting of 27,182 short comment letters from recipients throughout the nation (see comment 5). That comment indicates that 1) BLM’s public outreach efforts reach a national audience regardless of whether it posts an FRN, and 2) based on the content of those letters, “the cumulative impacts associated with the greenhouse gas emissions from the March 2021 lease” sale were not effects of national concern.</p>
24.		<p>The Final Rule [CEQ] requires that BLM to consider whether or not the effects of a proposed action are significant. BLM failed to inform the public of its rationale for this</p>	<p>See the response to comment 21. Please see unsigned FONSI posted with the NCLS during Protest Period.</p>

<i>Number</i>	<i>Commenter</i>	<i>Comment</i>	<i>Response</i>
		<p>determination in accordance with the Final Rule. See 40 C.F.R. § 1506.3(b)(2). Accordingly, we request BLM:</p> <ol style="list-style-type: none">1. Explain how the short- and long-term effects of climate change to which greenhouse gas emissions caused by the March 2021 lease sale will contribute are not significant;2. Explain how the adverse effects of climate change to which greenhouse gas emissions caused by the March 2021 lease sale will contribute are not significant;3. Explain how the public health and safety impacts of climate change to which greenhouse gas emissions caused by the March 2021 lease sale will contribute are not significant; and4. In each of the explanations above, explain the threshold of significance BLM used to determine the significance of each of the effects from the March 2021 lease sale.	
25.	Mark Belles	<p>I am completely opposed to any further oil and gas leases in this critical, environmentally sensitive, area. Areas proposed for wilderness status by "America's Redrocks Wilderness Act should be designated as such.</p>	<p>Comment noted.</p>