# FINDING OF NO SIGNIFICANT IMPACT
## Environmental Assessment
## DOI-BLM-UT-G010-2014-0094

## Bill Barrett Corporation Proposes to Drill One New Oil Well on BLM Surface: FD Federal 3-25-6-19
### Uintah County, Utah

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that Bill Barrett's proposed action to drill this oil well will not have a significant effect on the environment. An environmental impact statement is therefore not required.

Authorized Officer

MAR 1 0 2014

Date

# DECISION RECORD
## Environmental Assessment
## DOI-BLM-UT-G010-2014-0094

## Bill Barrett Corporation Proposes to Drill One New Oil Well on BLM Surface: FD Federal 3-25-6-19
### Uintah County, Utah

**Decision:**

It is my decision to authorize Bill Barrett's proposed FD Federal 3-25-6-19 well in Uintah County, Utah, as described in the proposed action of *DOI-BLM-UT-G010-2013-0137-EA*, subject to the below Conditions of Approval.

**Summary of the Selected Alternative:**

BBC will be allowed to drill 1 vertical oil well, the FD Federal 3-25-6-19, from 1 well pad, and construct Federal access and infrastructure to serve the well pad. The proposed Project Area is located approximately 31.2 miles southwest of Vernal, Utah. Table 2.2-1 lists the well pad by name, legal location and existing lease number as well as the associated surface disturbance. Dry wells will be plugged and abandoned as per BLM and State of Utah requirements.

**Table 2.2-1 Location and Disturbance Acres of Proposed Action**

| Proposed New Well Pads | | | | |
|---|---|---|---|---|
| **Pad Name** | **Surface Owner** | **Lease Number** | **Surface Legal Location** | **Disturbance[1] (acres)** |
| FD Federal 3-25-6-19 | Federal | UTU-85590 | NE1/4 NW1/4 Sec. 25, T6S, R19E | 15.40 |
| | | | ***SUBTOTAL FEE*** | ***0.00*** |
| | | | ***SUBTOTAL FEDERAL*** | ***15.40*** |
| | | | ***TOTAL*** | ***15.40*** |

| Proposed New Access Roads and Upgraded Two-Tracks | | | | | |
|---|---|---|---|---|---|
| | | **New** | | **Upgraded** | |
| **Pad Name** | **Surface Owner** | **Length (feet)** | **Disturbance[2] (acres)** | **Length (feet)** | **Disturbance[3] (acres)** |
| FD Federal 3-25-6-19 | Federal | 4,287 | 2.95 | 0 | 0.00 |
| ***SUBTOTAL FEE*** | | ***0*** | ***0.00*** | ***0*** | ***0.00*** |
| ***SUBTOTAL FEDERAL*** | | ***4,287*** | ***2.95*** | ***0*** | ***0.00*** |
| ***TOTAL*** | | ***4,287*** | ***2.95*** | ***0*** | ***0.00*** |

| Proposed New Pipelines | | | |
|---|---|---|---|
| **Pad Name** | **Surface Owner** | **Length (feet)** | **Disturbance[4] (acres)** |
| FD Federal 3-25-6-19 | Federal | 4,318 | 2.97 |
| ***SUBTOTAL FEE*** | | ***0*** | ***0.00*** |
| ***SUBTOTAL FEDERAL*** | | ***4,318*** | ***2.97*** |
| ***TOTAL*** | | ***4,318*** | ***2.97*** |

| Proposed New Power Lines | | | |
|---|---|---|---|
| **Pad Name** | **Surface Owner** | **Length (feet)** | **Disturbance[5] (acres)** |
| FD Federal 3-25-6-19 | Federal | 4,287 | 4.92 |

**Source: BBC working data.**

**[1]Short-term well pad disturbance includes the aerial extent of each drill pad, pit area(s), proposed cut and fill areas, topsoil and spoil material stockpile locations. Long-term disturbance of each well pad after initial reclamation is approximately 2.0 acres.**

**[2]Based on a 30-ft disturbance width for new roads with an 18-ft running surface.**

**[3]Based on 22-ft of upgraded road disturbance (existing road disturbance is 8-ft).**

**[4]Based on a 30-ft disturbance width for pipelines co-located with roads**

**[5]Based on a 50-ft disturbance width for power lines**

## Conditions of Approval

*Air Quality*

- Members of the construction crew will be encouraged to car pool to and from the surrounding cities and towns as practicable to minimize vehicle-related emissions.
- No open burning of garbage or refuse at wells site or other facilities will be allowed.
- During hot, dry and/or windy conditions, water or other approved dust suppressants will be used at construction sites and along roads, as determined appropriate by the Authorized Officer.
- Open burning of garbage or refuse will not occur at well sites or other facilities.
- Drill rigs will be equipped with Tier II or better diesel engines.
- Phase II water lines will be installed and buried to reduce incidents of freezing and to reduce the number of water-hauling trucks that could contribute to fugitive dust conditions.
- Where practicably feasible, well site telemetry will be installed to remotely monitor and control production.
- Power lines will be installed where possible, except where topographic features preclude installation of power lines. In addition, the ability to utilize electric power also requires that sufficient power capacity and infrastructure is readily available in the immediate area, including appropriate ROWs. Low bleed pneumatics will be installed on separator dump valves and other controllers.
- During completion, venting and flaring will be limited as much as possible. Production equipment and gathering lines will be installed as soon as possible.
- When feasible, two (2) or more rigs (including drilling and completion rigs) will not be run simultaneously within 200 meters of each other. If two (2) or more rigs must be run simultaneously within 200 meters of each other, then effective public health buffer zones out to 200 meters from the nearest emission source will be implemented. Examples of an effective public health protection buffer zone includes the demarcation of a public access exclusion zone by signage at intervals of every 250 feet that is visible from a distance of 125 feet during daylight hours, and a physical buffer such as active surveillance to ensure the property is not accessible by the public during drilling operations. Alternatively, BBC may demonstrate compliance with the 1-hour $NO_2$ NAAQS with appropriate and accepted near-field modeling. As part of this, BBC may propose alternative mitigation that could include but is not limited to natural gas-fire drill rigs, installation of $NO_x$ controls, time/use restriction, and/or drill rig spacing.
- All internal combustion equipment will be kept in good working order.
- All new and replacement spark-ignition natural gas-fired internal combustion engines will comply with the applicable emission limits found in Subpart JJJJ of the New Source Performance standards (40 CFR 60 subpart JJJJ).
- Green completions will be used for all well completion activities where technically feasible.

- Enhanced volatile organic compounds (VOCs) emission controls with 95 percent control efficiency will be employed on storage tanks having a potential to emit greater than five (5) tons per year (tpy) of VOC uncontrolled.
- Per the terms set out in the Consent Decree (Civil Action No. 2:09-CV-330 TS), approved by the EPA on November 13, 2009, BBC will commit to the following air quality protective measures listed below:
  - Dehydrator emissions from new oil and/or gas production facilities that exceed 20 tpy of VOCs will be controlled to achieve a 95 percent by weight or greater reduction of VOC or total hazardous air pollutant emissions.
  - All internal combustion equipment and emission capture, collection and pollution abatement equipment, including vent lines, connections, fittings, valves, relief valves, hatches and other appurtenances required will be maintained in good working order following manufacturer recommendations or best practices.
  - BBC will implement a fugitive inspection and repair program.
  - BBC will employ tank best management practices such as requiring thief and other tank hatches are to be closed after gauging and unloading activities, installing low emission hatches and maintaining valves in a leak-free condition.

***Cultural Resources***

- If cultural resources are uncovered during excavation activities, BBC will suspend operations at the site and immediately contact the BLM. Work will cease until a mitigation plan is in place.

- Prior to construction activity, BBC will inform employees, contractors and subcontractors about relevant Tribal and Federal regulations intended to protect Native American, archaeological, and cultural resources. This orientation will include training on cultural resource management and Federal laws. All personnel will be informed that collecting artifacts is a violation of Federal law and that employees engaged in this activity will be subject to disciplinary action. If cultural resource law violations are discovered, the offending employee will be subject to disciplinary action by BBC and the violations will be reported to the BLM, State Historic Preservation Office and, if appropriate the Ute Tribe's Historic Preservation Office and the Ute Tribal Business Council, for possible further action, including prosecution.

***Paleontological Resources***

- If paleontological resources are uncovered during excavation activities, BBC will suspend all operations and will immediately contact the BLM. Work will cease until a mitigation plan is put in place.
- **A paleontological monitor will be required to spot check any bedrock disturbance associated with the FD Federal 3-25-6-19 well pads and access road corridors.**

***Water Resources, Including Waters of the United States***

- If springs are encountered and impacted during construction, the spring(s) will be protected, fenced, and repaired to pre-existing conditions at the direction of the BLM.
- If any work associated with construction of a proposed pipeline will require the placement of dredged or fill material in an existing wetland or will have the potential to alter the nature of existing water ways, the U.S. Army Corps of Engineers (USACE) will be notified by BBC in

order to obtain the necessary permits or jurisdictional determinations pursuant to Section 404 of the Clean Water Act.

- Surface disturbance and placement of staging areas, fueling and maintenance areas, will be avoided within 330 feet from centerline of U.S. Geological Survey (USGS)-named drainages unless no other practical alternative exists.
- No excess material (e.g., soil, overburden, etc.) will be stored within mapped 100-year floodplains of USGS-named drainages; all excess material will be relocated to appropriate locations outside of 100-year floodplains within the project area.
- Construction activities at perennial or USGS-named drainage crossings (e.g., burying pipelines, installing culverts) will be timed to avoid high flow conditions. Construction that disturbs any flowing stream will utilize either a piped stream diversion or a cofferdam and pump to divert flow around the disturbed area.
- Culverts at drainage crossings will be designed and installed to pass a 25-year or greater storm event. On perennial and USGS-named intermittent streams, culverts will be designed to allow for passage of aquatic biota. The minimum culvert diameter in any installation for a drainage crossing or road drainage will be 24-inches. Due to the likelihood for flash flooding in the project area's drainages and anticipated culvert maintenance, drainage crossings will be designed for the 100-year storm event.
- Pipelines installed beneath USGS-named drainages will be buried at a minimum depth of four (4) feet below the channel substrate to avoid exposure by channel scour and degradation. Following burial, the channel grade and substrate composition will be returned to pre-construction conditions.

***Protection from Erosion***

- New and existing roads will be constructed, updated, and maintained in accordance with the "Gold Book" (BLM-USFS 2007, as revised).
- No installation activity will be performed during periods when the soil is too wet to adequately support installation equipment. If such equipment creates ruts in excess of three (3) inches deep in straight line travel routes, the soil will be deemed too wet to adequately support the equipment, and installation activities will cease until drier or frozen conditions are encountered.
- After testing of the pipeline, stabilization barriers, water bars, silt fences, or other erosion control devices will be installed in the disturbed area. In areas where steep slopes occur, spoils will be bermed and water will be directed to rock armored turnouts to prevent down-slope erosion. Erosion blankets and hand seeding will also be used in these areas.
- Minimize placement of well pads on ridgelines or steep slopes that will result in excessive fill areas. If a well pad must be placed in such sites, site specific best management practices will be constructed and maintained to minimize erosion of the fill areas and increased sedimentation from such sites.
- All storage tanks containing produced water, or other fluids which may constitute a hazard to public health or safety, will be surrounded by a secondary means of containment for the entire contents of the tank, plus freeboard for precipitation, or to contain 110 percent of the capacity of the largest tank.
- Production facilities that have the potential to leak produced water, or other fluids which may constitute a hazard to public health or safety, will be placed within appropriate containment and/or diversionary structures to prevent spilled or leaking fluid from reaching ground or surface waters.
- Notice of any reportable spill or leakage will be reported per agency guidelines. Oral notice will be given as soon as possible, but within no more than 24 hours, and those oral notices will be confirmed in writing within 72 hours of any such occurrence.

- No oil, lubricant, or toxic substance will be intentionally drained onto the ground surface.
- Topsoil will be salvaged and stockpiled for later use. Topsoil stockpiles will be designed to maximize surface area in order to reduce impacts to soil microorganisms.
- Areas used for spoil storage will be stripped of topsoil before soil placement.
- Erosion protection and silt retention will be provided by the installation and maintenance of silt catchment dams, where needed as feasible. At all well pad locations, soil berms will be constructed to divert water runoff away from the drilling location.
- Reroute existing upslope drainages around proposed well pad locations and all topsoil and subsoil material stockpiles. Restore natural drainage routes as part of interim reclamation actions, if appropriate.
- Construct erosion control devices (i.e., riprap, weed-free straw bales, plant woody vegetation, etc.) at culvert outlets or as directed by the surface land owner. All such devices will be completed to retain natural water flows.

***Existing Facilities and Rights-of-Way***

- If the proposed access roads and/or pipeline corridors cross existing fences, all fences will be braced before being cut and a temporary gate will be installed. All fences will be restored to functional condition immediately after project completion.
- BBC will repair or replace any fences, cattle guards, gates, drift fences and natural barriers that are damaged as a result of implementation of the proposed project. Cattle guards will be the preferred method of livestock control on most road corridors where fences are crossed, unless otherwise directed by the surface landowner.

***Fish and Wildlife, Including Special Status Animal Species***

**Big Game**

- In order to reduce the potential for significant adverse impacts to big game populations, construction activity within mapped crucial habitat for big game species, (i.e., antelope or mule deer), as delineated by the Utah Division of Wildlife Resources (UDWR), may require site-specific consultation during select times of the year. Any decision to mitigate for a potential impact or to implement a restriction in crucial habitats will be determined by the BLM, or any time before construction begins. This restriction will not apply to maintenance and operation of existing facilities.
- Additional wildlife resource protection measures directed at protecting identified big game wildlife corridors will be considered. New project-related disturbances within drainages and critical corridors will be avoided where practicable. Where the disturbances cannot be avoided, their locations will be selected to minimize environmental effects and maximize maintenance of the corridor as a single unit. Specific details associated with minimization of environmental effects and mitigation as appropriate, within identified big game wildlife corridors will be determined collaboratively with the BLM and BBC during the onsite process.

**Migratory Birds**

- Screens or other devices will be installed on the stacks and on other openings of heater-treaters or fired-vessels as directed by the BLM.
- BBC will remove any visible accumulation of other than *de minimis* oil from the drilling or workover pit immediately upon release of the drilling rig to reduce the potential of entrapping or poisoning migratory birds.

**Raptors**

- BBC will comply with BLM's approved RMP decisions involving raptor management (specifically decision WL-21) (BLM 2008a). Surveys conducted on private surface land will only occur at the discretion of the landowner.

***Vegetation, Including Federally-listed Plant Species and Noxious and Invasive Species***

- Reclamation actions outlined above will be implemented, or as directed by the BLM.
- BBC will aggressively identify, treat and control noxious and invasive plant species within the project area whose presence relates directly to oil and gas activities within the project area.
- BBC will implement their current Pesticide Use Proposal (PUP), on file with the BLM.

***Human Health and Safety***

- To protect and minimize the possibility of fires during construction, all equipment, including welding trucks, will be equipped with fire extinguishers and spark arresters.
- Where alignment of pipelines will cross or parallel roads, highways or waterways, BBC will provide warning signs to inform the public of the presence of the line.
- Vehicle users associated with the oil field will be instructed to travel at low speed and remain on existing roads and well pads at all times.
- Storage facilities may be fenced as determined necessary by the BLM during the onsite process.

***Protection from Hazardous Materials Spills***

- Collection pipelines will be designed to minimize potential for spills and leaks, including the following, where appropriate:
    - Stream banks will be stabilized with large, angular rock or wire-enclosed riprap.
    - Substrate layers should be replaced in the same order that they are removed.
    - Pipeline crossings of streams and any riparian areas will be at right angles to minimize the area of disturbance
    - Pipelines crossing live streams will be protected by automatic shutoff valves.
- Construction methods will provide for eliminating or minimize discharges of turbidity, sediment, organic matter or toxic chemicals. Settling basins or cofferdams may be utilized for this purpose.
- BBC will inform their employees, contractors and subcontractors of the potential impacts that can result from accidental spills as well as the appropriate actions to take if a spill occurs.
- No produced water will be discharged into surface water drainages or allowed to flow onto the ground surface.
- Notice of any reportable spill or leakage will be immediately reported by BBC, or their contractors/subcontractors as required by regulation. Oral notice will be given as soon as possible, but within no more than 24 hours. Oral notices will be confirmed in writing within 72 hours of any such occurrence.

***Pad Construction***

- Production facilities will be located at corner 3 of the well pad to maximize interim reclamation.
- Pad access will be relocated 25 feet west of the originally proposed location (toward corner 2) in order to accommodate production facilities.

- Excess soil will be moved from the area between corners 1 and 2 to the area between corners 3 and 4.
- A drainage ditch will be located between the excess soil pile and the pad in the area between corners 3 and 4.

## PLAN CONFORMANCE AND CONSISTENCY:

The Proposed Action and the No Action Alternative described in this document are in conformance with the Vernal Field Office Resource Management Plan and Record of Decision, (BLM 2008). The proposed action will not conflict with other decisions throughout the plan.

The subject lands were leased for oil or gas development under authority of the Mineral Leasing Act of 1920, as modified by the Federal Land Policy and Management Act of 1976, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. The lessee/operator has the right to explore for oil and gas on the lease as specified in 43 CFR 3103.1-2, subject to the lease terms and conditions, and if a discovery is made, to produce oil and/or natural gas for economic gain.

There are no comprehensive State of Utah plans for the vicinity of the Proposed Action. However, the State of Utah School and Institutional Trust Lands Administration (SITLA) have leased much of the nearby state land for oil and gas production. Because the objectives of SITLA are to produce funding for the state school system, and because production on federal leases could further interest in drilling on state leases in the area, it is assumed that the alternatives analyzed, except the No Action Alternative, are consistent with the objectives of the state.

Onsite visits were conducted by Vernal Field Office Personnel. The onsite inspection reports do not indicate that any other locations be proposed for analysis. In addition, all proposed mitigation has been carried forward into the Decision.

### Rationale:

The Selected Alternative meets the purpose and need of the BLM and the development objectives of the company. The No Action Alternative was not chosen because it did not meet the company's development objective but still maintains the BLM's purpose and need.

### How Agency Objectives Identified in the Purpose for the Proposed Action Section Will Be Met:

The selected alternative meets the Purpose and Need for the project because it allows Bill Barrett Corporation to develop their Federal leases consistent with the Mineral Leasing Act of 1920 and the lease terms and conditions. In addition, it meets the BLMs purposes and need by allowing development of the oil and gas resources in an environmentally sound manner. The project also allows for multiple uses consistent with the Federal Land Policy and Management Act of 1976.

### Summary of Public Involvement Efforts and Public Response:

The Proposed Action was posted to the Utah BLM's Environmental Notification Bulletin Board on April 18, 2013. No public interest has been expressed at this time.

### Appeals:

This decision is effective upon the date it is signed by the Authorized Officer. The decision is subject to appeal. Under BLM regulation, this decision is subject to administrative review in accordance with 43

CFR 3165. Any request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, Utah State Office, P.O. Box 45155, Salt Lake City, Utah, 84145-0155, within 20 business days of the date of this Decision is received or considered to have been received.

If you wish to file a petition for stay, the petition for stay should accompany your notice of appeal and shall show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied;
2. The likelihood of the appellant's success on the merits';
3. The likelihood of irreparable harm to the appellant of resources if the stay is not granted; and
4. Whether the public interest favors granting the stay.

MAR 10 2014

**Assistant Field Manager for Lands & Minerals** **Date**

# United States Department of the Interior
# Bureau of Land Management

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## FORT DUCHESNE
## ENVIRONMENTAL ASSESSMENT #1
### DOI-BLM-UT-G010-2013-0137

***Location:*** Sections 14, 15, 22, 23, 24, 25, and 26 of Township 6 South, Range 19 East, Salt Lake Base & Meridian
Duchesne County, Utah

***Applicant/Address:*** Bill Barrett Corporation
1099 18th Street, Suite 2300
Denver, Colorado 80202

**December 2013**

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U.S. Department of the Interior
Bureau of Land Management
Vernal Field Office
170 South 500 East
Vernal, Utah 84078
Phone: (435) 781-4400
Fax: (435) 781-4410

# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ACEPM | Applicant-committed Environmental Protection Measures |
| Ac-ft. | acre-feet |
| AMSL | above mean sea level |
| AO | Authorized Officer |
| APD | Application for Permit to Drill |
| ASME | American Society of Mechanical Engineers |
| BBC | Bill Barrett Corporation |
| BCC | Birds of Conservation Concern |
| BEGEPA | Bald Eagle and Golden Eagle Protection Act of 1940 |
| BLM | Bureau of Land Management |
| BMP | Best Management Practices |
| BTEX | isomers of xylene |
| CFR | Code of Federal Regulations |
| CO | carbon monoxide |
| DOT | Department of Transportation |
| DEIS | Draft Environmental Impact Statement |
| EA | Environmental assessment |
| EDA | Exploration Development Area |
| EIS | Environmental Impact Statement |
| ENBB | Environmental Notice Bulletin Board |
| EO | Executive Order |
| EPA | Environmental Protection Agency |
| ESA | Endangered Species Act of 1973 |
| ESP | electric submersible pump |
| FLPMA | Federal Land Policy & Management Act of 1976 |
| FEIS | Final Environmental Impact Statement |
| FONSI | Finding of No Significant Impact |
| Frac | hydraulic fracture |
| HAP | hazardous air pollutant |
| MBTA | Migratory Bird Treaty Act of 1918 |
| $\mu g/m^3$ | micrograms per cubic meter |
| MLA | Mineral Leasing Act of 1920 |
| Mm | millimeters |
| MOU | Memorandum of Understanding |
| MSDS | Material Safety Data Sheet |
| NAAQS | National Ambient Air Quality Standards |
| NASA | National Aeronautics and Space Administration |
| NEPA | National Environmental Policy Act of 1969 |
| n-Hexane | normal hexane |
| $NO_x$ | nitrogen oxides |
| NOAA | National Oceanic and Atmospheric Administration |
| NTL | Notice to Lessee |
| $O_3$ | Ozone |

| | |
|---|---|
| OSHA | Occupational Safety and Health Administration |
| P&A | plugged & abandoned |
| PFYC | Potential Fossil Yield Classification |
| PM | Particulate Matter |
| Ppb | parts per billion |
| PUP | Pesticide Use Proposal |
| RIPRAP | Recovery Implementation Program Recovery Action Plan |
| RMP/ROD | Resource Management Plan/Record of Decision |
| ROW | right-of-way |
| SARA | Superfund Amendments and Reauthorization Act of 1986 |
| SGMA | Sage Grouse Management Area |
| SITLA | Utah School and Institutional Trust Lands Administration |
| SLB&M | Salt Lake Base & Meridian |
| SO | sulfur oxide |
| $SO_2$ | sulfur dioxide |
| TPY | tons per year |
| SPCC | Spill Prevention, Control and Countermeasure |
| UDWR | Utah Division of Wildlife Resources |
| UPIF | Utah Partners in Flight |
| USACE | U.S. Army Corps of Engineers |
| U.S.C. | United States Code |
| USFWS | U.S. Fish and Wildlife Service |
| USGCRP | U.S. Global Change Research Program |
| USGS | U.S. Geological Service |
| VOCs | volatile organic compounds |

APPENDICES

# Bill Barrett Corporation Proposes to Drill Eight New Oil Wells on BLM Surface And Two New Oil Wells on Private Lands Needing BLM Access Rights-of-Way DOI-BLM-UT-G010-2013-0137

## CHAPTER 1: INTRODUCTION AND PURPOSE AND NEED

### 1.1 INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze the potential impacts of the Bill Barrett Corporation (BBC) proposed drilling project in the Ft. Duchesne field located south of U.S. Highway 40 and west of State Road 88, Uintah County. Utah. BBC has a valid existing right to extract mineral resources from its Federal leases subject to the leases' terms and conditions. The Bureau of Land Management (BLM) oil and gas leasing program encourages development of domestic oil and gas reserves and the reduction of U.S. dependence on foreign energy sources.

The EA is a site-specific analysis of potential impacts that could result from the implementation of the 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 why 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 Finding of No Significant Impact (FONSI) statement. A FONSI is a document that briefly presents the reasons why implementation of the selected alternative would not result in "significant" environmental impacts (or effects) beyond those already addressed in the Vernal Field Office Resource Management Plan (BLM 2008a). 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 alternative selected.

BBC proposes to explore and develop Sections 14, 15, 22, 23, 24, 25, and 26 of Township 6 South, Range 19 East, Salt Lake Base & Meridian (SLB&M) (refer to Appendix B for the Proposed Action Map), by drilling 10 vertical (10) oil wells from ten (10) new well pads along with construction of necessary access roads, pipeline and power line infrastructure. Two of the pads are on private surface with private minerals but require federal authorizations for access and infrastructure. The project area is located approximately 28 miles southwest from Vernal, Utah.

### 1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

Private exploration and production from Federal oil and gas leases is an integral part of the BLM oil and gas leasing program under authority of the Mineral Leasing Act (MLA) of 1920, as modified by the Federal Land Policy and Management Act (FLPMA) of 1976 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. The operator has a valid existing right to extract mineral resources from Federal Leases UTU-85768, 85589, 85590, subject to the leases' terms and conditions.

The BLM's purpose is to respond to BBC's proposal and to facilitate approvals of future applications for permits to drill while considering ways to minimize and reduce environmental impacts. BLM developed

this EA to allow the Vernal Field Office to render an informed decision on whether to approve BBC's proposed exploration and development of its valid existing leases. BLM's decision to approve BBC's Proposed Action or a separate alternative would authorize BBC to exercise its valid existing lease rights, subject to reasonable conditions of approval and site-specific approval once APDs are submitted.

BLM's need for the project is to fulfill its responsibilities under federal laws for oil and gas leases to allow leaseholders to explore and develop mineral resources to meet continuing national energy needs and economic demands. The BLM oil and gas leasing and development program encourages development of domestic oil and gas reserves and reduction of the United States' dependence on foreign energy sources. Increased development of gas resources on public lands in an environmentally responsible manner is consistent with the Comprehensive National Energy Strategy announced by the U.S. Department of Energy in April 1998, the Energy Policy and Conservation Act (42 United States Code [U.S.C.] 6201), and the Energy Policy Act of 2005 (Public Law 109-58). Private production from federal oil and gas leases is an integral part of the BLM's oil and gas program under the authority of the MLA, as amended by FLPMA, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987.

The MLA, as amended and its implementing regulations allow, and encourage, lessees or potential lessees to explore for oil and gas or other mineral reserves on Federally-administered lands. The FLPMA mandates that the BLM manage public lands on the basis of multiple use [43 U.S.C. § 1701(a)(7)]. Minerals are identified as one of the principal uses of public lands in Section 103 of FLPMA [43 U.S.C. § 1702(c)]. The BLM is responsible for administering activities consistent with rights associated with valid existing leases.

## 1.3 CONFORMANCE WITH BLM LAND USE PLANS

The proposed wells and support facilities would be in conformance with the Vernal Field Office Resource Management Plan/Record of Decision (RMP/ROD) (BLM, 2008) and the terms of the existing leases. The Minerals and Energy Resources management objectives encourage the drilling of oil and gas wells by private industry (RMP/ROD, p. 97). The management objective for the Vernal RMP for mineral resources is to meet local and national energy needs (RMP/ROD, p. 31, 97).

The RMP/ROD allows for processing applications and permits on public lands in accordance with policy and guidance, allows for management of public lands to support goals and objectives of other resource programs, allows response to public requests for land use authorizations and administrative and public access where necessary (RMP/ROD, p. 86). It has been determined that the Proposed Action and alternative(s) would not conflict with other decisions throughout the plan.

Utah's Standards for Rangeland Health (BLM, 1997) address upland soils, riparian/wetland, desired and native species and water quality. These resources are analyzed later in this document or, if not affected, are listed in Appendix A, Interdisciplinary Team Checklist.

The subject lands were leased for oil or gas development under authority of the Mineral Leasing Act of 1920, as modified by the Federal Onshore Oil and Gas Leasing Reform Act of 1987, the Energy Policy Act of 2005, and the Federal Land Policy and Management Act of 1976. BBC has the right to explore for oil and gas on the lease(s) as specified in 43 CFR 3103.1-2, and if a discovery is made, to produce oil and/or natural gas for economic gain consistent with the rights contained in its valid existing leases and BLM's oil and gas regulations (43 CFR Part 3160).

## 1.4 RELATIONSHIP TO STATUTES, REGULATIONS, OR OTHER PLANS

There are no comprehensive State of Utah plans for the vicinity of the Proposed Action. The State of Utah School and Institutional Trust Lands Administration (SITLA) has leased much of the nearby state land for oil and gas production. Because the objectives of SITLA are to produce funding for the state school system, and because production on Federal leases could further interest in development on state leases in the area, it is assumed that the alternatives analyzed, except the No Action Alternative, are consistent with the objectives of the state.

The proposed project is consistent with the *Uintah County General Plan, 2011 as amended* that encompasses the location of the proposed project. In general, the Plan indicates support for development proposals such as the Proposed Action through the Plan's emphasis on multiple-use public land management practices, responsible use and optimum utilization.

## 1.5 IDENTIFICATION OF ISSUES

The BLM conducted internal reviews of the proposed project to identify environmental issues and concerns. A BLM interdisciplinary team meeting was held with resource specialists on April 15, 2013 to identify issues and concerns and to document them (refer to Appendix A). The Vernal FO posted a notice of the Proposed Action on the Environmental Notice Bulletin Board (ENBB) on April 18, 2013 to inform the public regarding the project. No comments of inquiries were received from the public in response to the posting.

The identified issues and concerns are summarized below:

### 1.5.1 Air Quality and Greenhouse Gas Emissions

- Potential effects on air quality from construction, drilling, and producing the proposed wells.

### 1.5.2 Paleontology

- The potential effect of surface and subsurface disturbance to fossil resources.

### 1.5.3 Soils

- Potential effect on soils from surface-disturbance actions associated with construction, drilling, and producing the proposed wells.

### 1.5.4 Vegetation, Including Noxious and Invasive Plant Species

- Potential effect on native vegetation assemblages from surface-disturbing actions associated construction, drilling, and producing the proposed wells.
- Potential effect to introduce and/or expand proliferation of noxious and invasive plant species from surface-disturbing actions and increased vehicle traffic associated with construction, drilling and producing the proposed wells.

### 1.5.5 BLM Sensitive Plant Species

- Potential impacts to Horseshoe milkvetch (*Astragalus equisolensis*), Hamilton milkvetch (*Astragalus hamiltonii*), Goodrich's penstemon (*Penstemon goodrichii*) and Spanish bayonet (*Yucca sterilis*) from surface-disturbing actions and increased access within habitat areas.

### 1.5.6 Wildlife, Including Migratory Birds and Raptors, Non-USFWS Designated Animal Species, and USFWS Designated Animal Species

- Potential impacts to migratory birds and raptor species from surface-disturbing actions and increased human presence with the proposed project in habitat areas within the project area.
- Potential impacts to white-tailed prairie dog colonies and obligate species from surface-disturbing actions and increased human presence associated with the proposed project in active colonies within the project area.
- Potential impacts to sage grouse from surface-disturbing actions and increased human presence associated with the proposed project in sage grouse (*Centrocercus urophasianus*) habitat within the project area.

# CHAPTER 2: DESCRIPTION OF ALTERNATIVES

## 2.1 INTRODUCTION

This EA will focus on the Proposed Action and No Action Alternatives. The No Action Alternative is considered and analyzed to provide a baseline for comparison of the impacts of the Proposed Action Alternative. No unresolved issues were identified as the Proposed Action incorporates reasonable BMPs (Best Management Practices) to effectively minimize impacts to affected resources, so no additional alternatives were considered.

## 2.2 PROPOSED ACTION

BBC proposes to explore and develop Sections 14, 15, 22, 23, 24, 25, and 26 of Township 6 South, Range 19 East, SLB&M, by drilling 10 vertical oil wells from 10 well pads, two of which are on private surface with private minerals but require federal authorizations for access and infrastructure. In addition, BBC would make application in the surface use plans for any off-lease right-of-way (ROW) necessary. New access roads and gathering pipelines would be built to support these wells. Should the wells become producers and sufficient power capacity and infrastructure are available, BBC may choose to install electrical power lines. The proposed project area is located approximately 19 miles southwest of Vernal, Utah. Table 2.2-1 lists the well pads by name, legal location and existing lease number as well as their associated surface disturbances. Dry wells would be plugged and abandoned as per BLM and State of Utah requirements.

**Table 2.2-1 Location and Disturbance Acres of Proposed Action**

| Proposed New Well Pads | | | | |
|---|---|---|---|---|
| **Pad Name** | **Surface Owner** | **Lease Number** | **Surface Legal Location** | **Disturbance[1] (acres)** |
| FD Federal 9-14-6-19 | Federal | UTU-89382 | NE1/4SE1/4, Sec. 14, T6S, R19E | 5.10 |
| FD 11-14-6-19 | Fee | Fee Minerals | NE1/4SW1/4 (Tract 48) Sec. 14, T6S, R19E | 4.50 |
| FD Federal 12-15-6-19 | Federal | UTU-89382 | NW1/4SW1/4 (Lot 8) Sec. 15, T6S, R19E | 5.36 |
| FD Federal 6-22-6-19 | Federal | UTU-85589 | Lot 8, Sec. 22, T6S, R19E | 4.57 |
| FD Federal 16-22-6-19 | Federal | UTU-85589 | SE1/4SE1/4, Sec. 22, T6S, R19E | 4.75 |
| FD 3-23-6-19 | Fee | Fee Minerals | NE1/4NW1/4 (Tract 48) Sec. 23, T6S, R19E | 4.22 |
| FD Federal 9-23-6-19 | Federal | UTU-85589 | NE1/4SE1/4 Sec. 23, T6S, R19E | 5.09 |
| FD Federal 3-24-6-19 | Federal | UTU-85589 | NE1/4NW1/4 Sec. 24, T6S, R19E | 4.87 |
| FD Federal 3-25-6-19 | Federal | UTU-85590 | NE1/4NW1/4 Sec. 25, T6S, R19E | 4.56 |
| FD Federal 3-26-6-19 | Federal | UTU-85590 | NE1/4NW1/4 Sec. 26, T6S, R19E | 4.38 |
| | | | ***SUBTOTAL FEE*** | ***8.72*** |
| | | | ***SUBTOTAL FEDERAL*** | ***38.68*** |
| | | | ***TOTAL*** | ***47.40*** |

Table 2.2-1 Location and Disturbance Acres of Proposed Action *Continued*

| Proposed New Access Roads and Upgraded Two-Tracks | | | | | |
|---|---|---|---|---|---|
| | | New | | Upgraded | |
| Pad Name | Surface Owner | Length (feet) | Disturbance[2] (acres) | Length (feet) | Disturbance[3] (acres) |
| FD Federal 9-14-6-19 | Federal | 2,338 | 1.61 | 4,793 | 2.42 |
| FD 11-14-6-19 | Fee | 375 | 0.26 | - | - |
| | Federal | 1,533 | 1.06 | - | - |
| FD Federal 12-15-6-19 | Fee | - | - | 4,416 | 2.23 |
| | Federal | 96 | 0.07 | 10,796 | 5.45 |
| FD Federal 6-22-6-19 | Fee | 82 | 0.06 | - | - |
| | Federal | 248 | 0.17 | - | - |
| FD Federal 16-22-6-19 | Federal | 822 | 0.57 | - | - |
| FD 3-23-6-19 | Fee | 483 | 0.33 | - | - |
| | Federal | 233 | 0.16 | - | - |
| FD Federal 9-23-6-19 | Federal | 2,509 | 1.73 | 4,078 | 2.06 |
| FD Federal 3-24-6-19 | Federal | 2,406 | 1.66 | 4,267 | 2.16 |
| FD Federal 3-25-6-19 | Federal | 4,287 | 2.95 | - | - |
| FD Federal 3-26-6-19 | Federal | 752 | 0.52 | 3,107 | 1.57 |
| | ***SUBTOTAL FEE*** | ***940*** | ***0.65*** | ***4,416*** | ***2.23*** |
| | ***SUBTOTAL FEDERAL*** | ***15,224*** | ***10.50*** | ***27,041*** | ***13.66*** |
| | ***TOTAL*** | ***16,164*** | ***11.15*** | ***31,457*** | ***15.89*** |

| Proposed New Pipelines | | | |
|---|---|---|---|
| Pad Name | Surface Owner | Length (feet) | Disturbance[4] (acres) |
| FD Federal 9-14-6-19 | Federal | 7,166 | 4.94 |
| FD 11-14-6-19 | Fee | 370 | 0.25 |
| | Federal | 1,546 | 1.06 |
| FD Federal 12-15-6-19 | Fee | 4,687 | 3.28 |
| | Federal | 10,937 | 7.53 |
| FD Federal 6-22-6-19 | Fee | 147 | 0.10 |
| | Federal | 243 | 0.17 |
| FD Federal 16-22-6-19 | Federal | 872 | 0.60 |
| FD 3-23-6-19 | Fee | 467 | 0.32 |
| | Federal | 188 | 0.12 |
| FD Federal 9-23-6-19 | Federal | 6,530 | 4.50 |
| FD Federal 3-24-6-19 | Federal | 6,671 | 4.59 |
| FD Federal 3-25-6-19 | Federal | 4,318 | 2.97 |
| FD Federal 3-26-6-19 | Federal | 3,881 | 2.67 |
| | ***SUBTOTAL FEE*** | ***5,671*** | ***3.91*** |
| | ***SUBTOTAL FEDERAL*** | ***42,352*** | ***29.17*** |
| | ***TOTAL*** | ***48,023*** | ***33.08*** |

**Table 2.2-1 Location and Disturbance Acres of Proposed Action *Continued***

| Proposed New Power Lines | | | |
|---|---|---|---|
| **Pad Name** | **Surface Owner** | **Length (feet)** | **Disturbance[5] (acres)** |
| FD Federal 9-14-6-19 | Federal | 7,131 | 8.18 |
| FD Federal 11-14-6-19 | Fee | 375 | 0.43 |
| | Federal | 1,533 | 1.76 |
| FD Federal 12-15-6-19 | Fee | 4,642 | 5.32 |
| | Federal | 10,892 | 12.5 |
| FD Federal 6-22-6-19 | Fee | 82 | 0.09 |
| | Federal | 248 | 0.28 |
| FD Federal 16-22-6-19 | Federal | 822 | 0.94 |
| FD 3-23-6-19 | Fee | 483 | 0.55 |
| | Federal | 233 | 0.27 |
| FD Federal 9-23-6-19 | Federal | 6,586 | 7.56 |
| FD Federal 3-24-6-19 | Federal | 6,674 | 7.67 |
| FD Federal 3-25-6-19 | Federal | 4,287 | 4.92 |
| FD Federal 3-26-6-19 | Federal | 12,571 | 14.43 |
| | ***SUBTOTAL FEE*** | ***5,582*** | ***6.39*** |
| | ***SUBTOTAL FEDERAL*** | ***50,977*** | ***58.51*** |
| | ***TOTAL*** | ***56,559*** | ***64.90*** |
| | ***GRAND TOTAL FEE*** | ***16,609*** | ***21.90*** |
| | ***GRAND TOTAL FEDERAL*** | ***135,59*** | ***150.52*** |
| | ***GRAND TOTAL*** | ***152,203*** | ***172.42*** |

Source: BBC working data.

[1] Short-term well pad disturbance includes the aerial extent of each drill pad, pit area(s), proposed cut and fill areas, topsoil and spoil material stockpile locations. Long-term disturbance of each well pad after initial reclamation is approximately 2.0 acres.

[2] Based on a 30-ft disturbance width for new roads with an 18-ft running surface.

[3] Based on 22-ft of upgraded road disturbance (existing road disturbance is 8-ft).

[4] Based on a 30-ft disturbance width for pipelines co-located with roads

[5] Based on a 50-ft disturbance width for power lines

As indicated on the table above, the total estimated surface disturbance associated with the Proposed Action would be 173 acres, of which 151, acres (or 87 percent) would be on federal land and 22, acres (or 13 percent) would be on private/fee land.

## 2.2.1 Well Site Layout

BBC proposes to construct 10 well pads and drill, complete, and produce 10 well bores as shown on Table 2.1. Initially, the size of the newly constructed pads would involve approximately 4.8 acres, including the well pad, cuts, fills and topsoil stockpiles, subsoil materials stockpiles, ditches, spoil piles, etc. The pad itself would have average dimensions of 290 feet wide by 400 feet long. In total, approximately 48 acres would be disturbed as a result of the proposed project; 39 acres would occur on federal surface land; and, nine (9) acres would occur on fee surface land. Interim reclamation activities would reduce the average pad size to approximately two (2) acres per pad.

The proposed well pads would be constructed from native soil and rock materials using the appropriate heavy equipment. The pads would be constructed by clearing all vegetation, and stripping and stockpiling topsoil in sufficient quantity to re-spread for use during reclamation.

A reserve pit (measuring approximately 100 feet by 220 feet by 8 feet deep) would be excavated on each well pad for the containment of all cuttings and drilling fluids, and allowing for a 2-foot freeboard. The reserve pits would be fenced on three sides prior to drilling activity and closed off on the fourth side after removal of the drill rig. Fencing would be maintained until the pit is backfilled, and the fourth side would be fenced if fluids are placed in the reserve pit prior to the drilling rig being moved onto the pad location. The reserve pits for the proposed wells would be lined with a reinforced liner a minimum of 12 millimeters (mm) thick and would overlay straw, soil and/or bentonite if rock is encountered during

excavation. The liner would overlap the pit walls and be covered with soil and/or rocks to secure it in place. No trash, scrap pipe, or other materials that could puncture the liner would be discarded in the pit.

During drilling operations, BBC plans to utilize a temporary reserve pit, as discussed above. However, BBC would evaluate the use of a closed-loop drilling system on a case-by-case basis. BBC may elect to use a closed-loop drilling system if using a reserve pit is impractical. For example, the use of a closed-loop system may be considered if an additional well(s) were to be drilled on a pad at a later date. In a closed loop drilling system, all drilling fluids would be contained entirely within temporary above-ground tanks. Drill cuttings would be separated from the drilling mud and then deposited in a steel tank. As drilling continues, the cuttings would be removed from the tank to a cuttings pile on the pad site. Cuttings from a closed-loop system would be spread on the pad and/or access road after drilling is complete, according to applicable regulatory requirements.

### 2.2.2 Access Roads

As indicted in Table 2-1 above, a total of 31,457 feet of existing and 16,164 feet of newly constructed roads would provide access to the proposed well pads. Existing road widths (approximately 8-feet wide) and new access roads would be constructed and/or improved to be crowned and ditched and having an 18-foot running surface within a 30-foot wide ROW. A total of approximately 24 acres of surface disturbance on federal land and approximately three (3) acres on fee land would be involved with proposed access roads. Uintah County would apply for the necessary Title V authorizations to allow BBC to upgrade and utilize portions of the existing Uintah County Class "D" Meagher Ranch and Brown Ranch roads that cross the project area. Specifically, the upgrades would consist of minor road widening to a 20-foot wide travel surface road within a 35-foot wide road ROW. Appendix C provides specifics associated with upgrades to existing Uintah County roads.

Roads would be designed and maintained to an appropriate standard no higher than necessary to accommodate their intended functions, as described in the "Gold Book" (BLM-USFS 2007, as revised). Appropriate low-water crossings and culverts would be installed within the road corridor to maintain proper drainage in the project area. Existing drainages would not be blocked by a roadbed. Water would be diverted from the roadway at frequent intervals. No gates and/or cattle guards would be installed. The proposed surface disturbance and vehicular travel would be limited to existing access roads and the ROW corridor. New staging areas would not be required on BLM land. A road maintenance agreement is in place between BBC and Uintah County. All maintenance activities would be confined to the existing disturbed width of the ROW.

Aggregate for road surfacing would be obtained from private or Federal lands in conformance with applicable regulations and would be of sufficient size, type, and amount to allow all weather access and alleviate dust. Road construction would include clearing and grubbing of brush and trees, windrowing of topsoil, installation of culverts or low-water crossings as needed and seeding of all disturbed areas outside of the running surface. Where roads would cross areas involving off-lease federal lands, fee surface or other jurisdictions, the appropriate authorizations would be obtained.

### 2.2.3 Pipeline Corridors

BBC has applied for 30-foot wide pipeline corridor ROWs to accommodate the proposed 48,023 feet of needed pipelines in support of the proposed or previously approved wells (refer to Table 2.1 for proposed disturbance and Figure 2 for the outlines of the proposed routes). A total of 33 acres of surface

disturbance, of which 29.2 acres on federal land and 3.8 acres on fee land, would be involved with the proposed pipeline corridors.

The proposed pipeline corridor ROWs would parallel existing and/or proposed access roads. Each pipeline corridor could have up to three (3) pipelines:

- One natural gas gathering line, steel, with maximum nominal diameter of 12 inches.
- One water transportation line, high-pressure flexible material, with a maximum nominal diameter of six (6) inches.
- One water transportation or natural gas line, high-pressure flexible material with a maximum nominal diameter of six (6) inches.

BBC proposes to complete the pipeline installation in phases due to the exploratory nature of development in the area, and because there is no existing field-wide water and residue pipeline system. Under Phase I, BBC would construct only the 12-inch natural gas gathering line as a surface-laid pipeline. Under Phase II, BBC would construct all three (3) pipelines as indicated above. In the event more production information is obtained in the field prior to project initiation, BBC may forego Phase I implementation and move directly into Phase II. BBC would obtain all required off-lease federal, fee, and state and/or county authorizations as needed prior to initiating pipeline installation.

Prior to use, pipelines would be pressure tested in accordance with American Society of Mechanical Engineers (ASME) B31.8 standards. Water lines would be leak tested with air pressure. After testing, site-specific stabilization barriers, water bars, silt fences or other erosion control devises would be installed. On steep slopes, spoils would be bermed and water directed to rock-armored turnouts to prevent down-slope erosion. Erosion blankets and hand seeding may be used in these areas.

Use of the proposed well pads and access roads would facilitate the staging for the pipeline construction.

### 2.2.4 Power Lines

Should the proposed wells become producing wells and sufficient infrastructure exists, BBC has made application to construct and operate needed power lines in support of the proposed wells (refer to Table 2.1). The needed power lines would parallel existing and proposed access roads to the extent possible. BBC is requesting a 150-foot width associated with the power line ROWs; however, only a 50-foot width would be involved in surface disturbance activities associated with power line installation and maintenance. The remaining area associated with the requested 150-foot width would likely overlap and include all or a portion of the proposed access and pipeline corridor ROWs. A total of 64.9 acres of surface disturbance, 58.5 acres on federal land and 6.4 acres on fee land, would be involved with the proposed power lines.

### 2.2.5 Surface Facilities

The proposed facilities for a single well pad would include a wellhead and a pump jack or Roto-flex unit or electric submersible pump (ESP) or gas lift with a natural gas-fired motor. Additional equipment would include a combustor, separator, gas meter, one (1) 500-gallon methanol tank, one (1) 500-gallon glycol tank, one (1) 1,000-gallon propane tank, three (3) 500-barrel oil tanks, one (1) 500-barrel water tank, one (1) 500-barrel test tank, solar panels, solar chemical and methanol pumps, and one trace pump. Telemetry equipment may be used where feasible to remotely monitor well conditions and would minimize traffic to and from the well locations. Production equipment would be located on the well pad to minimize the long-term pad size.

Tank batteries would be placed within secondary containment to help prevent the offsite migration of accidentally spilled crude oil or produced water. Secondary containment would consist of dirt or gravel berms. Secondary containment would be sized to contain the minimum of 110 percent of the storage capacity of the single largest tank within the barrier. All loading lines would be placed inside the containment barrier or would have secondary containment vessels.

All site security guidelines would be followed as identified in 43 CFR 3162.7-5 and Onshore Oil and Gas Order No. 3. All permanent structures would be painted a flat, non-reflective standard environmental color as determined by the Authorized Officer (AO). Permanent facilities associated with the development of federal leases would be painted within six (6) months of being located on site. As required by the Occupational Safety and Health Administration (OSHA), some equipment would not be painted for safety considerations (i.e., some parts of equipment would retain its safety coloration such that it does not blend with the surroundings).

### 2.2.6 Drilling Operations

Drilling operations would be conducted in compliance with Federal Onshore Oil and Gas Orders, applicable rules and regulations, and Notices to Lessee (NTLs). Wells would be drilled utilizing a conventional, mechanically-powered mobile drilling rig. The exact type and size of the drilling rig would be dependent upon rig availability in the Project area.

The proposed wells would target the Lower Green River and Wasatch formations, with an average depth of approximately 10,000 feet. Drilling operations would consist of drilling rat and conductor holes with a small truck-mounted spudder rig. Once the conductor pipe is set and cemented in place, another rig may move on location to preset surface casing or, the conventional drilling rig would be moved in to drill the surface casing string and all subsequent strings. Any shallow water zones or near surface aquifers encountered during drilling would be isolated by both casing and cement. The casing and cementing programs would be depicted in the site specific well Applications for Permit to Drill (APD) and would be designed to isolate and protect shallower formations encountered in the well bore.

Drilling activities on individual wells would typically occur 24 hours per day with approximately 12 workers for a period of approximately 15 days. Once the well is drilled, the rig would be dismantled and moved to another location.

### 2.2.7 Completion Operations and Production

After drilling the hole to its total depth, logging tools would be run into the well to evaluate the potential hydrocarbon resource and production casing would be run and cemented in place in accordance with the well design. Well completion consists of running a Cement Bond log to evaluate the cement integrity and to correlate the cased hole logs to the open hole logs, perforating the casing across the hydrocarbon producing zones, and stimulating the formation to enhance the production of oil and gas. The typical method used for stimulation consists of hydraulic fracture (frac) treatment of the reservoir, in which sand with non-toxic fluids are pumped into the producing formation with sufficient hydraulic pressure to fracture the rock formation. The sand serves as a proppant to keep the created fractures open, thereby allowing reservoir fluids to move more efficiently into the wellbore.

The next phase would be to flow and test the well to determine rates of production. Flow tests would continue until such time as ultimate well productivity and production characteristics can be determined.

Testing would require the installation of a wellhead, test meter, separator, and tank battery at each well. Permanent facilities to be set are outlined in Section 2.1.5. Completion activities would typically occur 24 hours per day with approximately 15 workers for a period of 2-3 days.

Until BBC determines a well to be a producer, and electrical power is installed, it is likely that 60-150 Kw diesel or natural-gas fired engines could be on site for the short-term. Emissions from these engines would be low and short-term and are not expected to lead to exceedences of the National Ambient Air Quality Standards (NAAQS).

Periodically, a workover or recompletion on a well may be required to ensure that efficient production is maintained. Workovers can include repairs to the well bore equipment (casing, tubing, rods, or pump) and the wellhead, or the production facilities. Repairs or recompletion work would usually be completed in 3-7 days during daylight hours.

### 2.2.8 Water Supply and Disposal

It is estimated that approximately 52.0 acre feet (ac-ft.) of water would be needed for drilling, completion, and operational activities under the Proposed Action. Table 2.2-2 provides a breakdown of the needed water.

**Table 2.2-2 Estimated Water Needed Associated with the Ft. Duchesne Proposed Action**

| Action | Estimated Water Needed (ac-ft.) | Number Of Wells | Estimated Total Water Needs (ac-ft.) |
|---|---|---|---|
| Drilling Activities | 2.9 per well | 10 | 29.0 |
| Completion Activities | 2.0 per well | 10 | 20.0 |
| Fugitive Dust Control | 0.3 per pad | 10 | 3.0 |
| **Total** | | | **52.0** |

Fresh water sources are outlined below in Table 2.2-3. The authorized use of the water rights is either for municipal and/or water hauling purposes. Water would be hauled by a licensed trucking company. No water wells are proposed for this project.

**Table 2.2-3 Fresh Water Sources Associated with the Ft. Duchesne Proposed Action**

| Water Right No. and Application or Change No. | Applicant | Allocation | Date | Point of Diversion | Source |
|---|---|---|---|---|---|
| 43-11787 | Neil Moon | 14.29 ac-ft | 4/2/12 | Sec. 27, T3S, R2W | Gravel Pit Pond |
| 43-12345 (F78949 ) | Dale Anderson | 10.0 ac-ft | 1/5/2011 | Sec. 14, T3S, R1E | Pit Pond |
| 43-10664 (A38472) | W. E. Gene Brown | 4.712 ac-ft | 9/18/12 | Sec. 32, T6S, R20E | Unnamed Spring Area |
| 49-2247 (F76893) | Magnum Water Service | 20 ac-ft | 9/20/12 | Sec. 33, T8S, R20E | Underground Well |

On January 21-22, 1988, the Secretary of the Interior; the Governors of Wyoming, Colorado, and Utah; and the Administrator of the Western Area Power Administration were co-signers of a cooperative

agreement to implement the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin. An objective of the Recovery Program was to identify reasonable and prudent alternatives that would ensure the survival and recovery of the four (4) endangered Colorado River fish species, while providing for new water development in the Upper Colorado River Drainage Basin.

The water used for this project would be obtained from the sources identified above, which result in depletions to the Colorado River system. The U.S. Fish and Wildlife Service (USFWS) addresses new and historic depletions differently under the Section 7 agreement of March 11, 1993. Historic depletions (permitted prior to January 1988), regardless of size, do not pay a depletion fee to the Recovery Program. Also, consultation for historic depletions was conducted in association with that 1993 agreement. New depletions require consultation, and are subject to a fee. However, the USFWS has waived the fee for new depletions that require less than 100 ac-ft. per year.

Facilities for disposal of water utilized in drilling and completion activities are outlined below in Table 2.2-4 or water would be hauled to other State of Utah approved disposal facility locations.

**Table 2.2-4 Disposal Facilities Associated with the Ft. Duchesne Proposed Action**

| Disposal Facilities |
|---|
| 1. LaPoint Recycle & Storage – Sec. 12, T5S, R19E |
| 2. Dalbo, Inc. Ace Disposal – Sec. 35, T5S, R20W and Sec. 2, T6S, R20W |
| 3. Brennan Bottom Disposal – Sec. 19, T6S, R21E |
| 4. RN Industries, Inc. Bluebell – Sec. 4 and Sec. 9, T2S, R22E |
| 5. Western Water Solutions – Sec. 9 and Sec. 10, T4S, R1W |
| 6. BBC Class II Injection Wells – FD 16-10-3-2 (permitting authority is the State of Utah, UIC permit pending) and Aurora SWD 3-26-7-20 (permitting authority is the Environmental Protection Agency; permit was approved under Environmental Protection Agency (EPA) UIC Permit UT-22245-09714) |

### 2.2.9 Waste Disposal

Drill fluids, including salts and chemicals, would be contained in the reserve pits. Upon termination of drilling and completion operations, the liquid contents of the pits would be used at the next drill site or would be removed and disposed of at an approved waste disposal facility within 120 days, weather permitting. Upon well completion, any hydrocarbons in the pit would be removed in accordance with 43 CFR 3162.7-1. Produced water would be stored in leak-proof tanks and potentially used in the field for well drilling and completion, unless prohibited by the Environmental Protection Agency (EPA). Produced water and other byproducts would not be applied to roads or well pads for dust or weed control. Liquid hydrocarbons produced during completion operations would be placed in test tanks on the well location and subsequently trucked offsite and sold or disposed of at a permitted disposal facility. Any spills of gas, salt water, or other hazardous fluids would be reported to the BLM and would be immediately cleaned up and removed to an approved disposal site.

Self-contained, chemical portable toilets would be provided for human waste disposal. Upon completion of operations, or as needed, human waste would be removed from the location and disposed of at the nearest approved municipal sewage disposal facility.

Garbage, trash, and other waste materials would be collected in a portable, self-contained fully-enclosed trash cage during operations. Accumulated trash would be disposed of at an authorized sanitary landfill. Trash would not be burned on location. All debris and other waste materials not contained in the trash cage would be cleaned up and removed from the location promptly after removal of the completion rig (weather permitting).

### 2.2.10 Hazardous Materials Management

Chemicals on the EPA's *Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Reauthorization Act of 1986* (SARA Title III) may be used or stored in quantities over reportable quantities. In the course of drilling, BBC and their contractors and subcontractors could potentially store and use diesel fuel, sand (silica), hydrochloric acid, and carbon dioxide gas, all described as hazardous substances in 40 CFR Part 302, Section 302.4, in quantities exceeding 10,000 pounds.

In addition, natural gas condensate and crude oil, described as hazardous substances in 40 CFR Part 302, Section 302.4, may be stored or used in reportable quantities. During production operations, triethylene glycol, ethylene glycol mix (50 percent), and methanol, all described as hazardous substances in 40 CFR Part 302, Section 302.4, may be stored or used on site. Small quantities of retail products (paint/spray paint, solvents [e.g. "WD-40"], and lubrication oil) containing non-reportable volumes of hazardous substances may be stored and used on site at any time. No extremely hazardous substances, as defined in 40 CFR Part 355, would be used, produced, stored, transported, or disposed of under any of the alternatives.

Per 29 CFR 1910.1200(g), BBC maintains current Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances that are used during the course of construction, drilling, completion, and production operations for this project.

The transport, use, storage, and handling of hazardous materials would follow procedures specified by federal and state regulations. Transportation of hazardous materials to the well locations is regulated by the Department of Transportation (DOT) under 49 CFR, Parts 171-180. DOT regulations pertain to the packing, containing, handling, labeling, vehicle placarding, and other safety aspects.

### 2.2.11 Spill Prevention, Control and Countermeasure Procedures

As each new well is completed, BBC would complete site-specific Spill Prevention, Control and Countermeasure (SPCC) Plan diagrams and applicable information. Such site-specific data would be added as an amendment to the fieldwide SPCC Plan. If spills of crude oil, produced water, or other wastes occur in reportable amounts, as defined under regulatory agency requirements, BBC, their contractors, or sub-contractors would contact the BLM and any other regulatory agencies as required by law or regulation. Cleanup efforts would be initiated as soon as practicable. Proper final remediation and reporting to the appropriate agencies would be completed by BBC or subcontractors.

### 2.2.12 Reclamation and Control of Noxious and Invasive Weed Species

Reclamation procedures on federal surface land would follow the Green River District Reclamation Guidelines for Reclamation Plans (BLM 2011) as well as BBC's Uintah Basin Operations Reclamation and Wildlife Enhancement Plan approved by the BLM on April 19, 2013 (refer to Appendix D). The following provides a general discussion of reclamation actions associated with the Proposed Action. Site-specific reclamation actions are included to the individual well's APD.

#### *2.2.12.1 Protection of Topsoil*

BBC would take action to maintain or enhance the integrity of affected topsoil in the project area. Areas to be disturbed would be pre-tested to determine the depth of the topsoil layer. At least one (1) test pit would be dug on each well pad to expose the soil layers enabling a visual exam of the soil profile. The depth of the topsoil would then be determined and construction workers would be instructed to remove the topsoil to the determined depth. Topsoil piles would be identified by signs, if appropriate, and delineated with lath or flagging, to prevent possible mixing with subsoil materials. Topsoil would be stored separately from subsoil materials and would be stored along the perimeter of the exterior margin of the proposed disturbance in areas that would not be disturbed by construction activities, or where erosion and over-exposure by the sun may occur, but within easy reach for reclamation purposes. Topsoil from access roads and pipeline routes would be salvaged along the uphill edge of disturbance, beyond the proposed cut to avoid burial with and/or mixing with excavated subsoil material from the roadway or pipeline trench. Topsoil stored for longer than one year would be scarified to increase its surface area, and seeded with an approved seed mix. If appropriate, site-specific erosion controls would be implemented to minimize loss of topsoil.

#### *2.2.12.2 Interim Reclamation*

Immediately upon well completion or pipeline installation activities, the location and surrounding area would be cleared of all unused equipment, debris, materials and trash. Any hydrocarbons in a well's reserve pit would be removed in accordance with 43 CFR 3162.7-1. The reserve pit and the portion of the well not needed for production facilities/operations would be re-contoured to the approximate natural contours. The reserve pit and pipeline disturbance would be reclaimed within six (6) months from the date of well completion, or as soon as environmental conditions allow. The stockpiled pit topsoil would then be spread over the pit area. The pit location would then be reseeded with the appropriate perennial seed mix designed to stabilize soils, restore production and provide wildlife habitat. Seed would be applied by broadcasting over the topsoil and crimping the seed into the topsoil with a dozer or other tracked heavy equipment. Alternatively, the seed mix may be mechanically drilled into the soil or broadcast and worked into the soil with a harrow. If initial seeding is not successful, reseeding would take place during the next appropriate planting/growing season.

#### *2.2.12.3 Final Reclamation*

Abandoned well sites, roads and other disturbed areas would be restored as near as practical to their natural condition, in addition, a below-ground Plugged and Abandoned (P&A) marker would be installed at the wellhead site. Stockpiled topsoil would be spread across the re-contoured area, and then seeded with the appropriate perennial seed mixture. Seed would be applied by broadcasting over the topsoil and crimping the seed into the topsoil with a dozer or other tracked heavy equipment. Alternatively, the seed mix may be mechanically drilled into the soil or broadcast and worked into the soil with a harrow. If initial seeding is not successful, reseeding would be required.

#### *2.2.12.4 Reclamation Monitoring*

Monitoring of the reclaimed project area would be completed annually during the growing season and action to ensure reclamation success would be taken as needed. During the first two (2) growing seasons an ocular methodology would be used to determine the success of the reclamation activities. During the third growing season, a 200-point line intercept (quantitative) methodology would be used to obtain basal vegetative cover.

The goal is to have the reclaimed area reach 30 percent basal cover when compared to the reference site. If after three (3) growing seasons the areas have not reached 30 percent basal cover, additional reclamation activities may be necessary. Monitoring would continue until the reclaimed area reaches 75 percent basal cover of desirable vegetation when compared to the reference site in accordance with BLM's Reclamation Guidelines.

All monitoring reports would be submitted electronically to the Vernal BLM in the form of a geo-database no later than March 1 of the calendar year following the data collection.

#### *2.2.12.5 Control of Noxious and Invasive Weed Species*

Noxious and invasive weed species would be aggressively controlled on all surface disturbance areas in the project area by using mechanical and/or chemical treatments designed to best control weed species at a specific site.

### 2.2.13 Applicant-committed Environmental Protection Measures (ACEPMs) or Mitigation Measures for APDs

For the Proposed Action, the following ACEPMs would be voluntarily implemented by BBC.

#### *2.2.13.1 Air Quality*

- Members of the construction crew would be encouraged to car pool to and from the surrounding cities and towns as practicable to minimize vehicle-related emissions.
- No open burning of garbage or refuse at wells site or other facilities would be allowed.
- During hot, dry and/or windy conditions, water or other approved dust suppressants would be used at construction sites and along roads, as determined appropriate by the Authorized Officer.
- Open burning of garbage or refuse would not occur at well sites or other facilities.
- Drill rigs would be equipped with Tier II or better diesel engines.
- Phase II water lines would be installed and buried to reduce incidents of freezing and to reduce the number of water-hauling trucks that could contribute to fugitive dust conditions.
- Where practicably feasible, well site telemetry would be installed to remotely monitor and control production.
- Power lines would be installed where possible, except where topographic features preclude installation of power lines. In addition, the ability to utilize electric power also requires that sufficient power capacity and infrastructure is readily available in the immediate area, including appropriate ROWs. Low bleed pneumatics would be installed on separator dump valves and other controllers.
- During completion, venting and flaring would be limited as much as possible. Production equipment and gathering lines would be installed as soon as possible.
- When feasible, two (2) or more rigs (including drilling and completion rigs) would not be run simultaneously within 200 meters of each other. If two (2) or more rigs must be run simultaneously within 200 meters of each other, then effective public health buffer zones out to 200 meters from the nearest emission source would be implemented. Examples of an effective public health protection buffer zone includes the demarcation of a public access exclusion zone by signage at intervals of every 250 feet that is visible from a distance of 125 feet during daylight hours, and a physical buffer such as active surveillance to ensure the property is not accessible by the public during drilling operations. Alternatively, BBC may demonstrate

compliance with the 1-hour $NO_2$ NAAQS with appropriate and accepted near-field modeling. As part of this, BBC may propose alternative mitigation that could include but is not limited to natural gas-fire drill rigs, installation of $NO_x$ controls, time/use restriction, and/or drill rig spacing.

- All internal combustion equipment would be kept in good working order.
- All new and replacement spark-ignition natural gas-fired internal combustion engines would comply with the applicable emission limits found in Subpart JJJJ of the New Source Performance standards (40 CFR 60 subpart JJJJ).
- Green completions would be used for all well completion activities where technically feasible.
- Enhanced volatile organic compounds (VOCs) emission controls with 95 percent control efficiency would be employed on storage tanks having a potential to emit greater than five (5) tons per year (tpy) of VOC uncontrolled.
- Per the terms set out in the Consent Decree (Civil Action No. 2:09-CV-330 TS), approved by the EPA on November 13, 2009, BBC would commit to the following air quality protective measures listed below:
  - Dehydrator emissions from new oil and/or gas production facilities that exceed 20 tpy of VOCs would be controlled to achieve a 95 percent by weight or greater reduction of VOC or total hazardous air pollutant emissions.
  - All internal combustion equipment and emission capture, collection and pollution abatement equipment, including vent lines, connections, fittings, valves, relief valves, hatches and other appurtenances required would be maintained in good working order following manufacturer recommendations or best practices.
  - BBC would implement a fugitive inspection and repair program.
  - BBC would employ tank best management practices such as requiring thief and other tank hatches to be closed after gauging and unloading activities, installing low emission hatches and maintaining valves in a leak-free condition.

#### *2.2.13.2 Cultural Resources*

- If cultural resources are uncovered during excavation activities, BBC would suspend operations at the site and immediately contact the BLM. Work would cease until a mitigation plan is in place.

- Prior to construction activity, BBC would inform employees, contractors and subcontractors about relevant Tribal and Federal regulations intended to protect Native American, archaeological, and cultural resources. This orientation would include training on cultural resource management and Federal laws. All personnel would be informed that collecting artifacts is a violation of Federal law and that employees engaged in this activity would be subject to disciplinary action. If cultural resource law violations are discovered, the offending employee would be subject to disciplinary action by BBC and the violations would be reported to the BLM, State Historic Preservation Office and, if appropriate the Ute Tribe's Historic Preservation Office and the Ute Tribal Business Council, for possible further action, including prosecution.

#### *2.2.13.3 Paleontological Resources*

- Paleontological field surveys were conducted for the proposed project.

- If paleontological resources are uncovered during excavation activities, BBC would suspend all operations and would immediately contact the BLM. Work would cease until a mitigation plan is put in place.

#### *2.2.13.4 Water Resources, Including Waters of the United States*

- If springs are encountered and impacted during construction, the spring(s) would be protected, fenced, and repaired to pre-existing conditions at the direction of the BLM.
- If any work associated with construction of a proposed pipeline would require the placement of dredged or fill material in an existing wetland or would have the potential to alter the nature of existing water ways, the U.S. Army Corps of Engineers (USACE) would be notified by BBC in order to obtain the necessary permits or jurisdictional determinations pursuant to Section 404 of the Clean Water Act.
- Surface disturbance and placement of staging, fueling, and maintenance areas would be avoided within 330 feet from centerline of U.S. Geological Survey (USGS)-named drainages unless no other practical alternative exists.
- No excess material (e.g., soil, overburden, etc.) would be stored within mapped 100-year floodplains of USGS-named drainages; all excess material would be relocated to appropriate locations outside of 100-year floodplains within the project area.
- Construction activities at perennial or USGS-named drainage crossings (e.g., burying pipelines, installing culverts) would be timed to avoid high flow conditions. Construction that disturbs any flowing stream would utilize either a piped stream diversion or a cofferdam and pump to divert flow around the disturbed area.
- Culverts at drainage crossings would be designed and installed to pass a 25-year or greater storm event. On perennial and USGS-named intermittent streams, culverts would be designed to allow for passage of aquatic biota. The minimum culvert diameter in any installation for a drainage crossing or road drainage would be 24-inches. Due to the likelihood for flash flooding in the project area's drainages and anticipated culvert maintenance, drainage crossings would be designed for the 100-year storm event.
- Pipelines installed beneath USGS-named drainages would be buried at a minimum depth of four (4) feet below the channel substrate to avoid exposure by channel scour and degradation. Following burial, the channel grade and substrate composition would be returned to pre-construction conditions.

#### *2.2.13.5 Protection from Erosion*

- New and existing roads would be constructed, updated, and maintained in accordance with the "Gold Book" (BLM-USFS 2007, as revised).
- No installation activity would be performed during periods when the soil is too wet to adequately support installation equipment. If such equipment creates ruts in excess of three (3) inches deep in straight line travel routes, the soil would be deemed too wet to adequately support the equipment, and installation activities would cease until drier or frozen conditions are encountered.
- After testing of the pipeline, stabilization barriers, water bars, silt fences, or other erosion control devices would be installed in the disturbed area. In areas where steep slopes occur, spoils would be bermed and water would be directed to rock armored turnouts to prevent down-slope erosion. Erosion blankets and hand seeding would also be used in these areas.
- Minimize placement of well pads on ridgelines or steep slopes that would result in excessive fill areas. If a well pad must be placed in such sites, site specific best management practices would

be constructed and maintained to minimize erosion of the fill areas and increased sedimentation from such sites.

- All storage tanks containing produced water, or other fluids which may constitute a hazard to public health or safety, would be surrounded by a secondary means of containment for the entire contents of the tank, plus freeboard for precipitation, or to contain 110 percent of the capacity of the largest tank.
- Production facilities that have the potential to leak produced water, or other fluids which may constitute a hazard to public health or safety, would be placed within appropriate containment and/or diversionary structures to prevent spilled or leaking fluid from reaching ground or surface waters.
- Notice of any reportable spill or leakage would be reported per agency guidelines. Oral notice would be given as soon as possible, but within no more than 24 hours, and those oral notices would be confirmed in writing within 72 hours of any such occurrence.
- No oil, lubricant, or toxic substance would be intentionally drained onto the ground surface.
- Topsoil would be salvaged and stockpiled for later use. Topsoil stockpiles would be designed to maximize surface area in order to reduce impacts to soil microorganisms.
- Areas used for spoil storage would be stripped of topsoil before soil placement.
- Erosion protection and silt retention would be provided by the installation and maintenance of silt catchment dams, where needed as feasible. At all well pad locations, soil berms would be constructed to divert water runoff away from the drilling location.
- Reroute existing upslope drainages around proposed well pad locations and all topsoil and subsoil material stockpiles. Restore natural drainage routes as part of interim reclamation actions, if appropriate.
- Construct erosion control devices (i.e., riprap, weed-free straw bales, plant woody vegetation, etc.) at culvert outlets or as directed by the surface land owner. All such devices would be completed to retain natural water flows.

#### *2.2.13.6 Existing Facilities and Rights-of-Way*

- If the proposed access roads and/or pipeline corridors cross existing fences, all fences would be braced before being cut and a temporary gate would be installed. All fences would be restored to functional condition immediately after project completion.
- BBC would repair or replace any fences, cattle guards, gates, drift fences and natural barriers that are damaged as a result of implementation of the proposed project. Cattle guards would be the preferred method of livestock control on most road corridors where fences are crossed, unless otherwise directed by the surface landowner.

#### *2.2.13.7 Fish and Wildlife, Including Special Status Animal Species*

**Big Game**

- In order to reduce the potential for significant adverse impacts to big game populations, construction activity within mapped crucial habitat for big game species, (i.e., antelope or mule deer), as delineated by the Utah Division of Wildlife Resources (UDWR), may require site-specific consultation during select times of the year. Any decision to mitigate for a potential impact or to implement a restriction in crucial habitats would be determined by the BLM, or any time before construction begins. This restriction would not apply to maintenance and operation of existing facilities.

- Additional wildlife resource protection measures directed at protecting identified big game wildlife corridors would be considered. New project-related disturbances within drainages and critical corridors would be avoided where practicable. Where the disturbances cannot be avoided, their locations would be selected to minimize environmental effects and maximize maintenance of the corridor as a single unit. Specific details associated with minimization of environmental effects and mitigation as appropriate, within identified big game wildlife corridors would be determined collaboratively with the BLM and BBC during the onsite process.

**Migratory Birds**

- Screens or other devices would be installed on the stacks and on other openings of heater-treaters or fired-vessels as directed by the BLM.
- BBC would remove any visible accumulation of other than *de minimis* oil from the drilling or workover pit immediately upon release of the drilling rig to reduce the potential of entrapping or poisoning migratory birds.

**Raptors**

- BBC would comply with BLM's approved RMP decisions involving raptor management (specifically decision WL-21) (BLM 2008a). Surveys conducted on private surface land would only occur at the discretion of the landowner.

### *2.2.13.8 Vegetation, Including Federally-listed Plant Species and Noxious and Invasive Species*

- Reclamation actions outlined above would be implemented, or as directed by the BLM.
- BBC would aggressively identify, treat and control noxious and invasive plant species within the project area whose presence relates directly to oil and gas activities within the project area.
- BBC would implement their current Pesticide Use Proposal (PUP), on file with the BLM.

### *2.2.13.9 Human Health and Safety*

- To protect and minimize the possibility of fires during construction, all equipment, including welding trucks, would be equipped with fire extinguishers and spark arresters.
- Where alignment of pipelines would cross or parallel roads, highways or waterways, BBC would provide warning signs to inform the public of the presence of the line.
- Vehicle users associated with the oil field would be instructed to travel at low speed and remain on existing roads and well pads at all times.
- Storage facilities may be fenced as determined necessary by the BLM during the onsite process.

### *2.2.13.10 Protection from Hazardous Materials Spills*

- Collection pipelines would be designed to minimize potential for spills and leaks, including the following, where appropriate:
    - Stream banks would be stabilized with large, angular rock or wire-enclosed riprap.
    - Substrate layers should be replaced in the same order that they are removed.
    - Pipeline crossings of streams and any riparian areas would be at right angles to minimize the area of disturbance

    - Pipelines crossing live streams would be protected by automatic shutoff valves.
- Construction methods would provide for eliminating or minimize discharges of turbidity, sediment, organic matter or toxic chemicals. Settling basins or cofferdams may be utilized for this purpose.
- BBC would inform their employees, contractors and subcontractors of the potential impacts that can result from accidental spills as well as the appropriate actions to take if a spill occurs.
- No produced water would be discharged into surface water drainages or allowed to flow onto the ground surface.
- Notice of any reportable spill or leakage would be immediately reported by BBC, or their contractors/subcontractors as required by regulation. Oral notice would be given as soon as possible, but within no more than 24 hours. Oral notices would be confirmed in writing within 72 hours of any such occurrence.

## 2.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, BBC's proposed project involving federal land would not be authorized. Federal access to the proposed two wells located on private lands would be denied, thus BBC's original plan for the two private wells would not be realized. As such the No Action Alternative would not cause any new surface disturbance. Ongoing management of federal lands within the project area would continue at current trends.

# CHAPTER 3: AFFECTED ENVIRONMENT

## 3.1 INTRODUCTION AND GENERAL SETTING

The affected environment of the Proposed Action and No Action alternatives were considered and assessed by an interdisciplinary team, as documented in the Interdisciplinary Team Analysis Record checklist (Appendix A). The checklist indicates which resources of concern are present, would be affected by the proposed action, and would require assessment in the EA, or are either not present in the project area, or would not be affected to a degree that requires detailed assessment.

The project area involves about 3,740 acres and is located approximately 28 miles southwest from Vernal, Utah, in an area known as Halfway Hollow or Ouray Park, south of U.S. Highway 40, west of State Highway 88 (Ouray Highway), northwest of Brough Reservoir and east of the Ouray Irrigation Canal (refer to Figure 1 in Appendix B). The elevation of the project area ranges between 4,920 and 5,220 feet above mean sea level (amsl). Topographically, the project area consists of highly dissected sandstone and mudstone rock formations and broad sandy ridges (Montgomery Archaeological Consultants, Inc. [MOAC], 2011). Currently there are two (2) previously approved wells, two (2) wells are P&A, and one (1) well is shut-in (Utah Division of Oil Gas and Mining [UDOGM] 2013).

## 3.2 AIR QUALITY AND GREEN HOUSE GAS EMISSIONS

The project area is within the Uinta Basin, a semiarid, mid-continental climate regime typified by dry, seasonally 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.

### 3.2.1 Air Quality

The project area is in the Uinta Basin, a semiarid, mid-continental climate regime typified by dry, seasonally windy conditions, limited precipitation and wide seasonal temperature variations subject to abundant sunshine and rapid nighttime cooling. The Uinta Basin is designated as unclassified/attainment by the EPA under the Clean Air Act of 1970, as amended. This classification indicates that the concentration of criteria pollutants in the ambient air is below NAAQS or that adequate air monitoring is not available to determine attainment.

NAAQS are standards that have been set for the purpose of protecting human health and welfare with an adequate margin of safety. Pollutants for which standards have been set include ground level ozone ($O_3$), sulfur dioxide ($SO_2$), , nitrogen dioxide ($NO_2$), carbon monoxide (CO), and particulate matter (PM) less than 10 microns in diameter or 2.5 microns in diameter ($PM_{10}$ to $PM_{2.5}$). Airborne 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. Table 3.2-1 lists ambient air quality background values for the Uinta Basin and NAAQS standards.

**Table 3.2-1 Regional Ambient Air Quality Background Values**

| Pollutant | Averaging Period(s) | Uinta Basin Background Concentration ($\mu g/m^3$) | NAAQS[1] ($\mu g/m^3$) |
|---|---|---|---|
| $SO_2$ | Annual | 0.8[2] | ---[1] |
| | 24-hour | 3.9[2] | ---[1] |
| | 3-hour | 10.1[2] | 1,300 |
| | 1-hour | 19.0[2] | 197 |
| $NO_2$ | Annual | 8.1[3] | 100 |
| | 1-hour | 60.2[3] | 188 |
| $PM_{10}$ | Annual | 7.0[4] | ---[6] |
| | 24-hour | 16.0[4] | 150 |
| $PM_{2.5}$ | Annual | 9.4[3] | 15 |
| | 24-hour | 17.8[3] | 35 |
| CO | 8-hour | 3,450[4] | 10,000 |
| | 1-hour | 6,325[4] | 40,000 |
| $O_3$ | 8-hour | 62 - 100.0[3,5] | 75 |

*Source: BBC*

*[1] The 24-hour and annual $SO_2$ NAAQS have been revoked by EPA*

*[2] Based on 2009 data from Wamsutter Monitoring station Date (EPA AQS Database)*

*[3] Ozone data is the highest 4th high from Ouray Monitoring Station data for the period 7/30/2009 through 6/30/2010 and is the highest value from 2 years and 2 monitoring stations in the area. Red Wash and Ouray (Air Quality Impact Analysis, Greater Natural Buttes Supplement to the Draft Environmental Impact Statement (DEIS), Feb 2011 based on EPA AQS Database). Ozone data shown is unofficial and non-regulatory, and presented for informational purposes only. There is considerable variability in background ozone concentrations and the high-4th-high values shown here are isolated events that do not represent the background ozone concentration in the region. The background ozone concentrations are normally much less than 75 ppb as discussed further in the text.*

*[4] Based on 2006 data disclosed in the Greater Natural Buttes Final EIS (FEIS). (BLM, 2012)*

*[5] Ozone is measured in parts per billion (ppb)*

*[6] The annual $PM_{10}$ NAAQS has been revoked by EPA.*

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 Hazardous Air Pollutants [HAPs]) from existing natural gas-fired compressor engines used in transportation of natural gas in pipelines;
- Natural gas dehydrator still-vent emissions of HAPS;
- Gasoline and diesel-fueled vehicle tailpipe emissions of volatile organic compounds (VOCs), $NO_x$, CO, $SO_2$, $PM_{10}$ and $PM_{2.5}$;
- Oxides of sulfur ($SO_x$), $NO_x$, fugitive dust emissions from coal-fired power plants and coal mining/processing;
- Fugitive dust (in the form of $PM_{10}$ 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.

Two year-round air quality-monitoring sites were established in summer 2009 near Red Wash (southeast of Vernal, Utah) and Ouray (southwest of Vernal). These monitors were certified as Federal Reference Monitors in the fall of 2011, which means they can be used to make a NAAQS compliance determination beginning in 2012 through 2016. The complete EPA Ouray and Red Wash monitoring data can be found at http://www.epa.gov/airdata.

Both monitoring sites have recorded exceedences of the 8-hour ozone standard during the winter months (January through March 2010, 2011, and 2013). The high numbers did not occur in January through March 2012 due to lack of snow cover. This phenomenon has also been observed in similar locations in Wyoming. Winter ozone formation is a newly recognized issue, and the methods of analyzing and

managing this problem are still being developed. Existing photochemical models are currently unable to reliably replicate winter ozone formation. This is due to the very low mixing heights associated with unique meteorology of the ambient conditions. Further research is needed to definitively identify ozone precursor sources that contribute to observed ozone concentrations.

The UDAQ conducted limited monitoring of $PM_{2.5}$ in Vernal, Utah in December 2006. During the 2006-07 winter seasons, $PM_{2.5}$ levels were higher than the $PM_{2.5}$ health standards that became effective in December 2006. The $PM_{2.5}$ levels recorded in Vernal were similar to other areas in northern Utah that experience winter time inversions. The most likely causes of elevated $PM_{2.5}$ at the Vernal monitoring station are those common to other areas of the western U.S. (combustion and dust) plus nitrates and organics from oil and gas activities in the Basin. $PM_{2.5}$ monitoring that has been conducted in the vicinity of oil and gas operations in the Uinta Basin by the Red Wash and Ouray monitors beginning in summer 2009 have not recorded any exceedences of either the 24-hour or annual NAAQS.

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

### 3.2.2 Greenhouse Gases

Greenhouse gases keep the planet's surface warmer than it otherwise would be. However, as concentrations of these gases increase the Earth's temperature is climbing above past levels. According to National Oceanic and Atmospheric Administration (NOAA) and National Aeronautics and Space Administration (NASA) data, the Earth's average surface temperature has increased by about 1.2 to 1.4° Fahrenheit in the last 100 years. The eight (8) 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 center, the mean global temperature has been relatively constant for the past nine (9) years after the warming trend from 1950 through 2000. Predictions of the ultimate outcome of global warming remain to be seen.

The analysis of the Regional Climate Impacts prepared by the U.S. Global Change Research Program (USGCRP) in 2009 suggests that recent warming in the region (including the project area) was nationally among the most rapid. Past records and future projections predict an overall increase in regional temperatures, largely in the form of warmer nights and effectively higher average daily minimum temperatures. They conclude that this warming is causing a decline in spring snowpack and reduced flows in the Colorado River. The USGCRP projects a region-wide decrease in precipitation, although with substantial variability in inter-annual conditions. For eastern Utah, the projections range from an approximate five (5) percent decrease in annual precipitation to decreases as high as 40 percent of annual precipitation.

## 3.3 PALEONTOLOGY

The 2007 geologic mapping efforts mapped the project area as Qae – Quaternary alluvium and eolian deposits and the Tertiary Duchesne River formation Brennan Basin Member (Uinta Paleontological Associates, Inc. [Uinta Paleo] 2012). Known localities in the area north of Randlett, including the

project area, are particularly fossiliferous in the Randlett Horizon of the lower Duchesne River Formation (Uinta Paleo 2012).

In 2007, the BLM released General Procedural Guidance for Paleontological Resource Management which includes a classification system that provides baseline guidance for predicting, assessing, and mitigating paleontological resources (BLM, 2007). The manual classifies resource areas by ranking them into one (1) of five (5) Potential Fossil Yield Classification (PFYC) classes according to their potential to contain vertebrate or noteworthy invertebrate or plant fossils and their sensitivity to adverse impacts. A higher class number indicates a high potential. The classification system is intended to provide baseline guidance to assessing and mitigating impacts to paleontological resources. The current classification system is summarized below.

- Class 1: Geological unit that is unlikely to contain recognizable fossil remains. The occurrence of scientifically important fossils in Class 1 units is non-existent or extremely rare. Source rock is igneous or metamorphic in origin as well as units that are Precambrian in age or older.
- Class 2: Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically important non-vertebrate fossils. Source rock is eolian in origin.
- Class 3: Fossiliferous sedimentary geologic units where fossil content varies in importance, abundance and predictable occurrence. Source rock is often sedimentary and marine in origin.
- Class 4: Described Class 5 geologic units that have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation. Bedrock units include extensive soil or vegetative cover, limited exposed bedrock.
- Class 5: Highly fossiliferous geologic units that regularly and predictably produce vertebrate fossils or uncommon invertebrate or plant fossils, and that are at risk of human-caused adverse impacts or natural degradation. This class includes units that are well exposed with little or no soil or vegetative cover, extensive bedrock outcrops.

The Brennan Basin Member of the Duchesne River Formation has been designated by the BLM as PFYC Class 4/5 and the Quaternary deposits as PFYC 2.

## 3.4 SOILS

Soils in the project area were formed in eolian deposits and alluvium derived mainly from interbedded sedimentary rocks, primarily sandstone. The project area is primarily comprised of two (2) soil series: Begay and Hideout (USDA-NRCS 2013a). These soil series are subsequently interspersed with varying inclusions of badland or rock outcrop. These units are classified as soil complexes and generally described below in Table 3.4-1. Table 3.4-1 summarizes characteristics of these soils.

**Table 3.4-1 Soil Characteristics within the Ft. Duchesne Project Area**

| Soil Map Unit Name | Acres (%) | Slope Range | Landform | Average Depth of Topsoil | Surface Texture | General Characteristics |
|---|---|---|---|---|---|---|
| Badland-Rock outcrop complex | 120 (3%) | 1-100% | Nonproductive sites, exposed bedrock on benches, mesas and fan remnants | --- | Fine sandy loam-rock | -Well drained<br>-Very fast runoff<br>-Rapid permeability |

| Soil Map Unit Name | Acres (%) | Slope Range | Landform | Average Depth of Topsoil | Surface Texture | General Characteristics |
|---|---|---|---|---|---|---|
| | | | | | | -Poor reclamation potential |
| Begay sandy loam | 1,057 (28%) | 2-15% | Structural benches, sand on broad mesas, fan remnants and terraces | A horizon = 0-3 inches<br>B horizon = 3-42 inches<br>C horizon = > 42 inches | Very fine sandy loam | -Depth to carbonates 7-22 inches<br>-A horizon – slightly to moderately strongly alkaline<br>-Well drained,<br>-Very slow to medium runoff, -Moderately rapid permeability<br>-Poor reclamation potential |
| Begay-Hideout-Rock outcrop complex | 342 (9%) | 2-15% | *Refer to Begay and Hideout soils* | | | |
| Hideout-Badland-Rock outcrop complex | 2,130 (58%) | 2-8% | Hillslopes, scarps and structural benches | A Horizon = 0-2 inches<br>C Horizon = 2-10<br>R Horizon = 10 inches, sandstone bedrock | Fine sandy loam | -Depth to bedrock 4-20 inches<br>-A horizon – slightly to moderately alkaline<br>-Well drained<br>-Low-medium runoff<br>-Moderately rapid permeability<br>-Poor reclamation potential |
| Minor inclusions | 91 (2%) | 0-8% | Various | Generally as described above | Silty clay, loam, sandy loam | -A horizon – moderately alkaline<br>-Moderately drain<br>-Medium runoff<br>-Moderately to rapid permeability<br>-Poor reclamation potential |

| Soil Map Unit Name | Acres (%) | Slope Range | Landform | Average Depth of Topsoil | Surface Texture | General Characteristics |
|---|---|---|---|---|---|---|
| | | | | | | |
| | 3,740 (100%) | | | | | |

*Source: USDA-NRCS (2013b, 2013c and 2013d)*

The Begay, Hideout, and Begay-Hideout soils and soil complexes comprise about 95 percent of the project area. Areas dominated by badlands and/or rock outcrop or various minor soil inclusions comprise the remaining 5 percent of the project area. Slopes in the project area range from 0-15 percent, indicating a level to gently rolling terrain, interspersed with bedrock outcrops. Due to poor soil development and lack of vegetative cover, ephemeral drainages in the project area are frequent and incised.

Depth of topsoil is very limited in the project area, ranging between 0-3 inches. Alkalinity of the A (top) horizon ranges between slight to moderately strong. The Begay soil can exhibit carbonates beginning at seven (7) inches. Dominate soils are well to excessively drained, exhibiting medium to high runoff with moderately rapid permeability. Dominate soils are rated poor for reclamation potential due to their alkalinity and shallow depths. The extensive inclusions of badland and rock outcrop throughout the project area also exhibit poor soil development and shallow depths; thus exacerbating the poor reclamation potential within the project area.

The average baseline erosion rate for soils within the Uinta Basin has been estimated to be about 1.5 tons per acre per year (BLM 1984, and references cited within). The erosion rate for the project area is unknown, but is likely similar since the soil types, vegetative cover and climatic conditions are typical of the Uinta Basin. Therefore for the 3,740-acre project area, the existing, baseline, or naturally-occurring erosion rate is approximately 5,610 tpy (3,740 acres x 1.5 tons/acre/year).

## 3.5 VEGETATION, INCLUDING SPECIAL STATUS PLANT SPECIES; AND, INVASIVE PLANTS OR NOXIOUS WEEDS

### 3.5.1 Vegetation

The vegetation communities identified in this section are described using data obtained from the Southwestern Regional GAP Analysis Project (SWReGAP) data and land cover descriptions (USGS National Gap Analysis Program 2005). The two dominant vegetation communities in the project area are sagebrush and mixed salt-desert shrublands. Table 3.5-1 provides a breakdown of the vegetation data within the project area.

**Table 3.5-1 Vegetation Communities within the Ft. Duchesne Project Area**

| Vegetation Community | Acres within Project Area | Percent of Project Area |
|---|---|---|
| Sagebrush | 2,599 | 69 |
| Mixed Salt-Desert Shrublands | 1,055 | 28 |
| Badlands/Rock Outcrop | 74 | 2 |
| Lower Montane Riparian Shrubland | 12 | 1 |
| **Total** | **3,740** | **100** |

*Source: USGS 2005.*

The sagebrush community covers a variety of sagebrush species (in this case both black sagebrush and Wyoming sagebrush) and comprises 69 percent of the project area. Black sagebrush is limited to the shallower soils on benches and fans while Wyoming sagebrush is found on the deeper soils of the mesas and alluvial fans. Vegetation species associated with the sagebrush community noted during the October onsite included: black sagebrush (*Artemisia nova*), Wyoming sagebrush (*Artemisia tridentata wyomingensis*), horsebrush (*Tetradymia* sp.), Mormon tea (*Ephedra* sp.), rabbitbrush (*Chrysothamnus* sp.), Indian ricegrass (*Achantherum hymenoides*), and needle-and-thread (*Hesperostipa comata*).

The mixed salt-desert shrubland covers 28 percent of the project area. It includes a wide list of woody and herbaceous species that generally tolerate high soil salt concentrations. Vegetation species associated with this community noted during the October onsite included: shadscale (*Atriplex confertifolia*), rabbitbrush (*Chrysothamnus* spp.), Mormon tea (*Ephedra* sp.), horsebrush (*Tetradymia* spp.), galleta grass (*Pleuraphis jamesii*), and prickly pear cactus (*Opuntia* sp.).

Badlands and/or bedrock outcrops comprise about two (2) percent of the project area and include areas that are very sparsely vegetated. What vegetation is there is limited to cracks and pockets of soil accumulations. Total vegetative cover is typically less than 10 percent in these areas.

Riparian shrubland comprises one (1) percent of the project area and is limited to the Ouray Irrigation Canal, forming the western boundary of the project area. Vegetation species associated with this community noted during the October onsite included: Fremont cottonwood (*Populus fremontii*), hairgrass (*Deschampsia cespitosa*) and sedges (*Carex* spp.)

### 3.5.2 Special Status Plant Species

Special status plant species have special-status designations which include:

- Species federally-listed as threatened or endangered, proposed for federal listing as threatened or endangered, or considered to be a candidate for federal listing under the Endangered Species Act (ESA) of 1973.
- Species listed as sensitive by the BLM, including species of concern and species receiving special management under a Conservation Agreement in order to preclude the need for federal listing.

For this document, habitat was classified in three categories (BLM 2012a):

- Potential habitat – areas within the geographic range of this species that have been identified as potentially having habitat characteristics based on a desktop analysis of GIS data for the area;
- Suitable habitat – areas that have been field verified as having habitat characteristics even though no species were observed; and
- Occupied habitat – areas where the species has been identified by field surveys.

Occurrence potential within the project area was evaluated for each of the sensitive plant species based on their habitat requirements and/or known distribution (refer to Appendix E for BLM's special status plant species and their potential to occur within the project area).

### *3.5.2.1 Federally-listed Plant Species*

In accordance with Section 7(a)(2) of the ESA, the USFWS must ensure that any federal action to be authorized, funded, or implemented does not jeopardize the continued existence of a listed species, or destroy or adversely modify the listed species' critical habitat.

Currently in the Uinta Basin, the USFWS lists six (6) plant species as threatened or endangered or proposed as threatened, and one (1) species as a proposed candidate species (refer to Appendix E). The project area does not contain suitable habitat for any current federally-listed plant species due primarily to either the lack of the associated geological formation or the project area is outside the USFWS potential habitat (refer to Appendix E). As such, discussion and/or assessment of the proposed project on federally-listed plant species is not carried forward in this document.

### *3.5.2.2 BLM Sensitive Plant Species*

The restricted distributions, specialized habitat requirements, and population pressures (human-induced and natural) facing certain plant species contribute to a high potential for federal listing, thus their populations are of conservation interest (BLM 2008b). BLM policy for BLM-listed sensitive species is to manage the species as if they were candidate species for federal listing so that they do not become listed, while also fulfilling other federal law mandates. The BLM has a policy of entering into conservation agreements and other conservation measures to protect BLM-listed sensitive species (BLM 2008b).

Currently BLM lists 20 plant species as sensitive in Uintah County, Utah. These species, their associated habitats and potential for occurrence with the project area are summarized in Appendix E. Based on these evaluations and subsequent field surveys, the project area provides suitable habitat for three (3) BLM sensitive plant species which are discussed briefly below.

**Horseshoe Bend Milkvetch (*Astragalus equisolensis*)**

Suitable habitat for this perennial forb occurs on sandy and silty textured soils with surface gravels, derived from the Duchesne River Formation, at elevations ranging between 4,800 and 5,200 feet amsl. Although the project area includes suitable habitat for this species, field surveys conducted in 2012 and 2013 found no specimens or remnants within the areas identified for surface disturbance (EIS Environmental and Engineering Consulting, Inc. [ENIS] 2012 and 2013b).

**Spanish Bayonet (*Yucca sterilis*)**

Suitable habitat for this member of the Agave family occurs on sandy soils of the Uinta Formation at elevations ranging between 4,790 and 5,800 feet amsl. Unoccupied suitable habitat is associated with the proposed FD 3-26-6-19 well and utility corridor (ENIS 2013a).

**Hairy Townsend Daisy (*Townsendia strigosa* var. *prolixa*)**

Suitable habitat for this perennial forb occurs in salt desert shrub, mixed desert shrub communities at elevations between 4,800 and 6,200 feet amsl. Potential habitat for this species is present within the project area; however, field surveys conducted in 2012 found no specimens or remnants within the areas identified for surface disturbance (ENIS 2012).

### 3.5.3 Invasive Plants or Noxious Weeds

The Federal Noxious Weed Act of 1975 defines a noxious weed as any living stage (including seeds and reproductive parts) of parasitic or other non-native plant of a kind which is of foreign origin; is new to or not widely prevalent in the U.S., and can directly or indirectly injure crops and other useful plants, livestock, poultry or other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or the public health. The State of Utah noxious weed law (contained in Rule R68-9) defines a noxious weed as any plant determined to be especially injurious to public health, crops, livestock, land, or other property. Noxious species have few natural biological controls. Given this competitive advantage, they can dominate a site and crowd out native species thus threatening plant diversity and ecosystem health and sustainability. An "invasive" species is defined as a species that is non-native to an ecosystem and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Executive Order [EO] 13112). Invasive and/or noxious weeds may be spread by vehicles, humans, animals traveling through the area as well as wind and/or water.

Invasive species observed during the October onsite included: Cheatgrass (*Bromus tectorum*), Russian thistle (*Salsola kali*) and halogeton (*Halogeton glomeratus*). No noxious weeds were observed.

## 3.6 WILDLIFE, INCLUDING MIGRATORY BIRDS AND RAPTORS; AND, SPECIAL STATUS ANIMAL SPECIES

### 3.6.1 Migratory Birds, Including Raptors

All migratory birds, including raptors, and their nests are protected from take or disturbance under the Migratory Bird Treaty Act (MBTA) of 1918. Bald and golden eagles are further protected under the Bald Eagle and Golden Eagle Protection Act (BEGEPA) of 1940. EO 13186, dated January 10, 2001, sets forth the responsibilities of federal agencies to further implement the provisions of these Acts by integrating bird conservation principles and practices into agency activities and by ensure that federal actions evaluate the effects of actions and agency plans on protected avian species.

Memorandum of Understanding (MOU) WO-230-2010-04 "To Promote the Conservation of Migratory Birds" was issued in 2010 by the BLM and the USFWS. This MOU directs the BLM to identify species listed in the USFWS' Birds of Conservation Concern (BCC) likely to be present in the area of a proposed action and utilize best available population or habitat association data in the assessment of impacts to these species. The Utah Partners in Flight (UPIF) working group completed an avian conservation strategy identifying "priority species" for conservation within a state due to declining abundance or distribution or vulnerability to various local land/or rangewide risk factors. The UPIF list is intended to be used as a tool for federal and state agencies to prioritize bird species that should be considered for conservation action (Parrish, Howe and Norvell 2002). Numerous migratory bird species may occupy the project area either as migrants or as breeding and nesting pairs. Table 3.6-1 provides a list of migratory bird species that may use the project area for nesting activities.

**Table 3.6-1 Migratory Bird Species that May Utilize the Project Area**

| Common Name | Scientific Name |
|---|---|
| Black-chinned hummingbird* | *Archilochus alexandri* |
| Black-throated sparrow | *Amphispiza bilineata* |
| Brewer's sparrow* | *Spizella breweri* |
| Gray flycatcher* | *Empidonax wrightii* |
| Green-tailed towhee* | *Pipilo chlorurus* |
| Horned lark | *Eremophila alpestris* |
| Lark bunting | *Calamospiza melanocorys* |
| Lark sparrow | *Chondestes grammacus* |
| Loggerhead shrike | *Lanius ludovicianus* |
| Northern mockingbird | *Mimus polyglottos* |
| Sage sparrow* | *Amphispiza belli* |
| Sage thrasher* | *Oreoscoptes montanus* |
| Say's phoebe | *Sayornis saya* |
| Vesper sparrow | *Pooecetes gramineus* |
| Western kingbird | *Tyrannus verticalis* |

*Source: Parrish, Howe and Norvell 2002)*
**= UPIF priority bird species*

Raptors are widely accepted indicator species of environmental quality due, in part, to their position at the top of some biological food chains. About 31 raptor species are known to occur for at least a portion of their life cycle in Utah, of which 8 species are considered to be Special Status Species by the BLM (BLM 2008a). Currently these 8 species receive enhanced protection, in addition to the regulatory authority provided by the Migratory Bird Treaty Act (MBTA), which covers all raptor species. The BLM and USFWS have issued guidelines for the protection of raptors in the State of Utah. These guidelines are included in the Approved RMP (refer to Appendix A: "Best Management Practices for Raptors and Their Associated Habitats in Utah, August 2006" [BLM 2008a]).

BLM's raptor guidelines include general and species-specific BMPs to enhance raptor habitat and to protect both occupied and unoccupied nest sites. Maintenance and enhancement of raptor habitat is important in order for raptors to maintain high densities and maximum diversity. Protection of raptor nests, both occupied and unoccupied, is important since not all raptor pairs breed every year, nor do they always utilize the same nest site within a nesting territory (BLM 2008a).

Proposed land use activities on BLM-administered land which would have an adverse impact on an occupied nest would not be allowed within the species-specific spatial or seasonal buffer. BLM has outlined species-specific raptor nest buffer zones to avoid potentially impacting activities to nest initiation and productivity. Proposed surface-disturbing activities occurring outside the species-specific breeding season, but within the spatial buffer would be allowed during a minimum 3-year nest monitoring period, as long as the activity would not cause the nest site to become unsuitable for future nesting, as determined by a wildlife biologist (BLM 2008a).

Also, BLM has outlined species-specific seasonal (timing) buffer periods to avoid impacting activities to periods outside of the nesting season. BLM would attach appropriate guidelines as Conditions of Approval to all proposed use authorizations which have the potential to adversely affect nesting raptors, or would cause occupied nest sites to become unsuitable for nesting in subsequent years (BLM 2008a).

In 2013, Environmental Industrial Services (ENIS) reviewed existing nesting data and conducted a raptor survey which included the project area (ENIS 2013c). Their work indicated 12 raptor nest sites

within the project area, of which one (1) site was determined to be active. Table 3.6-2 provides a list of raptor species likely to inhabit the project area.

**Table 3.6-2 Raptor Species that May Utilize the Project Area**

| Common Name | Scientific Name | Nesting Habitat |
|---|---|---|
| Red-tailed hawk | *Buteo jamaicensis* | Rock outcrops, cliff ledges |
| Barn owl | *Tyto alba* | Rock outcrops, cliffs ledges |
| Prairie falcon | *Falco mexicanus* | Cliff ledges |
| Golden eagle | *Aquila chrysaetos* | Cliff ledges and rock outcrops |
| Ferruginous hawk | *Buteo regalis* | Cliffs and rock outcrops, shrubs and trees, utility structures |
| Great horned owl | *Bubo virginianus* | Cliff ledges or nests of other species |
| Raven | *Corvus corvax* | Cliffs and rock outcrops |
| Burrowing owl | *Athene cunicularia* | Associated with active prairie dog colonies |

*Source: ENIS 2013c*

### 3.6.2 Special Status Animal Species

As set out in Section 3.5.2, federal agencies can not jeopardize the continued existence of a federally-listed species, or destroy or adversely modify the listed species' critical habitat. BLM is also required to protect special status animal species under other numerous additional authorities (refer to Section 3.6.1 for migratory birds and raptors).

The USFWS and UDWR each list special status terrestrial and aquatic species by county. The USFWS lists federally endangered, threatened, proposed and candidate species; and the UDWR lists state sensitive species (USFWS 2009; UDWR-UNHP 2009). From these two (2) lists 36 special status animal species were identified as potentially occurring within Uintah County; it should be noted that several species could be currently designated under multiple protective authorities (i.e., wildlife species of concern, BLM sensitive, federal candidate, etc.). Occurrence potential was evaluated for each species based on their habitat requirements and known distribution. Based on the assessment, 12 species were determined to have potential to occur within the project area or be affected by the proposed project (see Appendix E). Table 3.6-3 lists the special status animal species that may be affected by the proposed project.

**Table 3.6-3 Special Status Animal Species that may be Affected by the Proposed Action**

| Species Common | Scientific Name | Current Status* |
|---|---|---|
| **Mammals** | | |
| White tailed prairie dog | *Cynomys leucurus* | BLM |
| **Birds** | | |
| Burrowing owl | *Athene cunicularia* | BLM |
| Ferruginous hawk | *Buteo regalis* | BLM |
| Greater sage grouse | *Centrocercus urophasianus* | FC/BLM |
| **Fish** | | |
| Bluehead sucker | *Catostomus discobolus* | CAS |
| Bonytail chub | *Gila elegans* | FE |
| Colorado pikeminnow | *Ptychocheilus lucius* | FE |
| Flannelmouth sucker | *Catostomus latipinnis* | CAS |
| Humpback chub | *Gila cypha* | FE |
| Razorback sucker | *Xyrauchen texanus* | FE |
| Roundtail chub | *Gila robusta* | CAS |

**BLM = Utah BLM sensitive species*
*FC = Federal candidate species*
*CAS = State Conservation Agreement Species*

**White-tailed Prairie Dog (*Cynomys leucurus*)**

White-tailed prairie dog burrows were present associated with proposed FD 6-22-6-19, FD 3-24-6-19 and FD 9-14-6-19 well locations and along the associated utility corridors. Potential habitat is scattered throughout the project area (ENIS 2013b).

**Burrowing Owl (*Athene cunicularia*)**

One (1) owl was observed within 0.25 mile buffer of the proposed FD 11-14-6-19 pipeline. Burrows were present associated with proposed FD 6-22-6-19, FD 3-23-6-19 and FD 9-14-6-19 well locations and along utility corridors, involving about 49 acres of suitable habitat. Few burrows were present with remaining proposed well pads and/or utility corridors (ENIS 2013a). BLM raptor guidelines provide the following species-specific protective buffers for burrowing owl: Apply a 0.25 mile spatial buffer and a seasonal timing buffer between March 1 and August 31 (BLM 2008a, Appendix A, Attachment 2).

**Ferruginous Hawk (*Buteo regalis*)**

A review of UDWR's existing raptor data base revealed four (4) previously identified raptor nest sites within the project area. The 2013 raptor survey revealed four (4) inactive nest sites within the project area (ENIS 2013c). BLM raptor guidelines provide the following species-specific protective buffers for ferruginous hawk: Apply a 0.5 mile spatial buffer and a seasonal timing buffer between March 1 and August 1 (BLM 2008a, Appendix A, Attachment 2).

**Greater Sage Grouse (*Centrocercus urophasianus*)**

The BLM RMP (Appendix K) provides protection to the greater sage grouse from oil and gas activities by attaching the following stipulations, as appropriate (BLM 2008a):

- Within 1/2 mile of known active leks (strutting or breeding sites), use the best available technology such as installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise.
- No surface-disturbing activities within ¼ mile of active sage grouse leks year round.
- No permanent facilities or structures within two (2) miles of sage grouse leks when possible.
- No surface-disturbing activities within two (2) miles of active sage grouse leks from March 1 through June 15.

In March 2010, the USFWS determined listing of the greater sage grouse was warranted. On February 14, 2013, the State of Utah released its final conservation plan for the greater-sage grouse (UDWR 2013). The plan was formulated to eliminate threats to the species and negate the need for listing of the species under the ESA. The USFWS is now reviewing the state's plan and will render its decision by the end of 2015. The State of Utah has identified 11 management areas, including the Uintah Sage Grouse Management Area (SGMA). The SGMAs were established as they represent the best opportunity for high-value, focused conservation efforts for the species in Utah. Sage grouse habitat outside the SGMA would not be required for long-term conservation of the species as much of the habitat has already been disturbed and is not suitable for enhancement or improvement. The State does not consider areas outside the SGMAs as essential to the perpetuation of the species in Utah and does not establish specific management actions.

The State's Uintah SGMA identifies 793,559 acres of high-quality habitat within Uintah and Daggett Counties. Of this, 262,448 acres (or 33 percent) are administered by the BLM. None of the project area is within the currently identified Uintah SGMA (UDWR 2013). However, greater sage grouse habitat and populations can and do exist outside this SGMA. Specifically, the UDWR identifies the entire project area as occupied, brood-rearing greater sage grouse habitat; and 2,175 acres (or 58 percent of the project area) as crucial greater sage grouse winter habitat. No leks have been identified within two (2) miles of the project area.

**Bluehead Sucker (*Catostomus discobolus*), Flannelmouth Sucker (*Catostomus latipinnis*), Roundtail Chub (*Gila robusta*)**

These three (3) fish species are UDWR sensitive species receiving special management under a Conservation Agreement in order to preclude the need for federal listing. Bluehead suckers currently occupy about 45 percent of their historic habitat in the Upper Colorado River Basin. Flannelmouth sucker currently occupy about 50 percent of their historic range, and the roundtail chub currently occupy about 45 percent of their historic habitat. The known distribution of these species includes portions of the Green River upstream and downstream of the Pariette Draw confluence, located approximately 14 river miles south of the project area.

**Bonytail Chub (*Gila elegans*), Colorado Pikeminnow (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), Razorback Sucker (*Xyrauchen texanus*)**

These four (4) fish species are currently listed as endangered under the auspices of the ESA. They are collectively known as the "Upper Colorado River System endangered fish", and are referred to as such in this EA. The USFWS has designated critical habitat for each of these species in the Green River. There is no designated critical habitat for these species within the project area; however, drainage and surface waters from the project area are about 60 river miles upstream from designated critical habitat for the bonytail chub and Colorado pikeminnow, and about 21 river miles upstream from designated critical habitat for the flannelmouth sucker.

# CHAPTER 4: ENVIRONMENTAL IMPACTS

## 4.1 INTRODUCTION

This section described the effects, or impacts, of implementing alternative A – Proposed Action, or Alternative B – No Action Alternative on the affected environment as described in Chapter 3. Each resource section in this chapter addresses effects in terms of direct, indirect, short/long-term and cumulative impacts; and, irreversible and irretrievable commitments of the resources for each alternative. Impacts were evaluated quantitatively and/or qualitatively, depending on available data and the nature of the resource assessed. The assessments also assume all ACEPMs, as described in Chapter 2 would be implemented.

## 4.2 DIRECT AND INDIRECT IMPACTS

Impacts in this section are described as either initial/short-term or residual/long-term. Initial, or short-term, impacts refer to those that would result from project-related activities and last until interim reclamation activities are deemed successful, assumed to be within seven (7) or eight (8) years following interim reclamation actions. Long-term or residual impacts are those that would remain longer than interim impacts, estimated to be about 35 years (28 years for the life of a well, plus seven (7) years for final reclamation to be deemed successful). Due to the poor reclamation potential in the project area, short-term impacts may be more accurately portrayed as long-term impacts. It is assumed all initial surface disturbance estimated under Alternative A could remain as long-term impacts on the landscape, if reclamation efforts are not successful. For the purposes of assessment, Table 4.1-1 provides a breakdown of estimated short- and long-term impacts by project element.

**Table 4.1-1 Summary of Estimated Short- and Long-term Impacts from the Proposed Action**

| Impacts | Well Acres (%) | Access Road Acres (%) | Pipeline Acres (%) | Power Line Acres (%) | Total Acres (%) |
|---|---|---|---|---|---|
| Short-term | 28 (58%) | 5 (20%) | 30 (90%) | 58 (90%) | 121 |
| Long-term | 20 (42%) | 22 (80%) | 3 (10%) | 7 (10%) | 52 |
| **Total** | **48** | **27** | **33** | **65** | **173** |

[1] Following interim reclamation, average well pad size would be reduced by to 2 acres, or 42%, for the life of the well (refer to Section 2.1.1).

The project area totals 3,740 acres, of which a total of 173 acres (or 5 [five] percent of the project area) would be involved in surface-disturbing activities. For purposes of assessment in this EA, of the 173 total acres involved with the Proposed Action, 121 acres, or 70 percent, would involve short-term impacts. The remaining 52 acres, or 30 percent, would involve long-term or residual impacts.

### 4.2.1 Alternative A – Proposed Action

#### *4.2.1.1 Air Quality and Greenhouse Gases*

**Air Quality**

The Proposed Action is considered to be a minor air pollution source under the Clean Air Act. The Proposed Action would result in emissions from activities associated with two project phases: well development and well production. Table 4.2-1 reflects the declining nature of the emissions from

production over time. (Refer to Appendix F for the complete emissions inventory conducted for the Proposed Action.)

**Table 4.2-1 Proposed Action Annual Estimated Emissions (tpy)[1]**

| Pollutant | Development | Production | Total |
|---|---|---|---|
| $NO_x$ | 68.62 | 63.55 | 132.18 |
| CO | 37.76 | 42.82 | 80.58 |
| $SO_x$ | 0.05 | 9.04 | 9.09 |
| $PM_{10}$ | 91.44 | 58.90 | 150.34 |
| $PM_{2.5}$ | 11.67 | 6.71 | 18.38 |
| VOC | 4.8 | 11.47 | 16.26 |
| Benzene | 0.03 | 0.10 | 0.14 |
| Toluene | 0.01 | 0.10 | 0.11 |
| Ethylbenzene | 0.00 | 0.01 | 0.01 |
| Xylene | 0.01 | 0.04 | 0.05 |
| N-Hexane | 0.00 | 1.02 | 1.02 |
| Formaldehyde | 0.00 | 0.01 | 0.02 |
| tHAPs | 0.07 | 1.41 | 1.48 |
| $CO_2$ | 6,902.59 | 27,075.61 | 33,978.20 |
| $CH_4$ | 4.14 | 6.02 | 10.16 |
| $N_2O$ | 0.86 | 0.04 | 0.90 |
| $CO_{2e}$[2] | 7,263 | 27,239 | 34,501.59 |

*Source: BBC*

[1] Assumes maximum development scenario. Emissions include producing wells and associated operations traffic during the year in which the project is developed.

[2] Calculated using a 25x multiplier for methane, and a 298x multiplier for nitrous oxide.

Well development includes $NO_x$, $SO_2$ and CO tailpipe emissions from earth-moving equipment, vehicle traffic, drilling, and completion activities. Fugitive dust concentrations would occur from vehicle traffic on unpaved roads and from wind erosion where soils are disturbed. Drill rig and fracturing engine operations would result mainly in $NO_x$ and CO emissions, with lesser amount of $SO_2$. These emissions would be short-term during the drilling and completion phases.

During well production, continuous $NO_x$, CO, VOC, and HAP emissions would originate from well pad separators, condensate storage tank vents, and daily tailpipe and fugitive dust emissions from operations traffic. Road dust ($PM_{10}$ and $PM_{2.5}$) would also be produced by vehicles servicing the wells.

Under the Proposed Action, emissions of $NO_x$ and VOC, ozone precursors are 132.18 tons/year for $NO_x$, and 16.26 tons/year of VOC (refer to Table 4.2-1). Emissions would be dispersed and/or diluted to the extent where any local ozone impacts from the Proposed Action would be indistinguishable from background 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. These emissions are estimated to be minor and less than 1 ton per year.

## Greenhouse Gases

EPA regulations do not require any controls and have yet to establish any minor source emission limits related to greenhouse gas emissions or impacts. The lack of scientific models that predict climate change on regional or local levels prohibit the quantification of potential future impacts of decisions made at the local level, particularly for small-scale projects such as the Proposed Action. Drilling and

development activities from the Proposed Action are anticipated to release a negligible amount of greenhouse gases into the local air-shed.

#### *4.2.1.2 Paleontology*

Within the project area, potential direct adverse impacts on paleontological resources are most likely to occur where bedrock strata of the Brennan Basin member of the Duchesne River Formation is disturbed by construction activities. This would include grading for well pad sites and access roads; and, ground disturbance associated with pipeline installation. These activities have the potential to adversely impact an unknown quantity of fossils that may occur on or underneath the surface in areas containing paleontologically sensitive geologic units. Alternatively, construction of the project facilities may uncover scientifically important fossils, which could be considered to be a positive (beneficial) impact. Indirect impacts to paleontological resources include a greater risk of illegal fossil collection due to the increased access provided by the project-related roads.

The areas proposed for surface-disturbance activities within project area were surveyed in 2012 by Uinta Paleontological Associates, Inc. The results of the surveys revealed "excellent" exposures of the Brennan Basin Member of the Duchesne River Formation (PFYC Class 4/5) associated with seven (7) of the proposed well pad sites and their supporting ROW corridors (Uinta Paleo 2012). Direct impacts to paleontological resources in the project area would be reduced by minimizing surface disturbance. Impacts would be further reduced by implementation of BBC's ACEPM directing that if paleontological resources are uncovered during excavation activities, operations would be suspended until a mitigation plan is approved (refer to Section 2.2.13.4). Such actions would reduce but not eliminate adverse impacts to paleontological resources in the project area. In addition to these protection measures, site-specific paleontological field monitoring during ground-disturbing actions would further reduce the likelihood of adverse impacts to paleontological resources.

#### *4.2.1.3 Soils*

Potential impacts to soils in the project area from implementation of the Proposed Action include the removal of existing vegetation, increased susceptibility of soils to wind and water erosion, mixing of soil horizons, soil compaction, contamination of soils with petroleum products, and loss of topsoil productivity.

A total of 173 acres would be disturbed during the construction phase of the Proposed Action, representing about five (5) percent of the total acres within the project area. If interim reclamation activities are successful the long-term impacts would be reduced to 52 acres (or 30 percent) for the life of the project, estimated to be 35 years.

Impacts to soils from surface-disturbing activities would increase the potential for soil erosion via water and/or wind. Studies of increased erosion from the development of oil and gas in the Uinta Basin have not been conducted. However, two (2) studies conducted on sediment yield from disturbed surfaces provide some insight into the amount of increased erosion that could be expected from implementation of the Proposed Action in the project area. Lusby and Toy (1976) reported that yields from reclaimed surface mines were initially 300 to 600 percent higher than from undisturbed surfaces. Frickel et al. (1975) found that sediment yields increased to about 2.9 tons per acre per year (or about a 100 percent increase) in the Piceance Basin of western Colorado after construction of oil shale project facilities. Using these studies as examples, it is assumed that average erosion rates for disturbed soils in the project area could triple from about 1.5 tons per acre per year to about 4.35 tons per acre per year. The Proposed Action could increase the erosion rate to approximately 752.6 tpy (173 acres of disturbance x

4.35 tons per acre per year) until interim reclamation is deemed successful. Following interim reclamation erosion rates on the remaining 52 acres involved in long-term impacts would be reduced to 226.2 tpy until final reclamation is deemed successful.

The above-cited erosion estimates are subject to considerable uncertainty. Factors which contribute to the uncertainty include exact location of the various facilities, the actual road and pipeline ROW gradients, the effectiveness of erosion control devices, the amount of surface roughness and vegetative cover, and climatic conditions. As such these estimates should be considered only as a way to compare the potential increased erosion that would result from implementation of the Proposed Action and the alternative.

It is expected that following interim reclamation and for up to eight (8) growing seasons, the erosion rates would drop to near baseline conditions for portions of the well pads and pipeline corridors, but would remain at slightly elevated levels for new and upgraded access roads. That is because portions of the well pads not involved in the production phase of the project and pipeline ROWs would be reclaimed and revegetated, whereas the production-related areas of the well pad and access road surfaces would not be reclaimed until the end of the life of the well, road closure or end of the life of the project.

Soil compaction, due to construction activities, would reduce aeration, permeability and the soils water-holding capacity. An increase in surface runoff could be expected, potentially causing increased sheet, rill and gully erosion. If excessive water erosion or gullying occurs, additional unanticipated impacts to land adjacent to the proposed construction could result.

Contamination of surface and subsurface soils near gas facilities can occur. Sources of potential contamination include leaks or spills of oil or natural gas condensate liquids from wellheads, reserve pits, produced water sumps, and condensate storage tanks located on the pad, leaks from pipelines, or from tanker vehicles hauling oil or liquids used/recovered from the project facilities. Depending on the type of spill and its extent, the effect on soils would primarily consist of the potential loss of soil productivity which could inhibit plant growth and reclamation activities. However, implementation of the project SPCC Plan would minimize the risk of such spill by detailing techniques to prevent spills and outlining measures to be taken in the event of a spill. Strict cleanup efforts to remove contaminated soil would be initiated immediately.

As part of the Proposed Action topsoil would be conserved. Topsoil excavated from well pads and new roads would be stockpiled for interim and final reclamation. During interim reclamation, unused portions of well pads and pipeline ROWs would be reseeded. At the completion of the project, or if a well is not productive, the well pad would be completely reclaimed. Topsoil and subsoil material would be stockpiled separately; however, if not done carefully the segregation and subsequent reapplication of soils could result in a mixing of the shallow soil materials, destroying existing microorganisms and soil chemical and physical properties that enable sustained vegetation production. Adherence to BBC's fieldwide reclamation plan as well as site-specific reclamation plans for the proposed project elements would minimize, but not reduce impacts to the soils from possible topsoil loss or mixing of soil layers. Careful attention to the depth of the topsoil layer during excavation actions for the well pad and road upgrade/construction would minimize the likelihood of mixing the soil layers, thus enhancing the potential for successful reclamation and revegetation and ultimate vegetation productivity.

*4.2.1.4 Vegetation, Including Special Status Plant Species; and, Invasive Plants or Noxious Weeds*

**Vegetation**

Under the Proposed Action, 173 acres, or five (5) percent of the project area, would be stripped of existing vegetation. Table 4.2.1-1 provides a breakdown of the short- and long-term impacts to vegetation from implementation of the Proposed Action.

**Table 4.2.1-1 Short- and Long-term Impacts to Vegetation Communities from Implementation of the Proposed Action**

| Vegetation Community | Acres within Project Area | Percent of Project Area | Short-term Acres | Long-term Acres |
|---|---|---|---|---|
| Sagebrush | 2,599 | 69 | 84 | 36 |
| Mixed Salt-Desert Shrublands | 1,055 | 28 | 35 | 15 |
| Badlands/Rock Outcrop | 74 | 2 | 2 | 1 |
| Lower Montane Riparian Shrubland | 12 | <1 | --- | --- |
| **Total** | **3,740** | **100** | **121** | **52** |

Vegetation removal and soil handling resulting from implementation of the Proposed Action would have both direct and indirect impacts on vegetation resources. Direct impacts include the removal of vegetation and the modification of vegetation community composition and structure. Indirect impacts include increased potential for weed invasion, increased exposure of soils to accelerated erosion, increased potential for fugitive dust and degradation and loss of topsoil and soil microorganisms essential to vegetation growth and sustainability. Because of the ecological edge effect, areas adjacent to previously disturbed areas have most likely changed and degraded over time, and may hold more invasive and/or noxious species than the surrounding undisturbed landscape (Hansen and Clevenger 2005). Therefore, activities associated with the Proposed Action would most likely disturb already degraded vegetation communities with an existing invasive/noxious species component.

Specific actions set out for the Proposed Action to protect topsoil, aggressively reclaim disturbed areas, monitor and control invasive and noxious weeds (refer to Section 2.2.12); and implementation of ACEPMs that minimize adverse impacts to soils (refer to Section 2.2.13.5), application of water or other approved dust suppressants at construction sites and along roads (refer to Section 2.2.13.1) would reduce impacts to vegetation communities in the project area.

**Special Status Plant Species**

**BLM Sensitive Plant Species**

Direct and indirect impacts to BLM sensitive plant species would be the same as identified for general vegetation above. Suitable habitat for the Horseshoe Bend milkvetch, Spanish bayonet and hairy Townsend daisy occur within the project area. Field surveys conducted in 2012 found no specimens or remnants within the areas identified for disturbance. Actions identified above to minimize adverse impacts to vegetation resources would also minimize adverse impacts to suitable habitat, thus minimizing adverse impacts to these sensitive plant species.

Implementation of Alternative A may affect suitable habitat for the Horseshoe Bend milkvetch, Spanish bayonet and hairy Townsend daisy, but is not likely to contribute to the need for federal protection under the ESA.

**Invasive Plants or Noxious Weeds**

Under the Proposed Action, 173 acres, or five (5) percent of the project area, would be disturbed. Such disturbance would allow for the introduction and/or proliferation of invasive plants and noxious weeds, particularly along roadways and on proposed well pad sites. Direct and indirect impacts of invasive plants or noxious weeds include a reduction in the overall visual character of the area; increased competition with, to the detriment or elimination of, native plants; reduction or fragmentation of special status wildlife and plant habitats; and, increased soil erosion from loss of vegetation production (Gelbard and Belnap 2003).

Roads are known to provide a major conduit for the spread of invasive plant or noxious weeds into natural areas, particularly in arid and semiarid landscape (Gelbard and Belnap 2003). Clearing of existing site-adapted vegetation, disrupting soil structure and chemistry would create areas susceptible to invasive plant or noxious weed establishment (Trombulak and Frissel 2000). Weeds could also be inadvertently transported by project equipment from areas adjacent to the project area or from existing infested sites within the project area, to areas previously unaffected.

Specific actions set out for the Proposed Action to protect topsoil, aggressively reclaim disturbed areas, monitor and control invasive and noxious weeds (refer to Section 2.2.12); and implementation of ACEPMs that minimize adverse impacts to soils (refer to Section 2.2.13.5) would reduce the potential for invasive plants and noxious weeds species to expand into the project area.

### *4.2.1.5 Wildlife, Including Migratory Birds and Raptors; and, Special Status Animal Species*

For purposes of this EA, it is assumed that the entire project area provides potential wildlife habitat. Under the Proposed Action, 173 acres, or five (5) percent of the project area, would be directly involved in initial surface disturbance. The proposed surface disturbance would directly affect wildlife habitat from construction of the proposed well pads, roads, pipelines, related facilities and infrastructure. Project implementation would increase habitat loss and existing habitat fragmentation in the project area as well as increase displacement from or avoidance of disturbed areas. Disturbance from construction and drilling activities with their attendant increased human presence and vehicle/equipment traffic could temporarily displace wildlife from their habitats. When displaced, wildlife individuals could move into less suitable habitats or into habitats where inter- and intra-specific competition for resources may occur. Another direct impact would include the increased potential for exposure to contaminants in reserve pits and/or spill areas. Direct impacts to wildlife individuals include deteriorated physical condition, decreased reproductive success and increased general stress. Other direct impacts to wildlife species could include a potential for mortality caused by contaminants in reserve pits on well pads or possible collisions between wildlife and motor vehicles operating in the project area.

**Migratory Birds and Raptors**

Section 3.6.1 identifies migratory birds and raptors that may forage or nest in or near the project area. Under the Proposed Action, impacts to migratory birds in the project area would be similar to those identified above, but would vary depending on loss of habitat types, species' or individual birds' sensitivities to disturbance and on seasonal timing of construction, drilling, and completion activities. The Proposed Action would result in the direct removal or fragmentation of 173 acres of suitable habitat for migratory birds. Disturbance to approximately 121 acres of the disturbed habitat would be involved in interim reclamation conducted within 2- to 3 years following initial disturbance and an additional five (5) years to be deemed successfully reclaimed. The remaining 52 acres of disturbance would remain for the life of the project. Successful interim and final reclamation, in conjunction with weed control efforts,

would restore the needed forage and cover types required by the migratory birds. ACEPMs specific to migratory birds including installation of screens or other devices on stacks and other openings of heater-treaters or fired-vessels to preclude trapping birds and to remove any visible accumulation of oil from drilling or workover pits immediately upon release of the drilling rig would further minimize direct impacts to migratory birds in the project area. In addition, adherence to SPCC plans and actions to immediately correct and remediate sites contaminated by spills would minimize direct impacts to migratory birds in the project area.

Implementation of the Proposed Action could affect nesting and breeding raptors that utilize the project area, loss of prey habitat and increased potential for collisions with vehicles. In 2013, ENIS conducted raptor surveys that included the project area. The result identified 12 nest sites, of which only one (1) site was determined to be active (ENIS 2013c).

Surface-disturbing activities or areas with concentrated human activity in close proximity of the active raptor nest could lead to displacement from the nesting site, avoidance of the affected area and deterrence from establishing other nest sites in the area. Displacement could lead to nest failure or nest abandonment, thereby directly affecting the breeding pair and reducing the species population. Steidl and Anthony (2000) suggest that the greatest energetic costs from disturbance occur in nestlings, potentially decreasing overall species reproductive success.

Displacement could also lead to increased use of adjacent habitats, which could lead to increased inter- and intra-specific competition for nesting sites and foraging areas. Increased noise levels and human presence associated with construction, drilling and completion activities would be localized and relatively short-term and may not likely alter the productivity of current raptor populations within the project area. In addition, although human activity has been shown to adversely impact breeding raptors, some evidence of raptor habituation to human-induced disturbances has also been documented (Steidl and Anthony 2000; Rodriguez-Estrella et al. 1998). BBC would comply with BLM's raptor management direction set out in decision WL-21 of BLM's RMP (BLM 2008a). Thus impacts to the raptors actively nesting within the project area would be effectively minimized.

Changes to vegetation composition and structure would affect raptor prey species, thus directly affecting raptor foraging habitats. Specific actions set out in the Proposed Action that minimize direct and indirect impacts to vegetation (refer to Section 4.2.2.4) would also minimize direct impacts to raptor foraging habitats. Carrion-foraging raptors, such as eagles, ravens and vultures, could be affected by increased potential for collisions with vehicles. Such impacts would be lessened as the Proposed Action includes provisions for operators and their contractors to comply with posted or designated speed limits.

**Special Status Animal Species**

**White-tailed Prairie Dog**

Implementation of the Proposed Action would result in the direct disturbance to approximately 49 acres of suitable habitat associated with the proposed FD 6-22-6-19, FD 3-24-6-19 and FD 9-14-6-19 well locations and their associated utility corridors, approximately 70 percent, or 34 acres, of which would be successfully reclaimed within 7- to 8 years following disturbance. The remaining 15 acres would not be deemed successfully reclaimed until the end of the life of the project, estimated to be 35 years. Other impacts to white-tailed prairie dogs would be as described for wildlife species above. Adherence to successful reclamation, both interim and final, and posted/designated speed limits would not affect the species at the population level or result in a trend towards federal listing of this species.

**Burrowing Owl**

The Proposed Action could directly affect one owl observed near the proposed FD 11-14-6-19 pipeline. Direct and indirect impacts to burrowing owls and actions to minimize adverse impacts would be similar to those discussed for white-tailed prairie dog above. Implementation of the ACEPM 2.2.13.7, for raptors, which would comply with BLM's raptor management direction set out in decision WL-21 of BLM's RMP (BLM 2008a) would effectively minimize adverse impacts to burrowing owl.

**Greater Sage Grouse**

The project area does not include high-quality habitat associated with the State's Uintah SGMA; however, the entire project area and 58 percent of the project area provide greater sage grouse brood-rearing and crucial winter habitat, respectively. The Proposed Action would directly affect 173 acres, or five (5) percent, of the brood-reading habitat and about 100 acres of crucial winter habitat. Impacts to greater sage grouse would be similar to those described above for wildlife species, i.e., habitat modification/loss and fragmentation. Adherence to successful reclamation, both interim and final, would not likely affect the species at the population level that would compromise the State of Utah's final conservation plan for the species or cause the species to be listed under the auspices of the ESA.

**Bluehead Sucker, Flannelmouth Sucker, Roundtail Chub, and the Upper Colorado River System Endangered Fish**

Based on the similarity of their affected habitats within the Green River, downstream and outside the project area, impact analyses for the three UDWR sensitive fish species, and the four federally-listed fish species, collectively known as the "Upper Colorado River System endangered fish", are discussed together here.

The predominant direct impact to the special status fish species is the depletion of water to the Green River. Water depletions can reduce the ability of the Green River to create and maintain the physical habitat required by these fish and the supporting biological environment. Water depletions can also contribute to alterations in flow regimes that favor non-native fish, increasing forage and habitat competition for and predation on all these fish species. The estimated 52 acre-feet of water identified for use to implement the Proposed Action would result in depletions to the Green River.

In January 1988, a Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (i.e., Recovery Program) was initiated to address water depletions and other direct and indirect impacts on the Colorado River endangered fish. Under the Recovery Program, any water depletions from tributary waters within the Colorado River drainage are considered to jeopardize the continued existence of these fish. In order to further define and clarify the process in the Recovery Program, participants implemented a Section 7 agreement on October 15, 1993. Incorporated into this agreement is a Recovery Implementation Program Recovery Action Plan (RIPRAP). The RIPRAP identifies actions currently required to recover the endangered fish in the most expeditious manner.

Included in the RIPRAP was the requirement that a one-time depletion fee would be paid to help support the Recovery Program for all annual depletions of more than 100 ac-ft. These depletion fees were intended to be a reasonable and prudent alternative to avoid jeopardy to the endangered fish from depletions from the Upper Colorado River Basin.

It is important to note that these provisions of the Recovery Program and RIPRAP (and depletion fee requirements) were based on appropriate legal protection of the instream flow needs of the Colorado River endangered fish. The Recovery Program further states:

> ...it is necessary to protect and manage sufficient habitat to support self-sustaining populations of these species. One way to accomplish this is to provide long-term protection of the habitat by requiring or appropriating water rights to ensure instream flows.... Since this program set in place a mechanism and a commitment to ensure that the instream flows are protected under State law, the Service will consider these elements under Section 7 consultation as offsetting project depletion impacts.

Implementation of the proposed project would result in the use of less than 100 ac-ft., therefore the depletion fee would be waived.

Implementation of the Proposed Action could also affect water quality in the Green River by increasing sediment yields from proposed surface disturbance and by sending condensate and hydrocarbon material from an accidental spill into the Green River. Degradation of habitat from increased sedimentation and deposition of hydrocarbon material would be minimized by regulatory-required actions (i.e., implementation and adherence to the fieldwide storm water management and SPCC plans) set out in the Proposed Action, either as ACEPMs or BMPs.

Based on this assessment, implementation of the Proposed Action warrants a ***"may affect is not likely to adversely affect"*** determination for the Upper Colorado River System endangered fish and their designated critical habitats. Implementation of the Proposed Action would not affect the three (3) UDWR sensitive fish species at the population level or lead in a trend towards federal listing of this species.

#### *4.2.1.6 Mitigation Measures*

**Paleontology**

A paleontological monitor would be required to spot check any bedrock disturbance associated with the proposed FD Federal 9-14-6-19, FD Federal 12-15-6-19, FD Federal 6-22-6-19, FD Federal 9-23-6-19, FD Federal 3-24-6-19 and the FD Federal 3-25-6-19 well pads and access road corridors.

#### *4.2.1.7 Residual Impacts*

Residual impacts are those that remain after the proposed mitigation measures have taken effect. Residual impacts represent the degree of environmental change. Residual impacts would correspond to all phases of well development and operation during approximately 35-year well life (28 years for the life of a well, plus seven (7) years for final reclamation to be deemed successful). As shown in Table 4.2.1-1, 52 acres would be devoid of vegetation and unavailable for land uses other than oil and gas production for the life of the project.

**Air Quality and Greenhouse Gases**

Fugitive dust resulting from construction activities and bare ground on well pads and along roadways would be released during the life of the project. Emissions of criteria pollutants and GHGs from

production equipment would continue for the life of the project. $NO_x$ and VOC emissions would contribute to the formation of ozone and to the concentrations measured in the Uinta Basin.

**Paleontology**

Surface-disturbing activities have the potential to damage or destroy unknown and undetected paleontological resources. Adherence to relevant laws and actions outlined in the Proposed Action would provide for mitigation of the majority of these impacts.

**Soils**

Stored topsoil and stockpiled subsoil material could undergo chemical and biological changes over the life of the project, affecting the ability of the soil to maintain current soil functions and sustain vegetation productivity. Implementation of proposed actions that would minimize surface disturbance, protect topsoil, result in successful interim and final reclamation actions, and minimize contamination of soils from hydro-carbon leaks and/or spills would effectively minimize the long-term or residual impacts to acceptable levels.

**Vegetation, Including Special Status Plant Species; and, Invasive Plants or Noxious Weeds**

Existing site-adapted native vegetation species would be removed from 173 acres of the project area. Of this amount 52 acres would not be revegetated for about 28 years, after which it would be reclaimed (estimated to be an additional seven (7) years, if successful). Long-term loss of vegetation increases the likelihood for additional accelerated soil loss through wind and water erosion, further fragments plant and animal habitats, and increases the opportunity for invasive plant and noxious weed infestations. Proposed actions to minimize surface disturbance, to protect topsoil viability, implement successful interim and final reclamation actions, and implement aggressive weed control would all reduce the long-term residual impacts.

**Wildlife, Including Migratory Birds and Raptors and Special Status Animal Species**

As discussed above for vegetation, 52 acres within the project area would not be revegetated for about 35 (28 and 7) years. Such long-term loss of vegetation would further fragment plant habitats required by migratory bird and raptor species and special status animal species. In addition the soil lost from these acres would likely add to the sediment-loading of the Green River, downstream and outside the project area, thus affecting habitat for the State of Utah sensitive fish species and the Upper Colorado River System Endangered Fish species. BMPs for soils and vegetation would effectively minimize the long-term, residual impacts to wildlife currently residing in the project area as well as those that may use or reside in the project area during the life of the project.

### *4.2.1.8 Monitoring and Compliance*

Monitoring would take place periodically during the life of the project as required by law. BLM would check construction activities to ensure disturbance conforms to what was approved in the APD. During the lifetime of a well, surface compliance inspections would be conducted by the BLM to ensure continued protection of the environment. After a well is plugged, the site would be inspected by the BLM to determine necessary reclamation measures, and it would be inspected in accordance with the Green River District Reclamation Guidelines thereafter until it is determined that reclamation is successful and a well and/or well pad could be accepted for final abandonment.

BBC would also be conducting regularly scheduled monitoring and compliance in accordance with established regulations, ACEPMs and COAs attached to the final authorizations. Specifically, BBC would be regularly monitoring its facilities in accordance with approved SPCC and storm water management plans; monitoring interim and final reclamation actions as well as inventorying, monitoring and controlling invasive plant and noxious weed species per their approved fieldwide and site-specific reclamation and weed control plans.

### 4.2.2 Alternative B – No Action

Under Alternative B, development of the proposed 10 wells and their associated facilities would not be authorized. Selection of Alternative B would not affect the ongoing oil and gas operations currently permitted and operating in the project area and its surroundings. These activities include the operation of existing/previously authorized wells and reclamation operation, in accordance with their permit requirements. The impacts associated with current land uses and existing and approved oil and gas operations would continue under this alternative.

#### *4.2.2.1 Air Quality and Greenhouse Gases*

Emissions identified in Table 4.2-1 from well production operations would not be released to the atmosphere.

#### *4.2.2.2 Paleontology*

The 173 acres of surface disturbance or subsurface excavation associated with the Proposed Action would not occur. Impacts to paleontological resources in the project area would not occur.

#### *4.2.2.3 Soils*

The 173 acres of surface disturbance associated with the Proposed Action would not occur. Impacts to soils would not occur.

#### *4.2.2.4 Vegetation, Including Special Status Plant Species and Invasive Plant and Noxious Weeds*

Impacts to 173 acres of existing native, site-adapted vegetation would not occur. Impacts to sensitive plant species' suitable habitat would not occur. The likelihood of introduction and/or proliferation of invasive plant and noxious weeds would continue, but as the result of other ongoing or newly authorized actions in the project area.

#### *4.2.2.5 Wildlife, Including Migratory Birds and Raptors, and Special Status Animal Species*

Loss of wildlife habitat on 173 acres within the project area would not occur. Temporary displacement of animal species would not occur. Impacts to the downstream habitats of the State sensitive fish species and the Upper Colorado River system endangered fish species would not occur from implementation of Alternative B. Use of an estimated 52 acre-feet of fresh water would not occur.

#### *4.2.2.6 Mitigation Measures*

Mitigation measures would not be needed for the implementation of the No Action Alternative.

#### *4.2.2.7 Residual Impacts*

Because residual impacts are those that remain after application of the mitigation measures, and because no impacts would occur, residual impacts would not result from implementation of the No Action Alternative.

#### *4.2.2.8 Monitoring and Compliance*

Monitoring of resource conditions would continue as they are currently being conducted. No additional monitoring would be needed under the No Action Alternative.

## 4.3 CUMULATIVE IMPACTS

Cumulative impacts take into account the incremental impacts of the Proposed Action assessed in this EA, when added to other past, present and reasonably foreseeable development (RFD) and 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 significant actions taking place over a period of time.

This chapter assesses cumulative impacts from the Proposed Action and its alternative, in conjunction with other energy and non-energy actions over the next 10 to 15 years. Spatial boundaries and temporal timelines for a Cumulative Impact Assessment Area (CIAA) often vary by resource or issue. For purposes of assessment in this EA, it is assumed that energy-related actions would affect the greatest element of change in the CIAA. All other actions that could affect the CIAA are assumed to remain at current levels and trends within only minor deviations.

### 4.3.1 Past and Present Actions

Past and current livestock grazing have affected the resources within the project area. However, historic and ongoing oil and gas exploration and development have affected the greatest change elements to resources within the project area.

The project area currently has ten (10) proposed wells of which two (2) are pre-approved wells, 2 P&A wells, and 1 shut-in well. Using the average current proposed well pad size of 4.7 acres, it is estimated that 61 acres have been disturbed to date. Existing Uintah County roads and/or oil and gas-related support access total about 19 miles in the project area. Using the 18-foot running surface width of the current proposed access routes, it is estimated that 42 acres have been disturbed to date. It is estimated that about 103 acres have been disturbed in the project area as a result of historic and ongoing oil and gas activities in the project area.

### 4.3.3 Reasonable Foreseeable Action Scenario

As part of the RMP development, the BLM estimated that approximately 6,530 new wells could be drilled and be active in the Uinta Basin over a 15-year period after RMP approval in 2008 (BLM 2008b). More specifically, the project area is within BLM's Altamont-Bluebell Exploration and Development Area (EDA), one (1) of six (6) specific zones that BLM used to quantify potential reasonable foreseeable development within the Uinta Basin. For the Altamont-Bluebell EDA, the RMP analyzed approximately 175 oil wells within the five (5) years following approval of the ROD. The RMP stated that this EDA

did not indicate a high potential for natural gas development, but deep gas reserves in the southern portion, which includes the current project area, could be explored (BLM 2008b). For purposes of assessment in this document, it is estimated that about 17 acres of disturbance would be associated with each of the anticipated 175 wells in the Altamont-Bluebell EDA, for a total estimate of 2,975 acres.

Thus for purposes of assessment in this document, it is estimated that a total of 3,078 acres (103 acres of current surface disturbance + 2,975 acres of anticipated surface disturbance) could be involved in surface-disturbing activities associated with oil and gas exploration and development within the Altamont-Bluebell EDA. The current Proposed Action would involve 10 oil wells or 5.7 percent of the reasonably foreseeable oil and gas actions analyzed in the RMP for the Altamont-Bluebell EDA (10 oil wells in the current Proposed Action/175 anticipated oil wells in the Altamont-Bluebell EDA.).

### 4.3.4 Cumulative Impact Analysis

#### *4.3.4.1 Air Quality and Greenhouse Gases*

**Alternative A**

The CIAA for air quality is the Uinta Basin. The potential impact of the Proposed Action to Uinta Basin ozone levels cannot be accurately modeled. In lieu of accurate modeling the Greater Natural Buttes air quality study, which is the most recent regional air model available for the Uinta Basin, the Greater Natural Buttes FEIS, Section 5.3.1, is incorporated by reference and summarized below. The FEIS discloses that most of the cumulative emissions in the Uinta Basin are associated with oil and gas exploration and development activities. Consequently, past, present and reasonably foreseeable wells in the Uinta Basin are a part of the cumulative actions considered in this assessment. Table 4.3.4-1 summarizes the 2006 Uinta Basin emissions as well as the incremental impacts of the proposed project. The Proposed Action comprises a small percentage of the Uinta Basin emissions summary.

**Table 4.3.4-1 2006 Uinta Basin Oil and Gas Operations Emissions Summary (tpy)**

| County | $NO_x$ | CO | $SO_x$ | PM | VOC |
|---|---|---|---|---|---|
| Carbon | 995 | 814 | 22 | 40 | 2,747 |
| Duchesne | 3,053 | 2,448 | 96 | 173 | 19,019 |
| Emery | 273 | 199 | 9 | 14 | 453 |
| Grand | 337 | 207 | 16 | 22 | 2360 |
| Uintah | 6,096 | 4,133 | 247 | 344 | 45,646 |
| **Uintah Basin Total** | **10,754** | **7,800** | **391** | **592** | **70,226** |
| Proposed Action | 132 | 81 | 9 | 169 | 17 |
| No Action | 0 | 0 | 0 | 0 | 0 |

The Greater Natural Buttes model predicted the following impacts to air quality and air quality-related values for the Greater Natural Buttes proposed action, which encompasses 3,675 new wells:

- Cumulative impacts from criteria pollutants to ambient air quality are well below the NAAQS at Class I airsheds and selected Class II areas;
- The incremental impacts to visibility would be virtually impossible to discern and would not contribute to regional haze at the Class I areas;
- The 2018 projected baseline emissions would result in impacts of 1.0 deciview for at least 201 days per year at the Class II areas;
- Discernible impacts at Flaming Gorge National Recreation Area and Dinosaur National Monument are anticipated under the Greater Natural Buttes FEIS proposed action;

- The Greater Natural Buttes FEIS proposed action would contribute less than one (1) percent to the acid deposition in class I areas and 4.3 percent at the Flaming Gorge Class II area;
- Project-related acid deposition impacts at sensitive lakes were below the U.S. Forest Service screening threshold; and,
- Ozone levels are below the current ozone standard of 75 parts per billion (ppb) for the fourth highest annual level in the Uinta Basin for the 2018 projected baseline, and the Greater Natural Buttes proposed action would be approximately 3.2 percent of the cumulative ozone impact within the Uinta Basin.

Based on the Greater Natural Buttes model results, it is anticipated that the impact to ambient air quality and air quality-related values associated with the current Proposed Action would be indistinguishable from, and dwarfed by, the margin of uncertainty associated with the model and Uinta Basin emission inventory.

Greenhouse Gases
Inconsistent results based on scientific models used to predict global climate change prohibit the BLM from quantifying cumulative impacts. Drilling and development activities from the Proposed Action are anticipated to release a negligible amount of GHGs into the local airshed, resulting in negligible cumulative impacts.

**Alternative B**

The No Action alternative would not result in an accumulation of impacts to either the air quality of, or the GHGs in, the Uinta Basin.

### *4.3.4.2 Paleontology*

**Alternative A**

The CIAA for paleontological resources is the Altamont-Bluebell EDA area. Cumulative impacts to paleontological resources from the reasonably foreseeable scenario of 2,975 acres, of which the current Proposed Action would contribute 173 acres. Cumulative impacts to paleontological resources would be qualitatively identical to those impacts described for the Proposed Action described in Section 4.2.1.2. Adverse impacts to paleontological resources would be minimized or avoided by pre-construction inventories, avoidance and/or implementation of agreed-upon mitigation plans for the recovery of important fossils. The paleontological resource knowledge base would be expanded as a result of such actions.

**Alternative B**

Under Alternative B, an accumulation of impacts would not occur.

### *4.3.4.3 Soils*

The CIAA for soils is the Altamont-Bluebell EDA area.

**Alternative A**

Cumulative impacts to soil resources would include loss of unvegetated soils from wind and water erosion, loss of soil's ability to produce and sustain vegetative and biotic life in the project area. Past, current, and reasonably foreseeable actions in the CIAA would result in impacts similar to those described in Section 4.2.1.3. The Proposed Action would contribute 753 tons per year of additional sediment in the short-term, until interim reclamation is deemed successful and 226 tons per year over the remaining life of the project. Leaks or spills of fuels, condensate and/or produced water could occur that would adversely affect soil productivity. Impacts to soils from accidental releases would be minimized by following procedures specified in the SPCC plans. Loss of soil viability would be minimized by implementing actions to protect topsoil, and implementing interim and final reclamation to maximize success.

**Alternative B**

Under the No Action Alternative, an accumulation of impacts would not occur.

#### *4.3.4.4 Vegetation, Including Special Status Plant Species and Invasive Plant or Noxious Weeds*

The CIAA for vegetation is the Altamont-Bluebell EDA area.

**Alternative A**

Past, current and reasonably foreseeable actions in the CIAA would result in impacts similar to those described in Section 4.2.1.4. Existing native, site-adapted species would be lost on the estimated 3,078 acres of disturbance anticipated for the Altamont-Bluebell EDA area. The Proposed Action would account for 5.7 percent of the total anticipated disturbance. Actions that reduce the amount of surface disturbance, as well as aggressive interim and final reclamation actions and invasive plant and noxious weed control, would reduce the cumulative impacts to the vegetation resource.

**Alternative B**

An accumulation of impacts would not occur.

#### *4.3.4.5 Wildlife, Including Migratory Birds and Raptors; and Special Status Animal Species*

The CIAA for migratory birds, raptors and terrestrial special status animal species is the Vernal RMP planning area. The CIAA for the UDWR sensitive and USFWS Upper Colorado River System endangered fish is the Colorado River System.

**Alternative A**

Cumulative impacts for terrestrial wildlife species include increased habitat fragmentation that would decrease available cover, carrying capacity, foraging opportunities, and breeding habitat for migratory birds and raptors. In general, the severity of the cumulative effects would depend on factors such as the sensitivity of the species affected, seasonal intensity of use, type of project activity and physical parameters (e.g., topography, forage quality, cover availability, visibility and noise presence). The current Proposed Action would affect approximately 5.7 percent of the Altamont-Bluebell EDA.

Cumulative impacts for the special status fish species include historic, current and future actions associated with oil and gas exploration and development, irrigation, and implementation of RIPRAP.

Such actions could result in decreased water quality and quantity, decreased habitat quality, increased habitat fragmentation, and mortality. The Proposed Action would add about 5.7 percent of the reasonably foreseeable surface disturbance in the Altamont-Bluebell EDA and deplete the Upper Colorado River System by 52 acre-feet.

**Alternative B**

An accumulation of impacts would not occur.

# CHAPTER 5: PERSONS, GROUPS, AND AGENCIES CONSULTED

## 5.1 CONSULTATION

**Table 5.1-1 List of Persons, Agencies and Organizations Consulted**

| Agency | Purpose & Authorities for Consultation or Coordination | Findings and Conclusions |
|---|---|---|
| U.S. Fish and Wildlife Service (USFWS) | Information on consultation, under Section 7 of the Endangered Species Act (16 U.S.C.1531) | The proposed project falls within the programmatic consultation conducted for the Colorado River fish in 2011. |
| Utah State Historic Preservation Office (SHPO) | Consultation for undertaking, as required by the National Historic Preservation Act (16 U.S.C. 470). | Consultations with the Utah SHPO was conducted with regard to cultural resources. The SHPO concurred with the BLM's effect determination on 9/25/2012. |
| Native American consultation | Consultation as required by the American Indian Religious Freedom Act of 1978 (42 U.S.C. 1531) and the National Historic Preservation Act (16 U.S.C. 470) | Tribal consultations were initiated on November 18. No response was received. |
| UDWR Coordination | BLM Instruction Memo No. 2012-043 | UDWR didn't see a need for mitigation for sage-grouse in this area. The Gusher lek is not considered active anymore. |

## 5.2 SUMMARY OF PUBLIC PARTICIPATION

Notice letters were sent to other ROW holders adjacent to the proposed Uintah County access road upgrades on August 19, 2013. To date, no responses have been received. There were no adjacent ROW holders on the remainder of the proposed project.

The Proposed Action was posted to the Utah BLM's Environmental Notification Bulletin Board on April 18, 2013.

## 5.3 LIST OF PREPARERS

**Table 5.3-1 List of Preparers (BLM Preparers are Listed in the Appendix A)**

| Name | Title | Responsibility |
|---|---|---|
| Barry Schatz | Air Compliance Specialist, Bill Barrett Corporation | Air Quality Emissions Inventory calculations |
| Alexander Leonard | GIS Analyst, Kleinfelder Inc. | GIS calculations, maps/figure preparation |
| Jean Sinclear | Senior Program Manager, Kleinfelder Inc. | Soils, vegetation, wildlife, paleontology |
| Louis Bridges | Senior Professional, Kleinfelder Inc. | Quality peer review |

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# APPENDICES

# APPENDIX A

## Interdisciplinary Team Checklist

# INTERDISCIPLINARY TEAM CHECKLIST

**Project Title**: Bill Barrett Corporation proposes to drill 8 new oil wells on BLM surface, plus 2 more on private lands that need BLM ROWs for the access.

**NEPA Log Number**: G010-2013-0137

**File/Serial Number**: EA-2013-0137

**Project Leader**: James Hereford II

**DETERMINATION OF STAFF:** ***(Choose one of the following abbreviated options for the left column)***

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

NI = present, but not affected to a degree that detailed analysis is required

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

NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

| Determination | Resource/Issue | Rationale for Determination | Signature | Date |
|---|---|---|---|---|
| **RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)** | | | | |
| PI | Air Quality & Greenhouse Gas Emissions | Emissions from construction, drilling, and production equipment could adversely affect air quality.<br><br>No standards have been set by EPA or other regulatory agencies for greenhouse gases. In addition, the assessment of greenhouse gas emissions and climate change is still in its earliest stages of formulation. Global scientific models are inconsistent, and regional or local scientific models are lacking so that it is not technically feasible to determine the net impacts to climate due to greenhouse gas emissions. It is anticipated that greenhouse gas emissions associated with this action and its alternative(s) would be negligible. | Stephanie Howard<br>Updated: James Hereford II | 4/12/2013<br>8/3/2013 |
| NP | BLM Natural Areas | No BLM Natural Areas exist within the identified project area according to GIS review. | Dan Gilfillan | 4/10/2013 |
| NI | Cultural:<br>Archaeological Resources | Sites considered eligible for inclusion into the NRHP have been identified but will be avoided by project design and implementation. | Cameron Cox | 11/7/2013 |
| NI | Cultural:<br>Native American Religious Concerns | Tribal consultations for this area were initiated on November 18, 2013. No response were received.The Proposed Action would not hinder access to or affect Native American Religious sites. | Cameron Cox | 12/19/2013 |
| NP | Designated Areas:<br>Areas of Critical Environmental Concern | No ACEC exist within the identified project area according to GIS review. | Dan Gilfillan | 4/10/2013 |
| NP | Designated Areas:<br>Wild and Scenic Rivers | No Wild and Scenic River segments exist within the identified project area according to GIS review. | Dan Gilfillan | 4/10/2013 |

| Determination | Resource/Issue | Rationale for Determination | Signature | Date |
|---|---|---|---|---|
| NP | Designated Areas: Wilderness Study Areas | No wilderness areas have been designated by the U. S. Congress on BLM lands in the VFO. No Wilderness Study Areas in the project area as per GIS review. | Dan Gilfillan | 4/10/2013 |
| NI | Environmental Justice | Although the project is near the Uintah and Ouray Indian Reservation boundary, no disproportional adverse impacts to minority or poverty populations is anticipated because the project is 1.5 miles from the nearest town and is similar to other ongoing projects in the area. | Stephanie Howard | 4/12/2013 |
| NP | Farmlands (prime/unique) | No prime or unique farmlands as designated by the NRCS are present in the project area. | Stephanie Howard | 4/12/2013 |
| NI | Fuels/Fire Management | Disturbance in Wyoming big sagebrush vegetation type could increase the amount of invasive plants, specifically *Bromus tectorum*. The increase of *Bromus tectorum* could lead to an increase in fire frequency and rate of spread. Applying the Green River District Reclamation Guidelines should prevent additional hazardous fuels. | Blaine Tarbell | 4/18/2013 |
| NI | Geology/Minerals/Energy Production | Known gilsonite veins trend through this area in sections 22 & 26 of the project area. If gilsonite is encountered during drilling or construction, please report that information to BLM VFO. The depth and thickness of the vein is important information that should be provided to BLM. Operator must notify any active Gilsonite operation within 2 miles of the location 48 hours prior to any blasting for this well._<br><br>Natural gas, oil, gilsonite, oil shale and tar sand are the only mineral resources that could be impacted by the project. Production of natural gas or oil would deplete reserves, but the proposed project allows for the recovery of natural gas and oil per 43 CFR 3162.1(a), under the existing Federal lease. Compliance with "Onshore Oil and Gas Order No. 2, Drilling Operations" would assure that the project would not adversely affect Gilsonite, oil shale, or tar sand deposits. Due to the state-of-the-art drilling and wells completion techniques, the possibility of adverse degradation of tar sand or oil shale deposits by the proposed action would be negligible.<br><br>Wells completion must be accomplished in compliance with "Onshore Oil and Gas Order No. 2, Drilling Operations". These guidelines specify the following: ... *proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use.*[3] | Andrew McCormick | 4/15/2013 |

| Determination | Resource/Issue | Rationale for Determination | Signature | Date |
|---|---|---|---|---|
| IP/NW: PI<br><br>Soils: PI<br><br>Veg: PI | Invasive Plants/Noxious Weeds, Soils & Vegetation | Invasive Plants/Noxious Weeds (IP/NW): Invasive and Noxious weeds were present in the proposed area. A weed management plan included with the site specific reclamation plan will be required. This will help identify how BBC plans on dealing with weed issues. If pesticides are to be used BBC must obtain a PUP from the BLM Botanist.<br><br>Soils: The proposed project takes place in areas identified as having clay loam soils with sandy complexes throughout the area. The project proposes to disturb soils which are very prone to erosion through fluvial and eolian processes. These potential impacts have the chance to add new sediment into the system as a whole unless certain reclamation and storm water erosion controls methods are in place. A site specific reclamation plan will be required on all wells proposed in this proposed action. This will identify how Bill Barrett Corporation intends to handle these concerns.<br><br>Veg: The proposed project takes place in area identified as having Wyoming Sagebrush, Greasewood, Desert Shrubs, Black Sagebrush, Saltbush, and various grasses typical of a High Desert Ecosystem. The removal of the surface vegetation from this proposed action could cause increases in general sedimentation in down gradient environments. A site specific reclamation plan will be required to identify how BBC will handle interim reclamation and final reclamation. | IP/NW,Soils, and Veg: James Hereford II | 4/15/2013 |
| NI | Lands/Access | The proposed area is located within the Vernal Field Office Resource Management Plan area which allows for oil and gas development with associated road and pipeline right-of-ways. Road, power line and pipeline right-of-ways will be required for the project, prior to construction. No existing land uses would be changed or modified by the implementation of the proposed action; therefore there would be no adverse effect. | Katie White Bull | 8/15/2013 |
| NP | Lands with Wilderness Characteristics (LWC) | The project was surveyed as part of the Ouray Park Inventory Unit (UT_TSOS_2011_WCNWC) and found to contain no wilderness character. | Dan Gilfillan | 4/10/2013 |
| NI | Livestock Grazing & Rangeland Health Standards | Livestock Grazing: The proposed project is located within the Ouray Road cattle allotment. The allotment is seasonally permitted from October 1 to May 1 with up to 563 AUMs. This area has some existing well sites and the proposed equipment installation and pipelines will have little effect on the livestock grazing as the area is bisected by numerous roads and other oil and gas projects. Some disturbance would occur with the well pad expansions and an increase in the traffic on the already existing roads. The proposal is consistent with multiple uses of public lands and other oil & gas activities in the area. It is not anticipated that this proposal would negatively impact grazing operations. There are no known range | Craig Newman | 7/12/2013 |

| Determination | Resource/Issue | Rationale for Determination | Signature | Date |
|---|---|---|---|---|
| | | improvements in this allotment that would be impacted by this proposal.<br><br>Rangeland Health Standards: This proposal is within the Ouray Road allotment. This proposal is not expected to affect Rangeland Health Standards in this allotment. | | |
| PI | Paleontology | Some fossils were found. Wells 9-14-6-19, 12-15-6-19, 6-22-6-19, 16-22-6-19, 3-24-6-19, 9-23-6-19, and 3-25-6-19 will require a paleontological monitor spot check any bedrock disturbances during construction. Well site 3-26-6-19 has been cleared for paleo and will not require monitoring. | Betty Gamber | 4/16/2013 |
| NI | Plants:<br>BLM Sensitive | The following UT BLM sensitive plant species are present or expected in the same or an adjacent subwatershed as the proposed project: Horseshoe milkvetch (*Astragalus equisolensis*), Hamilton milkvetch (*Astragalus hamiltonii*), Goodrich's penstemon (*Penstemon goodrichii*), and *Yucca sterilis*.<br><br>The proposed project was surveyed for UT BLM sensitive plant species. No populations of any species were identified. | Aaron Roe | 6/7/2013 |
| NP | Plants:<br>Threatened, Endangered, Proposed, or Candidate | The following candidate, proposed, or federally listed plant species is present or expected in the same or an adjacent subwatershed as the proposed project: Pariette cactus (*Sclerocactus brevispinus*), Uinta Basin hookless cactus (*Sclerocactus wetlandicus*), and Ute ladies-tresses (*Spiranthes diluvialis*).<br>• The proposed project is located outside of the potential habitat polygon for Pariette cactus and located on a geological formation and soils not known to support the species. Additionally, no individuals were identified.<br>• The proposed project is located outside of the potential habitat polygon for Uinta Basin hookless cactus and located on a geological formation and soils not known to support the species. Additionally, no individuals were identified.<br>• The proposed project is located outside of any riparian habitats and therefore there will be no potential habitat impacted by the proposed species | Aaron Roe | 4/15/2013 |
| NI | Plants:<br>Wetland/Riparian | The proposed action takes place in areas identified as having some riparian type habitat, specifically the proposed 3-25-6-19 well location is SW of the Vernal SW riparian zone. This zone is avoided by the proposed action. The company has committed to reducing soil erosion through reclamation and reducing overall surface use. | James Hereford II | 4/15/2013 |

| Determination | Resource/Issue | Rationale for Determination | Signature | Date |
|---|---|---|---|---|
| NI | Recreation | No developed recreation sites/trails or Special Recreation Management Areas (SRMAs) exist within the project area. Limited recreational use in the area. Considered part of the Extensive Recreation Management Area (ERMA), where limited recreation management takes place. | Dan Gilfillan | 4/10/2013 |
| NI | Socio-Economics | This project is similar, though much smaller in scope, to other oil and gas development projects in the area. Due to its small size, the proposed action and no action alternatives would not measurably impact the social programs or economics of the Uinta Basin and its counties. | Stephanie Howard | 4/12/2013 |
| NI | Visual Resources | The identified project area occurs within Class IV lands. The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements. Most new projects would likely be approved in regards to a VRM perspective. | Dan Gilfillan | 4/10/2013 |
| NI | Wastes (hazardous/solid) | No chemicals subject to reporting under SARA Title III in amounts greater than 10,000 pounds would be used, produced, stored, transported, or disposed of annually in association with the project. Trash and other waste materials would be cleaned up and removed immediately after completion of operations. | James Hereford II | 4/26/2013 |
| NI | Water: Floodplains | Although the proposed action falls within an area that has known active or inactive floodplains, the Ouray Canal 100 yr. Floodplain, which is a manmade canal and flood zone, which has been dry for many years but can see periodic fluctuations in water amounts based on precipitation events, and irrigation practices. Increases in sedimentation are not expected since BBC has committed to reclamation and reducing surface impacts through appropriate BMPs. | James Hereford II | 4/2/2013 |
| NI | Water: Groundwater Quality | Compliance with "Onshore Oil and Gas Order No. 1, will assure that the project will not adversely affect groundwater quality. Due to the state-of-the-art drilling and wells completion techniques, the possibility of adverse degradation of groundwater quality or prospectively valuable mineral deposits by the proposed action will be negligible | Betty Gamber | 4/15/2013 |
| NI | Water: Hydrologic Conditions (stormwater) | Hydrologic conditions exist on the proposed project area. These areas have some manmade canals and mostly dry v drainages inside the Uinta River, and Randlett Butte hydrologic unit boundaries. Increases in sedimentation are not expected, since BBC has committed to Storm water controls within the site specific reclamation that will address how BBC proposes to control this potential concern. | James Hereford II | 4/15/2013 |

| Determination | Resource/Issue | Rationale for Determination | Signature | Date |
|---|---|---|---|---|
| NI | Water:<br>Surface Water Quality | The area has been identified as having many ephemeral type drainages that see periodic fluctuations in surface runoff. However, surface water quality will not be affected directly by the proposed action, since BBC has agreed to controlling erosion through implementation of their site specific reclamation plan. | James Hereford II | 4/15/2013 |
| NP | Water:<br>Waters of the U.S. | Although waters of the U.S do occur down gradient of the proposed action, direct impacts to waters of U.S will not take place with this proposed action. Indirect could occur, however, BBC has already committed to implementing a site specific reclamation plan that also addresses sediment control through storm water control mechanisms. | James Hereford II | 4/15/2013 |
| NP | Wild Horses | No herd areas or herd management areas are present in the project area per BLM GIS database. | James Hereford II | 4/15/2013 |
| PI | Wildlife:<br>Migratory Birds<br>(including raptors) | Migratory birds are present. Raptor nest located near one well, need to add 2013 survey. | Daniel Emmett | 4/15/2013 |
| PI | Wildlife:<br>Non-USFWS Designated | Prairie dog and burrowing owl habitat is scattered throughout project area. | Daniel Emmett | 4/15/2013 |
| PI | Wildlife:<br>Threatened, Endangered, Proposed or Candidate | Project is within occupied sage grouse habitat. Need to coordinate with UDWR.<br>Is the proposed project in sage grouse PPH or PGH? Yes ☐ No ☒ If the answer is yes, the project must conform with WO IM 2012-043. | Daniel Emmett | 4/15/2013 |
| NP | Woodlands/Forestry | No Woodland or Forestry resources are present in the project area. | David Palmer | 4/15/2013 |

**FINAL REVIEW:**

| Reviewer Title | Signature | Date | Comments |
|---|---|---|---|
| Environmental Coordinator | Stephanie Howard | 12/20/13 | |
| Authorized Officer | | 12-20-2013 | |

# APPENDIX B

## Figures

# APPENDIX C

## Information Relating to Proposed Upgrades To Uintah County Roads

## APPENDIX C: Proposed Upgrades to Existing Uintah County "D" Roads

| Class "D" Road | Surface Owner | Access Road Corridor (Feet) | Temporary Disturbance (Acres) | Permanent Disturbance (Acres) |
|---|---|---|---|---|
| Brown Ranch | BLM | 10,796 | 8.67 | 4.96 |
| | Private | 3,695 | 2.97 | 1.70 |
| Meagher Ranch | BLM | 11,299 | 9.08 | 5.19 |
| | Private | --- | --- | --- |
| Total | BLM | 33,187 | 17.75 | 10.15 |
| | Private | 3,695 | 2.97 | 1.70 |

**Source: Uintah County's Road Corridor POD, dated April 25, 2013.*

# APPENDIX D

# BILL BARRETT CORPORATION
# UINTAH BASIN OPERATIONS
# RECLAMATION & WILDLIFE ENHANCEMENT PLAN

# APPENDIX E

# POTENTIAL OCCURRENCE SUMMARY FOR SPECIAL STATUS SPECIES ASSOCIATED WITH BILL BARRETT CORPORATION'S PROPOSED PROJECT IN THEIR FT. DUCHESNE FIELD

# POTENTIAL OCCURRENCE SUMMARY FOR SPECIAL STATUS SPECIES ASSOCIATED WITH BILL BARRETT CORPORATION'S PROPOSED PROJECT IN THEIR FT. DUCHESNE FIELD

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| **Animal Species - *Mammals*** | | | | |
| Big free-tailed bat *(Nyctinomops macrotis)* | WSC BLM | Rocky areas in rugged country. The species has been observed in lowlands of river floodplains; also in shrub desert and woodland habitats. Roosts in rock crevices (vertical or horizontal) in cliffs; also in buildings, caves and occasionally tree holes. Winter habits unknown. | Low. Foraging habitat for this species may be present within the project area. | Yes |
| Black-footed ferret *(Mustela nigripes)* | FE | Semi-arid grasslands and mountain basins. Found primarily in associated with active prairie dog colonies that contain suitable burrow densities and colonies that are of sufficient size. | None. The distribution of this species in the Uinta Basin is limited to a nonessential experimental population reintroduced into Coyote Basin, approximately 14 miles east of the project area. Suitable prairie dog colonies are not present within the project area. | Yes |
| Brazilian free-tailed bat *(Tadarida brasiliensis)* | WSC BLM | Inhabits woodlands to lowland areas where the species roosts in caves, crevices in cliff faces, buildings. Also may be found in lowland riparian woodlands, desert shrub and ponderosa pine forests. Species is known to occur in all but the northernmost parts of Utah. | Low. Roosting habitat could occur in areas where rock cliffs are present. | Yes |
| Canada lynx *(Lynx canadensis)* | FT | Occurs in Douglas-fir, spruce-fir and subalpine forests at elevations above 7800 feet amsl, preferring large woody debris, such as downed logs and windfalls. | None. No suitable habitat is present within the project area as project area is below the preferred elevation range for the species. | Yes |
| Fringed myotis *(Myotis thysanodes)* | WSC BLM | Occurs in a wide range of habitats from low desert shrub to high elevation forests; prefers oak and pinyon-juniper woodlands. This species roosts in caves, mines and | Low. Marginal riparian habitat is associated with the Ouray Irrigation Canal adjacent to the project area. Suitable habitat is very | Yes |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| | | buildings. Water courses and lowland riparian areas are very important. A few scattered observations have been document in Uintah County. | limited. | |
| Northern River otter *(Lontra canadensis)* | WSC BLM | Inhabits rivers, lakes and riverine habitat within associated riparian vegetation. This species reported in at least 18 rivers and stream in Utah and does occur along the Green River. | None. No suitable habitat is present within the project area as the project area is about 6 miles from riverine habitat. | Yes |
| Spotted bat *(Euderma maculatum)* | WSC BLM | Inhabits desert shrub, sagebrush, pinyon-juniper woodlands and ponderosa pine and montane forest habitats. Also uses lowland riparian and montane grassland habitats. Suitable cliff habitat typically appears to be necessary for roosts/hibernacula. | Low. The species potentially occurs throughout Utah. No occurrence records exist for the extreme northern or western parts of the state; however known occurrences have been reported in northeastern Uintah County, outside the project area. | Yes |
| Thirteen-lined ground squirrel *(Spermophilus tridecemlineatus)* | WSC BLM | Inhabits plains, grasslands, sagebrush and montane meadows, but also utilizes disturbed sites, preferring cultivated field and grassland habitats in heavier soils. | Low. The species is native to the Uinta Basin. Sandy soils minimize likelihood of this species occurring within the project area. | Yes |
| Townsends big-eared bat *(Corynorhinus townsendii)* | WSC BLM | The species occurs in Duchesne and Uintah Counties. Inhabits a wide range of habitats from semi-desert shrub and pinyon-juniper woodlands, to open montane forests. Roosting occurs in mines and caves, abandoned buildings, rock cliffs and occasional in tree cavities. Foraging occurs well after dark over water, along margins of vegetation and over sagebrush. | Low. Roosting habitat for this species potentially occurs in rock outcrop areas within the project area. | Yes |
| White-tailed prairie dog *(Cynomys leucurus)* | WSC BLM | Inhabits grasslands, plateaus, and desert shrub communities. White-tailed prairie dogs form colonies and spend much of their time in underground burrows, hibernating during much of the winter months. | Moderate. Prairie dog habitat is scattered throughout the project area (BLM 2013). | No |

| Species *(Scientific Name)* | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| | | Prairie dogs are an obligate species to several other state-sensitive species, including ferruginous hawk, mountain plover, and burrowing owl. | | |
| ***Birds*** | | | | |
| American white pelican *(Pelecanus erythrorhynchos)* | WSC<br>BLM | Known to nest on islands associated with the Great Salt and Utah Lakes. Observed on Strawberry Reservoir at the western edge of the Uinta Basin. The species occurs as a transient on larger water bodies in surrounding habitats ranging from barren to heavily vegetated sites. | None. Habitat is not present within the project area as no open water is within or adjacent to the project area. | Yes |
| Bald eagle *(Haliaeetus leucocephalus)* | WSC<br>BLM | Inhabits areas of open water including large rivers, lakes, ponds and reservoir with surrounding habitats ranging from barren to heavily vegetated sites. Known to winter along open water associated with the White and Green Rivers, located about 14 miles southeast of the project area. | Low. No roosting trees are within or adjacent to the project area; however, the project area could provide foraging area for wintering eagles. | Yes. Wintering bald eagles are known to forage between the Green River and U.S. Highway 40, located north of the project area. Impacts to foraging eagles are anticipated to be minimal due to the extensive areas of similar foraging habitat adjacent to the project area. |
| Black tern *(Chlidonias niger)* | WSC<br>BLM | Habitat includes reservoirs, lakes, ponds, marshes with open water. Localized breeder in Pelican lake and along the Green River in the Uinta Basin. | None. No suitable habitat is within the project area as no open water is within or adjacent to the project area. | Yes |
| Blue grosbeak *(Guiraca caerulea)* | BLM | Inhabits desert riparian woodlands, marshes, grasslands and rural areas. Known to breed in southern Utah; has been documented at the Ouray NWR. | None. No suitable habitat is within the project area as only marginal riparian habitat is associated with the Ouray Irrigation Canal. | Yes |
| Bobolink *(Dolichoonyx oryzivorus)* | WSC<br>BLM | Inhabits moist and irrigated meadows, riparian woodlands and subalpine marshes at lower elevations (2800 to 5000 feet amsl). Suitable breeding | None. No suitable habitat is within the project area as only marginal riparian habitat is associated with the | Yes |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| | | habitat includes tall grass, flooded meadows, prairies and agricultural fields, perch sites are also required. Breeding and winter habitat have been documented throughout Uintah Duchesne and Daggett Counties, Utah. | Ouray Irrigation Canal. | |
| Burrowing owl *(Athene cunicularia)* | WSC BLM | Inhabits desert, semi-desert shrubland, grasslands and agriculture areas; primarily associated with active prairie dog colonies of suitable size for nesting and shelter. Known to occur in Uintah and Duchesne Counties. | Moderate - high. Several suitable prairie dog burrows within the project area. | No. 1 owl was observed within 0.25 mile buffer of the proposed FD 11-14-6-19 pipeline. Burrows were present associated with proposed FD 6-22-6-19, FD 3-23-6-19 and FD 9-14-6-19 well locations and along utility corridors. Few burrows were present with remaining proposed well pads and/or utility corridors. (ENIS 2013a) |
| Ferruginous hawk *(Buteo regalis)* | WSC BLM | Resides mainly in lowland open desert terrain characterized by barren cliffs and bluffs, in sagebrush and desert shrub communities. Nesting habitat includes promontory points and rocky outcrops. Known to occur in the Uintah Basin, associated with prairie dog colonies. | Low-moderate. Prairie dog habitat is scattered throughout the project area. | No. A 2013 raptor survey revealed 2 inactive nest sites within the project area (ENIS 2013c) |
| Greater sage grouse *(Centrocercus urophasianus)* | FC WSC BLM | Inhabits upland sagebrush habitat in rolling hills and benches. Species is wide-spread, but populations are declining. | Moderate-high. The project area is within occupied sage grouse habitat. | No |
| Lewis' woodpecker *(Melanerpes lewis)* | WSC BLM | Inhabits agricultural lands and urban parks, montane and desert riparian woodlands and submontane shrub communities. In Utah is an | None. No suitable habitat is within the project area as only marginal riparian habitat, lacking | Yes |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| | | uncommon nester along the Green River; breeding observed at Ouray NWR and in Uintah County. | sufficient trees, is associated with the Ouray Irrigation Canal. | |
| Long-billed-curlew *(Numenius americanus)* | WSC BLM | Inhabits shortgrass prairies, alpine meadows, riparian woodlands and reservoir areas. Breeding birds in Utah are fairly common but localized. Potential nesting has been reported in Uintah County, but not confirmed. | None. No suitable habitat is within the project area as only marginal riparian habitat is within the project area, associated with the Ouray Irrigation Canal. | Yes |
| Mexican spotted owl *(Strix occidentalis lucida)* | FT | In Utah, found primarily in rocky canyons. Nests in caves or crevices. Prefers cool, moister canyons with mixed conifer or riparian components. | None. No suitable habitat is within the project area as no mesic canyons are present within the project area. | Yes |
| Mountain plover *(Charadrius montanus)* | WSC BLM | In the Uintah Basin, small populations breed in shrub-steppe habitat where vegetation is sparse and sagebrush communities dominate. Observed nesting sites include flat open ground, on top or at the base of slopes, close to large rock outcrops. The only known breed population in Utah is located on Myton Bench, located west and well outside the project area. | None. No suitable habitat is within the project area and project area is well outside Myton Bench. | Yes |
| Northern goshawk *(Accipiter gentilis)* | FC | Generally found in large, mature and old growth deciduous, coniferous and mixed forest types near or within large drainage systems. | None. No suitable habitat is within the project area as there is no forest areas are within or adjacent to the project area. | Yes |
| Short-eared owl *(Asio flammeus)* | WSC BLM | Inhabits arid grasslands, agricultural areas, marshes and occasionally open woodlands. In Utah, cold desert shrub and sagebrush habitats are used. Known to occur in Uintah County. | None. No suitable habitat is within the project area. | Yes |
| Three-toed woodpecker *(Picoides tridactylus)* | WSC BLM | Habitat includes spruce and balsam fir forests where dead timber remains after fires or logging. Also found in high elevation aspen groves, bogs | None. No suitable habitat is within the project area as no forest areas are within or adjacent to the project | Yes |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| | | and swamp areas. Found less frequently in willow thickets along streams. | area. | |
| Western yellow-billed cuckoo *(Coccyzus americanus occidentalis)* | FC | Riparian obligate, usually occurs in large tracts of cottonwood/willow habitats. Also documented in lowland deciduous woodlands, alder thickets and deserted agricultural lands. Known to occur along the Green River and at the Ouray NWR. | None. No suitable habitat is within the project area as only marginal riparian habitat is associated with the Ouray Irrigation Canal. | Yes |
| **Amphibians and Reptiles** | | | | |
| Great plains rat snake *(Elaphe guttata emoryi)* | WSC BLM | Occurs in eastern Utah in major valleys of the Colorado River. Habitats include stream courses, river bottoms and rocky, wooded hillsides. Species occurs in Uintah County, and identified at the Ouray NWR. | None. No suitable habitat is within the project area as only marginal riparian habitat is associated with the Ouray Irrigation Canal. | Yes |
| Milk snake *(Lampropeltis triangulum)* | WSC BLM | Occurs in cold deserts through montane regions where it inhabits grassland, shortgrass prairie, sagebrush, desert shrub and pinyon-juniper woodlands. Known to occur in the Uinta Basin. | Low. No suitable habitat is within the project area. | Yes |
| ***Fish*** | | | | |
| Bluehead sucker *(Catostomus discobolus)* | CAS | Occupy a wide range of aquatic habitats ranging from cold, clear mountain streams to warm, turbid rivers. | None. The bluehead sucker occurs in the upper Colorado River system outside of the project area. | Qualified No. No habitat would be directly affected; however water depletion would occur resulting in indirect impacts. |
| Bonytail chub *(Gila elegans)* | FE | Endemic to the Colorado River System within main channels of large rivers and favoring swift currents | None. This species occurs in the Green River, located approximately 6 miles downstream from the project area. | Qualified No. No habitat would be directly affected; however water depletion would occur resulting in indirect impacts. |
| Colorado pikeminnow *(Ptychocheilus lucius)* | FE | Known from the Colorado River system, using large swift rivers | None. This species occurs in the Green and White Rivers, located approximately 6 and 13 miles, respectively, downstream from the project area. | Qualified No. No habitat would be directly affected; however water depletion would occur resulting in indirect impacts. |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| Colorado River cutthroat trout *(Oncorhynchus clarkia pleuriticus)* | CAS | Requires cool, clear water and well-vegetated stream banks; adapted to relatively cold water at high elevations. Occurs in lakes. | None. No suitable habitat is within the project area. | Yes |
| Flannelmouth sucker *(Catostomus latipinnis)* | CAS | Adults occur in riffles, runs, and pools in streams and large rivers, with the highest densities usually in pool habitat. Young live in slow to moderately swift waters near the shoreline areas. | None. The flannelmouth sucker occurs in the Colorado River system outside of the project area. | Qualified No. No habitat would be directly affected; however water depletion would occur resulting in indirect impacts. |
| Humpback chub *(Gila cypha)* | FE | Endemic to the Colorado River System within deep, swift-running rivers, with canyon shaded environments | None. This species occurs in the Green River, located approximately 6 miles downstream from the project area. | Qualified No. No habitat would be directly affected; however water depletion would occur resulting in indirect impacts. |
| Razorback sucker *(Xyrauchen texanus)* | FE | Endemic to large rivers of the Colorado River system. | None. This species occurs in the Green and White Rivers, located approximately 6 and 13 miles, respectively, downstream from the project area. | Qualified No. No habitat would be directly affected; however water depletion would occur resulting in indirect impacts. |
| Roundtail chub *(Gila robusta)* | CAS | Adults inhabit low to high flow area in the Green River; young occur in shallow areas with minimal flow. | None. Roundtail chub is native in Utah. The species occurs in the Colorado River system. | Qualified No. No habitat would be directly affected; however water depletion would occur resulting in indirect impacts. |
| **PLANT SPECIES** | | | | |
| Ackerman's frasera *(Frasera ackermaniae)* | BLM | Semibarren yellowish clay soils of the Chinle and Nugget Formations in pinyon-juniper and desert shrub communities at elevations between 5000 and 6000 feet amsl. | None. No suitable habitat is present within the project area as the geological formations associated with this species are not present in the project area. | Yes |
| Argyle Canyon phacelia *(Phacelia argylensis)* | BLM | Inhabits sandy-silty soils in wash bottoms on the Green River Shale Formation in pinyon-juniper, serviceberry and Doug fir communities at 7600-foot (amsl) elevation. | None. The geological formations associated with this species are not present in the project area. No suitable habitat is present within the project area. | Yes |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| Barneby's catseye (*Cryptantha barnebyi*) | BLM | White semi-barren shale knolls of the Green River Formation in shadscale, sagebrush and pinyon-juniper communities at elevations between 6000 and 7900 feet amsl | None. The geological formation associated with this species is not present in the project area. No suitable habitat is present within the project area. | Yes |
| Barneby ridgecress (*Lepidium barnebyanum*) | FE | Endemic to the Indian Canyon Drainage in Duchesne County, on tan to white shale outcrops of the Uinta formation with other mound-forming plant species. Occurs on ridge saddles and crests at elevations ranging from 6000 to 7000 feet amsl. | None. The white shale outcrops of the geologic formation associated with this species is not present in the project area. No suitable habitat is present within the project area. | Yes |
| Clay reed mustard (*Schoenocrambe argillacea*) | FT | Endemic to the Book Cliffs in Uintah County. Occurs on shale substrates at the contact zone between the lower Uinta and upper Green River formations. In mixed desert shrub, between 4800 and 5600 feet elevation amsl. | None. The geologic formation associated with this species is not present in the project area. No suitable habitat for this species occurs within the project area. | Yes |
| Duchesne green-thread (*Thelesperma caespitosum*) | BLM | Endemic to Duchesne County, Utah and Sweetwater County, Wyoming. Grows on white shale slopes and ridges of the Green River Formation or in mountain shrub/pinyon-juniper communities of the Uinta Formation, at elevations between 5900 and 8860 feet amsl. | None. While the Uinta Formation is within the project area, the project area is below the elevation range for this species. No suitable habitat is present within the project area. | Yes |
| Gibbens beardtongue (*Penstemon gibbensii*) | BLM | Found in Daggett county, Utah; Moffatt and Rio Blanco County, Colorado and Carbon and Sweetwater Counties, Wyoming. Inhabits sandy or shaley (often Green River shale) bluffs and slopes with juniper, thistle, *Eriogonium*, *Elymus*, serviceverry, rabbitbrush and *Thermopsis* species, at elevations between 55000 and 6400 feet amsl. | None. The geologic formation associated with this species is not present in the project area. No suitable habitat is present within the project area. | Yes |
| Goodrich's blazing star (*Mentzelia* | BLM | Endemic to southern Duchesne County, along the escarpment of Willow and Argyle | None. The geologic formation associated with this species is not | Yes |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| *goodrichii*) | | Canyons. Found in steep, white, marly calciferous shale of the Green River Formation in scattered timber and pinyon pine, Douglas fir, mountain mahogany and rabbitbrush communities, at 8100 to 8800 feet amsl. | present in the project area. No suitable habitat is present within the project area. | |
| Goodrich's cleomella (*Cleomella palmeriana* var. *goodrichii*) | BLM | Endemic to Uintah County, Utah. Grows on eroded slopes of heavy clay in the Mancos, Tropic and Morrison formations, at 4000 to 6000 feet amsl. | None. The geologic formation associated with this species is not present in the project area. No suitable habitat is present within the project area. | Yes |
| Goodrich's columbine *(Aquilegia scopulorum* var. *goodrichii)* | BLM | Inhabits Green River shale ridges in association with bristle cone pine, limber pine, saline wild rye, mountain mahogany, pinyon and Doug fir communities at elevations ranging between 7400-9000 feet amsl. | None. No suitable habitat is present within the project area as the geological formation associated with this species is not present in the project area. | Yes |
| Goodrich penstemon (*Penstemon goodrichii*) | BLM | Endemic to the Uinta Basin at the Lapoint-Tridell-Whiterocks area. Grows on blue-gray to reddish clay badlands of the Duchesne River Formation in shadscale and juniper/mountain mahogany communities between 5600 to 6200 feet amsl. | Low. The project area includes the Duchesne River Formation, but lacks the typical blue-gray lens found further north where the species is known and is outside the elevation described for the species. No suitable habitat is present within the project area. | Yes |
| Graham's beardtongue (*Penstemon grahamii*) | PT, BLM | Endemic to Carbon, Duchesne and Uintah Counties, Utah. Grows in sparsely vegetated shadscale, *Eriogonum*, horsebrush, ryegrass and pinyon-juniper communities on shale ledges and talus of the Green River Formation at about 4600 feet amsl. | None. The geologic formation associated with this species is not present in the project area. No suitable habitat is present within the project area. | Yes |
| Graham's catseye *(Cryptantha grahamii)* | BLM | Inhabits Green River Shale in the mixed desert shrub, sagebrush, pinyon-juniper and mountain brush communities at elevations between 5000 and 7400 feet amsl. | None. The geological formation for with this species is not present in the project area. No | Yes |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| | | | suitable habitat is present within the project area. | |
| Hamilton milkvetch (*Astragalus hamiltonii*) | BLM | Occurs on the Lapoint and Dry Gulch members of the Duchesne River Formation and the Dakota, Wasatch and Mowery Shale Formations in pinyon-juniper and desert shrub communities at elevations between 5250 and 6200 feet amsl. | Low. The project area is within the Duchesne River Formation but outside the elevation range for the species. Marginal suitable habitat is within the survey area. | Yes |
| Horseshoe milkvetch (*Astragalus equisolensis*) | BLM | Occurs on the Duchesne River Formation in Uintah County, Utah. Grows on sand and silty sand within sagebrush and mixed desert shrub communities between 4790 and 5185 feet amsl. | Moderate - High. The project area is within the Duchesne River formation and is within the described elevation range for the species. A known location is approximately 16 miles east of the surveyed area. Suitable habitat is present with the survey area. The surveyed areas contain areas of unoccupied suitable habitat. Surveys conducted in 2012 and 2013 found no specimens or remnants within the project area (ENIS 2012 and 2013b). | No |
| Huber's pepperweed (*Lepidium huberi*) | BLM | Endemic sand or silty sands derived from the Shinarump Member of the Chinle, park City and Weber Formations in Uintah County, Utah. Grows in black sagebrush, mountain brush, ponderosa pine, lodgepole pine and spruce-fir communities at elevations between 5000 to 9700 feet amsl. | None. The geologic formations associated with this species are not present in the project area. No suitable habitat is present within the project area. | Yes |
| Ownbey thistle (*Cirsium ownbeyi*) | BLM | Endemic to the east flank of the Uinta Mountains in Daggett County and northern Uintah County, Utah. Grows in sagebrush, juniper, and riparian communities between 5500 and 6200 feet amsl. | None. No suitable habitat is present within the project area as only marginal riparian habitat is associated with the Ouray irrigation Canal and is below the | Yes |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| | | Often associated with alcove seeps and abandoned stream channels. | elevation range for the species. | |
| Pariette cactus (*Sclerocactus brevispinus*) | FT | Endemic to Duchesne and Uintah Counties, Utah. Grows in saline and alkaline soils in clay badlands. | None. The project area is located outside of the potential habitat polygon for Pariette cactus and located on a geological formation and soils not known to support the species (BLM 2013). | Yes |
| Park rockcress (*Arabis vivariensis*) | BLM | Endemic to Uintah County, Utah. Grows in mixed desert shrub and pinyon-juniper communities in limestone and sandstone outcrops of the Weber formation between 5000 and 5000 feet amsl. | None. The geologic formation associated with this species is not present in the project area. Known occurrences are found well outside the project area. | Yes |
| Rock bitterweed (*Hymenoxys lapidicola*) | BLM | Endemic to Uintah County, Utah. Occurs on rock crevices in the ponderosa pine-manzanita and pinyon-juniper communities on the Weber Formation between 6000 and 8100 feet amsl. | None. No suitable habitat for this species is within the project area as the geological formation associated with this species is not within the project area. | Yes |
| Shrubby reed mustard (*Schoenocrambe suffrutescens*) | FE | Occurs from Willow Creek to Sand Wash in Uintah County, Utah. Occurs on calcareous shale outcrops of the Evacuation Creek Member of the Green River Shale in mixed desert shrub, pinyon-juniper or montane brush communities between 5100 and 6600 feet amsl. | None. The geologic formation associated with this species is not present in the project area. No suitable habitat for this species is within the project area. | Yes |
| Spanish bayonet (*Yucca sterilis*) | BLM | Occurs on sandy soils of the Uinta Formation in grasslands, sagebrush, pinyon-juniper and mountain brush areas as well as on desert ridges and hills at elevations ranging between 4790 and 5800 feet amsl. | Moderate. The surveyed areas are within the elevation range described for the species and sandy soils are present. Proposed FD 3-26-6-19 contains areas of unoccupied suitable habitat. Potential habitat is within the remaining surveyed areas (ENIS 2012). | No |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| Stemless beardtongue *(Penstemon acaulis)* | BLM | Occurs on the Browns Park Formation in ashy, gravelly, or sandy ridges and knolls in Browns Park, Daggett County, Utah. Grows in sagebrush-grass or pinyon-juniper communities at elevations between 5900 and 8200 feet amsl. | None. The geologic formation associated with this species is not present in the project area. No suitable habitat for this species is within the project area. | Yes |
| Hairy Townsend daisy or strigosa Townsendia (*Townsendia strigosa* var. *prolixa)* | BLM | Occurs in Daggett, Duchesne and Uintah Counties, Utah, in salt desert shrub, mixed desert shrub and pinyon-juniper communities at elevations ranging between 4800 and 6200 feet amsl. | Low. The project area is within the elevation range described for this species. Suitable habitat is within the project area; however no specimens or remnants were found during the surveys (ENIS 2012). | No |
| Uinta Basin hookless cactus *(Sclerocactus wetlandicus)* | FT | Occurs in Duchesne and Uintah Counties, Utah. Grows on gravelly hills and terraces of the Duchesne River, Green River and Mancos Shale Formations, in salt desert shrub and pinyon-juniper communities at elevations ranging between 4500 and 6600 feet. | None. The proposed project is located outside of the potential habitat polygon for Uinta Basin hookless cactus and located on a geological formation and soils not known to support the species. Additionally no individuals were identified (BLM 2013). | Yes |
| Uinta greenthread *(Thelesperma caespitosum)* | BLM | Occurs on white shale slopes, benches and ridge crests on the north slope of the Uinta Bishop Formation on the West Tavaputs Plateau in Duchesne County, Utah. Grows in pinyon-juniper, sagebrush and montane brush communities at elevations between 5000 to 9000 feet. | None. The geologic formation associated with this species is not present in the project area. No suitable habitat for this species occurs within the project area. | Yes |
| Untermann fleabane *(Erigeron untermannii)* | BLM | Occurs on ridges in dry calcareous shales and sandstones on the Green River and Uinta Formations on the West Tavaputs Plateau in Duchesne and Uintah Counties, Utah. Grows in pinyon-juniper or mountain brush communities at | None. The geologic formations associated with this species are not present in the project area. No suitable habitat for this species occurs within the project area. | Yes |

| Species (*Scientific Name*) | Status[1] | Habitat Associated | Potential for Occurrence within the Project and Cumulative Effect Areas | Eliminated from further Assessment? |
|---|---|---|---|---|
| | | elevations between 7000 and 9400 feet amsl. | | |
| Ute ladies'-tresses orchid *(Spiranthes diluvialis).* | FT | Occurs in Cache, Daggett, Duchesne, Uinta Wasatch Counties, Utah. Grows on unconsolidated alluvium in wet meadows, stream banks, oxbow meanders, marshes and raised bogs at elevations between 4500 and 6800 feet. | None. The project area is adjacent to marginal riparian habitat associated with the Ouray Irrigation Canal. Suitable habitat for this species does not exist in the surveyed areas. | Yes |
| White River beardtongue *(Penstemon scariosus var. albifluvis)* | PC | Known to occur on surficial outcrops of oil shale at Evacuation Creek in southern Uintah County. Grows in semi-barren mixed desert shrub or pinyon-juniper communities at elevations between 5000 to 6880 feet. | None. No outcrops of oil shale occur in the project area. No suitable habitat for this species occurs within the project area. | Yes |

[1] FE = Federally listed as endangered
FT = Federally listed as threatened
FC = Federal candidate
PT = Proposed as threatened
CAS = Species receiving special management under a Conservation Agreement in order to preclude the need for federal listing.
BLM = Utah BLM Sensitive Species
WPC = State of Utah Wildlife Species of Concern

## References:


BLM. 2013. Interdisciplinary Team Checklist, rationale for determination prepared by Aaron Roe, BLM District Botanist.

ENIS. 2012. Bill Barrett Corporation East Bluebell Field Drilling Project. Threatened, Endangered and Sensitive Species Survey & Habitat Delineation: FD 12-15-6-19, FD 6-22-6-19; FD 16-22-6-19; FD 9-14-6-19; FD 11-14-6-19; FD 3-23-6-19; FD 3-24-6-19; FD 9-23-6-19; FD 3-25-6-19, FD 3-26-6-19 Well Pads and Utilities. 31 N Main Street, Helper, UT 84526. Conducted May 15, 29 and 30 and June 8 and 27, 2012.

_____. 2013a. Bill Barrett Corporation Fort Duchesne Area Drilling Project. Burrowing Owl Survey (*Athene cunicularia hypugaea*): FD 6-22-6-19, 3-23-6-19, 11-14-6-19, 9-14-6-19, 3-24-6-19, 16-22-6-19, 3-25-6-19, 3-26-6-19, 9-23-6-19, 12-15-6-19. 31 N Main Street, Helper, UT 84526. Conducted May 22, 2013. Pp. 5.

_____. 2013b. Bill Barrett Corporation Fort Duchesne Drilling Project. Threatened, Endangered Species Survey: FD 3-24-6-19 pipeline. 31 N Main Street, Helper, UT 84526. Conducted May 22 and 29, 2013. Pp 9.

_____. 2013c. 2013 Helicopter Raptor Survey Data, Bill Barrett Corp. East Blue Fort Duchesne Drilling Project. 31 N Main Street, Helper, UT 84526. Pp. 4.