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November 2011 Oil and Gas Lease Sale

Location: Vernal Field Office
Uintah County, Utah

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DOI-BLM-UT-G010-2011-0248-EA

1.0 PURPOSE & NEED 1
1.1 Introduction 1
1.2 Background 1
1.3 Purpose and Need of the Proposed Action 2
1.4 Conformance with BLM Land Use Plan 2
1.5 Relationship to Statutes, Regulations, or Other Plans 3
1.6 Identification of Issues 4
1.7 Summary 6
2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING THE PROPOSED ACTION 7
2.1 Introduction 7
2.2 Alternative A – Proposed Action 7
2.2.1 Well Pad and Road Construction 8
2.2.2 Production Operations 8
2.2.3 Produced Water Handling 9
2.2.4 Maintenance Operations 10
2.2.5 Plugging and Abandonment 10
2.3 Alternative B – No Action 10
2.4 Alternatives Considered but Not Carried Forward 10
3.0 AFFECTED ENVIRONMENT 11
3.1 Introduction 11
3.2 General Setting 11
3.3 Resources/Issues Brought Forward for Analysis 11
3.3.1 Fish and Wildlife Excluding U.S. Fish and Wildlife Service Designated Species 11
3.3.2 Migratory Birds 12
3.3.3 Non-WSA Lands with Wilderness Characteristics 13
3.3.4 Threatened, Endangered, Candidate or Sensitive Animal Species 13
3.3.5 Threatened, Endangered, Candidate or Sensitive Plant Species 15
3.3.6 Air Quality 17
4.0 ENVIRONMENTAL IMPACTS 20
4.1 Introduction 20
4.2 Alternative A – Proposed Action 20
4.2.1 Fish and Wildlife Excluding Threatened, Endangered, Candidate and Sensitive Species 20
4.2.2 Migratory Birds 20
4.2.3 Non-WSA Lands with Wilderness Characteristics 21
4.2.4 Threatened, Endangered, Candidate or Sensitive Animal Species 21
4.2.5 Threatened, Endangered, Candidate or Sensitive Plant Species 25
4.2.6 Air Quality 25
4.2 Alternative B – No Action 28
4.2.1 Fish and Wildlife Excluding Threatened, Endangered, Candidate and Sensitive Species 29
4.2.2 Migratory Birds 29

4.2.3 Non-WSA Lands with Wilderness Characteristics 29
4.2.4 Threatened, Endangered, Candidate or Sensitive Animal Species 29
4.2.5 Threatened, Endangered, Candidate or Sensitive Plant Species 29
4.2.6 Air Quality 29
4.3 Cumulative Impacts Analysis 29
4.3.1 Fish and Wildlife Excluding Threatened, Endangered, Candidate and Sensitive Species 30
4.3.2 Migratory Birds 30
4.3.3 Non-WSA Land with Wilderness Characteristics 30
4.3.4 Threatened, Endangered, Candidate, or Sensitive Animal Species 31
4.3.5 Threatened, Endangered, Candidate, or Sensitive Plant Species 31
4.3.6 Air Quality 33
5.0 CONSULTATION AND COORDINATION 35
5.1 Introduction 35
5.2 Persons, Groups, and Agencies Consulted 35
5.3 Summary of Public Participation 36
5.4 List of Preparers 39
6.0 REFERENCES, GLOSSARY AND APPENDICES 39
6.1 References Cited 39
6.2 List of Acronyms 40
6.3 List of Appendices 41
APPENDIX A 42
APPENDIX B 57
APPENDIX C 61
APPENDIX D 68

November 2011 Oil and Gas Lease Sale
DOI-BLM-UT-G010-2011-0248-EA

1.0 PURPOSE & NEED

1.1 Introduction

The Bureau of Land Management (BLM) has prepared this environmental assessment (EA) to disclose and analyze the environmental consequences of the sale of five parcels during the November 2011 oil and gas lease sale. The EA is a site-specific analysis of potential impacts that could result from the implementation of a proposed action or alternatives to the proposed action. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant impacts could result from the analyzed actions. Significance is defined by NEPA and is found in regulation 40 Code of Federal Regulations (CFR) 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of Finding of No Significant Impact (FONSI). A FONSI statement, for this EA would document the reasons why implementation of the selected alternative would not result in significant environmental impacts (effects) beyond those already addressed in the Vernal Field Office Record of Decision and Resource Management Plan (VFO ROD/RMP; BLM, 2008). If the decision maker determines that this project has significant impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record may be signed for the EA approving the selected alternative, whether the proposed action or another alternative.

1.2 Background

In general, the BLM Utah State Office (USO) conducts a quarterly competitive lease sale to sell available oil and gas lease parcels in the state. In the process of preparing a lease sale, the BLM USO compiles a list of lands nominated and legally available for leasing, and sends a draft parcel list the appropriate District Office where the parcels are located. District and Field Office staff then review and verify that the parcels are in areas available for leasing; that any new information that has become available, or any circumstances that have changed, are assessed to determine what level of analysis is required; that appropriate stipulations and notices can been included; that appropriate consultations have been conducted, when necessary; and that any special resource conditions are identified for potential bidders. The Field Office then either determines that existing analyses provide an adequate basis for leasing recommendations or that additional NEPA analysis is needed before making a leasing recommendation. In most instances an EA will be initiated for the parcels within the District or Field Office to meet the requirements of Washington Office (WO) Instruction Memorandum (IM) 2010-117. After the EA is complete, a list of available lease parcels and stipulations is made available as part of the analysis and also made available to the public for a 30-day public comment period on the BLM webpage. After analyzing and incorporating all comments received during the public comment period, changes to the document and/or lease parcels list are made, if necessary. The document is made available again for the protest period (30 days). The protest period ends 60 days before the scheduled lease sale and a list of available lease parcels and stipulations is made available to the public through a Notice of Competitive Lease Sale (NCLS). Lease stipulations and notices applicable to each parcel are specified in the sale notice.

This EA is being used to determine the necessary administrative actions, stipulations, lease notices, special conditions, or restrictions that would be made a part of an actual lease at the time of issuance. Under all alternatives, continued interdisciplinary support and consideration would be required to ensure on the ground implementation of planning objectives, including the proper implementation of stipulations, lease notices and Best Management Practices (BMPs) through the Application for Permit to Drill (APD) process.

The BLM received nominations for the five subject parcels to be leased for oil and gas development (see Appendix A, November 2011 Preliminary Oil and Gas Lease Sale List; Appendix B, Maps of Parcels). The surface and mineral rights for parcels UT1111-011 and UT1111-012 are owned by the federal government and administered by the VFO (see Appendix B). Fifty percent of the mineral rights of parcels UT1111-014, UT1111-015, and UT1111-016 are owned by the federal government and administered by the VFO (the surface for these parcels and the other fifty percent of the mineral rights are privately owned).

1.3 Purpose and Need of the Proposed Action

The parcels proposed for leasing were nominated by the public and by the USO. The need for the sale is to respond to the public's nomination requests. Offering parcels for competitive oil and gas leasing provides for the orderly development of fluid mineral resources under BLM's jurisdiction in a manner consistent with multiple use management and environmental consideration for the resources that may be present.

The purpose of the sale is to ensure that adequate provisions are included in the lease stipulations to protect public health and safety and assure full compliance with the objectives of NEPA and other federal environmental laws and regulations designed to protect the environment and mandating multiple use of public lands. Leasing may be necessary for parcels UT1111-011 and UT1111-012 to prevent drainage of Federal reserves by development on adjacent state or private leases. The sale of oil and gas leases is needed to meet the growing energy needs of the United States public. The BLM is required by law to review areas that have been nominated, and there has been ongoing interest in oil and gas exploration in the VFO area in recent years. Oil and gas leasing is a principal use of the public lands as identified in Section 102(a)(12), 103(1) of the Federal Land Policy and Management Act of 1976 (FLPMA), and it is conducted to meet requirements of the Mineral Leasing Act of 1920, as amended, the Mining and Minerals Policy Act of 1970, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (Reform Act). Leases would be issued pursuant to 43 CFR subpart 3100.

1.4 Conformance with BLM Land Use Plan

The Proposed Action and No Action alternatives described below are in conformance with VFO ROD/RMP, as maintained (BLM, 2008) because they are specifically provided for in the planning decision. They conform to the following Land Use Plan (LUP) decisions:

- MIN 6 – MIN 14 (pages 98-99) identifies those specific lands within the VFO that are available for leasing as illustrated on its corresponding Oil and Gas Leasing map (Figure 8a).
- Appendices K (Surface Stipulations to all Surface Disturbing Activities), L (Utah's T&E and Special Status Species Lease Notices for Oil and Gas and BLM Committed Measures) and R (Fluid Mineral Best Management Practices) contain pertinent stipulations, lease notices and committed measures.

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

Standard lease terms provide for reasonable measures to minimize adverse impacts to specific resource values, land uses, or users (Standard Lease Terms are contained in Form 3100-11, Offer to Lease and Lease for Oil and Gas, U.S. Department of the Interior, BLM, June 1988 or later edition). Although once the lease has been issued, the lessee has the right to use as much of the leased land as necessary to explore for, drill for, extract, remove, and dispose of oil and gas deposits located under the leased lands, unless it is leased under a No Surface Occupancy (NSO) stipulation, 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. Compliance with valid, nondiscretionary statutes (laws) is included in the standard lease terms and would apply to all lands and operations that are part of all of the alternatives.

Nondiscretionary actions include the BLM's requirements under federal environmental protection laws, such as the Clean Water Act, Clean Air Act, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and FLPMA, which are applicable to all actions on federal lands even though they are not reflected in the oil and gas stipulations in the RMP and would be applied to all potential leases regardless of their category. Also included in all leases are the two mandatory stipulations for the statutory protection of cultural resources (BLM WO IM-2005-03, Cultural Resources and Tribal Consultation for Fluid Minerals Leasing) and threatened or endangered species (BLM WO IM-2002-174, Endangered Species Act Section 7 Consultation), described in Sections 4.3.1.1 and 4.3.1.4, respectively. BLM would also encourage industry to consider participating in US Environmental Protection Agency's (EPA) Natural Gas STAR program under all alternatives. The program is a flexible, voluntary partnership between EPA and the oil and natural gas industry wherein EPA works with companies that produce, process, transmit and distribute natural gas to identify and promote the implementation of cost-effective technologies and practices to reduce emissions of methane, a greenhouse gas.

1.5 Relationship to Statutes, Regulations, or Other Plans

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

- Title V of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776, 43 U.S.C. 1761) as amended and the regulations issued there under at 43 Code of Federal Regulations, part 2800
- Taylor Grazing Act of 1934 as amended
- Utah Standards and Guidelines for Rangeland Health (1997)
- BLM Utah Riparian Management Policy (2005)
- Section 106 of the National Historic Preservation Act of 1966, as amended
- Bald and Golden Eagle Protection Act of 1962
- Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), as amended

- BLM Manual 6840- Special Status Species Management
- Migratory Bird Treaty Act
- Utah Partners in Flight Avian Conservation Strategy Version 2.0
- Birds of Conservation Concern 2002
- Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds
- MOU between the USDI BLM and USFWS to Promote the Conservation and Management of Migratory Birds (4/2010)
- Utah Supplemental Planning Guidance: Raptor Best Management Practices (BLM UTSO IM 2006-096)
- Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (U.S. Department of Interior, Bureau of Land Management, June 2007)
- Oil and Gas Leasing Reform – Land Use Planning and Lease Parcel Reviews (BLM WO IM 2010-117)
- Greater Natural Buttes Supplement to the Draft Environmental Impact Statement (2011)

These documents, and their associated analysis, are hereby incorporated by reference, based on their use and consideration by various authors of this document. The attached Interdisciplinary Team Checklist, Appendix C, was also developed after consideration of these documents and their contents. Each of these documents is available for review upon request from the VFO. Utah's Standards for Rangeland Health address upland soils, riparian/wetlands, desired and native species and water quality. These resources are either analyzed later in this document or, if not impacted, are also listed in Appendix C.

1.6 Identification of Issues

The proposed action was reviewed by an interdisciplinary parcel review (IDPR) team composed of resource specialists from the VFO. This team identified resources in the parcel areas which might be affected and considered potential impacts using current office records and geographic information system (GIS) data, and site visits. Notice of the lease sale, parcel locations and site visit date was also provided to the superintendents of Dinosaur National Monument. The same notice and coordination efforts were also conducted with the U.S. Fish and Wildlife Service (USFWS), the State of Utah's Public Land Policy Coordination Office (PLPCO), Utah Division of Wildlife Resources (UDWR) and the US Forest Service (USFS). The BLM Utah State Office (USO) specialists for air quality, paleontology, and solid minerals also reviewed the proposal. The IDPR team conducted a site visit to validate existing data and gather new information in order to make an informed leasing recommendation on April 27, 2011. The results of the IDPR team review are contained in the Interdisciplinary Team Checklist, Appendix C.

Public notification was initiated by entering the project information on the Environmental Notification Bulletin Board (ENBB[1]), a BLM environmental information internet site on March 29, 2011. The EA and unsigned FONSI will be posted for public review and comment from June 15, 2011 to July 15, 2011. The protest period for the November 2011 Oil and Gas Lease Sale is anticipated to run from August 15, 2011 through September 15, 2011. Additional information for the public is maintained on the Utah BLM Oil and Gas Leasing Webpage[2]. Additional information on public participation is available in Section 5.3.

The following issues were considered, but eliminated from further analysis:

- Areas of Critical Environmental Concern
- Cultural Resources
- Environmental Justice
- Farmlands (Prime or Unique)
- Floodplains
- Fuels/Fire Management
- Geology / Mineral Resources / Energy Production
- Hydrologic Conditions
- Invasive, Non-native Species
- Lands / Access
- Livestock Grazing
- Native American Religious Concerns
- Paleontology
- Rangeland Health Standards
- Recreation
- Socio-Economics
- Soils
- Wastes, Hazardous or Solid
- Water Resources/Quality (drinking/ground)
- Waters of the US
- Wetlands / Riparian Zones
- Wild and Scenic Rivers
- Wilderness and Wilderness Study Areas
- Woodland / Forestry
- Visual Resources
- Wild Horses and Burros
- BLM Sensitive Animal Species
- BLM Natural Areas

[1] Accessed online at: https://www.blm.gov/ut/enbb/index.php
[2] Accessed online at: http://www.blm.gov/ut/st/en/prog/energy/oil_and_gas/oil_and_gas_lease.html

In addition, BLM considered disturbed desert dust and its impacts to mountain snowpacks or as a precursor to climate change, as an issue brought forward during the EA public comment period. BLM has no way of assessing possible impacts based on the information provided at the leasing phase, BLM believes that this issue is best incorporated into the overall management of air quality in which Environmental Protection Agency (EPA) and the State of Utah (both agencies with expertise and jurisdiction by law) have agreed to certain attributes in which to monitor and manage air quality with the BLM.

These issues were eliminated from analysis because they were either not applicable to the lands considered in the proposed action or the reviewing specialists did not consider the proposed action to represent a potential impact to these issues, under applicable leasing protective measures provided through the VFO ROD/RMP, 2008. Rationale as to why these resources or issues were not carried forward for analysis is also contained in the Interdisciplinary Team Checklist (Appendix C).

1.7 Summary

This chapter has presented the purpose and need of the proposed project, as well as resources that could be affected by the implementation of the proposed project. In order to meet the purpose and need of the proposed project in a way that resolves the issues, the BLM has considered and/or developed a range of action alternatives. These alternatives are presented in Chapter 2. The potential environmental impacts or consequences resulting from the implementation of each alternative considered in detail are analyzed in Chapter 4 for each of the identified issues.

2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING THE PROPOSED ACTION

2.1 Introduction

This environmental assessment focuses on the Proposed Action and No Action alternatives. Other alternatives were not considered in detail because the issues identified during scoping did not indicate a need for additional alternatives or mitigation beyond those contained in the Proposed Action. The No Action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the Proposed Action.

2.2 Alternative A – Proposed Action

Five nominated parcels (UT1111-011, UT1111-012, UT1111-014, UT1111-015 and UT1111-016) within the jurisdiction of the VFO have been proposed for sale in the November 2011 Oil and Gas Lease Sale to be held at the Utah BLM State Office. The nominated parcels would be offered with additional resource protection measures consistent with the VFO RMP (BLM, 2008). Legal descriptions of each nominated parcel can be found in Appendix A, and maps of the nominated parcels can be found in Appendix B.

Leasing is an administrative action that affects economic conditions but does not directly cause environmental consequences. However, leasing is considered to be an irretrievable commitment of resources because the BLM generally cannot deny all surface use of a lease unless the lease is issued with a NSO stipulation. Potential oil and gas exploration and production activities, committed to in a lease sale, could impact resources and uses in the planning area. Direct, indirect, or cumulative effects to resources and uses could result from as yet undetermined and uncertain future levels of lease exploration or development.

Although at this time it is unknown when, where, or if future well sites or roads might be proposed on any leased parcel, should a lease be issued, site specific analysis of individual wells or roads would occur when a lease holder submits an APD (Application for Permit to Drill). For the purposes of this analysis, it is assumed that one well pad with road and pipeline would be constructed on each lease subject to the terms, conditions, and stipulations of the lease. In general, activities are anticipated to take place as described in the following sections.

Standard lease terms would be attached to all issued leases. These terms provide for reasonable measures to minimize adverse impacts to specific resource values, land uses, or users (Standard Lease Terms are contained in Form 3100-11, Offer to Lease and Lease for Oil and Gas, U.S. Department of the Interior, BLM, June 1988 or later edition). Once the lease has been issued, the lessee has the right to use as much of the leased land as necessary to explore for, drill for, extract, remove, and dispose of oil and gas deposits located under the leased lands subject to lease stipulations, however, 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.

Compliance with valid, nondiscretionary statutes (laws) is included in the standard lease terms and would apply to all lands and operations that are part of all of the alternatives. Nondiscretionary actions include the BLM's requirements under federal environmental protection laws, such as the Clean Water Act, Clean Air Act, ESA, NHPA, and FLPMA, which are applicable to all actions on federal lands even though they are not reflected in the oil and gas

stipulations in the RMP and would be applied to all potential leases regardless of their category. Also included in all leases are the two mandatory stipulations for the statutory protection of cultural resources (BLM WO IM-2005-03, Cultural Resources and Tribal Consultation for Fluid Minerals Leasing) and threatened or endangered species (BLM WO IM-2002-174, Endangered Species Act Section 7 Consultation).

BLM would also encourage industry to consider participating in EPA's Natural Gas STAR program under all alternatives. The program is a flexible, voluntary partnership between EPA and the oil and natural gas industry wherein U.S. Environmental Protection Agency's (EPA) works with companies that produce, process, transmit and distribute natural gas to identify and promote the implementation of cost-effective technologies and practices to reduce emissions of methane, a greenhouse gas.

2.2.1 Well Pad and Road Construction

Equipment for well pad construction would consist of dozers, scrapers, and graders. All well pads would be reclaimed according to the standards established in the Green River District Reclamation Guidelines (IM UTG000-2011-003). Topsoil from each well pad would be stripped to a maximum depth of six inches and stockpiled for future reclamation. The topsoil would be spread over the interim reclamation area, seeded, left in place for the life of the well, and then used during the final reclamation process. Disturbance for each well pad would be estimated at an area of approximately 350 feet by 250 feet (~2 acres of land), including topsoil piles. For this analysis, it was assumed that disturbance for well pads could be as high as 6 acres per well to account for any infrastructure (e.g., pipelines) that would be required if the wells were to go into production (see section 2.2.2). Disturbed land would be seeded with a mixture (certified weed free) and rate as recommended or required by the BLM.

Depending on the locations of the proposed wells, it is anticipated that some new or upgraded access roads would 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. It is not possible to determine the distance of road that would be required because the location of the wells would not be known until the APD stage. However, for purposes of analyses it is assumed that disturbance from access roads would be approximately 1.8 acres of disturbance for each well (0.5 mile of road/well).

2.2.2 Production Operations

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

All permanent surface structures would be painted a flat, non-reflective color (e.g., juniper green) specified by the BLM in order to blend with the colors of the surrounding natural environment. Facilities that are required to comply with the Occupational Safety and Health Act (OSHA) will 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, however, it is estimated oil would be transported to a Salt Lake City refinery at least once a week, using 280-barrel tanker trucks.

If natural gas is produced, construction of a gas sales pipeline would be necessary to transport the gas. An additional Sundry Notice, right of way (ROW) and NEPA analysis would be completed, as needed, for any pipelines and/or other production facilities proposed across public lands. BLM BMPs (Best Management Practices), such as burying the pipeline 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. 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. Included in the Gold Book are environmental BMPs; these measures are designed to provide for safe and efficient operations while minimizing undesirable impacts to the environment.

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

2.2.3 Produced Water Handling

Water is often associated with either produced oil or natural gas. Water is separated out of the production stream and can be temporarily stored in the reserve pit for 90 days. Permanent disposal options include discharge to evaporation pits or underground injection. Handling of produced water is addressed in Onshore Oil and Gas Order No. 7.

2.2.4 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 recontoured and reclaimed, as an interim reclamation of the site.

2.2.5 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 recontoured, and topsoil would be replaced, scarified, and seeded within 180 days of the plugging the well.

2.3 Alternative B – No Action

Under the No Action alternative none of the nominated parcels would be offered for sale.

2.4 Alternatives Considered but Not Carried Forward

In addition to the five parcels currently presented in the proposed action there were originally two other parcels considered for leasing. Parcel UT1111-004 which is composed of 13 different subparcels located in T 11S R 10 E sections 8, 9, 10, 11, 15, 17, 18, 19, 20, 29, 30, 31 and 33 was deferred. Excessive snow level prohibited the ID team from visiting the site until after the EA completion date. Parcel UT1111-013 was deferred because of sage-grouse concerns and the presence of a National Science Foundation withdrawal on the parcel. These parcels may or may not be addressed in a future leasing decision document, but they will not be carried forward for consideration in this document.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

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

3.2 General Setting

The proposed action would result in the leasing for oil and gas development of five parcels within the VFO. Two of the parcels are located on BLM administered lands. The remaining three are on private surface with 50% federal mineral interest. See Appendix A for legal descriptions.

Parcel UT1111-011

This parcel is located approximately ¾ of a mile east of the Green River on Wildhorse Bench. It encompasses 338 acres of low and black sagebrush communities. The landscape varies from plains to moderately steep draws. No major drainages or floodplains exist within the parcel. The parcel is within the Desolation Canyon non-WSA land with wilderness characteristic and is bisected by two excluded roads approximately 1.5 miles in total length and encompassing 27.3 acres (including associated islands).

Parcel UT1111-012

Parcel 012 is located between Pelican Lake and the Ouray National Wildlife Refuge on BLM administered land. The landscape is composed of gently rolling hills with sandy soil. The hills are covered in a mixture of grass and shrubs. No major drainages cross the parcel.

Parcels UT1111-014, UT1111-015, UT1111-016

These three parcels are all located on private land with a 50% federal mineral interest. All three parcels are located along North Myton Bench west of Roosevelt, UT. Parcels 014 and 015 are on active agricultural lands. Parcel 016 appears to be undeveloped pasture land located along a canal.

3.3 Resources/Issues Brought Forward for Analysis

3.3.1 Fish and Wildlife Excluding U.S. Fish and Wildlife Service Designated Species

General Wildlife

Several species occur within the parcels, such as small mammals, birds, raptors, and snakes. The documented or potential occurrence of important habitat values for fish and wildlife is shown in **Table 1**, below. In general the parcels contain shrub steppe, semi-desert and desert vegetation types (salt-desert shrub vegetative community) or agricultural land that provide habitat for a variety of wildlife species including the cottontail rabbit, black-tailed jackrabbit, coyote, red fox, badger, striped skunk, and various species of amphibians and rodents. Although all of these species are essential members of wildlife ecosystems, most are common and have widespread distributions within the parcels including the surrounding region. Consequently, the relationship of most of these species within the parcels are not discussed in the same depth as species that are

threatened, endangered, sensitive, of special economic interest, or are otherwise of high public interest or unique value; however impacts to these species would be similar in nature to those of special statues species.

Raptors

Special status raptor species are addressed in section 3.3.4. Common raptors, including the red-tailed hawk, Cooper's hawk, sharp-shinned hawk, American kestrel, northern harrier, great horned owl, and a few other less common species utilize each of the habitat types within the project area and may be present year round or for certain times of the year. Nesting tends to be concentrated around cliffs, large trees, embankments, and other habitat features. Raptor management is guided by BLM's Best Management Practices for Raptors and Their Associated Habitats in Utah (2006). These are best management practices which are BLM-specific recommendations for implementation of the U.S. Fish and Wildlife Service, Utah Field Office's "Guidelines for Raptor Protection from Human and Land Use Disturbances" ("Guidelines"). The "Guidelines" were originally developed by the Fish and Wildlife Service in 1999, and were updated during 2002 to reflect changes brought about by court and policy decisions and to incorporate Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. The "Guidelines" were provided to BLM and other land-managing agencies in an attempt to provide raptor management consistency, while ensuring project compatibility with the biological requirements of raptors, and encouraging an ecosystem approach to habitat management. The best management practices include timing limitations and controlled surface measures to protect raptor species.

3.3.2 Migratory Birds

Special status raptor species are addressed in section 3.3.4. The parcels contain mostly shrub steppe habitat. Rocky outcrops and cliffs provide raptor nest sites. All of these areas provide habitat for migratory birds.

The Migratory Bird Treaty Act of 1918 protects migratory birds and their parts. Executive Order 13186, signed on January 10, 2001, directs federal agencies to evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern. Birds of Conservation Concern (USFWS 2002) identify the migratory bird species of concern in different Bird Conservation Regions (BCRs) in the United States. The parcels are within BCR 16 (Southern Rockies/Colorado Plateau). Species lists for BCR16 have been reviewed and the potential exists for several migratory bird species, currently designated as species of concern, to nest within the parcels, primarily between April and September. The majority of parcel UT1111-012 has been designated by the Utah Steering Committee as a Bird Habitat Conservation Area (BHCA) (USC 2005). BHCA's are intended to display areas where bird habitat conservation projects may take place, predicated on concurrence, collaboration, and cooperation with all landowners involved; however, the BHCA's have no official status. The BHCA that occurs within the parcel is the Upper Green River BHCA# 25 (USC 2005).

3.3.3 Non-WSA Lands with Wilderness Characteristics

Parcels UT1111-012, UT1111-014, UT1111-015, and UT1111-016 are not located within non-WSA lands with wilderness characteristics. However, parcel UT1111-011 falls within the Desolation Canyon Unit 1; non-WSA lands with wilderness characteristic area. The terrain within the area varies from the Green River bottoms and floodplains to the high ridges of the Tavaputs Plateau at nearly 9,500 feet in elevation. Numerous mesas, ridges, plateaus, canyons, and remote drainages intersect the Green River. The unit contains a variety of vegetation ranging from the riparian zones along the river, piñon-juniper woodlands, and areas with saltbush, sagebrush, and shadscale. The higher ridges may have stands of aspen, spruce, and fir.

The area was reviewed in February of 2007 by an interdisciplinary team, and as summarized in the Vernal RMP proposed plan/FEIS, on pages 3-43 through 3-48 is natural in condition. While there are human made developments, except as provided below, they are scattered and their individual and cumulative impact on the natural character of the area is minor. The imprints are in various stages of natural rehabilitation and substantially unnoticeable as a whole. The expansive landscape, diverse topography, and vegetation screen intrusions from sight within the area. The area is large enough to provide opportunities for solitude on its own as a large, remote area where visitors are isolated from the outside world. The vast size, configuration, numerous scenic vistas, and diversity of vegetation and landform provide the visitor with numerous places to be alone while providing opportunities for primitive and unconfined recreation. Most of the unit is remote, accessible only by foot, horseback, or boat. The unit contains many supplemental wilderness values, including cultural, scenic, geologic, botanical, and wildlife values. Habitats within the area range from desert canyons to high mountain environments. That portion of the inventory unit where parcel 011 is located contains a single upgraded road that provides access to adjoining state land; the road branches to two developed well pads.

3.3.4 Threatened, Endangered, Candidate or Sensitive Animal Species

BLM manages sensitive species in accordance with BLM Manual 6840 with the objective to initiate proactive conservation measures that reduce or eliminate threats to these species to minimize the likelihood of and need for listing of these species under the ESA. Special status species are, collectively, the federally listed or proposed and Bureau sensitive species, which include both Federal candidate species and delisted species within 5 years of delisting. There are 57 BLM Utah sensitive species, including 12 species under conservation agreement and 4 candidate species. Of these, 52 species occur or potentially occur within the VFO. The Utah sensitive species lists also includes federally listed species. VFO has used available data sources to determine if potential lease parcels fall within known habitat for BLM or UDWR sensitive species. After site-specific review, it has been determined that the threatened, endangered, candidate and sensitive species listed in **Table 1** may occur within the project area or be affected by the proposed action.

Table 1. Threatened, Endangered, Candidate, or Sensitive Animal Potential Occurrence

Species	Status	Potential Occurrence and Habitat Type	Parcels
Fish			
Bonytail Chub, Colorado Pikeminnow, Humpback Chub, Razorback Sucker	Endangered	These species occurs in the Green River. Habitat is not present within the proposed project area; however, water depletion is anticipated to occur.	All parcels
Bluehead Sucker, Flannelmouth Sucker, Roundtail Chub	Conservation Agreement Species	These species occurs in the Green River. Habitat is not present within the proposed project area; however, water depletion is anticipated to occur.	All parcels
Mammals			
White Tailed Prairie Dog	BLM Sensitive	Inhabits grasslands, plateaus, plains and desert shrub habitats. Prairie dogs are an obligate species to several other state-sensitive species, such as Ferruginous hawk, Mountain plover, and Burrowing owl, in that these species depend on them for food, shelter, and nesting habitat or habitat manipulation. All parcels have prairie dog habitat. Also, all parcels have active prairie dog colonies except for parcel 11.	All parcels
Townsend's Big-Eared Bat, Big Free-Tailed Bat, Spotted Bat, Fringed Myotis	BLM Sensitive	These species potentially occurs throughout Utah; however, no occurrence records exist for the extreme northern or western parts of the state. Known occurrences have been reported in northeastern Uintah County. Habitat is present within the proposed project area.	All parcels
Raptors			
Bald Eagle	BLM Sensitive, Bird of Conservation Concern	Bald eagles utilize ungulate winter ranges that provide carrion, and areas of open water such as the Green River. Roosting habitat does occur within the proposed project area.	UT1111-012
Golden Eagle	BLM Sensitive, Bird of Conservation Concern	Throughout the summer, golden eagles are found in mountainous areas, canyons, shrub-land and grassland. During the winter they inhabit shrub-steppe vegetation, as well as wetlands, river systems and estuaries. Golden eagles are quite common to Uintah County. All parcels contain foraging habitat however no known nest exist within them.	All parcels

Species	Status	Potential Occurrence and Habitat Type	Parcels
Ferruginous Hawk	BLM Sensitive, Bird of Conservation Concern	This species is known to occur in the West Desert and the Uinta Basin as a summer resident and a common migrant. Within the Uinta Basin, the species is more associated with prairie dog colonies as the main prey base. All parcels contain foraging habitat however no known or documented Ferruginous hawk nests are within ½ mile of the proposed project.	All parcels
Burrowing Owl	BLM Sensitive, Bird of Conservation Concern	Desert, semi-desert shrubland, grasslands, and agriculture areas. Nesting consists of flat, dry, and open terrain; short vegetation; and mammal burrows (within northeastern Utah primarily in association with prairie dog complexes) for nesting and shelter. Foraging habitat exists in all parcels. Nesting habitat exists within all parcels except parcel 11.	All parcels except parcel 11
Migratory Birds			
Gray Vireo	Bird of Conservation Concern	Dry shrubby areas, chaparral, and sparse woodlands. Habitat is present within the proposed project area.	All parcels
Grasshopper Sparrow	Bird of Conservation Concern	In Utah, the species is widespread and has been known to breed in Uintah, Duchesne, and Daggett counties. Habitat is present within the proposed project area.	All parcels
Brewer's Sparrow	Bird of Conservation Concern	Desert and shrubland/chaparral. Habitat is present within the proposed project area.	All parcels

3.3.5 Threatened, Endangered, Candidate or Sensitive Plant Species

Clay reed mustard (Schoenocrambe argillacea)

Clay reed-mustard is a perennial herb and a member of the mustard family. It is federally listed as threatened and is endemic to the lower Uinta and upper Green River Shale formations in the Bookcliffs of Uintah County, Utah. It consists of a sparsely leafed stem arising from a stout, woody base. From mid-April through mid-May, clay reed-mustard produces 3.5 to 4.5-millimeter wide lilac to white flowers that have prominent purple veins.

Clay reed-mustard typically occurs on steep hillsides and canyons on clay soils derived from the contact zone between the Uinta and Green River geologic formations. The typical plant community in clay reed-mustard habitat is the salt desert shrub community.

Potential and suitable habitat for the species has been identified in the western portion of parcel UT1111-011 and within 300 feet of the edge of this parcel.

Uinta Basin hookless cactus (Sclerocactus wetlandicus)

Uinta Basin hookless cactus is a perennial herb and a member of the cactus family. It is federally listed as threatened and is endemic to the Uinta Basin. It consists of a perennial succulent shoot, solitary or rarely branching, globose, ovoid or cylindrical. Individuals are usually 3 to 9 centimeters in diameter and 4 to 12 centimeters. Each spine cluster, areoles, usually consists of one large (15 to 29 millimeters) central spine, three to four lateral central spines, and six to ten radial spines. From late April to May, Uinta Basin hookless cactus produces 2.5 to 5-centimeter high pink to violet flowers.

The ecological amplitude of Uinta Basin hookless cactus is wide, being found from clay badlands up to the pinyon-juniper habitat. The preferred habitat occurs on river benches, valley slopes, and rolling hills consisting of xeric, fine textured, clay soils, derived from the Duchesne River, Green River, Mancos, and Uinta formations, overlain with a pavement of large, smooth, rounded cobble. The typical plant community in Uinta Basin hookless cactus habitat is the salt desert shrub community.

All of parcel UT1111-011 and the majority of parcel UT1111-012 are located within an area the US Fish and Wildlife Service has designated as being potential habitat for Uinta Basin hookless cactus.

Ute ladies-tresses (Spiranthes diluvialis)

Ute ladies-tresses is a perennial herb and a member of the orchid family. It is federally listed as threatened. It consists of an above ground rosette of thickened grass-like leaves. From mid-July through August, produce solitary flowering stems, terminating in a spike of 3 to 15 white to ivory flowers.

Ute ladies-tresses usually inhabits gravelly sand or sandy loam soils within wet meadows, stream or lake margins, abandoned stream meanders, riparian sandbars, and sub-irrigated springs and seeps, between 4,400 and 6,810 feet in elevation. In general, the species is intolerant of shade, preferring open, grass, sedge, and forb-dominated sites.

Based on aerial imagery and a drive by of the parcels, it appears that there may be riparian habitat within parcels UT1111-015 and UT1111-016 on private surface. If riparian habitat is present, there may be suitable habitat for Ute ladies-tresses.

Yucca (Yucca sterilis)

Yucca sterilis is a Utah BLM sensitive plant species, apparently endemic to the Uinta Basin. This member of the asparagus family (formally a member of the agave family) is perennial subshrub that arises from a deep-seated horizontal rhizome. The plant produces white flowers that are not known to produce viable seed. Known occurrences of the species are found growing in sandy soils. However, this species is new to the UT BLM sensitive plant species list and as such has not been extensively surveyed for nor is the range and exact habitat requirements fully understood. Therefore, at this time, any sandy soils within the parcels UT1111-011 and UT1111-012 have to be assumed to be potential habitat for the species.

3.3.6 Air Quality

The Project Area is located in the Uinta Basin, a semiarid, mid-continental climate regime typified by dry, windy conditions and limited precipitation. The Uinta Basin is subject to abundant sunshine and rapid nighttime cooling. Wide seasonal temperature variations typical of a mid-continental climate regime are also common. Existing point and area sources of air pollution within the Uinta Basin include the following:

- Exhaust emissions (primarily CO, NO_x, $PM_{2.5}$, and HAPs) from existing natural gas fired compressor engines used in transportation of natural gas in pipelines;
- Natural gas dehydrator still-vent emissions of CO, NO_x, $PM_{2.5}$, and HAPs;
- Gasoline and diesel-fueled vehicle tailpipe emissions of VOCs, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$;
- Oxides of sulfur (SO_x), NO_x, and fugitive dust emissions from coal-fired power plants and coal mining and processing;
- Fugitive dust (in the form of PM_{10} and $PM_{2.5}$) from vehicle traffic on unpaved roads, wind erosion in areas of soil disturbance, and road sanding during winter months; and
- Long-range transport of pollutants from distant sources.

The Uinta Basin is designated as attainment or unclassified under the Clean Air Act, meaning that the concentration of criteria pollutants in the ambient air is less than the National Ambient Air Quality Standards (NAAQS), or adequate air monitoring is not available to make an attainment determination. NAAQS are standards that have been set for the purpose of protecting human health and welfare with an adequate margin of safety. Pollutants for which standards have been set include sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM_{10}) or 2.5 microns in diameter ($PM_{2.5}$). Airborne particulate matter (PM) consists of tiny coarse-mode (PM_{10}) or fine-mode ($PM_{2.5}$) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. $PM_{2.5}$ is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM_{10} is primarily from crushing, grinding, or abrasion of surfaces.

NAAQS have also been set for ground-level ozone (O_3), which is a secondary pollutant that is formed by a photochemical reaction between NO_X and VOCs in the presence of sunlight. Precursor sources of ozone include motor vehicle exhaust and industrial emissions, gasoline vapors, some tree species emissions, wood burning, and chemical solvents. Ozone is generally considered a summertime air pollution problem, due to the abundant sunshine and presence of vegetative VOC's. Ozone is a regional air quality issue because, along with its precursors, it transports hundreds of miles from its origins. Maximum ozone levels may occur at locations many miles downwind from the sources.

The Utah Division of Air Quality (UDAQ) estimates background air quality as guidance for regulatory modeling of permitted sources to insure NAAQS compliance. These background values are used in dispersion models which need a background value to add to a proposed point sources emissions so that an evaluation can be made on whether the source will meet NAAQS. These background estimates are based on monitored values when possible, and on default factors when monitoring data does not exist. UDAQ does not estimate ozone and $PM_{2.5}$ background values, as the models used to determine impacts from these pollutants estimate background as part of the overall modeling calculations. **Table 2** lists the latest regulatory background values from UDAQ for the Uinta Basin.

Table 2. Ambient Criteria Pollutant Concentrations in the Uinta Basin

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (µg/m^3)	NAAQS (µg/m^3)
SO_2	Annual 24-hour 3-hour	5 10 20	80 365 1,300
NO_2	Annual	17	100
PM_{10}	24-hour	28	150
CO	8-hour 1-hour	1,111 1,111	10,000 40,000

Active ozone monitoring in the Uinta Basin began in the summer of 2009. Both of these monitoring sites have recorded numerous exceedences of the 8 hour ozone standard during the winter months (January through March). While the monitors are not currently being operated to CFR standards, and as such are not considered adequate data to make a NAAQS determination, the data is considered viable and representative of the area. Apparently, high concentrations of ozone are being formed under a "cold pool" process whereby stagnate air conditions with very low mixing heights form under clear skies with snow-covered ground and abundant sunlight that, combined with area precursor emissions (NO_x and VOCs), create intense episodes of ozone. Based on the monitoring to date, these episodes occur only during the winter months (January through March). This phenomenon has also been observed in similar types of locations in Wyoming and has contributed to a proposed nonattainment designation for Sublette County. The National Park Service also operates an ozone monitor in Dinosaur National Monument during the summer months. No exceedences of the current ozone NAAQS have been recorded at this site.

Winter ozone formation is a newly recognized issue, and the methods of analyzing and managing this problem are still in development. Existing photochemical models are currently unable to replicate winter ozone formation satisfactorily, in part due to the very low mixing heights associated with the unique meteorology of these ambient conditions. Based on the emission inventories developed for Uintah County, the most likely dominant source of ozone precursors in the Uinta Basin are oil and gas operations in the vicinity of the monitors. The monitors are located in remote areas where impacts from other human activities are unlikely to be majorly contributing to this ozone formation. While ozone precursors can be transported large distances, the meteorological conditions under which this cold pool ozone formation is occurring tends to preclude any major transport. At the current time ozone exceedences in this area seem to be confined to the winter months during periods of intense surface inversions and low mixing heights. Substantial work still remains to be done to definitively identify the sources of ozone precursors contributing to the observed ozone concentrations. In particular, speciation of gaseous air samples collected during periods of high ozone is needed to determine which VOC s are present and what their likely sources are.

The complete EPA Ouray and Redwash monitoring data can be found at:
http://www.epa.gov/airexplorer/index.htm

The complete NPS Dinosaur National Monument monitoring data can be found at:
http://www.nature.nps.gov/air/Monitoring/MonHist/index.cfm

The UDAQ conducted limited monitoring $PM_{2.5}$ in Vernal, Utah that started in December 2006. During the 2006-2007 winter season, $PM_{2.5}$ levels were measured at the Vernal monitoring station higher than the $PM_{2.5}$ health standard that became effective in December 2006. The $PM_{2.5}$ levels recorded in Vernal were similar to other areas in northern Utah that experience wintertime inversions. The sources of elevated $PM_{2.5}$ concentrations during winter inversions in Vernal, Utah haven't been identified as of yet. The most likely causes of elevated $PM_{2.5}$ at the Vernal monitoring station are probably those common to other areas of the western US (combustion and dust) plus nitrates and organics from oil and gas activities in the Basin. $PM_{2.5}$ monitoring that has been conducted in the vicinity of oil and gas operations in the Uinta Basin have not recorded any exceedences of either the 24 hour or annual NAAQS. Monitoring for $PM_{2.5}$ is currently ongoing in the Uinta Basin.

Hazardous air pollutants (HAPs) are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental impacts. The EPA has classified 187 air pollutants as HAPs. Examples of listed HAPs associated with the oil and gas industry include formaldehyde, benzene, toluene, ethylbenzene, isomers of xylene (BTEX) compounds, and normal-hexane (n-hexane). There are no applicable Federal or State of Utah ambient air quality standards for assessing potential HAP impacts to human health.

Greenhouse gases keep the planet's surface warmer than it otherwise would be. But, as the concentrations of these gases continue to increase in the atmosphere, the Earth's temperature is climbing above past levels. According to NOAA and NASA data, the Earth's average surface temperature has increased by about 1.2 to 1.4º F in the last 100 years. The eight warmest years on record (since 1850) have all occurred since 1998, with the warmest year being 1998. However, according to the British Meteorological Office's Hadley Centre (BMO 2009), the United Kingdom's foremost climate change research centre, the mean global temperature has been relatively constant for the past nine years after the warming trend from 1950 through 2000. So while most scientists believe that Earth will continue to warm in the future, this warming has not occurred for the past ten years. Therefore, quantified or globally accepted predictions on the ultimate outcome of global warming are still unknown. The warmest year on record was 1998, a year associated with the most intense El Nino global phenomena ever experienced. Most of the warming from 1950 through 2000 is speculated to be the result of human activities. Other aspects of the climate, such as rainfall patterns, snow and ice cover, and sea level, are also changing.

Based on the combination of methods available to estimate background air quality in the Uinta Basin some general and specific conclusions can be made regarding existing air quality in the project area. Ozone is the primary pollutant of concern, with a potential seasonal pattern the opposite of what is typically considered for ozone. Ozone concentrations during winter inversion events are being monitored well above the current ozone NAAQS. Summer ozone concentrations, while elevated above what would be considered normal background levels, are below the current NAAQS but may become an issue if EPA lowers the existing standard. $PM_{2.5}$ at this time does not appear to be an issue in rural areas of the Uinta Basin, though concentrations in urban settings have been recorded above the NAAQS during winter inversion events. This is not an unusual occurrence, even in smaller rural communities, and is typically due to a combination of woodstoves and vehicle emissions (especially diesel). Other criteria pollutants do not appear to be an issue at this time, and are anticipated to all be well below applicable NAAQS concentrations.

4.0 ENVIRONMENTAL IMPACTS

4.1 Introduction

This chapter discusses the environmental consequences of implementing the alternatives described in Chapter 2. Under NEPA, actions with the potential to affect the quality of the human environment must be disclosed and analyzed in terms of direct and indirect effects—whether beneficial or adverse and short or long term—as well as cumulative effects. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by an action but occur later or farther away from the resource. Beneficial effects are those that involve a positive change in the condition or appearance of a resource or a change that moves the resource toward a desired condition. Adverse effects involve a change that moves the resource away from a desired condition or detracts from its appearance or condition. Cumulative effects are the effects on the environment that result from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions.

The No Action alternative (offer none of the nominated parcels for sale), serves as a baseline against which to evaluate the environmental consequences of the Proposed Action alternative (defer two of the nominated parcels and offer five of the parcels for sale with additional resource protective measures). For each alternative, the environmental effects are analyzed for the resources that were carried forward for analysis in Chapter 3.

4.2 Alternative A – Proposed Action

This section analyzes the impacts of the proposed action to those potentially impacted resources described in the Affected Environment (Chapter 3).

4.2.1 Fish and Wildlife Excluding Threatened, Endangered, Candidate and Sensitive Species

The issuance of leases would not directly impact fish and wildlife resources on the nominated parcels. Chapter 3 identifies species and habitats which could be potentially impacted through future actions on leased parcels. Project-specific impacts relating to future authorizations cannot be analyzed until an exploration or development application is received, however for both general wildlife and raptors, impacts are assumed to include the direct loss and fragmentation of habitat upon construction of a well pad with its associated road and pipeline. In addition, noise disturbances from increased traffic levels could temporarily displace wildlife species.

Appropriate lease stipulations and notices have been included within the Proposed Action to protect wildlife and raptor habitat values (see Appendix A). Impacts to general wildlife are not expected to reach a level that would require adding a lease notice to the parcel.

4.2.2 Migratory Birds

The issuance of leases would not directly impact migratory birds on the nominated parcels. However, the issuance of leases does convey an expectation that construction and drilling could occur. Chapter 3 identifies that migratory birds occur on all parcels and could be potentially impacted through future actions on leased parcels. Project-specific impacts relating to future authorizations cannot be analyzed until an exploration or development application is received, however it assumed to include the direct loss and fragmentation of habitat upon construction of a well pad with its associated road and pipeline. In addition to the direct loss and fragmentation of

habitat associated with the Proposed Action, noise disturbances from increased traffic levels could temporarily displace migratory birds, however the lease notices attached to these parcels will mitigate/minimize these impacts.

Application of the migratory bird lease notice (UT-LN-45 Migratory Birds) would be adequate for the leasing stage to disclose potential restrictions to facilitate the reduction of potential impacts upon receipt of a site specific APD.

4.2.3 Non-WSA Lands with Wilderness Characteristics

The Desolation Canyon Unit 1 non-WSA lands with wilderness characteristics consists of 81,019.3 acres found to possess wilderness character. Unit 1 of the Desolation Canyon non-WSA lands with wilderness characteristics consists of lands inventoried within the Vernal Field Office and the Price Field Office. Parcel UT1111-011 which is within the Vernal Field Office is proposed to be 347.55 acres all of which fall within the Desolation Canyon Unit 1 wilderness characteristics area. Under the assumption that at least one well would be drilled on the lease, approximately 6 acres would be disturbed. The total percent of Desolation Canyon Unit 1wilderness characteristics potentially affected by the proposed action could range between -0.004% if the entire parcel is developed (347.55 ac) to less than 0.00007% (6 acres) if only one well is developed. Impacts from drilling activity would be limited to the complete loss of naturalness on the drill pad site; while there would be an impact to solitude and primitive unconfined recreation on that acreage immediately contiguous to any oil/gas activity the effect would not be detrimental to the wilderness characteristics of Desolation Canyon Unit 1 as a whole because outstanding opportunities for solitude and outstanding opportunities for primitive and unconfined recreation are not required to be present on every acre of land identified to possess wilderness characteristics. It is assumed that where development occurs, wilderness characteristics would be lost at the site of the impact.

4.2.4 Threatened, Endangered, Candidate or Sensitive Animal Species

The issuance of leases would not directly impact threatened, endangered, candidate, or sensitive animal species or habitat. However, the issuance of leases does convey an expectation that construction and drilling could occur. Chapter 3 identifies species and habitats which could be potentially impacted through future actions on leased parcels. Project-specific impacts relating to future authorizations cannot be analyzed until an exploration or development application is received, however it assumed to include the direct loss and fragmentation of habitat upon construction of a well pad with its associated road and pipeline. In addition to the direct loss and fragmentation of habitat associated with the Proposed Action, noise disturbances from increased traffic levels, or water depletion (for fish) could temporarily displace wildlife species. Refer to **Table 3** for a brief summary of anticipated impacts should development occur.

Table 3. Threatened, Endangered, Candidate, or Sensitive Animal Potential Impacts

Species	Potential Impacts
Bonytail Chub, Colorado Pikeminnow, Humpback Chub, Razorback Sucker	All parcels have potential for drilling activities to use water from Green River system. Water depletions reduce the ability of the river to create and maintain the primary constituent elements that define critical habitats. Food supply, predation, and competition are important elements of the biological environment. Food supply is a function of nutrient supply and productivity, which could be limited by reduction of high spring flows brought about by water depletions. Predation and competition from nonnative fish species have been identified as factors in the decline of the endangered fishes.
Bluehead Sucker, Flannelmouth Sucker, Roundtail Chub	All parcels have potential for drilling activities to use water from Green River system. Water depletions reduce the ability of the river to create and maintain the primary constituent elements that define critical habitats. Food supply, predation, and competition are important elements of the biological environment. Food supply is a function of nutrient supply and productivity, which could be limited by reduction of high spring flows brought about by water depletions. Predation and competition from nonnative fish species have been identified as factors in the decline of the endangered fishes.
White Tailed Prairie Dog	Construction of roads and well pads could result in the loss of habitat and fragmentation, making it less suitable for the establishment of colonies. As traffic volumes and/or project-related activities increase, adjacent habitats may be avoided due to human presence, noise, and the potential influx of invasive weeds.
Townsend's Big-Eared Bat, Big Free-Tailed Bat, Spotted Bat, Fringed Myotis	Construction of roads and well pads could result in the loss of foraging habitat, making it less suitable for bats. As traffic volumes and/or project-related activities increase, adjacent habitats may be avoided due to human presence, noise, and the potential influx of invasive weeds.
Bald Eagle	Bald eagles are sensitive to human activity; they may avoid areas where construction and drilling activities are taking place. As traffic volumes and/or project-related activities increase, adjacent habitats may be avoided due to human presence and noise.
Golden Eagle	Potential effects of the Proposed Action on raptor species include 1) increased indirect impacts (including poaching and collisions with vehicles), 2) direct loss or degradation of potential nesting and foraging habitats from construction and drilling, and 3) indirect disturbance from human activity (including harassment, displacement, and noise).
Ferruginous Hawk	Potential effects of the Proposed Action on raptor species include 1) increased indirect impacts (including poaching and collisions with vehicles), 2) direct loss or degradation of potential nesting and foraging habitats from construction and drilling, and 3) indirect disturbance from human activity (including harassment, displacement, and noise).
Burrowing Owl	Potential effects of the Proposed Action on raptor species include 1) increased indirect impacts (including poaching and collisions with vehicles), 2) direct loss or degradation of potential nesting and foraging habitats from construction and drilling, and 3) indirect disturbance from human activity (including harassment, displacement, and noise).

Species	Potential Impacts
Gray Vireo	The proposed action would result in a loss of habitat for migratory birds. Direct impacts to nesting and breeding migratory birds may occur, depending upon the time of construction and drilling. If development occurs in the spring, during the nesting season for most migratory birds, impacts would be greater than if development occurred between late summer and late winter. Impacts to birds during the spring could include nest abandonment, reproductive failure, displacement, and destruction of nests.
Grasshopper Sparrow	The proposed action would result in a loss of habitat for migratory birds. Direct impacts to nesting and breeding migratory birds may occur, depending upon the time of construction and drilling. If development occurs in the spring, during the nesting season for most migratory birds, impacts would be greater than if development occurred between late summer and late winter. Impacts to birds during the spring could include nest abandonment, reproductive failure, displacement, and destruction of nests.
Brewer's Sparrow	The proposed action would result in a loss of habitat for migratory birds. Direct impacts to nesting and breeding migratory birds may occur, depending upon the time of construction and drilling. If development occurs in the spring, during the nesting season for most migratory birds, impacts would be greater than if development occurred between late summer and late winter. Impacts to birds during the spring could include nest abandonment, reproductive failure, displacement, and destruction of nests.

The following Endangered Species Act (ESA) related stipulation (in accordance with WO IM - 2002-174) will be applied to all parcels:

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

Table 4 lists all additional lease notices and stipulations that will also be applied to the indicated parcels:

Table 4. Threatened, Endangered, Candidate, or Sensitive Animal Potential Occurrence

Species	Lease Notice or Stipulations	Parcels
Bonytail Chub, Colorado Pikeminnow, Humpback Chub, Razorback Sucker	T&E-03 Endangered Fish of the Upper Colorado River Drainage Basin UT-LN-49 Utah Sensitive Species	All Parcels
Bluehead Sucker, Flannelmouth Sucker, Roundtail Chub	UT-LN-49 Utah Sensitive Species	All parcels
White Tailed Prairie Dog	UT-LN-25 White-Tailed And Gunnison Prairie Dog UT-LN-49 Utah Sensitive Species	All parcels
Townsend's Big-Eared Bat, Big Free-Tailed Bat, Spotted Bat, Fringed Myotis	UT-LN-49 Utah Sensitive Species	All parcels
Bald Eagle	T&E-01 Bald Eagle UT-LN-37 Bald Eagle Habitat UT-LN-49 Utah Sensitive Species UT-S-278Controlled Surface Use – Bald Eagle Winter Roost	UT1111-012
Golden Eagle	UT-S-261 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Raptor Habitat UT-LN-49 Utah Sensitive Species	UT1111-011
Ferruginous Hawk	UT-S-261 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Raptor Habitat UT-LN-49 Utah Sensitive Species	All parcels
Burrowing Owl	UT-S-261 No Surface Occupancy/Controlled Surface Use/Timing Limitation – Raptor Habitat UT-LN-49 Utah Sensitive Species	All parcels
Gray Vireo	UT-LN-45 Migratory Birds UT-LN-49 Utah Sensitive Species	All parcels
Grasshopper Sparrow	UT-LN-45 Migratory Birds UT-LN-49 Utah Sensitive Species	All parcels
Brewer's Sparrow	UT-LN-45 Migratory Birds UT-LN-49 Utah Sensitive Species	All parcels

Application of these lease notices to each of parcels on federal surface would be adequate for the leasing stage to disclose potential future restrictions and to facilitate the reduction of potential impacts upon receipt of a site specific APD.

4.2.5 Threatened, Endangered, Candidate or Sensitive Plant Species

The issuance of leases would not directly impact threatened, endangered, candidate, or sensitive on the nominated parcels. However, as the BLM generally cannot deny all surface use of a lease unless the lease is issued as a No Surface Occupancy stipulation, the issuance of leases does convey an expectation that drilling and development would occur. Chapter 3 identifies species that could be impacted through future actions on leased parcels. Beyond the potential loss or damage to individuals these impacts include direct dispersed and indirect impacts including: the loss of suitable habitat for the species and its pollinators; increased competition for space, light, and nutrients with invasive and noxious weed species introduced and spread due to surface disturbing activities; accidental spray or drift of herbicides used during invasive plant control; altered photosynthesis, respiration, and transpiration due to increased fugitive dust resulting from the surface disturbance and project related traffic.

For the parcels on federally managed surface, application of the appropriate species-specific lease notices and application of the following two lease notices UT-LN-49 (Utah sensitive species) and UT-LN-51 (Special Status Plants: Not Federally Listed), as well as the application of species specific lease notices (T&E 05, T&E 12, and T&E 20) to the appropriate parcels would be adequate for the leasing stage to disclose potential restrictions against future authorizations. As the BLM's consultation requirements under Section 7 (a) (2) of the Endangered Species Act of 1973 as Amended apply to all actions that are authorized funded, or carried out by the BLM, the appropriate species-specific lease notice will be required for the parcels on private surface and future developments on these leases will be required to survey for and avoid or mitigate the impacts to the species. However, given that BLM's jurisdiction on parcels UT1111-014, UT1111-015, and UT1111-016 is restricted to the 50% interest in the mineral rights, any individuals found on private surface are owned by the landowner, these plants are assumed to be lost by the USFWS in the Biological Opinions, Five Year Reviews, and Recovery Plans should the landowner decide not to protect them. The site specific impacts to the identified species and their respective habitats resulting from future authorizations connected to the proposed leases cannot be analyzed until an exploration or development application is received, individual species surveys are completed, and avoidance and mitigation measures developed for any identified occupied habitat.

4.2.6 Air Quality

The act of leasing would not result in changes to air quality. However, should the leases be issued, development of those leases could impact air quality conditions. It is not possible to accurately estimate potential air quality impacts by computer modeling from the project 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, so this discussion will remain qualitative. Prior to authorizing specific proposed projects on the subject lease parcels quantitative computer modeling using project specific emission factors and planned development parameters (including specific emission source locations) will need to be conducted to adequately analyze direct and indirect potential air quality impacts. Air quality dispersion modeling which may be required includes impact analysis for demonstrating compliance with the NAAQS, plus analysis of impacts to Air Quality Related Values (i.e. deposition, visibility), particularly as they might affect nearby Class 1 areas (National parks and Wilderness areas).

An oil or gas well, including the act of drilling, is considered to be a minor source under the Clean Air Act. Minor sources are not controlled by regulatory agencies responsible for implementing the Clean Air Act. In addition, control technology is not required by regulatory agencies at this point, since the Uinta Basin is considered to be in attainment of the NAAQS. Different emission sources would result from the two site specific lease development phases: well development and well production.

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

During well production there are continuous emissions from separators, condensate storage tanks, and daily tailpipe and fugitive dust emissions from operations traffic. During the operational phase of the Proposed Action, NO_x, CO, VOC, and HAP emissions would result from the long-term operation of condensate storage tank vents, and well pad separators. Additionally, road dust (PM_{10} and $PM_{2.5}$) would be produced by vehicles servicing the wells.

Project emissions of ozone precursors, whether generated by construction and drilling operations, or by production operations, would be dispersed and/ or diluted to the extent where any local ozone impacts from the Proposed Action would be indistinguishable from background or cumulative conditions. The primary sources of HAPs are from oil storage tanks and smaller amounts from other production equipment. Small amounts of HAPs are emitted by construction equipment. However, these emissions are estimated to be less than 1 ton per year. Based on the negligible amount of project-specific emissions, the Proposed Action is not likely to violate, or otherwise contribute to any violation of any applicable air quality standard, and may only contribute a small amount to any projected future potential exceedance of any applicable air quality standards.

Lease stipulation UT-S-01 Air Quality, which regulates the amounts of NOx emission per horse-power hour based on internal combustion engine size, would be attached to all parcels. However, additional air impact mitigation strategies have recently been developed in the Uinta Basin. These are listed in the below mitigation section.

Emissions Inventory Parcels Within the WTP Project Area:

Air quality was analyzed for the parcels within the WTP EIS[3] and all information can be found within the Air Quality Technical Report (Appendix J), as such BLM is tiering to this EIS. This Report includes a near field dispersion model and meteorology, exposure thresholds, sub grid impacts and air pollutant results, including an emissions discussion. This air quality analysis remains valid because the RFD has not changed and remains current.

These parcels occur within the Unita Basin where an additional air analysis was completed for the Greater Natural Buttes EIS that also addressed regional settings, standards, emissions data (including production and operation values), modeling procedures, assessment/reporting of impacts, and greenhouse gas emissions. BLM is incorporating by reference the relevant portions of this EIS, as supplement.

[3] As per the Price Field Office November 2011 Lease Sale EA (DOI-BLM-UT-G021-2011-0030-EA).

Emissions Inventory for Parcels Outside of WTP Project Area:

Due to the very small level of anticipated development (1 well per year), an emission inventory (EI) has not been conducted for the parcels that occur outside of the WTP project area. A typical oil and gas well EI is estimated for the purpose of this analysis and is based on the following analysis assumptions:

- Each oil and gas well would cause 6 acres of surface disturbance. This acreage is divided into 5 acres for road and pipeline construction and 1 acre for well pad construction.
- Construction activity for each well is assumed to be 10 days. It is further assumed that, based on the acreage disturbed, 4.5 days would be spent in well pad construction and 5.5 days would be spent in road and pipeline construction.
- Control efficiency of 25% for dust suppression would be achieved as a result of compliance with Utah Air Quality regulation R307-205.
- Post construction particulate matter (dust) emissions are likely to occur on a short term basis due to loss of vegetation within the construction and staging areas. Assuming appropriate interim reclamation, these emissions are likely to be minimal to negligible and will not be considered in this EA.
- Drilling operations would require 14 days.
- Completions and testing operations would require 3 days.
- Off road mobile exhaust emissions from heavy equipment during construction activities and on road mobile emissions will not be considered as they are dispersed, sporadic, temporary, and not likely to cause or contribute to exceedence of the National Ambient Air Quality Standards.
- The estimated EI for the typical well includes particulate matter of less than 10 micrometers in diameter (PM_{10}), nitrogen oxides (NOx), carbon monoxide (CO), and volatile organic compounds (VOC). Emissions of sulfur dioxide (SO2) and lead (Pb) from oil and gas development activities are insignificant and are not included.

Mitigation

The BLM in coordination with the EPA and the UDAQ, among others, developed the following air quality mitigation measures. Integration of and adherence to these measures may help minimize adverse local or regional air quality impacts from activities carried out during oil and gas development (including but not limited to construction, drilling, and production). As per the WTP ROD and the GNB DEIS, as supplemented, the following avoidance and minimization measures should be considered in the Plan of Development:

- Electric compression, where feasible.
- Emission controls having a control efficiency of 95 percent on existing condensate tanks with a potential to emit of greater 20 tpy, and on new condensate tanks with a potential to emit of 5 tpy VOCs.
- Green completions for all well completion activities.
- Tier II drill rig engines by 2012, with phase-in of Tier IV engines or equivalent emission reduction technology as soon as possible thereafter, but no later than 2018
- Lean burn natural gas-fired stationary compressor engines or equipment with equivalent emission rates.

- Catalyst on all natural gas-fired compressor engines to reduce the emissions of CO and VOCs.
- Dry seals on new centrifugal compressors.
- An annual inspection and maintenance program to reduce VOC emissions, including:
    - Performing inspections of thief hatch seals and Enardo pressure relief valves to ensure proper operations.
    - Reviewing gathering system pressures to evaluate any areas where gathering pressure may be reduced, resulting in lower flash losses from the condensate storage tanks.
    - 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 pneumatics would be installed on separator dump valves and other controllers. The use of low bleed pneumatics would result in a lower emission of VOCs.
    - 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.
- All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 grams of NO_x per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower.
- 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.

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 EPA, the UDAQ, and other agencies with expertise or jurisdiction as appropriate.

Residual Impacts

Application of these lease notices to each of parcels on federal surface would be adequate for the leasing stage to disclose potential future restrictions and to facilitate the reduction of potential impacts upon receipt of a site specific APD.

4.2 Alternative B – No Action

This alternative (not to offer any of the nominated parcels for sale) may not meet the need for the proposed action. Parcel UT1111-011, UT1111-012, UT1111-014, UT1111-015 and UT1111-016 may be subject to drainage of Federal reserves by development on adjacent state or private leases.

Although drilling and production activities on federal land surfaces are restricted to leased parcels, oil and gas exploration may also be authorized on unleased public lands, on a case-by-case basis, pursuant to 43 CFR 3150.0-1. Accordingly, this alternative would not prevent direct, indirect or cumulative environmental impacts relating to oil and gas exploration activities through denial of the proposed action. Additionally, this alternative would not prevent indirect impacts relating to rights of way authorizations to support oil and gas operations on adjacent leased lands.

4.2.1 Fish and Wildlife Excluding Threatened, Endangered, Candidate and Sensitive Species

The No Action alternative would not result in potential impacts relating to development should the parcels be leased.

4.2.2 Migratory Birds

The No Action alternative would not result in potential impacts relating to development should the parcels be leased.

4.2.3 Non-WSA Lands with Wilderness Characteristics

The No Action alternative would not result in potential impacts relating to development should the parcels be leased.

4.2.4 Threatened, Endangered, Candidate or Sensitive Animal Species

The No Action alternative would not result in potential impacts relating to development should the parcels be leased.

4.2.5 Threatened, Endangered, Candidate or Sensitive Plant Species

The No Action alternative would not result in potential impacts relating to development should the parcels be leased.

4.2.6 Air Quality

The No Action alternative would not result in potential impacts relating to development should the parcels be leased.

4.3 Cumulative Impacts Analysis

A cumulative impact is defined in Council on Environmental Quality (CEQ) regulations (40 CFR §1508.7) as “the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” Cumulative impacts can result from individually minor but collectively major actions taking place over a period of time. Past and present actions and reasonably foreseeable future actions with the potential to contribute to cumulative effects are discussed below followed by an analysis of cumulative effects. All resource values addressed in Chapter 3 have been evaluated for cumulative effects. If, through the implementation of mitigation measures or project design features, no net effect to a particular resource results from an action, then no cumulative effects result.

Reasonably Foreseeable Action Scenario (RFAS)

A variety of activities, such as sightseeing, biking, camping, and hunting, have occurred and are likely to continue to occur near or within some or all of the nominated parcels; these activities likely result in negligible impacts to resources because of their dispersed nature. Other activities, such as farming, livestock grazing, vegetation projects, and wildland fire, have also occurred within some or all of the nominated parcels and are likely to occur in the future. These types of activities are likely to have a greater impact on resources in the project area because of their more concentrated nature. Because these activities are occurring within the nominated parcel boundaries, they have the potential to contribute to cumulative effects.

4.3.1 Fish and Wildlife Excluding Threatened, Endangered, Candidate and Sensitive Species

The Cumulative Impact Analysis Area (CIAA) for Fish and Wildlife Excluding U.S. Fish and Wildlife Service Designated Species will be the Vernal Planning Area. Cumulative impacts are incorporated by reference to 4.21.2.6 and 4.23.18 in the Vernal RMP. Cumulative impacts to general wildlife and raptors include reduction in Animal Unit Months (AUMs) for wildlife and loss of wildlife and fisheries habitat, habitat fragmentation, and disruption or alteration of seasonal migration routes. The past, present, and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights or realty actions (for example, pipeline or road rights of way) or the continuation of agricultural activities. The proposed action would contribute to these cumulative impacts by making five parcels available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed. It is assumed that the proposed action would add one well pad with road and pipeline on each lease. The No Action alternative would not contribute any cumulative impacts.

4.3.2 Migratory Birds

The CIAA for Migratory Birds will be the Vernal Planning Area. Cumulative impacts are incorporated by reference to 4.21.2.6, and 4.23.18 in the Vernal RMP. Cumulative impacts include loss of migratory bird habitat, habitat fragmentation, and disruption or alteration of seasonal migration routes. The past, present, and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights or realty actions (for example, pipeline or road rights of way) and the continuation of agricultural activities. The proposed action would contribute to these cumulative impacts by making five parcels available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed. It is assumed that the proposed action would add one well pad with road and pipeline on each lease. The No Action alternative would not contribute any cumulative impacts.

4.3.3 Non-WSA Land with Wilderness Characteristics

The cumulative effects and the area of impact would be the same as outlined in section 4.23.8 of the Vernal RMP. The past, present, and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights or realty actions (for example, pipeline or road rights of way). Cumulative impacts include loss of naturalness, solitude, opportunities for primitive or unconfined recreation, and reduction in size of the unit. The proposed action would contribute to these cumulative impacts by making the one parcel

located in Desolation Canyon Unit 1 available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed. It is assumed that future development could result in the loss of wilderness characteristics up to approximately 0.004% (347.55 acres) if the entire parcel is developed of the Desolation Canyon Unit 1 Lands with Wilderness Characteristics parcel. However, this level of development was analyzed and accepted by decision in the VFO RMP. The No Action alternative would not change the amount of lands with wilderness characteristic within the Desolation Canyon area.

4.3.4 Threatened, Endangered, Candidate, or Sensitive Animal Species

The CIAA for Threatened, Endangered, Candidate, or Sensitive Animal Species will be the Vernal Planning Area. Cumulative impacts are incorporated by reference to 4.17.2.3, 4.21.2.6, and 4.23.14 in the Vernal RMP. Cumulative impacts to threatened, endangered, candidate, or sensitive animal species include reduction in AUMs for wildlife and loss of wildlife and fisheries habitat, habitat fragmentation, and disruption or alteration of seasonal migration routes. The past, present, and foreseeable future actions with the potential to contribute to surface disturbance include development of new and existing mineral rights or realty actions (for example, pipeline or road rights of way) or the continuation of agricultural activities. The proposed action would contribute to these cumulative impacts by making five parcels available for lease sale and mineral development, with the potential for future surface disturbance should the leases be developed. It is assumed that the proposed action would add one well pad with road and pipeline on each lease. The No Action alternative would not contribute any cumulative impacts.

4.3.5 Threatened, Endangered, Candidate, or Sensitive Plant Species

Clay reed-mustard (Schoenocrambe argillacea)

The CIAA for clay reed-mustard is the known range of the species. The potential habitat has not been fully explored and mapped and total population estimates for the species are currently unknown. Existing data reveals populations of clay reed-mustard are found on steep canyon walls and cliffs along the contact zone between the Uinta and Green River geological formations. Currently, populations are known to occur along Willow Creek and the Green River. As this species is found in steep, difficult to reach locations, direct impacts to the species from development, grazing, and recreation have been limited. Indirect anthropogenic caused impacts to the species may include the loss of pollinators due to habitat disturbance and fragmentation resulting from widespread energy development; increased competition with non-native plant species introduced during the course of development, grazing, or recreation; loss of suitable habitat resulting from soil destabilization or the dumping of clean fill following upslope development; and altered photosynthesis, respiration, and transpiration due to increased fugitive dust resulting from the surface disturbance and project related traffic.

The proposed action would contribute to these cumulative impacts by making one parcel available for lease sale and mineral development within the CIAA. It is assumed that at least one well pad with road and pipeline would be constructed. The No Action alternative would not contribute any cumulative impacts.

Uinta Basin hookless cactus (Sclerocactus wetlandicus)

The CIAA for Uinta Basin hookless cactus is the area delineated by the USFWS as potential habitat for the species. This area consists of approximately 517,631 acres on BLM, Ute tribal, state of Utah, and privately held lands. Within the CIAA, there are 11 active approved field development NEPA documents, Newfield Production Company's Castle Peak and Eightmile Flat Oil and Gas Expansion EIS, EOG Resources, Inc. North Chapita Natural Gas Well Development Project EA, Enduring Resources, LLC's West Bonanza Area Natural Gas Well Development Project EA, Gasco Production Company's Proposed Natural Gas Well Drilling Project Riverbend Unit EA, Kerr-McGee Oil & Gas Onshore LP's Bonanza Area EA, Petro-Canada Resources Rye Patch EA, Gasco Production Company's Wilkin Ridge Unit EA, Enduring Resources, LLC's Saddletree Draw Leasing and Rock House Development Proposal EA, QEP Energy Company's Greater Deadman Bench Oil and Gas Producing Region EIS, EOG Resources, Inc. Chapita Wells-Stagecoach EIS, and Bill Barrett Corporation's West Tavaputs Plateau Natural Gas Full Field Development Plan EIS. In total approximately 13,419 acres of surface disturbance was authorized across the analysis areas of these documents. If the disturbance is relatively uniform throughout these project areas, then approximately 4,979 acres of surface disturbance has occurred or will occur within the CIAA (1.0% of the CIAA). Within the CIAA there also are numerous oil and natural gas wells that do not tier to either of these NEPA documents. As of 3/28/2011, there are 527 abandoned oil and gas locations outside of the scope of the field development documents. Using the assumption of 5.0 acres of disturbance per well (including associated roads and pipelines), as per the Vernal Resource Management Plan, 2,635 acres of the CIAA were disturbed some point in the past and are in various stages of reclamation (0.5% of the CIAA). There are currently 3,331 well pads that serve as platforms for actively producing wells not permitted under these documents. Using the above assumption, this has resulted in 16,655 acres of surface disturbance (3.2% of the CIAA). Finally, 761 wells are currently proposed that do not tier to these documents that will result in 3,805 acres of surface disturbance (0.7% of the CIAA). Currently proposed field developments, if all approved as proposed (either the estimated disturbance presented in the proposal or an estimate of 5-acres of disturbance per well if an estimate is not yet available) would result in 40,486 acres of surface disturbance throughout the entirety of the project areas. If it assumed that disturbance would be relatively uniform throughout, then there will be about 22,134 acres of disturbance with the CIAA due the projects (4.3% of the CIAA). Thus, in total 50,208 acres (9.7% of the CIAA) have been or will be disturbed within the CIAA due to energy development activities. Within the CIAA, there are approximately 1,828 miles of roads.

The proposed action would contribute to these cumulative impacts by making two parcels available for lease sale and mineral development within the CIAA. It is assumed that at least one well pad with road and pipeline would be constructed on each lease. The No Action alternative would not contribute any cumulative impacts.

Due to inclusions of areas of unsuitable habitat within the potential habitat area, the total acreage of suitable habitat is less than 517,631 acres. However, a complete survey of suitable habitat has not been performed and thus the amount of suitable habitat has not been quantified. Impacts to the species from past, current, and reasonably foreseeable actions may be greater or smaller than those described for the total area depending upon the exact distribution of actions relative to suitable habitat.

Ute ladies-tresses (Spiranthes diluvialis)

The CIAA for Ute ladies-tresses is the known range of the species within the VFO Identified populations of the species have been located in or on the border of the following watersheds: Big Brush Creek, Dry Fork, Farm Creek-Duchesne River, Garden Creek-Green River, Green River-Crouse Creek, Lower Ashley Creek, Lower Flaming Gorge Reservoir, Lower Strawberry River, North Fork Uinta River, Pigeon Water Creek-Lake Fork River, Rock Creek, Strawberry River-Duchesne River, Twelve Mile Wash, Uinta River, and Whiterocks River. Currently, based upon previous survey results as reviewed in Fertig et al (2005) the total number individuals within the CIAA is between 15,000 and 35,000 plants. Direct and indirect anthropogenic caused impacts that have been identified as impacts to the populations within the CIAA include the loss of habitat to urban development and road and infrastructure construction, recreational activity within occupied habitat, livestock grazing, changes in the hydrology, competition from non-native invasive plant species, and the loss of pollinators (Fertig et al., 2005).

The proposed action would contribute to these cumulative impacts by making two parcels on private land available for lease sale and mineral development that may have potential habitat for the species present. It is assumed that at least one well pad with road and pipeline would be constructed on each lease. The No Action alternative would not contribute any cumulative impacts.

Yucca (Yucca sterilis)

The CIAA for *Yucca sterilis* is the Vernal Planning Area. Existing data reveals that the species prefers to grow in soils with a high sand content. Currently, populations are known to occur within Pariette Draw, the Horseshoe Bend Area, north of Roosevelt, and along Willow Creek. However, due to the recent addition of this species to the Utah BLM sensitive plant species list, it is not known if this is representative of the species range nor are the habitat requirements understood beyond the need for sandy soils. Past direct and indirect impacts to the species from development, grazing, and recreation have included the loss of individuals, suitable habitat, and pollinators to development from widespread energy development and other land use conversion; increased competition with non-native plant species introduced during the course of development, grazing, or recreation; accidental spray or drift of herbicides used during invasive plant control; and altered photosynthesis, respiration, and transpiration due to increased fugitive dust resulting from the surface disturbance and project related traffic.

The proposed action would contribute to these cumulative impacts by making one parcel available for lease sale and mineral development within the CIAA. It is assumed that at least one well pad with road and pipeline would be constructed. The No Action alternative would not contribute any cumulative impacts.

4.3.6 Air Quality

The CIAA for air quality is the Uinta Basin. Cumulative air quality impacts are defined as the combination of emissions resulting from potential development of the proposed leases, existing nearby permitted sources, and Reasonably Foreseeable Development (RFD) within the region. Cumulative impacts are incorporated by reference to the Uinta Basin Air Quality Study (UBAQS), the Greater Natural Buttes air quality study, and the Gasco air quality study. It is not possible to accurately estimate emissions from the project 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, so this discussion will remain qualitative. Prior to authorizing specific proposed projects on the subject lease parcels quantitative computer modeling using project specific emission factors and planned development parameters (including specific emission source locations) will need to be conducted to adequately analyze cumulative potential air quality impacts. Air quality dispersion modeling which may be required includes impact analysis for demonstrating compliance with the NAAQS, plus analysis of impacts to Air Quality Related Values (i.e. deposition, visibility), particularly as they might affect nearby Class 1 areas (National parks and Wilderness areas).

The increase in emissions associated with development of the proposed leases would be localized, in some cases temporary (well drilling phase), and on a much smaller scale in comparison with regional emissions. Depending on the size of specific development on the proposed leases, regional ozone modeling may or may not be feasible when conducting project specific NEPA analysis for cumulative ozone impacts. For smaller projects without substantial emissions cumulative ozone impacts would be indistinguishable from, and dwarfed by, the margin of uncertainty associated with the regional cumulative VOC and NOx emission inventory. In these cases ozone and other cumulative regional air quality issues would be analyzed and disclosed through tiering to regional modeling currently ongoing in the Uinta Basin and/or associated with larger projects which can be effectively modeled using regional “one-atmosphere" photochemical models. Large oil and gas projects proposed for development under this lease sale will have project specific regional ozone modeling conducted to determine project specific impacts and to insure compliance with NAAQS and disclosure of any potential impacts to Air Quality Related Values. When compared to regional emissions inventories, the amounts of ozone precursors emitted from the assumed development are not expected to have a measurable contribution or effect on regional ozone formation due to agreed upon air pollution controls and mitigation. The No Action alternative would not result in an accumulation of impacts.

The assessment of GHG emissions and climate change is still in its earliest stages of formulation. At present, under current scientific data and models, it is not technically feasible to know with any certainty the net impacts to climate due to global emissions, let alone regional or local emissions. The inconsistency in results of scientific models used to predict climate change at the global scale, combined with the lack of scientific models designed to predict climate change on regional or local levels, prohibits the ability to quantify potential future impacts of decisions made at the local level, particularly for small scale projects such as the assumed development of the proposed leases. However, assumed drilling and development activities are anticipated to release a negligible amount of emissions, including GHGs, into the local airshed. The No Action alternative would not result in an accumulation of impacts.

5.0 CONSULTATION AND COORDINATION

5.1 Introduction

Public and agency involvement has occurred as described in sections 5.2 and 5.3 below.

5.2 Persons, Groups, and Agencies Consulted

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
U.S. Fish & Wildlife Service	Section 7 ESA	Formal consultation was completed as part of the RMP/ROD in the form of the Biological Opinion. Informal consultation was completed on May 5, 2011. Clarification of the consultation was completed on May 31 and June 7, 2011.
US FWS Ouray Wildlife Refuge	Adjacent land owner coordination	An email was sent to the wildlife refuge on May 13, 2011. No comments were received.
Utah State Historic Preservation Office	Section 106 NHPA	Consultation request letter was sent May 6, 2011 with a determination of no historic properties affected. SHPO concurrence was received on May 18, 2011.
State of Utah's Public Lands Policy Coordination Office	Coordinated with as leasing program partner.	Letters were sent to the PLPCO in addition to the SITLA and UDWR which provided the preliminary list notified them of the November 2011 lease sale and the planned site visits to the parcels.
National Park Service	Coordinated with as leasing program partner.	Letters were sent to the NPS which provided the preliminary list notified them of the November 2011 lease sale and the planned site visits to the parcels.
US Forest Service	Coordinated with as leasing program partner.	Letters were sent to the USFS which provided the preliminary list notified them of the November 2011 lease sale and the planned site visits to the parcels. USFS responded back that the parcels were located outside their boundary and they would not provide additional comment.
Ute Mountain Ute Tribe Ute Indian Tribe Goshute Indian Tribe Zia Pueblo Tribe	American Indian Religious Freedom Act (1978) NHPA	Consultation request letters were sent May 6, 2011. Response letter from Hopi Tribe,

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
White Mesa Ute Tribe Navajo Nation Laguna Pueblo Tribe Northwest Band of Shoshone Tribe Southern Ute Tribe Eastern Shoshone Tribe Ute Indian Tribe Eastern Shoshone Tribe Santa Clara Pueblo Tribe Ute Mountain Ute Tribe Hopi Tribe		dated May 16, 2011, requested a copy of the Class I cultural survey. Response letter from Laguna Pueblo Tribe, dated May 13, 2011, concurred with no impact determination.
Utah Division of Wildlife Resources	Interested Party Coordination	Comments for the Vernal parcels were received on April 26, 2011. All comments were incorporated into the document.
Eleven Private Land Owners of included parcels (014, 015, 016)	Interested Party Coordination	Letters were sent informing them of the proposal and the date of the site visit. A phone call was received from one landowner requesting additional information.

5.3 Summary of Public Participation

In order to meet the intent of the CEQ regulations that require an "early and open process for determining the scope of issues to be addressed and for identifying significant issues related to a Proposed Action" (40 CFR 1501.7) several actions were taken to involve the public.

On March 29, 2011, the public was notified of the proposed action by posting on the Utah BLM Environmental Notification Bulletin Board (https://www.blm.gov/ut/enbb). The process used to involve the public also included a 30-day public review and comment period for the EA and unsigned FONSI from June 15, 2011 to July 15, 2011. In addition, the EA and unsigned FONSI were posted on the BLM Utah's Oil and Gas Lease Sale webpage (http://www.blm.gov/ut/st/en/prog/energy/oil_and_gas/oil_and_gas_lease.html).

The BLM received four separate comment letters from the public on the November 2011 lease sale. Comments were received from Bill Barrett Corporation, Stonegate Resources LLC, Southern Utah Wilderness Alliance[4] and the United States Environmental Protection Agency. However, only Stonegate Resources LLC and the Southern Utah Wilderness Alliance provided comments related to the VFO EA. Modifications to this EA and responses to these comments are described in Sections 5.3.1 and 5.3.2, respectively.

[4] The Southern Utah Wilderness Alliance, the Utah Chapter of the Sierra Club, the Grand Canyon Trust, the Center for Native Ecosystems and the Wilderness Society collectively submitted one comment letter.

The BLM also refers to the public involvement process utilized in developing the VFO ROD/RMP the West Tavaputs Full Field Development ROD and the Greater Natural Buttes EIS, as supplemented.

All the information related to this EA is maintained on the identified websites (ENBB and Oil and Gas Leasing).

5.3.1 Modifications Based on Public Comment and Internal Review

The public and internal review identified necessary corrections or clarifications to this EA. These modifications include:

1. Corrections to grammar, sentence structure, and formatting were made throughout the EA. In general, these changes were made without further clarification. Examples include: updates to the Table of Contents, changes in font size and style or insertion of footnotes. An August 2011 date was inserted into the header of each page.
2. Section 1.3, Purpose and Need, the first paragraph was edited to state that the BLM made one nomination in addition to those that were made by the public.
3. Section 1.7, Issues Considered but Eliminated from Further Analysis, was added to provide clarity to the reader. Based on public comment additional discussion was included for disturbed desert dust.
4. Section 3.3.3, Non-WSA Lands with Wilderness Characteristics, was edited to include a reference to single upgraded road.
5. Section 3.3.4, Threatened, Endangered, Candidate or Sensitive Animal Species, Table 3 burrowing owl presence was edited to include all parcels except for UT1111-011.
6. Section 4.2.3, Non-WSA Lands with Wilderness Characteristics, was edited to correct acreages and to describe impacts to Desolation Canyon Unit 1.
7. Section 4.2.6, Air Quality, was changed to include the controls as established in the WTP ROD and GNB EIS, as supplemented. Mitigation was also changed to reflect the avoidance and minimization measures defined in those documents.
8. Section 4.3.2, Migratory Birds, reference to an AUM reduction was deleted.
9. Section 4.3.3, Non-WSA Lands with Wilderness Characteristics, was edited delete the discussion of 5 parcels when it is actually 1 parcel. Acreage calculations were changed.
10. Section 5.2, Agencies Consulted, the table findings and conclusions were updated subsequent correspondence with the SHPO and Tribes. The Utah PLPCO, NPS and USFS were inserted into the list.
11. Section 5.3, Public Involvement, was updated to incorporate a summary of the EA public comment period.
12. Section 5.3.1, Modification Based on Public Comments and Internal Review, was added to Chapter 5 to identify specific changes to the EA.
13. Section 5.3.2, Responses to Public Comment, was added to summarize concerns and responses to the comments received from the public. Because one of the comment letters contains several exhibits, none of the comment letters are attached to this EA. The actual comment letters and their associated exhibits have been posted on the oil and gas webpage for the November 2011 lease sale. Copies of each letter and their exhibits are made part of the lease sale record.
14. Section 6.1, References Cited, the Greater Natural Buttes Supplement to the Draft EIS was included in the list.

15. Appendix A, list of parcels was modified to include the lease number assigned to each parcel. This information is necessary for the administration of a lease. Parcels UT1111-004 and UT1111-013 were deferred and therefore removed from the list due to weather and sage-grouse concerns, respectively. UT-S-261 (raptors) is a TL stipulation and therefore, the NSO &CSU were removed from parcels UT1111-011, 012, 014 and 015. Stipulation UT-S-278 was not necessary and therefore deleted. Stipulation UT-S-318 was necessary and was added to Parcel UT1111-011 and the Lease Stipulation Summary. Lease notice UT-LN-96 was edited to include air quality controls required by the WTP ROD and the Greater Natural Buttes EIS, as supplemented. The Lease Stipulation Summary table was edited based on plan maintenance changes for UT-S-01, UT-S-96 and UT-S-261.
16. Appendix D, Response to Comments, was added to provide a summary of public comments and BLM's responses.

5.3.2 Response to Public Comment

The BLM acknowledges the support and concerns expressed by the public regarding the leasing of oil and gas resources on the public lands within the field office, including the subject lease parcels.

Information within the comment letters that is background or general in nature was reviewed; however, responses to or clarifications made to the EA from these items are not necessary. Likewise, expressions of position or opinion are acknowledged but do not cause a change in the analysis. As identified in the NEPA Handbook (H-1790-1, section 6.9.2.2 comment response), BLM looked for modifications to the alternatives and the analysis as well as factual corrections while reviewing public comments.

Challenges[5] to the BLM's 2008 Vernal Field Office Record of Decision and Resource Management Plan (VFO ROD/RMP) will not be considered. Likewise, specific responses to ongoing litigation will not be made.

Nominated parcel UT1111-011 caused the most concerns. Overall, the public comments expressed concerns over BLM's level of analysis related to the potential impacts of oil and gas leasing and subsequent development on resources, specifically to air quality and its attributes for ozone and particulate matter [fine 2.5 microns ($PM_{2.5}$) and coarse 10 microns (PM_{10})]. Other issues raised included climate change discussions, management of lands with wilderness characteristics, incorporation of visual resource inventory and compliance with WO IM-2010-117. Specific comments and responses are detailed in Appendix D.

[5] The VFO RMP and associated EIS provide the basis for land use allocations including oil and gas leasing decisions. Challenges to the planning process, including the RMP and associated EISs, will not be considered as part of oil and gas leasing decisions. The public was afforded opportunities to protest the Proposed RMP and Final EIS documents. Protests were resolved by the BLM Director in 2008. Copies of the Director's Protest Resolution Reports are available on-line at (scroll down to Utah): http://www.blm.gov/wo/st/en/prog/planning/protest_resolution/protestreports.html. Subsequent to protest resolution, the Record of Decision and Approved RMP was signed by the Assistant Secretary for Lands and Minerals, Department of the Interior, which constituted the final decision for the Department of the Interior, and ended all administrative courses of action on those planning processes.

5.4 List of Preparers

Name[6]	Office	Title	Responsible for the Following Section(s) of this Document
Nate Packer	VFO	Natural Resource Specialist	Team Lead
Dan Emmett	VFO	Wildlife Biologist	Fish and Wildlife, Migratory Birds, T&E or Candidate Animal Species
Aaron Roe	VFO	Botanist	Threatened, Endangered or Candidate Plant Species, Vegetation excluding USFWS designated species
Jason West	VFO	Recreation Specialist	Wilderness Characteristics
Stephanie Howard	VFO	NEPA Specialist	Air Quality, Green House Gases, overall NEPA

6.0 REFERENCES, GLOSSARY AND APPENDICES

6.1 References Cited

BLM. 1997. Fundamentals of Rangeland Health and Their Companion Rules: Standards for Rangeland Health and Guidelines for Grazing Management for BLM in Utah. Bureau of Land Management, Utah State Office, Salt Lake City. May.

BLM. 2008. Vernal Field Office Record of Decision and Approved Resource Management Plan. Vernal Field Office, Utah, October 2008.

BLM. 2006. Best management practices for raptors and their associated habitats in Utah. recommendations for implementing the U.S. Fish and Wildlife Service, Utah Field Office's Guidelines for Raptor Protection from Human and Land Use Disturbances [Romin and Muck 2002]. BLM Utah State Office, Salt Lake City. August 2006.

BLM 2011. Greater Natural Buttes Supplement to the Draft Environmental Impact Statement. DES 11-23

Fertig W., R. Black, and P. Wolken. 2005. Rangewide Status Review of Ute Ladies'-Tresses (Spiranthes diluvialis). US Fish and Wildlife Service. 101 pp. [Online version available at <http://www.fws.gov/mountain-prairie/species/plants/uteladiestress/>]

USC. 2005 COORDINATED IMPLEMENTATION PLAN FOR BIRD CONSERVATION IN UTAH. Utah Steering Committee Intermountain West Joint Venture, 2005.

U.S. Fish and Wildlife Service. 2002. Birds of conservation concern 2002. Division of Migratory Bird Management, Arlington, Virginia. 99 pp. [Online version available at <http://migratorybirds.fws.gov/reports/bcc2002.pdf>]

[6] Refer also to the Interdisciplinary Team Checklist (Appendix C) and the list of preparers for WTP ROD and the Greater Natural Buttes EIS (as supplemented).

6.2 List of Acronyms

ACEC	Areas of Critical Environmental Concern
APD	Application for Permit to Drill
BLM	Bureau of Land Management
BMP	Best Management Practice
BCR	Bird Conservation Region
CFR	Code of Federal Regulations
CIA	Cumulative Impact Area
CWCS	Comprehensive Wildlife Conservation Strategy
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
ENBB	Environmental Notification Bulletin Board
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FLPMA	Federal Land Policy and Management Act of 1976
FONSI	Finding of No Significant Impact
FWS	United States Fish and Wildlife Service
GNB EIS	Greater Natural Buttes Draft EIS, as Supplemented
IDPR	Interdisciplinary Parcel Review
IM	Instruction Memorandum
LN	Lease Notice
LUP	Land Use Plan
NCLS	Notice of Competitive Lease Sale
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Act
RFAS	Reasonably Foreseeable Action Scenario
RFD	Reasonably Foreseeable Development
ROD	Record of Decision
ROW	Right-of-Way
SHPO	State Historic Preservation Office
UDWR	Utah Division of Wildlife Resources
USFWS	United States Fish & Wildlife Service
USC	United States Code
USO	Utah State Office
VFO	Vernal Field Office
WO	Washington Office

6.3 List of Appendices

A. Preliminary Oil and Gas Lease Sale List with Stipulations and Lease Notices
B. Maps
C. Interdisciplinary Team Checklist
D. Comment Response Table

APPENDIX A

PRELIMINARY OIL AND GAS LEASE SALE LIST WITH STIPULATIONS AND LEASE NOTICES

PRELIMINARY OIL AND GAS LEASE SALE LIST
WITH STIPULATIONS AND LEASE NOTICES

In addition to the Stipulations listed below, the direction provided in Washington Office Memorandums WO-IM-2005-003 (Cultural Resources Stipulation) and WO-IM-2002-174 (Endangered Species Act Stipulation) should be applied to all parcels.

UTU88622
(UT1111 - 011)
T. 11 S., R. 19 E., Salt Lake
Sec. 6: Lots 1-3, S2NE, SE.
347.55 Acres
Uintah County, Utah
Vernal Field Office

STIPULATIONS

UT-S-01:	Air Quality
UT-S-96:	NSO - Fragile Soils/Slopes Greater Than 40%
UT-S-100:	CSU - Fragile Soils/Slopes (21%- 40%)
UT-S-261:	TL – Raptors
UT-S-318:	Drainage

NOTICES

UT-LN-25:	White-Tailed and Gunnison Prairie Dogs
UT-LN-45:	Migratory Bird
UT-LN-49:	Utah Sensitive Species
UT-LN-51:	Special Status Plants – Not Federally Listed
UT-LN-96:	Air Quality
T&E-03:	Endangered Fish of the Upper Colorado River Drainage Basin
T&E-12:	Uinta Basin Hookless Cactus
T&E-20:	Clay Reed-Mustard

UTU88623
(UT1111 – 012)
T. 7 S., R. 20 E., Salt Lake
Sec. 35: Lots 1-4, NENE, SENW, S2.
557.80 Acres
Uintah County, Utah
Vernal Field Office

STIPULATIONS
UT-S-01: Air Quality
UT-S-261: TL – Raptors

NOTICES
UT-LN-25: White-Tailed and Gunnison Prairie Dogs
UT-LN-37: Bald Eagle Habitat
UT-LN-45: Migratory Bird
UT-LN-49: Utah Sensitive Species
UT-LN-51: Special Status Plants – Not Federally Listed
UT-LN-96: Air Quality
T&E-01: Bald Eagle
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-12: Uinta Basin Hookless Cactus

ACQUIRED LANDS

UTU88630 - 50% Federal Interest
(UT1111 – 014)
T. 3 S., R. 1 W., USM
Sec. 5: Lot 4;
Sec. 6: Lots 1, 2.
122.05 Acres
Duchesne County, Utah
Vernal Field Office

STIPULATIONS
UT-S-01: Air Quality
UT-S-96: NSO - Fragile Soils/Slopes Greater Than 40%
UT-S-100: CSU - Fragile Soils/Slopes (21%- 40%)
UT-S-261: TL – Raptors

NOTICES
UT-LN-25: White-Tailed and Gunnison Prairie Dogs
UT-LN-45: Migratory Bird
UT-LN-49: Utah Sensitive Species
UT-LN-96: Air Quality
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin

UTU88631 - 50% Federal Interest
(UT1111 – 015)
T. 2 S., R. 2 W., USM
Sec. 36: SW.
160.00 Acres
Duchesne County, Utah
Vernal Field Office

STIPULATIONS
UT-S-01: Air Quality
UT-S-261: TL – Raptors

NOTICES
UT-LN-25: White-Tailed and Gunnison Prairie Dogs
UT-LN-45: Migratory Bird
UT-LN-49: Utah Sensitive Species
UT-LN-96: Air Quality
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-05: Listed Plant Species (Ute ladies tresses)

UTU88632 - 50% Federal Interest
(UT1111 – 016)
T. 3 S., R. 2 W., USM
Sec. 6: Lots 6, 7, E2SW;
Sec. 7: NWNE.
195.19 Acres
Duchesne County, Utah
Vernal Field Office

STIPULATIONS
UT-S-01: Air Quality
UT-S-96: NSO - Fragile Soils/Slopes Greater Than 40%
UT-S-100: CSU - Fragile Soils/Slopes (21%- 40%)

NOTICES
UT-LN-25: White-Tailed and Gunnison Prairie Dogs
UT-LN-45: Migratory Bird
UT-LN-49: Utah Sensitive Species
UT-LN-96: Air Quality
T&E-03: Endangered Fish of the Upper Colorado River Drainage Basin
T&E-05: Listed Plant Species (Ute ladies tresses)

LEASE STIPULATIONS SUMMARY

UT-S-01	**AIR QUALITY** All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower shall not emit more than 2 grams of NO_x per horsepower-hour. **Exception:** This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower. **Modification**: None **Waiver**: None **AND** All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 gram of NO_x per horsepower-hour. **Exception**: None **Modification**: None **Waiver**: None
UT-S-96	**NO SURFACE OCCUPANCY – FRAGILE SOILS/SLOPES FOR SLOPES GREATER THAN 40%** No surface occupancy for slopes greater than 40 percent. **Exception:** If after an environment analysis the authorized officer determines that it would cause undue or unnecessary degradation to pursue other placement alternatives; surface occupancy in the NSO area may be authorized. Additionally a plan shall be submitted by the operator and approved by BLM prior to construction and maintenance and include: • An erosion control strategy, • GIS modeling, and • proper survey and design by a certified engineer. **Modification:** Modifications also may be granted if a more detailed analysis, i.e. Order I, soil survey conducted by a qualified soil scientist finds that surface disturbance activities could occur on slopes greater than 40% while adequately protecting the area from accelerated erosion. **Waiver**: None
UT-S-100	**CONTROLLED SURFACE USE – FRAGILE SOILS/SLOPES (21%-40%)** If surface-disturbing activities cannot be avoided on slopes from 21-40% a plan will be required. The plan will approved by BLM prior to construction and maintenance and include: • An erosion control strategy, • GIS modeling, • Proper survey and design by a certified engineer. **Exception**: None **Modification**: None **Waiver**: None

UT-S-261	**TIMING LIMITATION – RAPTOR BUFFERS** Raptor management will be guided by the use of "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A), utilizing seasonal and spatial buffers, as well as mitigation, to maintain and enhance raptor nesting and foraging habitat, while allowing other resource uses. **Exception**: None **Modification**: Criteria that would need to be met, prior to implementing modifications to the spatial and seasonal buffers in the "*Raptor BMPs",* would include the following: 1) Completion of a site-specific assessment by a wildlife biologist or other qualified individual. See example (Attachment 1 of the Raptor BMPs in Appendix A) 2) Written documentation by the BLM Field Office Wildlife Biologist, identifying the proposed modification and affirming that implementation of the proposed modification(s) would not affect nest success or the suitability of the site for future nesting. Modification of the *"*BMPs*"* would not be recommended if it is determined that adverse impacts to nesting raptors would occur or that the suitability of the site for future nesting would be compromised. 3) Development of a monitoring and mitigation strategy by a BLM biologist, or other raptor biologist. Impacts of authorized activities would be documented to determine if the modifications were implemented as described in the environmental documentation or Conditions of Approval, and were adequate to protect the nest site. Should adverse impacts be identified during monitoring of an activity, BLM would follow an appropriate course of action, which may include cessation or modification of activities that would avoid, minimize or mitigate the impact, or, with the approval of UDWR and the USFWS, BLM could allow the activity to continue while requiring monitoring to determine the full impact of the activity on the affected raptor nest. A monitoring report would be completed and forwarded to UDWR for incorporation into the Natural Heritage Program (NHP) raptor database. **Waiver**: None
UT-S-318	**DRAINAGE** All or part of the lands contained in this lease may be subject to drainage by well(s) located adjacent to this lease. The lessee shall be required within 60 days of lease issuance to submit to the authorized officer plans for protecting the lease from drainage. Compensatory royalty will be assessed effective the expiration of this 60-day period, if no plan is submitted. The plan must include either an Application for Permit to Drill (APD), a protective well, or an application to communitize the lease so that it is allocated production from a protective well off the lease. Either of these options may include obtaining a variance to State spacing for the area. In lieu of this plan, the lessee shall be required to demonstrate that a protective well would have little or no chance of encountering oil and gas in quantities sufficient to pay in excess the costs of drilling and operating the well. In absence of either an acceptable plan for protecting the lease from drainage or an acceptable justification why a protective well would not be economical, the lessee shall be obligated to pay compensatory royalty to the Minerals Management Service at a rate to be determined by the authorized officer.

LEASE NOTICES SUMMARY

UT-LN-25	**WHITE-TAILED AND GUNNISON PRAIRIE DOG** The lessee/operator is given notice that this lease parcel has been identified as containing white-tailed or Gunnison prairie dog habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect white-tailed or Gunnison prairie dog from surface disturbing activities in accordance with the Endangered Species Act and 43 CFR 3101.1-2
UT-LN-37	**BALD EAGLE HABITAT** The lessee/operator is given notice that lands in this lease have been identified as containing Bald Eagle Habitat. Modifications to the Surface Use Plan of Operations may be required in order to protect the Bald Eagle and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.
UT-LN-45	**MIGRATORY BIRD** The lessee/operator is given notice that surveys for nesting migratory birds may be required during migratory bird breeding season whenever surface disturbances and/or occupancy is proposed in association with fluid mineral exploration and development within priority habitats. Surveys should focus on identified priority bird species in Utah. Field surveys will be conducted as determined by the authorized officer of the Bureau of Land Management. Based on the result of the field survey, the authorized officer will determine appropriate buffers and timing limitations. This notice may be waived, excepted, or modified by the authorized officer if either the resource values change or the lessee/operator demonstrates that adverse impacts can be mitigated.
UT-LN-49	**UTAH SENSITIVE SPECIES** The lessee/operator is given notice that no surface use or otherwise disruptive activity would be allowed that would result in direct disturbance to populations or individual special status plant and animal species, including those listed on the BLM sensitive species list and the Utah sensitive species list. The lessee/operator is also given notice that lands in this parcel have been identified as containing potential habitat for species on the Utah Sensitive Species List. Modifications to the Surface Use Plan of Operations may be required in order to protect these resources from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, Migratory Bird Treaty Act and 43 CFR 3101.1-2.
UT-LN-51	**SPECIAL STATUS PLANTS: NOT FEDERALLY LISTED** The lessee/operator is given notice that lands in this lease have been identified as containing special status plants, not federally listed, and their habitats. Modifications to the Surface Use Plan of Operations may be required in order to protect the special status plants and/or habitat from surface disturbing activities in accordance with Section 6 of the lease terms, Endangered Species Act, and 43 CFR 3101.1-2.

UT-LN-96	**AIR QUALITY**
	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, have 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).
	• Electric compression, where feasible.
	• Emission controls having a control efficiency of 95 percent on existing condensate tanks with a potential to emit of greater 20 tpy, and on new condensate tanks with a potential to emit of 5 tpy VOCs.
	• Green completions for all well completion activities.
	• Tier II drill rig engines by 2012, with phase-in of Tier IV engines or equivalent emission reduction technology as soon as possible thereafter, but no later than 2018
	• Lean burn natural gas-fired stationary compressor engines or equipment with equivalent emission rates.
	• Catalyst on all natural gas-fired compressor engines to reduce the emissions of CO and VOCs.
	• Dry seals on new centrifugal compressors.
	• An annual inspection and maintenance program to reduce VOC emissions, including:
	  ▪ Performing inspections of thief hatch seals and Enardo pressure relief valves to ensure proper operations.
	  ▪ Reviewing gathering system pressures to evaluate any areas where gathering pressure may be reduced, resulting in lower flash losses from the condensate storage tanks.
	  ▪ 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 pneumatics would be installed on separator dump valves and other controllers. The use of low bleed pneumatics would result in a lower emission of VOCs.
	  ▪ 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.
	• All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horsepower must not emit more than 2 grams of NO_x per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower.
	• 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.
	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.

T&E-01	**BALD EAGLE** The Lessee/Operator is given notice that the lands in this parcel contains nesting/winter roost habitat for the bald eagle, a federally listed species. 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 temporary action is completed prior to the following breeding or roosting season leaving no permanent structures and resulting in no permanent habitat loss. A permanent action continues for more than one breeding or roosting season and/or causes a loss of eagle habitat or displaces eagles through disturbances, i.e. creation of a permanent structure. The following avoidance and minimization measures have been designed to ensure activities carried out on the lease are in compliance with the Endangered Species Act. Integration of, and adherence to these measures will facilitate review and analysis of any submitted permits under the authority of this lease. Following these measures could reduce the scope of Endangered Species Act, Section 7 consultation at the permit stage. Current avoidance and minimization measures include the following: 1. Surveys will be required prior to operations unless species occupancy and distribution information is complete and available. All Surveys must be conducted by qualified individual(s), 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 and, if necessary, Section 7 consultation reinitiated. 3. Water production will be managed to ensure maintenance or enhancement of riparian habitat. 4. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season of January 1 to August 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 5. Temporary activities within 0.5 miles of winter roost areas, e.g., cottonwood galleries, will not occur during the winter roost season of November 1 to March 31, unless the area has been surveyed according to protocol and determined to be unoccupied. 6. No permanent infrastructure will be placed within 1.0 mile of nest sites. 7. No permanent infrastructure will be placed within 0.5 miles of winter roost areas. 8. Remove big game carrion to 100 feet from on lease roadways occurring within bald eagle foraging range. 9. Avoid loss or disturbance to large cottonwood gallery riparian habitats. 10. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable habitat. Utilize directional drilling to avoid direct impacts to large cottonwood gallery riparian habitats. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 11. All areas of surface disturbance within riparian areas and/or adjacent uplands should be re-vegetated with native species. Additional measures may also be employed to avoid or minimize effects to the species between the lease sale stage and lease development stage. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the Endangered Species Act.

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

T&E-05	**LISTED PLANT SPECIES** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for federally listed plant species under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease 1. Site inventories: a. Must be conducted to determine habitat suitability, b. Are required in known or potential habitat for all areas proposed for surface disturbance prior to initiation of project activities, at a time when the plant can be detected, and during appropriate flowering periods, c. Documentation should include, but not be limited to individual plant locations and suitable habitat distributions, and d. All surveys must be conducted by qualified individuals. 2. Lease activities will require monitoring throughout the duration of the project. To endure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. 3. Project activities must be designed to avoid direct disturbance to populations and to individual plants: a. Designs will avoid concentrating water flows or sediments into plant occupied habitat. b. Construction will occur down slope of plants and populations where feasible; if well pads and roads must be sited upslope, buffers of 100 feet minimum between surface disturbances and plants and populations will be incorporated. c. Where populations occur within 200 ft. of well pads, establish a buffer or fence the individuals or groups of individuals during and post-construction. d. Areas for avoidance will be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc. e. For surface pipelines, use a 10 foot buffer from any plant locations: i. If on a slope, use stabilizing construction techniques to ensure the pipelines don't move towards the population. 4. For riparian/wetland-associated species, e.g. Ute ladies-tresses, avoid loss or disturbance of riparian habitats: a. Ensure that water extraction or disposal practices do not result in change of hydrologic regime. 5. Limit disturbances to and within suitable habitat by staying on designated routes. 6. Limit new access routes created by the project. 7. Place signing to limit ATV travel in sensitive areas. 8. Implement dust abatement practices near occupied plant habitat. 9. All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area. 10. Post construction monitoring for invasive species will be required. 11. Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in plant habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. 12. Lease activities will require monitoring throughout the duration of the project. To ensure desired results are being achieved, minimization measures will be evaluated and, if necessary, Section 7 consultation reinitiated. Additional measures to avoid or minimize effects to the species may be developed and implemented in consultation with the U.S. Fish and Wildlife Service between the lease sale stage and lease development stage to ensure continued compliance with the ESA.

T&E-12	**PARIETTE CACTUS (*SCLEROCACTUS BREVISPINUS*) AND UINTA BASIN HOOKLESS CACTUS [*SCLEROCACTUS GLAUCUS (BREVISPINUS AND WETLANDICUS*)]** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for the Pariette cactus and Uinta Basin hookless cactus, under the Endangered Species Act (ESA). The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease: In order to minimize effects to the federally threatened Pariette cactus and Uinta Basin hookless cactus, the BLM in coordination with the USFWS, developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the ESA. The following avoidance and minimization measures should be included in the Plan of Development: 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat[7] prior to any ground disturbing activities to determine if suitable Pariette cactus and Uinta Basin hookless cactus habitat is present. 2. Within suitable habitat[8], site inventories will be conducted to determine occupancy. Inventories: a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols, b. Will be conducted in suitable and occupied[9] habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected, and during appropriate flowering periods: i. *Sclerocactus brevispinus* surveys should be conducted March 15th to June 30th, unless extended by the BLM ii. *Sclerocactus wetlandicus* surveys can be done any time of the year, provided there is no snow cover, c. Will occur within 300' from the edge of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until March 15th the following year for *Sclerocactus brevispinus* and one year from the survey date for *Sclerocactus wetlandicus*. 3. Design project infrastructure to minimize impacts within suitable habitat[2]: a. Reduce well pad size to the minimum needed, without compromising safety, b. Limit new access routes created by the project, c. Roads and utilities should share common right-of-ways where possible, d. Reduce width of right-of-ways and minimize the depth of excavation needed for the road bed; where feasible, use the natural ground surface for the road within habitat, e. Place signing to limit off-road travel in sensitive areas, f. Stay on designated routes and other cleared/approved areas, and g. All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area and non-native species that are not likely to invade other

[7] *Potential habitat* is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment.

[8] *Suitable habitat* is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Uinta Basin hookless cactus. Habitat descriptions can be found in the U.S. Fish and Wildlife Service's 1990 Recovery Plan and Federal Register Notices for the Uinta Basin hookless cactus (http://www.fws.gov/endangered/wildlife.html).

[9] *Occupied habitat* is defined as areas currently or historically known to support Uinta Basin hookless cactus; synonymous with "known habitat."

	areas. 4. Within occupied habitat[3], project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: a. Follow the above (#3) recommendations for project design within suitable habitats, b. Buffers of 300 feet minimum between the edge of the right of way (roads and surface pipelines) or surface disturbance (well pads) and plants and populations will be incorporated, c. Surface pipelines will be laid such that a 300 foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline crosses the habitat to ensure the pipelines don't move towards the population, d. Before and during construction, areas for avoidance should be visually identifiable in the field (e.g., flagging, temporary fencing, rebar, etc.), e. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, f. Designs will avoid concentrating water flows or sediments into occupied habitat, g. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and h. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. 5. Occupied Pariette cactus and Uinta Basin hookless cactus habitats within 300' of the edge of the surface pipelines' right-of-ways, 300' of the edge of the roads' right-of-ways, and 100' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the USFWS. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the USFWS. 6. Re-initiation of Section 7 consultation with the USFWS will be sought immediately if any loss of plants or occupied habitat for the Pariette cactus and Uinta Basin hookless cactus is anticipated as a result of project activities. Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the USFWS to ensure continued compliance with the ESA.

T&E-20	**CLAY REED - MUSTARD (*SCHOENCRAMBE ARGILLACEA*)** The Lessee/Operator is given notice that the lands in this parcel contain suitable habitat for clay reed-mustard under the Endangered Species Act. The following avoidance and minimization measures have been developed to facilitate review and analysis of any submitted permits under the authority of this lease: In order to minimize effects to the federally threatened clay reed-mustard, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service) developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the Endangered Species Act (ESA). The following avoidance and minimization measures should be included in the Plan of Development: 1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat[10] prior to any ground disturbing activities to determine if suitable clay reed-mustard habitat is present. 2. Site inventories will be conducted within suitable habitat[11] to determine occupancy. Where standard surveys are technically infeasible and otherwise hazardous due to topography, slope, etc., suitable habitat will be assessed and mapped for avoidance (hereafter, "avoidance areas"); in such cases, in general, 300-foot buffers will be maintained between surface disturbance and avoidance areas. However, site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat. Where conditions allow, inventories: a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols, b. Will be conducted in suitable and occupied[12] habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected (usually May 1st to June 5th, in the Uintah Basin; however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower), c. Will occur within 300 feet from the edge of the proposed right-of-way for surface pipelines or roads; and within 300 feet from the perimeter of disturbance for the proposed well pad including the well pad, d. Will include, but not be limited to, plant species lists and habitat characteristics, and e. Will be valid until May 1st the following year. 3. Design project infrastructure to minimize impacts within suitable habitat[2]: a. Where standard surveys are technically infeasible, infrastructure and activities will avoid all suitable habitat (avoidance areas) and incorporate 300-foot buffers, in general; however, site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, b. Reduce well pad size to the minimum needed, without compromising safety, c. Limit new access routes created by the project, d. Roads and utilities should share common right-of-ways where possible, e. Reduce the width of right-of-ways and minimize the depth of excavation needed for the road bed; where feasible, use the natural ground surface for the road

[10] *Potential habitat* is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment.

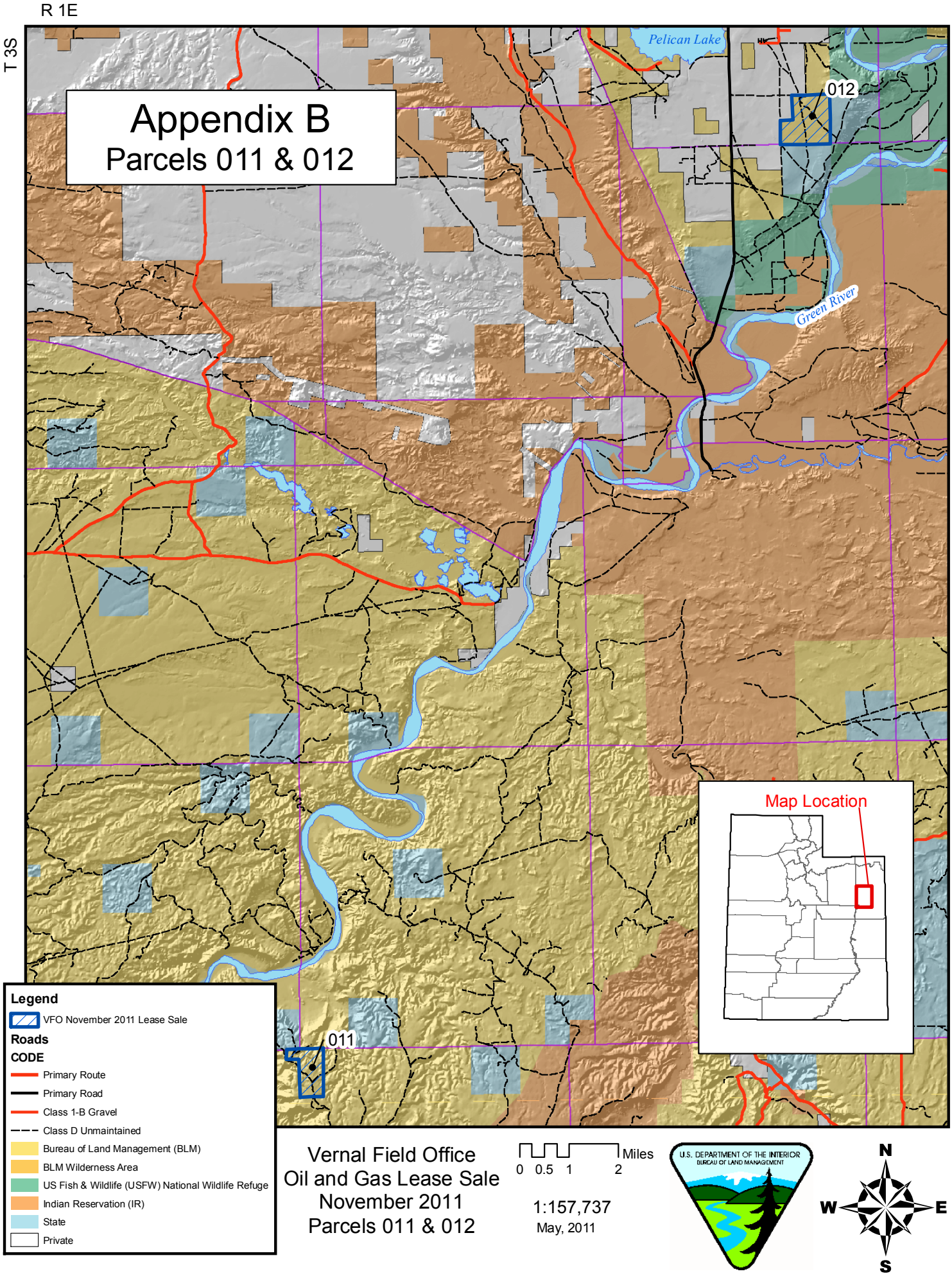
[11] *Suitable habitat* is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain clay reed-mustard; habitat descriptions can be found in Federal Register Notice and species recovery plan links at <http://www.fws.gov/endangered/wildlife.html>.

[12] *Occupied habitat* is defined as areas currently or historically known to support clay reed-mustard; synonymous with "known habitat."

	within habitat, f. Place signing to limit off-road travel in sensitive areas, and g. Stay on designated routes and other cleared/approved areas. 4. Within occupied habitat[3], project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants: a. Where standard surveys are technically infeasible, infrastructure and activities will avoid all suitable habitat (avoidance areas) and incorporate 300-foot buffers, , in general; however, site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, b. Follow the above recommendations (#3) for project design within suitable habitats, c. To avoid water flow and/or sedimentation into occupied habitat and avoidance areas, silt fences, hay bales, and similar structures or practices will be incorporated into the project design; appropriate placement of fill is encouraged, d. Construction of roads will occur such that the edge of the right of way is at least 300 feet from any plant and 300 feet from avoidance areas, e. Roads will be graveled within occupied habitat; the operator is encouraged to apply water for dust abatement to such areas from May 1st to June 5th (flowering period); dust abatement applications will be comprised of water only, f. The edge of the well pad should be located at least 300 feet away from plants and avoidance areas, in general; however, site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, g. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and plants and 300 feet between the edge of right of way and avoidance areas; use stabilizing and anchoring techniques when the pipeline crosses suitable habitat to ensure pipelines don't move towards the population; site specific distances will need to be approved by FWS and BLM when disturbance will occur upslope of habitat, h. Construction activities will not occur from May 1st through June 5th within occupied habitat, i. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc., j. Where technically and economically feasible, use directional drilling or multiple wells from the same pad, k. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and l. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible. 5. Occupied clay reed-mustard habitats within 300 feet of the edge of the surface pipelines' right of ways, 300 feet of the edge of the roads' right of ways, and 300 feet from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service. 6. Reinitiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the clay reed-mustard is anticipated as a result of project activities. Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.

APPENDIX B

MAPS


R 1E
T 3S
Appendix B
Parcels 011 & 012
Pelican Lake
012
Green River
011
Map Location
Legend
VFO November 2011 Lease Sale
Roads
CODE
Primary Route
Primary Road
Class 1-B Gravel
Class D Unmaintained
Bureau of Land Management (BLM)
BLM Wilderness Area
US Fish & Wildlife (USFW) National Wildlife Refuge
Indian Reservation (IR)
State
Private
Vernal Field Office
Oil and Gas Lease Sale
November 2011
Parcels 011 & 012
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May, 2011
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BUREAU OF LAND MANAGEMENT
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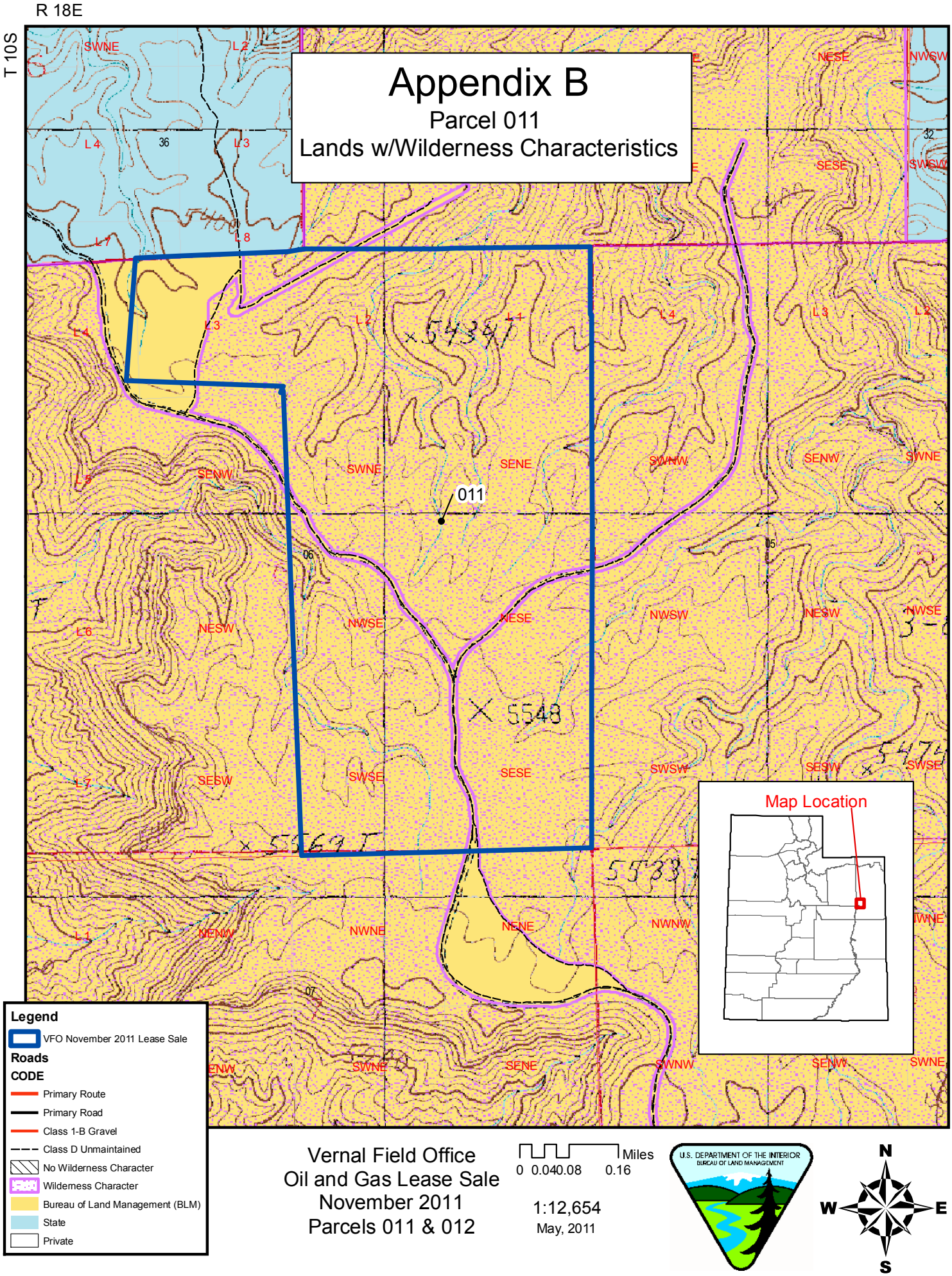
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T 10S
Appendix B
Parcel 011
Lands w/Wilderness Characteristics
011
Map Location
Legend
VFO November 2011 Lease Sale
Roads
CODE
Primary Route
Primary Road
Class 1-B Gravel
Class D Unmaintained
No Wilderness Character
Wilderness Character
Bureau of Land Management (BLM)
State
Private
Vernal Field Office
Oil and Gas Lease Sale
November 2011
Parcels 011 & 012
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May, 2011
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
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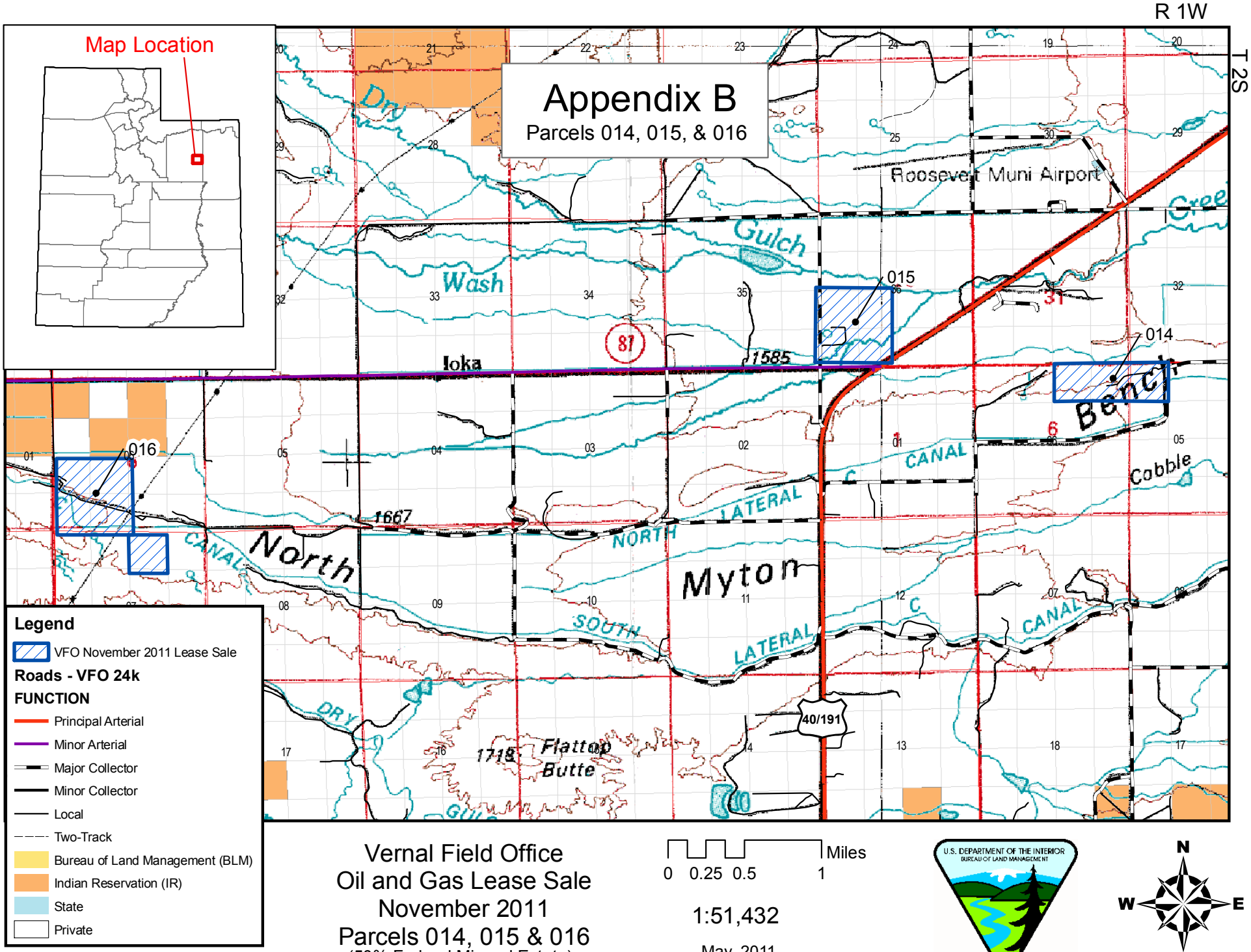

Vernal Field Office
Oil and Gas Lease Sale
November 2011
Parcels 014, 015 & 016
(50% Federal Mineral Estate)

APPENDIX C

INTERDISCIPLINARY TEAM CHECKLIST

INTERDISCIPLINARY TEAM CHECKLIST

Project Title: November 2011 Oil and Gas Lease Sale

NEPA Log Number: DOI-BLM-UT-G010-2011-0248-EA

File/Serial Number: N/A

Project Leader: Nate Packer

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
PI = present with potential for relevant impact that need to be analyzed in detail in the EA
NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determi-nation	Resource	Rationale for Determination	Signature	Date
RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)				
PI	Air Quality	Emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions could adversely affect air quality. Application of lease stipulation UTSO-S-01 and lease notice UT-LN-96 to all parcels should be sufficient to address these concerns.	Stephanie Howard	4/15/2011
NP	Areas of Critical Environmental Concern	None Present as per GIS layer review	Nate Packer	5/12/11
NP	BLM Natural Areas	None Present as per GIS layer review	Nate Packer	5/12/11
NI	Cultural Resources	As it authorizes no ground disturbance, the proposed lease sale will have no direct effect on cultural resources. A Class I survey (existing literature review) of the proposed sale (project number U11BL0207bps) indicated that the areas around each offered parcel are of sufficiently low site density that the avoidance of historic properties potentially Eligible for the National Register of Historic Places will not preclude surface development within the parcel and extraction of the leased minerals. The report notes that the areas around each parcel vary in site density between 107 to 518 acres per Eligible site, with approximately 40 acres per site assumed as a minimum threshold for site avoidance. Application of the Cultural Resources Stipulation from WO IM 2005-003 should be sufficient to address these concerns.	Geoffrey Haymes	5/16/2011
NI	Environmental Justice	Leasing the nominated parcels would not cause any disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Native American Tribes because the minerals are fee (private) or federal, and the surface is private or BLM. The three parcels that fall within the Uintah and Ouray Reservation (014, 015, and 016) are located on private land and 50% federal 50% private minerals, and are already have public access via county roads. The two leases that fall within Indian Country (011 and 012) are on federal surface federal minerals.	Stephanie Howard	4/15/2011

Determi-nation	Resource	Rationale for Determination	Signature	Date
NP	Farmlands (Prime or Unique)	In Duchesne County (parcels 011 and 012) soils have not been surveyed so prime and unique farmlands have not been designated (NRCS's Duchesne County Utah Resource Assessment Aug. 2005). In Uintah County In Uintah County, parcels 014, 015, and 016 are not located within prime farmland, which is "land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion". (NRCS's Uintah County Utah Resource Assessment Aug. 2005).	Stephanie Howard	4/15/2011
PI	Fish and Wildlife Excluding USFWS Designated Species	Parcel 12 is within ½ mile of bald eagle roosting habitat. Raptor habitat is present in all parcels. Prairie dogs are present as well as burrowing owl. Application of lease stipulation UTSO-S-261, UTSO-S-278, UT-T&E-01, UT-LN-37, and lease notice UT-LN-25 to all parcels should be sufficient to address these concerns.	Dan Emmet	5/19/2011
NI	Floodplains	Concerns for floodplains are limited and of low concern. The lease sale in itself would not cause impacts to flood plains. If any of the proposed parcels are sold, an onsite inspection during the permit to drill process would prevent impacts to floodplains whether HUD or non-HUD inventoried.	Stan Olmstead	4/12/2011
NI	Fuels/Fire Management	There are no past or planned Fuels projects in the immediate area. The proposed reclamation activities would decrease the chance of hazardous fuels.	Blaine Tarbell	4/14/2011
NI	Geology / Mineral Resources/Energy Production	The entire Parcel 012 is open for mineral material disposal. Any conflicts between fluid mineral operations and other mineral operations would be resolved at the time of any application related to fluid mineral exploration and development. No gilsonite veins or tar sands are known to be present in these parcels. No active mining claims are present.	Betty Gamber	4/14/2011
PI	Greenhouse Gas Emissions	Emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions could adversely affect air quality.	Stephanie Howard	4/15/2011
NI	Hydrologic Conditions (stormwater)	The lease sale alone would not have impacts to the hydrologic conditions (stormwater) of the proposed sale. However if after energy permitting oil & gas development were to occur then changes to surface water patterns and potential stormwater impacts could occur. Onsite inspection and consideration of development in relation to Section 402 of the Clean Water Act would be analyzed.	Stan Olmstead	4/12/2011
NI	Invasive Plants/Noxious Weeds (EO 13112)	The lease sale alone would not affect Invasive Plants/Noxious Weeds. However, there is an expectation that development will occur in the future, at which time additional NEPA would be conducted. At the development stage, mitigation measures and best management practices will need to be incorporated to avoid the spread of undesirable non-native plant species. Required mitigation measures will need to at minimum meet the standards set forward within the Vernal Field Office Surface Disturbance Weed Policy (IM-UTG010-	Aaron Roe	5/9/2011

Determi-nation	Resource	Rationale for Determination	Signature	Date
		10-001). Future site specific NEPA should discuss the non-native species present, the likelihood they would spread, and the developed mitigation measures.		
NI	Lands/Access	The proposed area is located within the VFO RMP/ROD area, which allows for oil and gas development with associated road, pipeline and power line right-of-ways. Oil and gas leasing is not expected to affect access to public lands. Leasing would be subject to all valid pre-existing rights. Any proposals for future projects within the oil and gas lease area would be reviewed on a site-specific basis and other right-of-way holders in the area would also be notified, as per regulations, when an application for right-of-way is received by this office.	Katie Nash	5/9/11
PI	Non WSA Lands with Wilderness Characteristics (LWC)	Desolation Canyon Parcel 11 falls within an inventory unit that has wilderness characteristics.	Jason West	5/23/2011
NI	Livestock Grazing	Parcels UT1111-011 and UT1111-012 are within active grazing allotments. Parcel UT1111-011 is within the Wildhorse Bench Allotment. Parcel UT1111-012 is within the Twelve Mile Allotment. Leasing of the parcels will not impact livestock grazing. Potential future development of oil and gas operations on leased parcels may have impacts to grazing which will be analyzed on a site specific basis when an Application for Permit to Drill (APD) is received. At that time implementation of the Green River District Office Reclamation Guidelines will help to reduce future potential impacts to grazing and rangeland health. There are existing range improvements and studies within the proposed lease parcels that will need to be avoided by 200 meters during the development of oil and gas facilities. (43 CFR 3101.1-2) Avoidance of range improvements and studies would minimize potential impacts. If that is not possible the company will be required to repair or replace range improvements and studies that are damaged by future oil and gas development activities. When an APD is received, the information from an onsite visit and site specific NEPA will be used to analyze the potential impacts to livestock grazing and range improvements and studies.	Jannice Cutler	4/14/2011
PI	Migratory Birds	Migratory birds are present within all of the proposed parcels. Parcel 12 is within BHCA.	Dan Emmett	5/09/2011
NP	Native American Religious Concerns	Consultation letters were sent to the Tribes on May 6, 2011. Responses were received from the Hopi and the Laguna Tribes. The Hopi requested a copy of the Class I survey. The Laguna responded with “no affect” to Native properties for this undertaking. No Native American Religious Concerns were identified by either tribe.	Kathie A. Davies	6/14/2011
NI	Paleontology	No documented occurrences of valuable paleontological resources occur within the any of the parcels with BLM surface. Paleontology surveys will need to be conducted for parcels on BLM land before any exploratory or operational surface disturbance can take place If these paleo surveys discover any significant fossils	Betty Gamber	4/14/2011

Determi-nation	Resource	Rationale for Determination	Signature	Date
		appropriate mitigation measures will be followed to protect valuable paleontological resources.		
NI	Rangeland Health Standards	See above livestock grazing section. Leasing of the parcels will not impact Rangeland Health. Future development of the leases could impact rangeland health but the potential impacts will be addressed in site specific NEPA analysis when an Application for Permit to Drill is received. At that time implementation of the Green River District Office Reclamation Guidelines will help to reduce future potential impacts to grazing and rangeland health. In 2003 Rangeland Health Assessments were done on the McCoy Flat Allotment. It was determined that the allotment was meeting the Utah Standards for Rangeland Health. Rangeland Health Assessments were done in the Twelve Mile Allotment in 2005. One site was located in parcel UT1111-012 and was meeting rangeland health standards. In 2005 Rangeland Health Assessments were done on the Wildhorse Bench Allotment. Two upland sites were assessed both were meeting rangeland health standards.	Jannice Cutler	4/14/2011
NI	Recreation	Parcel 11 and 12 are within the Extensive Recreation Management Area. Parcel 12 is near Pelican Lake, however is not close enough to cause impacts to recreators at the lake or camp site (lease site is more than one mile from the lake and 2 miles from the camp site). Recreators traveling to the Ouray National Wildlife refuge may be impacted by this development, but concerns will be mitigated through consultation with the Refuge and through site specific analysis.	Jason West	5/18/2011
NI	Socio-Economics	No impact to the social or economic status of the counties or nearby communities would occur from the leasing of these parcels due to their small size in relation to ongoing development throughout the Uinta Basin.	Stephanie Howard	4/15/2011
NI	Soils	Leasing the parcels, per se, would not affect the soil resource. However, there is some expectation that drilling and development could occur, at which time additional NEPA would be conducted. NSO stipulations were developed in the Vernal RMP for the Vernal Field Office for lease parcels within areas having slopes greater than 40%. All lease parcels with known 40% slopes have stipulations attached (UTSO-S-96 and UTSO-S-100). Hydrologic and soil conditions are variable across the remaining proposed parcels. 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.	Steve Strong	4/14/2011 6/7/2011
PI	Threatened, Endangered or Candidate Animal Species	Federally listed fish: All parcels are anticipated to have water depletion. Application of lease notice UT-T&E-03 to all parcels should be sufficient to address these concerns. In addition, the Endangered Species Act Stipulation from WO IM 2002-174 would be attached to the parcels.	Dan Emmett	5/09/2011

Determi-nation	Resource	Rationale for Determination	Signature	Date
PI	Threatened, Endangered or Candidate Plant Species	Parcel 11 and 12 have potential habitat for Uinta Basin hookless cactus. Parcel 11 has potential habitat for clay reed-mustard. Parcels 15 and 16 have potential habitat for Ute ladies-tresses. Application of appropriate lease notices is required (UT-T&E-05, UT-T&E-12, and UT-T&E-20). In addition, the Endangered Species Act Stipulation from WO IM 2002-174 would be attached to the parcels. During the development of the proposed leases, taking into account additional proposed or required avoidance and mitigation measures as allowed through the lease notices, impacts to the species will be analyzed and Section 7 consultation with the US Fish and Wildlife Service will be conducted.	Aaron Roe	5/9/2011
SSP: PI Veg: NI	Vegetation, Excluding USFWS designated species	Parcels 11 and 12 have potential habitat for Yucca sterilis. Application of the following lease notices to each parcel is appropriate: UT-LN-49 and UT-LN-51. During the development of the proposed leases, taking into account avoidance and mitigation measure, impacts to the species will be analyzed within appropriate NEPA. Discussed within Chapters 3 and 4 along with the section on Threatened, Endangered, and Candidate Plant Species Leasing per se, will not negatively impact vegetation. However, there is an expectation that development will occur on the leased parcels. 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 development stage, mitigation measures and best management practices will need to be incorporated to minimize the short and long term impacts to the native vegetation community.	Aaron Roe	5/9/2011
NI	Visual Resources	VRM Class IV Identified for parcel 11. VRM III identified for parcel 12. Both allow for development of public lands. Class III is the more restrictive of the two, and the objectives for Class III state: "The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape." Best Management Practices will be utilized in both VRM Class III and IV areas to protect VRM values. Site specific NEPA will be conducted for individual development projects which may restrict or modify site locations and design elements to ensure VRM Class III objectives are met where appropriate.	Jason West	5/18/2011
NI	Wastes (hazardous or solid)	The analysis in the Vernal RMP is sufficient. No hazardous or solid waste sites are known to be present. No hazardous or solid waste sites are anticipated to occur as a result of leasing. No stipulations or lease notices apply.	Nate Packer	5/12/11
NP	Waters of the U.S.	Water of the U.S. are not present on any of the 5 parcels offered for sale. There for no impact would occur and a	Stan Olmstead	4/12/2011

Determi-nation	Resource	Rationale for Determination	Signature	Date
		USACE permit is not required.		
Surface: NI Ground: NI	Water Resources/Quality (surface/ground)	Surface: Sale of the 5 lease parcels would not cause any change in surface water quality. However if at the time that an Application for Permit to Drill would occur on the parcel an onsite inspection would consider surface disturbance, spill prevention, and potential impacts to water quality. Groundwater: Oil and gas well completions must be accomplished in compliance with "Onshore Oil and Gas Order No. 2, Drilling Operations". These guidelines will protect the groundwater and specify the following: *…proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones…*	Stan Olmstead Betty Gamber	4/12/2011 4/14/2011
NP	Wetlands/Riparian Zones	No inventory of riparian is present on any of the 5 parcels offered for sale and none are known.	Stan Olmstead	4/12/2011
NP	Wild and Scenic Rivers	None Present as per GIS layer review	Nate Packer	5/12/11
NI	Wild Horses and Burros	Leasing of the parcels will not impact the existing wild horses in the Hill Creek HA. The Hill Creek HA is to be zeroed out as per the VFO RMP ROD 2008. If the herd is not removed, they could be impacted by future development of the leases, but the potential impacts will be addressed in site specific NEPA analysis when an Application for Permit to Drill is received. At that time implementation of the Green River District Office Reclamation Guidelines will help to reduce future potential impacts to wild horse habitat resources.	Dusty Carpenter	5/01/2011
NP	Wilderness/WSA	None Present as per GIS layer review	Nate Packer	5/12/11
NP	Woodland / Forestry	None Present per review of GIS.	David Palmer	4/12/2011

FINAL REVIEW: DOI-BLM-UT-G010-2011-0248-EA

Reviewer Title	Signature	Date	Comments
Environmental Coordinator	*-unsigned-*		
Authorized Officer	*-unsigned-*		

APPENDIX D

COMMENT RESPONSE TABLE

Number	Comment	Response
	SUWA	
1	BLM must conduct environmental analysis at the leasing stage while it still retains full discretion regarding its management decisions. In the case of air quality impacts and impacts to other resources, the BLM appears to be pushing that analysis off to some other day. This is prohibited by the NEPA. At the leasing stage, BLM makes an "irrevocable commitment" to allow construction of roads, well pads, and pipelines. Once the lease is issued, BLM no longer has the authority to prevent some level of development. Because the issuance of the proposed November 2011 leases is the point of commitment, BLM must fully consider the environmental impacts of the leases, including air pollution, before issuing them.	As described by the WO[13], management of onshore federal oil and natural gas resources occurs in five distinct phases. Nothing changes on the ground as a result of a lease being issued. Likewise, no surface disturbance may begin on a lease without associated permits including the APD. BLM cannot approve an APD until the requirements of certain laws and regulations have been met, including CAA, NEPA, NHPA and ESA. BLM notes that this November 2010 lease sale EA complies with the level of NEPA analysis outlined in WO IM-2010-117 and is consistent with the National MOU for air quality, When and if an APD is submitted, BLM will also initiate NEPA that will invite additional public participation and consultation with agencies with expertise and jurisdiction by law. Based on that analysis, additional constraints may be imposed at the APD stage.
2	Particulate matter and ozone pollution are serious problems in the Unita Basin. Monitors in the Uinta Basin reveal that ozone and fine particulate pollution concentrations have now reached levels in excess of federal air quality standards, something that neither the Vernal nor Price resource management plans (RMPs) ever considered and something that the Vernal EA and Price EA only acknowledge in passing. Ozone and $PM_{2.5}$ values in the Uinta Basin, the area of these six contested leases, have recently been recorded well in excess of federal air quality standards. [Data charts provided].	Throughout EA section 3.3.6, (and in other documents and correspondence between/among EPA) BLM acknowledges pollution levels that have exceeded NAAQS within the Uinta Basin and the corresponding data sets obtained from the EPA and UDAQ which document those exceedences. In addition to UDAQ's Vernal station, BLM utilized monitoring data from EPA's Ouray and Redwash site and NPS's Dinosaur NM.
3	The Vernal EA and Price EA acknowledges that oil and gas development has likely caused exceedances of federal air quality standards for ozone and $PM_{2.5}$ in the Uinta Basin. Air emissions associated with oil and gas development begin at the surface disturbing stage and continue through full development. Two of the biggest air quality problems associated with oil and gas development are ground level ozone and $PM_{2.5}$. The pollution emissions of oil and gas projects are measurable; this evidence repudiates the Vernal and Price EAs' unsubstantiated claims to the contrary that quantitative analysis or additional analysis of these	BLM states throughout the EA, that oil and gas development has likely contributed to exceedences of the ozone standard. BLM notes that there is little evidence to suggest this development activity is contributing substantially to any $PM_{2.5}$ issues in the Uinta Basin. BLM is not stating that the emissions from oil and gas activities are not measureable but that the amount, location, and duration of future oil and gas operations cannot be known at this stage with enough certainty to conduct quantitative modeling that will produce results that could reasonably be used in decision making.

[13] Accessed online at: http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/leasing_of_onshore.html. The phases include planning, nomination/sales, permitting/development, operations/production and plugging/reclamation.

Number	Comment	Response
	contributions would not be helpful at this point. [Not only are] oil and gas development and production emissions measurable and quantifiable, they are, at the very least, sufficient to exacerbate poor air quality in the Uinta Basin. BLM's claims to the contrary in the Vernal EA and Price EA lack evidence or support and are contradicted by analyses the BLM itself has done on other occasions, as well as the Price and Vernal EAs themselves. See Price EA at 29; Vernal EA at 25. BLM must support its claims with adequate evidence in these EAs. The EPA has notified BLM of its concerns that elevated ozone levels in the Vernal Field Office are likely to increase due to current oil and gas development. Modeling and analysis conducted by the BLM confirms this. The Vernal EA and Price EA acknowledges that oil and gas development is responsible for the elevated levels of ozone in the Uinta Basin. See Price EA at 17-18; Vernal EA at 17-18. A recent environmental analysis released by the BLM also acknowledged that oil and gas development was likely responsible for elevated ozone levels in the Uinta Basin. See Price EA at 17-18; Vernal EA at 17-18. According to the EPA, this increase is "considered a significant project-specific contribution given the recent ozone monitored exceedances in the Uinta Basin." The EPA also notified the BLM that this project had the "potential to contribute to significant impacts to $PM_{2.5}$." The BLM routinely prepares $PM_{2.5}$analyses for oil and gas development in the Vernal Field Office; these analyses consistently show measurable, impactful increases in this pollutant. Thus, proposed development on existing leases in the Uinta Basin is already likely to continue and to further exacerbate poor air quality. Oil and gas development in the Uinta Basin contributes measurable, impactful levels of ozone and $PM_{2.5}$ pollution. In light of the poor air quality in the Uinta Basin as a result of these two pollutants, those contributions are particularly damaging. These contributions have not been fully acknowledged and analyzed by the BLM in the Vernal and Price EAs.	BLM is not claiming that emissions from oil and gas development could not or would not exacerbate existing air quality problems. EA Section 3.3.6 clearly states that BLM believes oil and gas development is contributing to existing ozone exceedance issues. EA section 4.2.6 also states that anticipated activities from this lease sale could contribute a minor amount to future exceedences. Based on the RFD for this lease sale (1 well per certain parcels), and the mitigation identified in the EA, BLM believes it is unlikely that emissions from this level of actively would majorly impact or exacerbate existing or potential future ambient ozone concentrations that haven't already been analyzed in the GNB EIS. BLM does not "routinely" conduct $PM_{2.5}$ analyses, nor has the analyses that have been done to date show measurable impactful increases in this pollutant.
4	BLM has not taken a hard look at the adverse effects of oil and gas development on air quality and it cannot approve development that will exceed federal air quality standards on these six lease parcels. This is a critical failure as ozone and $PM_{2.5}$ pollution are above federal standards in the Uinta Basin, where these six leases are located, and new development will likely only further exacerbate this problem. For this	The BLM disagrees that the Vernal and Price November 2011 lease sale EAs contradict each other or within the individual EAs themselves and the commentor does not provide BLM with the specific locations of the implied contradictions. BLM cannot logically follow the commentor's points. As stated in our response to comment #3, BLM acknowledges that oil

Number	Comment	Response
	reason, BLM must take a hard look at impacts to air quality from potential development, since after a lease has been issued the agency will have made an irreversible and irretrievable commitment of resources that could only further violate federal air quality standards. The Vernal and Price EAs are contradictory in their air quality analysis and as a result, have not taken a hard look at the impacts of these potential leasing decisions on air quality. This oversight is remarkable. Both the Price EA and the Vernal EA acknowledges that oil and gas development is likely the main culprit behind elevated levels of ozone and $PM_{2.5}$ pollution. See Price EA at 17-18; Vernal EA at 17-18. The BLM further acknowledges that continued development will exceed federal and state air quality standards. See Price EA at 75. The BLM also recognizes that the oil and gas development likely to flow from the leasing of these parcels will produce emissions that contribute to ozone and $PM_{2.5}$ pollution. [See id. at 29; Vernal EA at 25.] However, the Vernal EA and Price EA then suggest, at some points that these contributions to pollution levels will be "negligible" and that they are not likely to contribute to any violations of standards, or at the very least, will "only contribute a small amount" to future exceedances of air quality standards. See Vernal EA at 25; Price EA at 29-30. Regardless, the BLM then appears to commit to prepare dispersion modeling at the site-specific proposal stage before development will take place. See Vernal EA at 25; Price EA at 29. the poor air quality of the region, it is not clear that any development can take place without further exacerbating already poor air quality levels. Dispersion modeling is a mathematical approximation of the atmosphere, allowing the BLM to estimate how certain pollutants will concentrate or disperse once emitted. See id. at 4-13. Thus, modeling allows for descriptions of pollution concentrations that are similar to federal air quality standards, the benchmark that BLM should use to evaluate air quality impacts. BLM's Vernal and Price EAs claim that modeling at the prelease stage is not an accurate way to identify possible impacts. See Vernal EA at 25; Price EA at 29. This explanation, however, conflicts with prior declarations by the BLM, with BLM's practice, with reasonably foreseeable development scenarios the agencies has constructed, and with guidance from the EPA. The BLM's repeated use of dispersion modeling on various projects	and gas development contributes to elevated levels of ozone pollution; however, this is not the case with particulate matter ($PM_{2.5}$). Particulate matter contributions have not been proven in this case. Within the comments, errors are not identified with respect to the application of the air quality stipulation (UT-S-01) or with lease notice UT-LN-96 (Air Quality) for all applicable best management practices that would apply at the development stage for the subject parcels. Air quality is also affected by how well soil resources are managed. As such, concerns were not identified with BLM's application of the stipulations for steep slopes, springs, streams, high country watersheds or noxious weed control. Informative and accurate modeling cannot occur before development proposals including locations, equipment, and development levels are known. The only reasonable foreseeable development on these parcels is exploratory at this stage. At the RFD levels projected in this EA, development impacts would indeed be "negligible" and "only contribute a small amount" or have been analyzed in previous documents. It is critical to note that BLM acknowledges that even at the minor level of development forecast by the RFDs described in this EA, BLM is acknowledging that emission will contribute, albeit to a minor level, to existing air quality issues (EA Section 4.2.6). It is not until larger development is proposed that potential impacts and appropriate mitigation can be conclusively defined through more extensive analysis, including photochemical modeling where appropriate. As per the mitigation section within the EA, appropriate air quality controls are attached as stipulations or lease notices as defined in the GNB EIS. BLM notes that an important distinction is made here. The BLM thanks the commentor for acknowledging our efforts at project modeling and that it is done when modeling is appropriate. Modeling at the project stage has been and will continue to be used to estimate air pollution impacts from BLM authorized activities. BLM does not know, at the present time, what projects may or may not occur on these parcels beyond the RFDs identified in the EA. It is possible that further development may be proposed resulting from the exploratory development reflected by the RFDs, and if and when that occurs, BLM will incorporate that site specific information needed to conduct modeling. Modeling was conducted for the GNB EIS in which BLM tiers to in this EA.

Number	Comment	Response
	demonstrates that the agency does find it useful for estimating impacts and quantifying them. It also shows that such models may be prepared well before leasing. In addition, the EPA, the agency charged with protecting the nation's air quality and the technical expert in this realm, has continually indicated to BLM that modeling is useful and worthwhile. The BLM has already developed reasonably foreseeable development scenarios for how development might take place on leased parcels. See Price EA at 19-21. These scenarios, which are used to project potential impacts to other resources, can easily be applied to air quality impacts analysis. BLM has not explained why such projections could not be applied to air quality development. To comply with NEPA's "hard look" requirement, BLM must explain how its actions will or will not comply with environmental laws and policies, such as NAAQS. See 40 C.F.R. § 1502.2(d). In fact, the Federal Land Policy and Management Act requires BLM to ensure that its approval of oil and gas development complies with all applicable air quality standards. 43 U.S.C. § 1712(c)(8) (requiring BLM to "provide for compliance with applicable pollution control laws, including State and Federal air … pollution standards"); 43 C.F.R. § 2920.7(b)(3) (requiring that BLM "land use authorizations shall contain terms and conditions which shall … [r]equire compliance with air … quality standards established pursuant to applicable Federal or State law") (emphasis added). Accordingly, BLM must analyze air emissions associated with oil and gas development, and determine whether those emissions will result in violations of federal air quality standards.	The commentor maintains that the BLM's repeated use of dispersion modeling on various projects demonstrates that the agency does find it useful for estimating impacts and quantifying them and that it also shows that such models may be prepared. The BLM maintains that the use of modeling at the project stage in no way says anything about the feasibility of doing modeling "well before leasing". If anything is repudiates that notion.
5	The BLM did not consider the effects of its decision to issue these six leases on climate change or how climate change will impact the resources related to the development of these six leases. The EPA has pointed out the inadequacies of BLM's analysis and the BLM itself has now begun preparing some climate change analysis in other documents, demonstrating that this may be done. Unfortunately, the BLM's protest decision merely attempts to explain its refusal to conduct this analysis at the lease sale stage, the point of an irreversible and irretrievable commitment of resources. In Secretarial Order 3289, Secretary Salazar stated that BLM "must consider and analyze potential climate change impacts when undertaking	BLM has not made a decision as to whether these parcels will be leased and continues with the NEPA process. Numerous statements are made about a "decision" and "protest decision" within this comment. Where this occurs the BLM believes these are remnants of other correspondence with the BLM and that it would not apply to this situation. Greenhouse gases and climate change were discussed at EA sections 3.3.6, and 4.3.3.6. BLM acknowledges climate change in the VFO Proposed RMP/Final EIS and incorporates the information and analysis contained in its sections 3.2.6 and 4.2.1. In addition, BLM also incorporates the analysis completed for the West Tavaputs Plateau and Greater Natural Buttes EISs. As the tools for predicting climate change improve and policy for determining effects of climate change is

Number	Comment	Response
	long-range planning exercises" and also made clear that the requirements in Secretarial Order No. 3226 remain in effect. Order 3226, issued by then-Interior Secretary Bruce Babbitt, requires BLM to "consider and analyze potential climate change impacts" when undertaking long-range planning exercises, including specifically "management plans and activities developed for public lands." These Orders are enforceable and demand BLM's compliance. The issuance of these six leases and the potential oil and gas development that would ensue constitute the sort of activity on public lands where BLM must consider climate change. Whether this analysis should have taken place at the resource planning stage or the lease issuance stage, BLM's actions here appear more reflective of an attempt to avoid this analysis by pushing it off to some other phase (which phase never comes). Under NEPA, BLM must adequately and accurately describe the environment that will be affected by the proposed action—the "affected environment." 40 C.F.R. § 1502.15. This includes the affected environment as modified by climate change. BLM did not adequately conduct any analysis of the effects of climate change in the Vernal RMP nor did the agency consider the greenhouse gas contributions of reasonably foreseeable oil and gas development originating in these six lease parcels. In the Vernal RMP, BLM claimed that it could not analyze the impacts of climate change due to lack of tools for quantification, including a lack of guidance from EPA. See, e.g. Vernal RMP at 4-8; Director's Protest Resolution Report for Vernal RMP at 49-50 (Oct. 29, 2008). The same goes for the Price RMP. However, EPA rejected that precise argument in its comments on the Vernal RMP, stating that "NEPA requires federal agencies to take a hard look at potential environmental impacts associated with their proposed actions" and the "[l]ack of regulatory protocol or emission standards for greenhouse gases does not preclude BLM from fulfilling this responsibility." Letter from Svoboda to Sierra at 4-5. The BLM attempts to waive away these issues by asserting that it is too soon to address issue of climate change. See Vernal EA at 32; Price EA at 37. However, such an argument ignores the fact that this analysis must take place at the point of irreversible and irretrievable commitment. See supra (citing Southern Utah Wilderness Alliance, 159 IBLA at 240-43; Friends of the Southeast's Future, 153 F.3d at 1063; Pennaco Energy, Inc., 377 F.3d at 1159-61; Union Oil Co., 102 IBLA at 189; Conner, 848	solidified, BLM remains committed to adjust management accordingly at that time. At EA section 1.6, BLM considered but eliminated disturbed desert dust and impacts to snowpacks as an issue to be considered in this EA. BLM reviewed the information provided and believes that that attempting to complete such analyses at the leasing stage would not lead to accurate, useful results, would not be an appropriate use of the agency's time and resources and would be pure conjecture that would not lead to an informed Bureau decision. Instead, BLM refers the public to the discussions associated with particulate matter in whole. Air quality mitigation and controls have been specifically prepared with the guidance and recommendations of the EPA. As with our response to comment #4, BLM notes an important distinction. Logic dictates that reasoned approach must be taken to estimate air pollution or perceived impacts to global climate change from BLM authorized activities. BLM must first adhere to the agreements made with the EPA by following procedures outlined in the Air Quality MOU and those of stemming from the GNB EIS, as supplemented.

Number	Comment	Response
	F.2d at 1448-51; Peterson, 717 F.2d at 1414). These six oil and gas leases do not prohibit all surface use and therefore constitute an "irreversible and irretrievable commitment of resources." See supra; Peterson, 717 F.2d at 1414. This argument also ignores the conclusion of the EPA that the Vernal and Price RMPs do not adequately analyze greenhouse gas emissions from oil and gas development and that an "[a]nalysis of greenhouse gas emissions will still be needed for future NEPA compliance regarding the approval of oil and gas operation in the Vernal planning area." Letter from Svoboda to Sierra at 4. The same goes for the Price planning area. This oversight and obfuscation by BLM is significant. As the agency explains elsewhere, the Council on Environmental Quality released draft guidance for how NEPA analyses should consider and evaluate greenhouse gas emissions as well as climate change. Gasco Uinta Basin Project at 3-11. "Specifically, where a proposed action is anticipated to cause direct, annual emissions of 25,000 metric tons or more of CO2-equivalent greenhouse gas emissions, a quantitative and qualitative assessment is required together with the consideration of mitigation measures and reasonable alternatives to reduce greenhouse gas emissions." Id. BLM has recently evaluated a one hundred-well-per-year development in the Vernal Field Office that would result in over 63,870 tons per year of carbon dioxide, a greenhouse gas. See id. at 4-6. BLM's lack of analysis constitutes a failure to take a hard look at the impacts of its decision on climate change. The Price and Vernal EAs also fails to consider the pressing issue of disturbed desert dust being deposited on nearby mountain snowpack, in turn leading to early snowmelt and increased regional temperatures, which is directly related to the larger phenomenon of climate change. The BLM should analyze the impacts of all the surface disturbing activities that would be permitted in the leasing of the parcels offered in the November 2011 lease sale along with the potential impacts of ongoing and reasonably-foreseeable activities in the Vernal and Price planning areas on the phenomenon of dust melting snow. In addition to qualitative analysis, the BLM can at least quantify total suspended particulates that are likely to be generated by wind erosion on the disturbed surfaces described above; this is something BLM already knows how to do and has employed in some projects.	

Number	Comment	Response
6	Parcels UT1111-11, UT1111-17, UT1111-18, UT1111-19, UT1111-20, and UT1111-22 are all located inside of areas identified by the BLM as containing wilderness characteristics. Vernal EA at 21; Price EA at 28. Secretarial Order 3310; Department of Defense and Full-Year Continuing Appropriations Act (2011, Pub. L. No. 112- 010); and 'Wild Lands' Memo. (from Ken Salazar, Secretary of the Interior, to Bob Abbey), each establish Departmental or Bureau policy and recognize BLM's duty to maintain and use current inventory of lands with wilderness characteristics when making management decisions. The BLM should not offer leases 17-22 because it would be contrary to the policy of Secretarial Order 3310. Furthermore, the Secretary of the Interior's June 1, 2011, memorandum affirms BLM's obligation to inventory and "consider" wilderness characteristics "when making project-level decisions." Here, BLM has already determined that these six parcels contain wilderness characteristics. Consequently, it must now fully "consider" those characteristics while planning for the November lease sale. The Vernal and Price EAs do not fully consider these impacts. In order to fully "consider" wilderness characteristics in the context of this lease sale, the Secretary's Memorandum requires the BLM to develop and evaluate a leasing alternative that fully protects lands with wilderness characteristics, either through parcel deferrals or NSO stipulations. Such an alternative would comply with a key provision of IM 2010-117, which requires BLM to evaluate lease sale alternatives that "address unresolved resource conflicts." In response to this requirement of the IM, BLM has consistently included alternatives in lease sale EAs that protect wilderness characteristics, even in lease sale EAs that post-date the congressional funding limitation on implementing the Wild Lands Policy. For example, in Colorado the proposed action for the White River Field Office's August 2011 Oil and Gas Lease Sale EA, BLM deferred five parcels in order to update its wilderness inventory and protect "primitive recreation opportunities." BLM should follow suit for the November 2011 lease sale and evaluate an alternative that protects the wilderness characteristics of the preliminary sale parcels.	The WO IM-2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans, dated July 25, 2011, directs offices to continue to conduct and maintain inventories regarding the presence or absence of wilderness characteristics, and to consider identified lands with wilderness characteristics in land use plans and when analyzing projects under the NEPA. BLM agrees that it is obligated to comply with FLPMA sections 201 and 202 and follow Departmental or Bureau policy. As stated, the BLM relied on wilderness characteristic inventories while preparing the 2008 VFO ROD/RMP. The methods utilized by the BLM at that time also remain consistent with requirements outlined in WO IM-2011-154. In EA section 3.3.3, BLM describes the use of its 1999 lands with wilderness characteristics inventory. BLM fully considered and documented the extent to which the value and use of lands with wilderness characteristics would be foregone when it made its decision not to manage the Desolation Canyon Unit as BLM natural areas in the VFO ROD/RMP. The impacts of this proposed action on non-WSA lands with wilderness characteristics are fully considered within the EA at sections 4.2.3, 4.3.3 and 4.4.3. BLM Utah notes that in their Notice of Addendum No. 1, the Colorado State Office BLM did defer their subject parcels to allow time for further resource analysis. The unsigned FONSI states that all of parcel 6005 and portions of parcels 6003, 6004, 6006, and 6007 are deferred due to concerns regarding primitive recreation opportunities, not a lack of wilderness character inventory. Colorado BLM is currently in the planning process and has elected to defer leasing of their subject parcels while they compile and analyze level of inventory information that Utah BLM already has through the 2008 VFO Proposed RMP/Final EIS. The BLM has fully considered managing 277,596 acres to protect, preserve, and maintain their wilderness characteristics within Alternative E, Proposed RMP/Final EIS. This information is summarized at page 12 of the VFO ROD/RMP. Specifically, BLM analyzed mineral leasing, including NSO, with the following categories (pages 12-13 VFO ROD/RMP): • open subject to the standard terms and conditions – 818,891

Number	Comment	Response
		acres • open subject to minor constraints (timing limitations/controlled surface use) – 680,570 acres • open subject to major constraints (no surface occupancy) – 47,629 acres • unavailable – 360,037 acres. Under Section 201 and 201 of FLPMA, BLM is directed to conduct and maintain current inventories of public lands and the resources there-in; including wilderness characteristics. Data from these inventories are then used in resource analysis during land use plan revisions. Under this alternative, these acres were unavailable to mineral leasing and development, rights-of-way, woodcutting, and other surface disturbing activities. Management of non-WSA lands to preserve their wilderness characteristics precluded potentially beneficial actions such as fuels and vegetation treatments and other healthy lands initiatives, wildlife and range improvements, and the construction of recreation facilities. Many of the areas managed to protect wilderness characteristics in Alternative E had conflicts with high development potential areas for oil and gas. Some of this acreage was also currently leased for oil and gas and coal, thereby making it impractical to protect the wilderness characteristic values. BLM found that management of all the non-WSA lands with wilderness characteristics in Alternative E as overly restrictive on other resources and uses of the public lands. Even though a parcel occurs within an inventory unit, wilderness information was included into the ROD/RMP. Decisions were made off of those inventories. There has not been any change in circumstances to warrant the need to revisit those decisions made in the VFO ROD/RMP.
7	BLM must comply with the requirements of IM 2010-117. In addition to directing BLM to fully analyze an alternative that would protect wilderness characteristics, see supra, IM 2010-117 directs BLM to “take into account” several “other considerations” during its evaluation of lease sale parcels, including (1) whether non-mineral resource values outweigh mineral development values in “undeveloped areas;” and (2) whether leasing will cause “unacceptable impacts” on units of the National Park System. Because several of the sale parcels are located in “undeveloped areas” and/or are likely to have impacts on visibility in national parks, BLM must evaluate both of these considerations in the EA. In doing so, the BLM should follow the example of Wyoming’s	Where BLM natural areas were not selected (EA Section 3.3.5, Desolation Canyon Unit), BLM found that certain inventoried areas contained other important resources and uses that would conflict with protection, preservation or maintenance of wilderness characteristics (VFO ROD/RMP, page 32). BLM fully considered their value in light of other resources and uses including the presence of existing leases that would preclude management for wilderness characteristics. Likewise, BLM addressed recreation demands by providing SRMAs. As identified in Attachment C, this area is within the ERMA or near Pelican Lake or the refuge. BLM finds the associated dispersed recreation opportunity to adequately incorporate public demands and that subsequent analysis at

Number	Comment	Response
	High Desert District Office, which recently included a separate discussion for the IM's "other considerations" in a lease sale EA.9 When evaluating lease parcels, BLM should determine whether "non-mineral resource values are greater than potential mineral development values" in "undeveloped areas." The six parcels, UT1111-11, UT1111-17, UT1111-18, UT1111-19, UT1111-20, and UT1111-22 at issue here, are located in undeveloped areas. Because these areas also have considerable "non-mineral resource values," such as inventoried wilderness characteristics and important recreation and scenic values, BLM must evaluate and determine whether they are outweighed by potential mineral development values. The BLM has not performed this weighing.	the APD stage would include adequate consultation with the refuge. The Utah BLM coordinated with the NPS for the November 2011 lease sale including the parcel in question and the NPS did not provide any comments or have any concerns with the parcel being placed on the lease list. Also there are not any National Parks near any of the parcels mentioned. Therefore, BLM has complied with the spirit and intent of WO IM-2010-117.
8	The Vernal Field Office did not update its visual resource inventory as part of the 2008 Vernal RMP. The BLM has been updating visual resource inventories for the field offices across the state, including the lands covered by parcel UT 1111-11. This updated information should be included in determining whether existing visual resource management classes are correct and oil and gas leasing stipulations are adequate to protect visual resources. In the face of this new information, BLM may be required to defer leasing until it prepares a land use plan amendment to consider significant new information changing VRM categories.	At the time of the 2008 VFO ROD/RMP, VFO did not have new visual resource inventory data, therefore it was not used as part of the planning effort. The new inventory that VFO is now undertaking does not have to be used until the field office undertakes a new planning effort and if the information is new and different from that information that already exists; therefore, this comment is not relevant to this lease sale.