

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

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**Environmental Assessment  
DOI-BLM-UT-G010-2014-0214  
Newfield's new oil well pad 2-11-10-17**

**August, 2014**

**One exploratory well proposed to be drilled from a new location in  
Uintah County, Utah**

***Location:***

**Section 11, Township 10 South, Range 17 East**

***Applicant/Address:***

**Newfield Exploration Company  
10530 South County Road #33  
Myton, Utah 84052**

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**Environmental Assessment**  
**DOI-BLM-UT-G010-2014-0214**  
*Newfield's new oil well pad 2-11-10-17*

**Prepared by**  
**U.S. Department of the Interior**  
**Bureau of Land Management**

**August, 2014**

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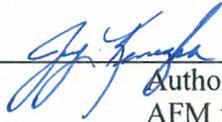
# Finding of No Significant Impact

## Newfield's New Oil Well Pad 2-11-10-17

Based on the analysis of potential environmental impacts per Environmental Assessment DOI-BLM-UT-G010-2014-0214, I have determined that the proposed action with the mitigation measures described below will not have any significant impacts on the environment and an environmental impact statement is not required.

### Signatures:

Approved by:



Authorized Officer  
AFM for Minerals

SEP 04 2014

[Date]

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# Decision Record

## Selected Action

It is my decision to approve Newfield Production Company's proposal to drill one new oil well from a new well pad in Section 11, T. 10 S., R. 17 E., Uintah County, Utah. The project area is located approximately 20.8 miles southeast of Myton, Utah. Approximately 361 feet of road, and no pipeline corridor, would be constructed as described in the proposed action alternative of DOI-BLM-UT-G010-2014-0214-EA. This decision is subject to the below conditions of approval.

## Conditions of Approval

**This decision is contingent on meeting all stipulations and monitoring requirements listed below, which were designed to minimize and/or avoid impacts.**

1. All internal combustion equipment shall be kept in good working order.
2. Water or other approved dust suppressants will be used at construction sites and along roads, as determined appropriate by the Authorized Officer. Dust suppressant such as magnesium chloride or fresh water may be used, as needed, during the drilling phase.
3. Open burning of garbage or refuse shall not occur at well sites or other facilities.
4. Drill rigs shall be equipped with Tier II or better diesel engines.
5. Low bleed pneumatics will be installed on separator dump valves and other controllers.
6. During completion, no venting can occur, and flaring will be limited as much as possible. Production equipment and gathering lines will be installed as soon as possible.
7. Telemetry will be installed to remotely monitor and control production.
8. When feasible, two or more rigs (including drilling and completion rigs) will not be run simultaneously within 200 meters of each other. If two or more rigs must be run simultaneously within 200 meters of each other, then effective public health buffer zones out to 200 meters (m) from the nearest emission source will be implemented. Examples of an effective public health protection buffer zone include 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, the proponent may demonstrate compliance with the 1-hour NO<sub>2</sub> National Ambient Air Quality Standards (NAAQS) with appropriate and accepted near-field modeling. As part of this demonstration, the proponent may propose alternative mitigation that could include but is not limited to natural gas-fired drill rigs, installation of NO<sub>x</sub> controls, time/use restrictions, and/or drill rig spacing.
9. All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horse power must not emit more than 2 grams of NO<sub>x</sub> per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.

10. All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NO<sub>x</sub> per horsepower-hour.
11. Green completions will be used for all well completion activities where technically feasible.
12. If, during operations, any paleontological resources as described in BLM H-8270-1 are discovered, all operations which would affect such sites will be suspended and the discovery reported promptly to the surface management agency.
13. An onsite monitor, archaeologist, must be present during all earth-moving activities in the vicinity (i.e. 150 ft.) of this site.
14. Mountain Plover (*Charadrius montanus*): if it is anticipated that construction or drilling will occur during mountain plover nesting season (May 1 – June 15), a BLM biologist will be notified to determine if surveys are necessary prior to beginning operations. If surveys are deemed necessary, depending on the results permission to proceed may or may not, be granted by the BLM Authorized Officer.
15. Colorado River Fish Species:
  - a. The best method to avoid entrainment is to pump from an off-channel location – one that does not connect to the river during high spring flows. An infiltration gallery constructed in a service approved location is best.
  - b. If the pump head is located in the river channel the following stipulations apply:
    - i. Do not situate the pump in a low-flow or no-flow area as these habitats tend to concentrate larval fishes.
    - ii. Limit the amount of pumping, to the greatest extent possible, during that period of the year when larval fish may be present (April 1 to August 1).
    - iii. Limit the amount of pumping, to the greatest extent possible, during the midnight hours (10pm to 2 am), as larval drift studies indicate that this is a period of greatest daily activity. Dusk is the preferred pumping time, as larval drift abundance is lowest during this time.
  - c. Screen all pump intakes with 3/32" mesh material.
  - d. Approach velocities for intake structures should follow the National Marine Fisheries Service's document "fish screening criteria for anadromous salmonids". For projects with an in-stream intake that operate in stream reaches where larval fish may be present, the approach velocity should not exceed 0.33 feet per second (ft/s).
  - e. Report any fish impinged on the intake screen or entrained into irrigation canals to the service (801.975.3330) or the Utah Division of Wildlife Resources:

Northeastern Region  
318 N Vernal Ave,  
Vernal, UT 84078  
Phone: (435)781-9453

## **Compliance**

The selected alternative is in conformance with the Vernal Field Office Resource Management Plan and Record of Decision (BLM 2008).

There are no comprehensive State of Utah plans for the vicinity of the selected alternative. 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 selected alternative is consistent with the objectives of the State.

## **Public Involvement:**

The proposed project was posted on the Eplanning NEPA Register on 8/7/2014. No comment has been received.

## **Rationale:**

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, and if a discovery is made, to produce oil and/or natural gas for economic gain.

The selected alternative meets the BLM's need to acknowledge and allow development of valid existing leases. The BLM objective to reduce impacts is met by the imposing of mitigation measures to protect other resource values.

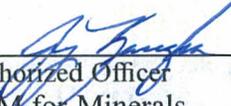
## **Appeal or Protest Opportunities:**

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 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 or resources if the stay is not granted; and,
4. Whether the public interest favors granting the stay.

**Authorizing Official:**

  
Authorized Officer  
AFM for Minerals

**SEP 04 2014**  
Date

# **Chapter 1. Environmental Assessment Introduction**

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## 1.0 Introduction

This Environmental Assessment (EA) has been prepared to analyze Newfield Exploration Company's (Newfield) proposed new exploratory oil well in Uintah County, Utah. 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 Bureau of Land Management (BLM) in ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any "significant" impacts could result from the analyzed actions. "Significance" is defined by NEPA and is found in regulation 40 CFR (Code of Federal Register) 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of Finding of No Significant Impact (FONSI). A FONSI statement documents the reasons why implementation of the selected alternative would not result in "significant" environmental impacts (effects). 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 (DR) would be signed for the EA approving the selected alternative, whether the Proposed Action or another alternative.

The well would be located approximately 20.8 miles southeast of Myton, Utah. The objective for this project is to explore, produce, and develop economically recoverable oil and gas while minimizing, or mitigating to the extent feasible, the environmental impacts associated with such development.

### 1.1. Purpose and Need for Action:

BLM's need is to respond to the applicant's proposal. BLM's purpose is to allow Newfield to develop its existing Federal leases in order to meet domestic demands for oil while also preventing undue and unnecessary degradation to public land. Development of oil and gas resources is consistent with the mission of the BLM. The Mineral Leasing Act of 1920 (MLA), as amended and its implementing regulations are to allow lessees or potential lessees to explore for oil and gas or other mineral reserves on Federally-administered lands. The Federal Land Policy and Management Act of 1976 (FLPMA) mandates that the BLM manage public lands on the basis of multiple use [43 U.S.C. § 1701(a)(7)], and that lease rights must be permitted in a manner that assures adequate protection of other resource values. Minerals are identified as one of the principal uses of public lands in Section 103 of FLPMA [43 U.S.C. § 1702(c)].

### 1.2. Identification of Issues

A BLM interdisciplinary team reviewed the proposed action and identified the following resources as being potentially impacted by implementation of the proposed action. The Interdisciplinary Team Analysis Record Checklist in **Appendix A** documents all resources considered, including those resources which were determined to be "Not Present" (NP) or "Not Impacted" (NI), with a rationale for that determination.

#### 1.2.1. Air Quality and Greenhouse Gas Emissions

- Issue 1: Emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions would adversely affect air quality.

- Issue 2: Emissions associated with the proposed action may contribute greenhouse gases to the atmosphere.

### **1.2.2. Livestock Grazing and Rangeland Health Standards**

- Issue 1: The proposed project will create additional ground disturbance and fragmentation of the allotments, which may impact both the livestock operation as well as rangeland health.

### **1.2.3. Wildlife, Including Threatened and Endangered Species**

- Issue 1: Drilling and completion activities would result in disturbance of habitat, and temporary or long-term displacement of the white-tailed prairie dog
- Issue 2: Some wells sites are within 0.25 to 0.5 mile of known raptor nests and drilling activity could disrupt nesting.
- Issue 3: If burrowing owls are using prairie dog colonies in the project area as nest sites, the project could disrupt the nest.
- Issue 4: Pumping water from the Green River results in a water depletion and the potential for entrapment of larval fish, both of which could adversely affect listed fish species.

### **1.2.4. Archaeology**

- Issue 1: Cultural Resources and Native American Religious Concerns
  - Potential effects of road, pipeline, and well pad construction to cultural resource sites eligible for listing on the National Register of Historic Places (NRHP).
  - Potential effects to Native American religious concerns from project development.

## **Chapter 2. Proposed Action and Alternatives**

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## 2.0 Proposed Action and Alternatives

BLM resource specialists reviewed Newfield's Proposed Action and assessed the type and magnitude of potential impacts to the Project Area. Based on this review, the following alternatives were developed for analysis in this EA:

- Alternative A – Proposed Action: This alternative outlines the action Newfield proposes to take.
- Alternative B – No Action Alternative: Analysis of this alternative provides a baseline for the impact analysis.

These alternatives are discussed in detail in this chapter.

### 2.1. Alternative A — Proposed Action:

Vertical drilling of an exploratory well in the Project Area will help Newfield gain an intricate understanding of the sub-surface formations and associated pay zones. Based upon this knowledge, Newfield will be able to target additional pay zones via directional drilling in a technically and economically feasible manner, with lower risks for missing these targets.

Specifically, Newfield's Proposed Action includes the following primary components:

- Vertical drilling of one exploratory oil well from a new well pad. The entire disturbance area would be up to 3.33 acres, to include a 1.80 acre pad and pit with associated stock piles and incidental equipment use areas. Upon well completion, the reserve pit and that portion of the location not needed for production facilities/operations will be re-contoured to the approximated natural contours with the reserve pit being reclaimed within one hundred twenty (120) days, weather permitting. The reclaimed area will be approximately 2.78 acres, leaving a permanent pad area of about 0.55 acres.
- Construction of 361 linear feet of access road across entirely new disturbance. The planned access road will consist of a 20 foot permanent running surface crowned and ditched in order to handle run-off from precipitation events. The maximum grade will be 10% or less. Adequate drainage structures, where necessary, would be incorporated into the construction of the access road to prevent soil erosion and accommodate all-weather traffic.

When appropriate, construction activities would follow guidelines described in "The Gold Book," Surface Operating Standards for Oil and Gas Extraction and Development, 4th Edition.[BLM and USFS 2007 (p. 43)] **Table 2.1** summarizes the proposed disturbance.

**Table 2.1. Table 2.1 Surface Disturbance Summary**

Well Number	Well Pad	Well Pad Disturbance	Access Road Disturbance	Total Surface Disturbance
2-11-10-17	2-11-10-17	3.33 ac.	0.25 ac.	3.58 ac.

#### 2.1.1. Well Pad Construction

Newfield plans to construct one new well pad in order to drill one vertical exploratory oil well. Approximately 3.33 acres would be disturbed to accommodate the drilling system. The existing topsoil and vegetation would be cleared from a 230 foot by 340 foot (1.8 acre) area. The cleared

area would be leveled and compacted with a berm constructed around the pad to prevent storm water overland flow from entering the pad. Topsoil would be stockpiled at predetermined storage sites, for future use in reclamation activities.

### **2.1.2. Access Roads**

A combination of existing and proposed roads would be utilized to access the proposed drilling location. One new access road, approximately 361 feet long, would be constructed from an existing road to the proposed well pad. All County road maintenance activities implemented by Newfield would be coordinated with Duchesne and Uintah Counties, as appropriate. Utilized roads would be maintained in good repair during all drilling, completion, and production operations. All required road upgrades would follow guidelines described in The Gold Book.[ (p. 43)]

### **2.1.3. Drilling Operations**

The well would be drilled utilizing a conventional, mechanically-powered mobile drilling rig. The exact type and size of drilling rig would be dependent upon rig availability at the time of project implementation.

The proposed well would target sandstone intervals within the Green River and Wasatch formations, with a terminal depth of approximately 5,400 feet. Any shallow water zones encountered during drilling would be isolated by both casing and cement. All potentially productive hydrocarbon zones would be cemented and tested. The casing and cementing program would be designed to isolate and protect the shallower formations encountered in the well bore and to prohibit pressure communication or fluid migration between zones. In addition, the cement would protect the well by preventing formation pressure from damaging the casing and retarding corrosion by minimizing contact between the casing and formation fluids. The type of casing used and the depth to which it is set would depend upon the physical characteristics of the formations that are drilled. Surface casing would be installed to protect near-surface aquifers. Production casing would subsequently be installed to the total depth. All casing would be new or reconditioned and tested in accordance with applicable regulations. Site-specific descriptions of drilling procedures are included in the Applications for Permits to Drill (APDs) previously submitted to the BLM.

### **2.1.4. Well Completion and Production**

If drilled wells indicate economic potential, completion operations would commence. Completion operations would involve setting production casing to the total drilled depth and perforating the casing in target production zones, followed by hydraulically fracturing (fracing) the productive formation under high pressure. The fracing material would likely contain sand or other proppant material to keep the fractures open, thereby allowing hydrocarbons to flow more freely into the casing. The next phase would be to flow and test the well to determine rates of production. Completion and testing would take approximately 18 days.

Should testing suggest the potential for commercial production, facilities including a wellhead, pumping unit, separator, dehydrator, and condensate tanks would be installed on location. All permanent (on site for 6 months or longer) structures constructed or installed would be painted a flat, non-reflective Covert Green. All facilities would be painted at time of installation, weather permitting, but no later than 6 months after installation.

Periodically, a workover or recompletion on the 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), the wellhead, or the production facilities. These repairs would usually be completed in 7 days, during daylight hours. The frequency for this type of work cannot be accurately projected because workovers vary by well; however, an average work time may be one workover per year after about five years of production. In the case of a recompletion, where the wellbore casing is worked on or valves and fittings are replaced to stimulate production, all byproducts would be stored in tanks and hauled from the location. For workover operations, it may be necessary to rework the existing surface location to accommodate equipment. At the completion of the work, the surface location would be re-graded to pre-work contours and reclaimed.

## **2.1.5. Water**

### ***Water Supply***

Newfield anticipates that water would be used for dust suppression during construction and operational activities for a small percentage of the proposed project. Use of water for dust suppression would typically be performed under hot, windy, and/or dry conditions, and would depend on soil types and the moisture content of soils where activities are taking place. Dust suppression would most commonly be implemented during the summer months. Water-based dust abatement would be implemented using standard commercial water trucks, which hold approximately 130 barrels (bbls) of water (0.017 acre-feet).

Newfield assumes that approximately 1,000 bbls (0.13 acre-feet) of water would be needed annually for dust suppression per well pad and associated access road during project operation. Based on these assumptions, Newfield would use approximately 0.13 acre-feet of water per year for dust abatement during production, or a total of 2.6–3.9 acre-feet of water for dust suppression during operations over the 20 to 30 year life of the project.

Typically, 13,500 bbls (1.75 acre-feet) of water would be required to drill and complete an individual Green River Formation well.

Water for drilling the proposed wells would come from Johnson Water District (Water Right 43-7478), Neil Moon Pond (Water Right 43-11787), Maurice Harvey Pond (Water Right 47-1358), or the Green River (Newfield Collector Well - Water Right 47-1817). Water would be hauled by a licensed trucking company. Water wells would not be drilled on the lease.

### ***Produced Water Disposal***

Upon completion of a productive well, all produced water would be confined to a steel storage tank. If the production water meets water quality standards, it would then be transported to the Ashley, Monument Butte, Jonah, South Wells Draw, or Beluga water injection facilities by company or contract trucks unless and until the well is serviced by a flowline. The produced water would then be injected into approved Class II wells to enhance Newfield's secondary recovery water flood project. Water not meeting water quality standards would be disposed of at Newfield's Pariette No. 4 disposal well (Section 7, T9S R19E). Federally approved surface disposal facilities or at State of Utah approved surface disposal facilities [Newfield 2008 (p. 43)].

## 2.1.6. Noxious Weeds

Newfield will control noxious weeds along access roads, pipelines, well sites, or other applicable facilities. Any invasive or noxious weed outbreaks directly attributed to the activities of Newfield will be the responsibility of Newfield to control. On BLM administered lands, a Pesticide Use Proposal (PUP) will be submitted and approved prior to the application of herbicides or other pesticides or possibly hazardous chemicals. [Newfield 2008 (p. 43)]

## 2.1.7. Waste Management

Drill cuttings would be contained and buried in the reserve pit. Drilling fluids, including salts and chemicals, would be contained in the reserve pit. In accordance with Onshore Order No. 7, the surface of the pit will be kept reasonably free of surface accumulation of liquid hydrocarbons and immediately upon well completion, any hydrocarbons would be removed [Newfield 2008 (p. 43)]. Any oil that accumulates in the pit will be handled in accordance with 43 CFR 3160.7-1(b). Drilling fluids would be removed from the pit within 120 days of completion [Newfield 2008 (p. 43)].

No hazardous wastes (as defined in 40 CFR 355 or subject to reporting under SARA Title III) would be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of this well [Newfield 2008 (p. 43)].

Self-contained, chemical portable toilets would be provided for human waste disposal. Upon completion of operations, or as needed, the toilet holding tanks would be pumped and the contents disposed of in the nearest, approved, sewage disposal facility.

Garbage, trash, and other waste materials would be collected in portable, self-contained, fully enclosed trash cages 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.

## 2.1.8. Spill Procedures

As each new well is completed, Newfield would update their field-wide existing Spill Prevention Control and Countermeasure (SPCC) Plans. If spills of condensate, produced water, or other fluids were to occur in reportable amounts, as defined in BLM Notice to Lessees (NTL) 3A, Newfield or their contractors or sub-contractors would immediately contact the BLM and any other regulatory agencies (e.g., EPA National Response Center, State of Utah) as required by law or regulation. Strict cleanup efforts would be initiated immediately.

## 2.1.9. Reclamation

### *Interim Reclamation*

Interim reclamation will begin within 6 months of well completion. Interim reclamation activities will consist of spreading the stockpiled topsoil around the perimeter and areas of the well not

needed for active operations. The topsoil seed will be broadcast and harrowed or drilled into the soil in the fall time period of August 15 to ground freezing.

Interim reclamation monitoring will be conducted as directed by the authorized office with the objective of restoring a sufficient vegetative cover to maintain active topsoil and control erosion.

### ***Reserve Pit Reclamation***

Reserve pits shall be reclaimed within 120 days for the date of well completion, weather permitting. Before any dirt work occurs the pit shall be as dry as possible. If a synthetic, nylon-reinforced liner is used, the excess liner will be cut and removed and the remaining liner torn and perforated while backfilling the reserve pit. Alternatively, the pit will be pumped dry, the liner folded into the pit and buried to a minimum of four (4) feet deep.

Reclamation will be completed by:

- 1) re-contouring the surface to the approximate natural contours and spreading topsoil over the disturbed areas;
- 2) seeding the topsoil. The topsoil seed will be broadcast and harrowed into the soil or drilled into the soil in the fall time of August 15 to ground freezing.

### ***Final Reclamation of Well Locations at the End of Project Life***

Final reclamation of well locations and roads would take place within 180 days after the last well on the pad is plugged and abandoned. All production equipment and surface pipeline would be removed and the well location, access road, and other disturbed areas would be re-contoured to the approximate natural contours and restored to their approximate original condition. All well casings would be cut off and capped according to BLM requirements. The cap would be welded in place and the well location and identity would be permanently inscribed on the cap. The cap would also be constructed with a weep hole. If requested, GPS coordinates of the cap would be provided to the BLM.

## **2.1.10. Applicant Committed Environmental Protection Measures**

### **2.1.10.1. Cultural Resources**

Newfield is responsible for informing all persons in the area who are associated with this project that they may be subject to prosecution for knowingly disturbing historic or archaeological sites or for collecting artifacts.

### **2.1.10.2. Noxious Weeds**

Newfield Production will control noxious weeds along rights-of way for roads, pipelines, well sites or other applicable facilities. On federal administered land it is required that a Pesticide Use Proposal shall be submitted and given approval prior to the application of herbicides or other possible hazardous chemicals.

## 2.1.11. Standard Stipulations Added to All APDs

### *Minerals and Paleontology*

- If there is an active Gilsonite mining operation within 2 miles of the well location, operator shall notify the Gilsonite operator at least 48 hours prior to any blasting during construction.
- If paleontological materials are uncovered during construction, the operator is to immediately stop work and contact the Authorized Officer (AO). A determination will be made by the AO as to what mitigation may be necessary for the discovered paleontologic material before construction can continue.

### *Green River District Reclamation Guidelines*

The Operator will comply with the requirements of the *Green River District (GRD) Reclamation Guidelines* (Appendix B) formalized by Green River District Instructional Memo UTG000-2014-004 on May 21, 2014.

## 2.2. Alternative B — No Action Alternative

Under the No Action Alternative, the proposed project would not be approved. Selection of this alternative would not preclude other oil and gas activities or proposals within the Project Area.

## 2.3. Alternatives Considered but Eliminated from Further Analysis

No other alternatives were identified by the BLM.

## 2.4. Conformance

### *Land Use Plan*

The management of BLM public lands and resources within the Project Area is directed and guided by the Vernal Field Office (RMP/ROD) [BLM 2008 (p. 43)]. Although the proposed action is not specifically mentioned in the RMP, it is consistent with its goals and objectives, particularly the following:

- Meet local and national non-renewable and renewable energy and other public mineral needs. (p. 97)
- The BLM recognizes that not all activities authorized by implementation of the Approved RMP will comply with *BLM Utah Standards for Rangeland Health and Guidelines for Grazing Management*. All authorized activities will require reclamation and rehabilitation to ensure sustainability and productivity of the site. (p. 65)

### *Relation to Statutes, Regulations, and Other Plans*

The Project Area lands were leased for oil or gas development under authority of the MLA, as modified by the FLMPA, the Federal Onshore Oil and Gas Leasing Reform Act of 1987, and the

Energy Policy Act of 2005. A lessee/operator has the right to explore for oil and gas on its leases as specified in 43 CFR §3101.1-2, and if a discovery is made, to produce oil and/or natural gas for economic gain, so long as those operations are conducted in conformance with the lease terms and 43 CFR §3160.

There is no comprehensive State of Utah plan for the vicinity of the Proposed Action. 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.

Threatened, endangered, and sensitive species in or near the Project Area are managed in accordance with the Endangered Species Act of 1973, the Migratory Bird Act of 1918, and the BLM Special Status Species Manual 6840. The Proposed Action and alternatives carried through in this assessment are in compliance with these Acts, and Manual.

The Proposed Action is also consistent with the Record of Decision of the Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (Veg-EIS) [BLM 2007 (p. 43)]. Action 6A of Objective 6 of the Veg-EIS is to: "Control and manage invasive and noxious weed infestations using principles of integrated weed management including chemical, mechanical, and biological control methods. An approved Pesticide Use Proposal (PUP) is required for all planned herbicide applications (on BLM managed lands)." Section 12.4 of Newfield's Standard Operating Practices for the Greater Monument Butte Green River Development Program [Newfield 2008 (p. 43)] states that "A Pesticide Use Proposal will be submitted and approved prior to the application of herbicides or pesticides. Since the Veg-EIS constitutes "national guidance", herbicides used in any approved PUP will be limited to the 14 active ingredients; at or below the maximum rates analyzed within the Veg-EIS or label maximum, whichever is less; listed in Table 1 of the Veg-EIS Record of Decision.

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## **Chapter 3. Affected Environment:**

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### 3.0 Affected Environment

This section discusses the physical, biological, and social factors, as they currently exist within the Project Area. All resources considered during preparation of this EA are listed in **Appendix A**, the Interdisciplinary Team Analysis Record Checklist. Resources that were considered but dismissed from further analysis are also listed in **Appendix A**. This chapter provides the baseline for comparison of impacts/consequences described in **Chapter 4**.

Mineral extraction activities, transportation corridors, agricultural and ranching activities, livestock grazing, and erosion have historically affected the project area. The geology of the Project Area consists of Tertiary Eocene member B of the Uinta formation. The soil is defined as Kilroy loam; alluvium derived from sandstone, shale, limestone, and quartzite. The ecological site is Desert Loam with vegetation in the area consisting mainly of Indian ricegrass (*Achnatherum hymenoides*), four-wing saltbush (*Atriplex canescens*), shadscale (*Atriplex confertifolia*), cheatgrass (*Bromus tectorum*), rabbitbrush sp. (*Chrysothamnus sp.*) halogeton (*Halogeton glomeratus*), needle and thread (*Hesperostipa comata*), winterfat (*Krascheninnikovia lanata*), prickly pear cactus sp. (*Opuntia sp.*), scarlet globemallow (*Sphaeralcea coccinea*), and horsebrush sp. (*Tetradymia sp.*). The terrain is generally flat, with rolling hills and drainages in some locations. Average annual precipitation ranges from 5 – 8 inches.

#### 3.1. Air Quality Including Greenhouse Gas Emissions

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

- Exhaust emissions (primarily CO, NO<sub>x</sub>, PM<sub>2.5</sub>, and HAPs) from existing natural gas fired compressor engines used in transportation of natural gas in pipelines;
- Natural gas dehydrator still-vent emissions of CO, NO<sub>x</sub>, PM<sub>2.5</sub>, and HAPs;
- Gasoline and diesel-fueled vehicle tailpipe emissions of VOCs, NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>;
- Oxides of sulfur (SO<sub>x</sub>), NO<sub>x</sub>, fugitive dust emissions from coal-fired power plants, and coal mining/ processing;
- Fugitive dust (in the form of PM<sub>10</sub> and PM<sub>2.5</sub>) from vehicle traffic on unpaved roads, wind erosion in areas of soil disturbance, and road sanding during winter months; and,
- Long-range transport of pollutants from distant sources.

The Uinta Basin is designated as unclassified/attainment by the EPA under the Clean Air Act. This classification indicates that the concentration of criteria pollutants in the ambient air is below National Ambient Air Quality Standards (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<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM<sub>10</sub>) or 2.5 microns in diameter (PM<sub>2.5</sub>). Airborne particulate matter (PM) consists of tiny

coarse-mode (PM<sub>10</sub>) or fine-mode (PM<sub>2.5</sub>) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. PM<sub>2.5</sub> is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM<sub>10</sub> is primarily from crushing, grinding, or abrasion of surfaces. **Table 3.1** lists ambient air quality background values for the Uinta Basin and NAAQS standards.

**Table 3.1. Ambient Air Quality Background Values**

Pollutant	Averaging Period(s)	Uinta Basin Background Concentration (µg/m <sup>3</sup> )	NAAQS (µg/m <sup>3</sup> )
SO <sub>2</sub>	Annual	0.8 <sup>2</sup>	-- <sup>1</sup>
	24-hour	3.9 <sup>2</sup>	-- <sup>1</sup>
	3-hour	10.1 <sup>2</sup>	1,300
	1-hour	19.0 <sup>2</sup>	197
NO <sub>2</sub>	Annual	8.1 <sup>3</sup>	100
	1-hour	60.2 <sup>3</sup>	188
PM <sub>10</sub>	Annual	7.0 <sup>4</sup>	-- <sup>6</sup>
	24-hour	16.0 <sup>4</sup>	150
PM <sub>2.5</sub>	Annual	9.4 <sup>3</sup>	15
	24-hour	17.8 <sup>3</sup>	35
CO	8-hour	3,450 <sup>4</sup>	10,000
	1-hour	6,325 <sup>4</sup>	40,000
O <sub>3</sub>	8-hour	100.0 <sup>3,5</sup>	75

1- The 24-hour and annual SO<sub>2</sub> NAAQS have been revoked by USEPA  
2- Based on 2009 data from Wamsutter Monitoring Station Data (USEPA AQS Database)  
3- Based on 2010/2011 data from Redwash Monitoring Station (USEPA AQS Database)  
4- Based on 2006 data disclosed in the Greater Natural Buttes FEIS. (BLM, 2012)  
5- Ozone is measured in parts per billion (ppb)  
6- The annual PM<sub>10</sub> NAAQS has been revoked by USEPA

Two year-round air quality monitoring sites were established in summer 2009 near Red Wash (southeast of Vernal, Utah) and Ouray (southwest of Vernal). The monitors were certified as Federal Reference Monitors in fall of 2011. These monitors can be used to make NAAQS compliance determinations. The complete EPA Ouray and Redwash monitoring data can be found at: <http://www.epa.gov/airexplorer/index.htm>

Both monitoring sites have recorded numerous exceedences of the 8-hour ozone standard during the winter months (January through March 2010, 2011, 2013 and 2014). It is thought that high concentrations of ozone are being formed under a “cold pool” process. This process occurs when stagnate air conditions form with very low mixing heights under clear skies, with snow-covered ground, and abundant sunlight. These conditions, combined with area precursor emissions (NO<sub>x</sub> and VOCs), can create intense episodes of ozone. These episodes didn’t occur in Jan-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 Castlepeak-Eightmile Flat EIS [BLM 2005. (p. 43)] analyzed air quality impacts, including estimates of VOC and NO<sub>x</sub> emissions, for existing and future activities in the Greater Monument Butte Unit. A VOC and NO<sub>x</sub> emissions inventory of Newfield’s existing operations was completed to determine if emissions associated with current and near future infrastructure,

drilling, and production is within the scope of the Castlepeak-Eightmile Flat EIS. As shown in **Table 3.2**, and due to changing technology, the current emissions for the Greater Monument Butte Unit are within the scope of the referenced EIS.

**Table 3.2. Castlepeak-Eightmile Flat EIS Emissions vs. Current Emissions**

Source	Source Subset	VOC Emissions (tons per year)	NO <sub>x</sub> Emissions (tons per year)
<b>EIS Predicted Emissions</b>	Existing Permitted Infrastructure	108	230
	Drilling <sup>1</sup>	45	568
	Production	1,037	4,311
	<b>Total</b>	<b>1,190</b>	<b>5,109</b>
<b>Infrastructure Emissions</b>	Current	57	202
	Proposed to 2014	18	80
	<b>Total</b>	<b>75</b>	<b>282</b>
<b>Drill Rig Emissions</b>	<b>Total</b>	<b>29</b>	<b>129<sup>2</sup></b>
<b>Production Emissions</b>	Pumpjack Engines <sup>3</sup>	125	1,003
	Natural Gas Fueled Burners	59	488
	Stock Tanks	557	--
	<b>Total</b>	<b>741</b>	<b>1,491</b>
<b>Total Current Emissions</b>		<b>845</b>	<b>1,902</b>

1 - Assumed six Tier 0 rigs drilling 130 wells per year at an engine load factor of 0.47  
2 - Assumes three Tier II rigs drilling 200 wells per year at an engine load factor of 0.47.  
3 - Based upon 1.8 tons per year NO<sub>x</sub> and 0.58 tons per year VOC per engine.

The UDAQ conducted limited monitoring of PM<sub>2.5</sub> in Vernal, Utah in December 2006. During the 2006-2007 winter season, PM<sub>2.5</sub> levels were higher than the PM<sub>2.5</sub> health standards that became effective in December 2006. The PM<sub>2.5</sub> levels recorded in Vernal were similar to other areas in northern Utah that experience wintertime inversions. The most likely causes of elevated PM<sub>2.5</sub> 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<sub>2.5</sub> 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.

### **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 NOAA and NASA data, the Earth's average surface temperature has increased by about 1.2 to 1.4° F in the last 100 years. The eight warmest years on record (since 1850) have all occurred since 1998, with the warmest year being 1998. However, according to the British Meteorological Office's Hadley Centre [BMO 2009 (p. 43)], the United Kingdom's foremost climate change research center, the mean global temperature has been relatively constant for the

past nine 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) [USGCRP 2009 (p. 43)] 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 interannual conditions. For eastern Utah, the projections range from an approximate 5 percent decrease in annual precipitation to decreases as high as 40 percent of annual precipitation.

## 3.2. Livestock Grazing & Rangeland Health Standards

### LIVESTOCK GRAZING

The proposed project is located in the Antelope Powers, Castle Peak and Wells Draw Allotments; used for cattle and sheep grazing (see table below).

**Table 3.3. Grazing Allotments and Livestock Use**

Allotment Number	Allotment Name	Livestock Number	Livestock Kind	Begin	End	Type Use	Type Use
15879	Antelope Powers	220	CATTLE	10/01	5/01	ACTIVE	1541
15879	Antelope Powers	2207	SHEEP	10/01	5/01	ACTIVE	3091
05886	Castle Peak	461	CATTLE	11/01	04/15	83 Active	2088
15884	Wells Draw	74	CATTLE	11/13	4/15	Active	404

The allotments are primarily located within the semi-arid saltshrub ecosystem; undisturbed areas are characterized by native low-lying shrubs, grasses and forbs. Disturbed areas of the allotments are currently characterized by invasive weeds such as halogeton (*Halogeton glomeratus*) and cheat grass (*Bromus tectorum*) as well as bare ground. The allotments are currently dissected by hundreds, possibly thousands, of miles of pipelines, roads and road spurs, as well as other infrastructure such as compressor stations, which characterize dense oil and gas development.

The current livestock operator of the Antelope Powers and Castle Peak allotments have been unable to utilize their full permitted AUMs within the allotments due to the current level of disturbance, fragmentation, daily traffic, development, and most recently, drought.

The Wells Draw allotment is primarily located within the semi-arid saltshrub ecosystem; undisturbed areas are characterized by native low-lying shrubs, grasses and forbs. Pinyon and Junipers characterize the hillsides and higher elevations. Disturbed areas of the allotment are currently characterized by invasive weeds such as halogeton (*Halogeton glomeratus*) and cheat grass (*Bromus tectorum*) as well as bare ground. This allotment is not dissected by full-field energy development. Development is increasing in the Northern portion. With the amount of disturbance in the allotment, full AUMs are utilized.

### RANGELAND HEALTH STANDARDS:

Rangeland Health Standards were assessed for the Antelope Powers Allotment in 2008; the Determination of Rangeland Health was signed in 2010 and the allotment was considered to be meeting Rangeland Health Standards throughout the interspaces of oil and gas development areas. However, Rangeland Health Standards are scheduled to be re-assessed during the field season of 2014, due to a severe increase in oil and gas energy development throughout the allotment – as well as projected increases in development proposed in the ongoing Monument Butte EIS. Large portions of the vegetative surface have been removed and/or disturbed as a result of the development of oil and gas resources in the area.

Rangeland Health Standards were assessed for the Castle Peak allotment in 2008. The allotment met Rangeland Health requirements and met them again in 2013; however, no determination has been signed.

Rangeland Health Standards were assessed for the Wells Draw allotment during the summer of 2014. Both sites met the Rangeland Health requirements; however, no determination has been signed.

### **3.3. Fish and Wildlife; Threatened, Endangered, or Candidate Species; and Migratory birds**

#### **3.3.1. Migratory Birds**

The Migratory Bird Treaty Act (MBTA) was implemented for the protection of migratory birds. Unless permitted by regulations, the MBTA makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products. In addition to the MBTA, Executive Order 13186 sets forth the responsibilities of Federal agencies to further implement the provisions of the MBTA by integrating bird conservation principles and practices into agency activities and by ensuring that Federal actions evaluate the effects of actions and agency plans on migratory birds.

This section identifies migratory birds that may inhabit the Project Area, including those species classified as High-Priority birds by Utah Partners in Flight [Parrish et. al. 2002 (p. 43)]. High-Priority species are denoted by an asterisk (\*). Without conducting comprehensive migratory bird surveys, it is not known if these species are present or not. Species listed below are based on GIS reviews, and a field review during on-site inspections.

Migratory bird species commonly associated with the sagebrush-steppe community within the Project Area include: the mountain bluebird\* (*Sialia currocooides*), grasshopper sparrow\* (*Ammodramus savannarum*), Brewer's sparrow\* (*Spizella breweri*), sage sparrow\* (*Amphispiza belli*), sage thrasher\* (*Oreoscoptes montanus*), green-tailed towhee\* (*Pipilo chlorurus*), horned lark (*Eremophila alpestris*), loggerhead shrike (*Lanius ludovicianus*), western kingbird (*Tyrannus verticalis*), northern mockingbird (*Mimus polyglottos*), vesper sparrow (*Pooecetes gramineus*) and western meadowlark (*Sturnella neglecta*) [Parrish et. al. 2002] (p. 43) .

#### **Mountain Plover (*Charadrius montanus*)**

The mountain plover is currently a Utah State species of concern. The only known breeding population of mountain plover in Utah is located on Myton Bench. The proposed pad is within Mountain Plover habitat.

### 3.3.2. Fish and Wildlife Excluding USFWS Designated Species

The affected environment for bluehead sucker, flannelmouth sucker, and the round-tailed chub would be the same as Colorado River Fish Species in Section 3.3.3

### 3.3.3. Threatened, Endangered, or Candidate Animal Species

#### Colorado River Fish Species

The USFWS has identified four Federally listed fish species historically associated with the Upper Colorado River Basin, including the Green River: Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*). These fish are Federally and State-listed as endangered and have experienced severe population declines due to flow alterations, habitat loss or alteration, and introduction of non-native fish species. Portions of the Green River and its 100-year floodplain have been designated Critical Habitat for these four endangered fish species [USFWS 1994 (p. 43)]. The Project Area does not occur within critical habitat for the Colorado endangered fish species. The average downstream distance (following natural washes and drainages) from the Project Area to razorback sucker and Colorado pikeminnow habitat within the Green River is approximately 16 miles, and to humpback chub and bonytail chub habitat within the Green River is 51 miles. Three additional species are endemic to the Colorado River Basin, including the Green River: roundtail chub (*Gila robusta*), flannelmouth sucker (*Catostomus latipinnis*), and bluehead sucker (*Catostomus discobolus*). The roundtail chub is a State-listed threatened species, while the two suckers are species of special concern due to declining population numbers and distribution.

## 3.4. Archaeology

### Cultural Resources

Prehistoric human occupation of the Uinta Basin has been divided into four distinct and temporally bounded periods of time: Paleoindian, Archaic, Formative, and Protohistoric. By the time of historic contact with Euro-Americans in the late 1700s, ethnographically known groups in the region consisted primarily of the Ute, Shoshone, and the Paiute (cf. Spangler 1995)

In the Uinta Basin, evidence of Paleoindian occupation has generally been inferred as archaeological sites with stratified deposits and dateable materials have not been documented to any great extent. Generally, the Archaic period has been described as a period in which prehistoric populations employed broadly similar hunting and gathering life ways, but with distinct regional adaptations to local environmental conditions. There is not a clear, abrupt break in the archaeological record between the Archaic and Formative periods. As a result, the early portion of the Formative period overlaps with the end of the Late Archaic. The culture complex ascribed to the Formative period in the Uinta Basin is the Fremont. The Fremont occupied the Uinta Basin later than other areas of the Great Basin. The archaeological record of the Great Basin and the Northwestern Plains at the end of the Formative period is characterized by the decline of intensive-level farming and a return to a hunting- and gathering-based subsistence economy. Motivated by various economic and demographic factors, the United States government forcefully moved several Ute bands onto the Ute Reservation in 1864. In 1905, much of the Uintah Reservation was declared open to white settlement under the auspices of the Dawes Severalty Act of 1887, spurring further settlement of the area. By the early 1870s, Mormon ranchers began filtering into Ashley Valley, which provided a source of excellent summer forage for grazing cattle.

Numerous Class I (i.e., file search) and Class III (i.e., field survey) cultural resource reports have been conducted within, and adjacent to, the proposed project area. For example, there are 32 previously conducted cultural resource inventories adjacent to and/or intersecting the area. Of the nine archaeological sites associated with these projects, only one archaeological site (42Dc2299) abuts the project area; site 42Dc2299 is a European-American historic artifact scatter with features.

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## **Chapter 4. Environmental Effects:**

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## 4.0 Environmental Effects

This chapter describes the impacts that are anticipated to occur upon implementation of the Proposed Action and No Action alternatives to the resources described in Chapter 3.

### 4.1. Proposed Action

#### 4.1.1. Air Quality Including Greenhouse Gas Emissions

This Proposed Action is considered to be a minor source under the Clean Air Act and is not controlled by regulatory agencies. At present, control technology is not required by regulatory agencies since the Uinta Basin is designated as unclassified/attainment. The Proposed Action would result in different emission sources associated with two project phases: well development and well production. Annual estimated emissions from the Proposed Action are summarized in **Table 4.1**.

**Table 4.1. New Wells Annual Emissions (tons/year)<sup>1</sup>**

Pollutant	Development	Production	Total
NO <sub>x</sub>	3.472	0.973	4.45
CO	1.101	1.834	2.94
VOC	0.332	1.833	2.17
SO <sub>2</sub>	0.018	0.0036	0.022
PM <sub>10</sub>	0.406	5.43	5.84
PM <sub>2.5</sub>	0.102	0.6	0.70
Benzene	0.0012	0.0044	0.0056
Toluene	0.0008	0.0028	0.0036
Ethylbenzene	0.00	0.00	0.00
Xylene	0.0004	0.0004	0.0008
n-Hexane	0.00	0.002	0.00
Formaldehyde	0.00	0.04	0.04

<sup>1</sup>Emissions include development and production from 1 well and associated operations traffic during the year in which the project is developed.

Well development includes NO<sub>x</sub>, SO<sub>2</sub>, 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<sub>x</sub> and CO emissions, with lesser amounts of SO<sub>2</sub>. These emissions would be short-term during the drilling and completion phases.

During well production, continuous NO<sub>x</sub>, 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<sub>10</sub> and PM<sub>2.5</sub>) would also be produced by vehicles servicing the wells.

Under the proposed action, emissions of NO<sub>x</sub> and VOC, ozone precursors from the producing well would be 0.97 tons/yr for NO<sub>x</sub>, and 1.83 tons/yr of VOC (**Table 4.1**). 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**

The assessment of greenhouse gas emissions and climate change remains in its earliest stages of formulation. Applicable EPA rules do not require any controls and have yet to establish any emission limits related to GHG emissions or impacts. The lack of scientific models that predict climate change on regional or local level prohibits 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.

### **Mitigation:**

1. All internal combustion equipment shall be kept in good working order.
2. Water or other approved dust suppressants will be used at construction sites and along roads, as determined appropriate by the Authorized Officer. Dust suppressant such as magnesium chloride or fresh water may be used, as needed, during the drilling phase.
3. Open burning of garbage or refuse shall not occur at well sites or other facilities.
4. Drill rigs shall be equipped with Tier II or better diesel engines.
5. Low bleed pneumatics will be installed on separator dump valves and other controllers.
6. During completion, no venting can occur, and flaring will be limited as much as possible. Production equipment and gathering lines will be installed as soon as possible.
7. Telemetry will be installed to remotely monitor and control production.
8. When feasible, two or more rigs (including drilling and completion rigs) will not be run simultaneously within 200 meters of each other. If two or more rigs must be run simultaneously within 200 meters of each other, then effective public health buffer zones out to 200 meters (m) from the nearest emission source will be implemented. Examples of an effective public health protection buffer zone include 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, the proponent may demonstrate compliance with the 1-hour NO<sub>2</sub> National Ambient Air Quality Standards (NAAQS) with appropriate and accepted near-field modeling. As part of this demonstration, the proponent may propose alternative mitigation that could include but is not limited to natural gas-fired drill rigs, installation of NO<sub>x</sub> controls, time/use restrictions, and/or drill rig spacing.
9. All new and replacement internal combustion gas field engines of less than or equal to 300 design-rated horse power must not emit more than 2 grams of NO<sub>x</sub> per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.

10. All new and replacement internal combustion gas field engines of greater than 300 design rated horsepower must not emit more than 1.0 grams of NO<sub>x</sub> per horsepower-hour.
11. Green completions will be used for all well completion activities where technically feasible.

## **4.1.2. Livestock Grazing & Rangeland Health Standards**

### **LIVESTOCK GRAZING**

The Castle Peak and Antelope Powers allotments have been impacted by full field energy development. Past reclamation within the allotments has been relatively unsuccessful. The large amount of fragmentation, disturbance and forage loss throughout the allotments has led to multiple years of moderate to minimal use by the current grazing permittees.

The Wells Draw allotment has not been adversely affected to such an extent that full-field development exists. The Northern portion is being affected by most of the oil activity, but not to a degree that full AUMs are jeopardized.

Under the Proposed Action approximately 3.58 acres of surface disturbance would occur. The allotments would continue to be used below authorized levels due to the increase in the amount of disturbance. The increase in disturbance and development activity, although slated for ancillary reclamation usually increases weed vegetation and general fragmentation of the landscape, which continues to hinder livestock operations. Therefore, both direct (loss of forage, invasive weeds, etc.) and indirect (increase in vehicle traffic, landscape fragmentation, etc.) impacts affect the livestock grazing operation on the allotments.

### **RANGELAND HEALTH**

Rangeland Health assessments have been done on the allotments. Throughout the last few years energy development has continued to boom in the area through the implementation of the Castlepeak-Eightmile Flat EIS ROD. There has been a large increase in the level of disturbance as a result of oil and gas development in the area. Impacts from large amounts of disturbance and fragmentation contribute to factors (weeds, bare ground, shifts in ecological community structure, erosion, etc.) that often lead to areas not meeting rangeland health.

Under the Proposed Action approximately 3.58 acres of new surface disturbance would occur. This would contribute to soil loss, weed invasion, and continued fragmentation of grazing allotments, affecting livestock movement patterns and forage availability.

Although, much of the disturbed landscape is slated for reclamation; those efforts have not proven to be highly successful within the area for rangeland forage. Therefore, it is assumed that ecological impacts are continuing to occur which has the potential to directly and indirectly affect rangeland health standards.

### **4.1.3. Fish and Wildlife; Threatened, Endangered, or Candidate Species; and Migratory Birds**

#### **4.1.3.1. Migratory Birds**

Under the Proposed Action, 3.33 acres would be disturbed. These activities would contribute to a loss of migratory bird habitat. The potential impacts also include an increased risk of direct mortality from vehicle strikes and nest disruption. However, since all the activity will occur within or adjacent to existing disturbance, current activities and lack of vegetation suitable to nest in makes it less likely birds will be nesting in the affected area.

*Mitigation:*

**Mountain Plover (*Charadrius montanus*)**

If it is anticipated that construction or drilling will occur during mountain plover nesting season (May 1 – June 15), a BLM biologist will be notified to determine if surveys are necessary prior to beginning operations. If surveys are deemed necessary, depending on the results permission to proceed may or may not, be granted by the BLM Authorized Officer.

#### **4.1.3.2. Fish and Wildlife Excluding USFWS Designated Species**

Impact analysis for bluehead sucker, flannelmouth sucker, and the round-tailed chub would be the same as Colorado River Fish Species in Section 4.1.3.3

#### **4.1.3.3. Threatened, Endangered, or Candidate Animal Species**

***Colorado River Fish Species***

The Proposed Action would result in water depletion from removal of water from the Upper Colorado River Drainage System for construction and drilling operations. Water depletions reduce the ability of the river to create and maintain the primary constituent elements that define critical habitats.

Water depletions from the Upper Colorado River Drainage System, along with a number of other factors, have resulted in such drastic reductions in the populations of the Colorado pikeminnow, humpback chub, bonytail, and razorback sucker that the USFWS has listed these species as endangered and has implemented programs to prevent them from becoming extinct.

Food supply, predation, and competition are also important elements of the biological environment. Food supply is a function of nutrient supply and productivity, which could be limited by reduction of high spring flows brought about by water depletions. Predation and competition from nonnative fish species have been identified as factors in the decline of the endangered fishes. Water depletions contribute to alterations in flow regimes that favor nonnative fishes.

The potential exists for water intake structures placed in the Upper Colorado River Drainage System (flowing rivers and streams) to result in mortality to eggs, larvae, young-of-the-year, and juvenile life stages. Newfield would minimize this potential by following mitigation measures. Key habitat components for foraging or cover may be removed or altered due to equipment, including decreased water quantity for aquatic species from dewatering during low flow periods.

*Chapter 4 Environmental Effects:*

*Fish and Wildlife; Threatened, Endangered, or Candidate Species; and Migratory Birds*

August, 2014

Therefore, the Proposed Action would have a “*may affect, likely to adversely affect*” determination for the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker. The Proposed Action would also adversely affect the bluehead sucker, flannelmouth sucker, and the roundtail chub, but it is not likely to result in a trend toward the listing of the species. Water for drilling the proposed wells would come from an underground water well (Johnson Water District - Water Right 43-10136), Neil Moon Pond (Water Right 43-11787), Tributary to Pleasant Valley Wash (Maurice Harvey Pond - Water Right 47-1358), or the Green River (Newfield Collector Well - Water Right 47-1817). The Maurice Harvey Pond and Johnson Water District are historic depletions (permitted prior to January 1988). The USFWS addresses new and historic depletions differently under the Section 7 agreement of March 11, 1993. Historic depletions, 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.

1. The best method to avoid entrainment is to pump from an off-channel location – one that does not connect to the river during high spring flows. An infiltration gallery constructed in a service approved location is best.
2. If the pump head is located in the river channel the following stipulations apply:
  - a. Do not situate the pump in a low-flow or no-flow area as these habitats tend to concentrate larval fishes.
  - b. Limit the amount of pumping, to the greatest extent possible, during that period of the year when larval fish may be present (April 1 to August 1).
  - c. Limit the amount of pumping, to the greatest extent possible, during the midnight hours (10pm to 2 am), as larval drift studies indicate that this is a period of greatest daily activity. Dusk is the preferred pumping time, as larval drift abundance is lowest during this time.
3. Screen all pump intakes with 3/32” mesh material.
4. Approach velocities for intake structures should follow the National Marine Fisheries Service's document "fish screening criteria for anadromous salmonids". For projects with an in-stream intake that operate in stream reaches where larval fish may be present, the approach velocity should not exceed 0.33 feet per second (ft/s).
5. Report any fish impinged on the intake screen or entrained into irrigation canals to the service (801.975.3330) or the Utah Division of Wildlife Resources:

Northeastern Region  
318 N Vernal Ave,  
Vernal, UT 84078  
Phone: (435)781-9453

#### **4.1.4. Archaeology**

##### **Cultural Resources**

The project specific location was inventoried for cultural resources and a report detailing the findings was completed (U-13-ST-0810b, Class III Cultural Resources Inventory of Newfield Production Company's Well Pad No. 2-11-10s-17e). Alternative A would result in surface disturbance that could potentially harm identified cultural resources. Cultural resources can be irreversibly damaged or destroyed by surface-disturbing activities. Many of the known prehistoric and historic archaeological sites in the Uinta Basin are shallow and vulnerable to the impacts of vegetation clearing, blading, and excavation. The Operator committed to suspending construction operations that may affect previously unidentified cultural resources if such resources were to be found and contacting the VFO for direction. Although impacts to cultural resources could include removal of surface artifacts due to illicit collection and inadvertent destruction, the area is not easily accessible and does not attract recreational use. Impacts to cultural resources would be unlikely to occur as a result of illicit collection by the public. Artifact removal by the public is not quantifiable.

Section 106 of the National Historic Preservation Act requires the BLM to account for the effects of its undertakings on historic properties. The Utah SHPO concurrence for the proposed undertaking was received on 12/04/2013.

#### *Mitigation*

1. Based on the adjacent historic property (site 42Dc2299, Criterion D) any additional construction (i.e., the proposed pipeline) must be placed within an already disturbed roadway area.
2. An onsite monitor must be present during all earth-moving activities in the vicinity (i.e., 150 ft) of this site.

## **4.2. No Action Alternative**

### **4.2.1. Air Quality and Greenhouse Gas Emissions**

Under the No Action Alternative, the proposed wells would not be drilled and the existing wells would not be converted to injection. There would be no emissions increases or reductions to air quality. Effects on ambient air quality would continue at present levels from existing oil and gas development in the region and other emission producing sources. The host well pads would continue to exist until the wells on those pads are plugged.

### **4.2.2. Livestock Grazing & Rangeland Health Standards**

Under the No Action alternative, there would be no additional contributions to the existing disturbance and fragmentation resulting in no change in impacts from the project to the allotments, to livestock grazing or Rangeland Health Standards.

### **4.2.3. Fish and Wildlife; Threatened, Endangered, or Candidate Species; and Migratory Birds**

Under the No Action alternative, there would be no direct disturbance and mortality, indirect effects or cumulative effects to threatened, endangered, and proposed, candidate, or sensitive fish

and wildlife species/habitat, migratory birds and non-listed wildlife from construction, drilling, and completion activities associated with the Proposed Action. However, the host well pads would continue to exist until the wells on those pads are plugged. Surface disturbance, human activity, displacement, and weed impacts will continue as a result of the maintenance of the existing wells, pads, roads, and pipelines.

#### **4.2.4. Archaeology**

Under the No Action alternative, there would be no impacts to cultural resources.

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# **Chapter 5. Cumulative Impacts**

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## 5.0 Cumulative Impacts

Cumulative impacts are those impacts that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable actions, regardless of which agency or person undertakes such other actions.

Cumulative effects under the ESA include the effects of the future State, Tribal, local, or private actions that are reasonably certain to occur in the project area; future Federal actions that are unrelated to the Proposed Action are not required to be considered because they require separate consultation pursuant to Section 7 of the ESA. However, NEPA requires the full disclosure of all past, present, and reasonably foreseeable activities regardless of surface owner so this analysis includes future federal actions.

### 5.1. Air Quality Including Greenhouse Gas Emissions

The cumulative impact area for air quality is the Uinta Basin. The potential impact of the Proposed Action to Uinta Basin ozone levels cannot be accurately modeled due to limitations of the modeled monitors in detecting small projects such as this. The project was accounted for in the Greater Natural Buttes (GNB) air quality study, which is the most recent regional air model available for the Uinta Basin. The GNB Final EIS Section 5.3.1 model results are incorporated by reference and summarized below. The GNB Final EIS discloses that most of the cumulative emissions in the Uinta Basin are associated with oil and gas exploration and production activities. Consequently, past, present and reasonably foreseeable wells in the Uinta Basin are a part of the cumulative actions considered in this analysis. **Table 5.1** summarizes the 2006 Uinta Basin emissions as well as the incremental impact of this project's alternatives. The Proposed Action comprises a small percentage of the Uinta Basin emissions summary.

**Table 5.1. 2006 Uinta Basin Oil and Gas Operations Emissions Summary**

County	NO <sub>x</sub> (tpy)	CO (tpy)	SO <sub>x</sub> (tpy)	PM (tpy)	VOC (tpy)
Uintah	6,096	4,133	247	344	45,646
Carbon	995	814	22	40	2,747
Duchesne	3,053	2,448	96	173	19,019
Grand	337	207	16	22	2,360
Emery	273	199	9	14	453
<b>Uinta Basin Total</b>	<b>10,754</b>	<b>7,800</b>	<b>391</b>	<b>592</b>	<b>70,226</b>
Proposed Action Increment	4.45	2.94	0.02	5.84pm <sub>10</sub> 0.7pm <sub>2.5</sub>	2.17
No Action Increment	0	0	0	0.0pm <sub>10</sub> 0.0pm <sub>2.5</sub>	0.0

The GNB model predicted the following impacts to air quality and air quality related values for the GNB proposed action, which encompassed 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 GNB Final EIS proposed action;
- The GNB Final EIS proposed action would contribute less than 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 USFS screening threshold; and,
- Ozone levels are below the current ozone standard of 75 ppb for the fourth highest annual level in the Uinta Basin for the 2018 projected baseline, and the proposed action would be approximately 3.2 percent of the cumulative ozone impact within the Uinta Basin.

Based on the GNB model results, it is anticipated that the impact to ambient air quality and air quality related values associated with the Proposed Action would be indistinguishable from, and dwarfed by, the margin of uncertainty associated with the model and Uinta Basin emission inventory. The No Action alternative would not result in an accumulation of impacts.

## 5.2. Livestock Grazing & Rangeland Health Standards

The cumulative impact analysis area (CIAA) for Rangeland Resources is the Antelope Powers, Castle Peak and Eight Mile Flat Allotments. The allotments include approximately 40,466, 51,824, and 27,546 acres, respectively. Within the CIAA, negative impacts have occurred and continue to occur for grazing resources as a result of disturbance from oil and gas energy development. Invasive species such as: halogeton, tumbleweed, tumble mustard and cheatgrass usually dominate disturbed sites throughout the CIAA. The current landscape within the CIAA is heavily fragmented by hundreds of miles of surface pipelines, roads, well pads (abandoned and active), compressor stations, and other infrastructure typically associated with the oil and gas industry. **Table 5.2** depicts existing disturbance. Cumulative existing disturbance for the CIAA is approximately 5,782 acres, including 453 miles of ancillary roads. The Proposed Action would contribute an additional 3.03 acres to the overall cumulative disturbance. The No Action alternative would not contribute additional disturbance impacts in the CIAA.

The amount of total surface disturbance reduces the available forage for livestock and wildlife within the allotments, and would continue to result in direct effects to grazing operation via probable AUM reductions as a direct result of forage loss and fragmentation. Surface impacts include increased traffic and landscape fragmentation and disturbance near water improvements that are specifically managed for livestock grazing.

**Table 5.2. Cumulative Disturbance for Livestock Grazing & Rangeland Health**

Type of Disturbance (11.10.2012)	Count	Acreage*	Other Metrics	Source
<b>Energy Development</b>				
Drilling Locations	54	270	NA	DOGM Data
Operations Center	6	39	NA	DOGM Data
Producing Wells	1237	6,185	NA	DOGM Data
Shut In Well Locations	91	455	NA	DOGM Data

Temporarily Abandoned	12	280	NA	DOGM Data
Newfield Major Pipelines (estimated 3.5 acres/mile)	Approx. 80	280	80 miles	Available Newfield GIS Data
<b>Reasonably Foreseeable Well Pads</b>				
Gasco	198	990	NA	DOGM Data
MBU	946	4730	NA	DOGM Data
<b>Other (County, Livestock, Etc.)</b>				
Ponds and/or Guzzlers recorded in RIPs	Approx. 33	Estimated 20		
Ancillary Roads		1,492	373 miles	Assumption for acreage is based on an average width of 30 feet/mile of road (approx. 4 acres/mile)
<b>Total Estimated Existing Cumulative Disturbance</b>		<b>5,782 acres</b>	<b>453 miles</b>	
<b>*Acreage is based on GPS data and is a rough estimate</b>				

### 5.3. Fish and Wildlife; Threatened, Endangered, or Candidate Species; and Migratory Birds

The cumulative impacts analysis area for this resource is defined as the boundary of the Greater Monument Butte Unit in Duchesne and Uintah Counties, Utah, which contains approximately 65,381 acres. As disclosed in the Castle Peak Eight Mile Flat FEIS, past activity in the cumulative impact area includes 671 oil, gas, and waterflood wells and present activity includes 778 oil gas, and waterflood wells. Assuming 1.3 acres of disturbance for well pads (after interim reclamation) and 2.5 acres of disturbance for ancillary facilities (per well), the past and present disturbance is approximately 5,506 acres. Reasonably foreseeable development includes the Newfield Greater Monument Butte Development Plan consisting of 5,750 wells including supporting facilities. Assuming 1.3 acres of disturbance per well including ancillary facilities, because there are multiple wells on most pads, the reasonably foreseeable development would result in approximately 7,404 acres of disturbance after interim reclamation. Total cumulative disturbance would be 12,910 acres.

Cumulative impacts resulting from the surface disturbance and other actions include decreased available cover, carrying capacity, foraging opportunities, breeding habitat, and habitat productivity for mountain plover and migratory birds. 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 proposed action would add 3.03 acres of disturbance/redisturbance.

The No Action Alternative would not result in an accumulation of impacts.

#### *Colorado River Fish Species*

The cumulative impacts analysis area for this resource is the Colorado River system. Cumulative impacts in this area include oil and gas exploration and development, irrigation, urban development, recreational activities, and activities associated with the Upper Colorado River Endangered Fish Recovery Program. Cumulative impacts such as decreased water quality and quantity, decreased habitat quality, habitat fragmentation, and mortality result from decreased stream flow, erosion, improperly placed culverts, elevated salinity, and contamination. Decreased stream-flows reduce or eliminate both the extent and quality of suitable habitat by increasing stream temperatures, and subsequently by reducing dissolved oxygen levels. Such impacts may be more pronounced during periods of natural cyclic flow reductions (fall and winter or periods of drought). A loss of streamflow can also reduce a stream's ability to transport sediment downstream. Sediment amount is influenced by the number of road/stream crossings, bank slope, amount of exposed soil, type of vegetation in the area, frequency and intensity of rainfall, soil type (amount of salinity), soil contamination, and the implementation and effectiveness of erosion control measures. Sediment loads above background levels can reduce pool depths, bury stream substrates and spawning gravels, adhere to aquatic insects and the gills of fish, alter channel form and function, and result in other forms of habitat degradation. Elevated salinity levels, over extended periods of time, may become toxic for aquatic ecosystems and fish species. In addition, improperly placed, shaped, and sized culverts in roads can act as fish barriers on key streams or exacerbate erosion and cause headcutting.

The No Action Alternative would not result in an accumulation of impacts. The Proposed Action would add 70.55–80.45 acre feet of water depletion.

## **5.4. Archaeology**

The cumulative impact area for this resource is the project area. Cumulative actions include surface disturbance that could potentially harm identified cultural resources from ongoing oil and gas activities, grazing activities, and recreational activities. Cultural resources can be irreversibly damaged or destroyed by surface-disturbing activities. Many of the known prehistoric and historic archaeological sites in the Uinta Basin are shallow and vulnerable to the impacts of vegetation clearing, blading, and excavation. Cumulative impacts include damage to or destruction of the cultural site from the cumulative actions. The Proposed Action Alternative may add surface disturbance to these cumulative effects, but with the application of the proposed mitigation measures these impacts would be minimized. The No Action Alternative would not result in an accumulation of impacts.

## **Chapter 6. Consultation and Coordination:**

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## 6.0 Consultation and Coordination

### 6.1. Section 7 Consultation Under the ESA

The USFWS's *Conclusion of Reinitiation of Section 7 Consultation for Water Depletion in the Upper Colorado River Basin on Bureau of Land Management land administered by the Vernal Field Office Biological Assessment, 2011* (FWS/R6 ES/UT 06-F-0215-R001) applies to this project.

### 6.2. Section 106 Consultation Under the NHPA

A recommendation of "no historic properties affected" pursuant to Section 106 of 36 CFR 800 is proposed for this project based on the proposed mitigation measure and the results of a Class III survey. Copies of the cultural resource reports were provided by the BLM to the State Historical Preservation Office (SHPO), along with a request to consult under Section 106 of the National Historic Preservation Act. The BLM received a concurrence determination of "no historic properties affected" from the SHPO for all the reports associated with this project.

### 6.3. Summary of Tribal Consultation

A request for Tribal concurrence regarding Native American Religious Concerns was conducted for the entire Gasco EIS, which encompasses the Project Area, on February 9, 2011.

### 6.4. Summary of Public Participation

This EA was posted on the BLM Land Use Planning and NEPA Register on August 7, 2014. No public interest has been expressed to date.

### 6.5. List of Document Preparers

**Table 6.1. Preparers**

NAME	TITLE	RESPONSIBLE FOR PREPARING THE FOLLOWING SECTION(S) OF THIS DOCUMENT
Nicholas Day	Physical Scientist	Team Lead
Stephanie Howard	Environmental Coordinator	Chapters 1, 3, 4 & 5: Air Quality
Dan Emmett	Wildlife Biologist	Chapters 1, 3, 4 & 5: Wildlife Including USFWS Designated Species; Threatened, Endangered, or Candidate Animal Species, Migratory birds
Alec Bryan	Rangeland Management Specialist	Chapters 1, 3, 4 & 5: Rangeland Resources - Livestock Grazing, Rangeland Health Standards
Leticia Neal	Archaeologist	Chapters 1, 3, 4 & 5: Archaeology

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## References

- [BMO 2009] British Meteorological Office's Hadley Centre, 2009. Accessed January 2009 at <http://www.metoffice.gov.uk/climatechange/science/monitoring/>..
- [BLM 2005.] Bureau of Land Management *Final Environmental Impact Statement and Record of Decision for the Castle Peak and Eight Mile Flat Oil and Gas Expansion Project, Newfield Rocky Mountains, Inc., Uintah and Duchesne Counties, Utah*. U.S. Department of the Interior, Bureau of Land Management, Vernal District Office..
- [BLM and USFS 2007] *Bureau of Land Management (BLM) and United States Department of Agriculture Forest Service (USFS). 2007. Surface Operating Standards for Oil and Gas Exploration and Development 4th Edition-Revised 2007 (Gold Book)*..
- [BLM 2007] Bureau of Land Management *Final Vegetation Treatments Using Herbicides Programmatic Environmental Impact Statement* U.S. Department of the Interior, Bureau of Land Management, .
- [BLM 2008] Bureau of Land Management *Vernal Field Office Resource Management Plan*. U.S. Department of the Interior, Bureau of Land Management, Vernal District Office..
- [Newfield 2008] *Standard Operating Procedures, Greater Monument Butte Green River Development Program*. Newfield Production Company..
- [Newfield. 2009] Newfield Exploration Company *Castle Peak and Eight Mile Flat Reclamation and Weed Management Plan*. .
- [Parrish et. al. 2002] Parrish, J.R., F.P. Howe and R.E. Norvell. *Utah Partners in Flight Avian Conservation Strategy Version 2.0. Utah Partners in Flight Program, Utah Division of Wildlife Resources, 1594 West North Temple, Salt Lake City, Utah 84116. UDWR Publication Number 02-27. i - xiv + 302 pp.*..
- [USGCRP 2009] U. S. Global Change Research Program *Global Climate Change Impacts in the United States*, Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson, (eds.). Cambridge University Press, 2009..
- [USFWS 1994] U.S. Fish and Wildlife Service. *Final Rule: Determination of critical habitat for the Colorado River endangered fishes: Razorback sucker, Colorado squawfish, humpback chub, and bonytail chub*. Federal Register 59: 13375-13400..
- [USFWS 2011]

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## Appendix A. Interdisciplinary Team Checklist

**Project Title:** Newfield's new oil well pad 2-11-10-17

**NEPA Log Number:** DOI-BLM-UT-G010-2014-0214

**File/Serial Number:** Various

**Project Leader:** Nicholas Day:

**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
<b>RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)</b>				
PI	Air Quality & Greenhouse Gas Emissions	Emissions from earth-moving equipment, vehicle traffic, drilling and completion activities, separators, oil storage tanks, dehydration units, and daily tailpipe and fugitive dust emissions could adversely affect air quality. 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	08/29/2014
NP	BLM Natural Areas	None present as per 2008 Vernal RMP and ROD/GIS layer review.	Nicholas Day	08/11/2014
PI	Cultural: Archaeological Resources	Avoidance measures for historic property are needed.	Leticia Neal	08/25/2014
NP	Cultural: Native American Religious Concerns	No Traditional Cultural Properties (TCPs) are identified within the APE. The proposed project will not hinder access to or use of Native American religious sites.	Leticia Neal	08/25/2014

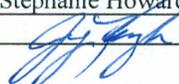
Determination	Resource/Issue	Rationale for Determination	Signature	Date
NP	Designated Areas: Areas of Critical Environmental Concern	None present as per 2008 Vernal RMP and ROD/GIS layer review.	Nicholas Day	08/11/2014
NP	Designated Areas: Wild and Scenic Rivers	None present as per 2008 Vernal RMP/ROD and GIS layer review	Nicholas Day	08/11/2014
NP	Designated Areas: Wilderness Study Areas	None Present as per 2008 Vernal RMP/ROD and GIS layer review	Nicholas Day	08/11/2014
NI	Environmental Justice	The Ute Tribe benefits financially from the oil and gas development in the region and is not disproportionately adversely affected by environmental impacts. There are no other minority or economically disadvantaged groups in the region that are positioned to be disproportionately adversely affected.	Nicholas Day	08/11/2014
NP	Farmlands (prime/unique)	Prime or unique farmlands must be irrigated to be designated as such. None of the lands in the project area are irrigated, therefore there are no prime or unique farmlands in the project area.	Nicholas Day	08/11/2014
NP	Fuels/Fire Management	No fuel management activities are planned for the project area.	Nicholas Day	08/11/2014
NI	Geology/Minerals/ Energy Production	Encounters with gilsonite during any surface or drilling operation must be reported to the BLM Vernal Field Office. Please provide location and depth encountered.  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" will assure that the project will not adversely affect gilsonite, oil shale, or tar sand deposits. Due to the state-of-the-art drilling and well completion techniques, the possibility of adverse degradation of tar sand or oil shale deposits by the proposed action will be negligible.  Well completion must be accomplished in compliance with "Onshore Oil and Gas Order No. 2, Drilling Operations". These guidelines specify the following: <i>... proposed casing and cementing programs shall be conducted as</i>	Betty Gamber	08/12/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		<i>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.</i>		
NI	Invasive Plants/ Noxious Weeds, Soils & Vegetation	In accordance with the Green River Reclamation Guidelines, compliance with requirements of the Guidelines will be a COA for all BLM authorizations within the jurisdiction of the Green River District Office. Compliance with the COA will prevent impacts to soils and vegetation and prevent the spread of invasive and noxious weeds to the extent that detailed analysis is not necessary.	Nicholas Day	08/11/2014
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. The APD and associated infrastructure would be authorized under beneficial use of their lease; therefore, this project does not require a ROW.	Katie White Bull	08/08/2014
NI	Lands with Wilderness Characteristics (LWC)	Petes Wash B, excluded for size limitation as per BLM GIS layer review.	Nicholas Day	08/11/2014
PI	Livestock Grazing & Rangeland Health Standards	The proposed project would create additional ground disturbance and fragmentation of the allotments of which may impact both the livestock operation as well as the fundamentals of rangeland health.	Alec Bryan	08/11/2014
NP	Paleontology	The well location for well 2-11-10-17 was cleared for paleo (SWCA, 9-27-13)	Betty Gamber	08/12/2014
NI	Plants: BLM Sensitive	Suitable habitat for the following UT BLM Sensitive species is present in the Project Area:  <ul style="list-style-type: none"> <li>Sandy soils in the vicinity of the proposed project may provide suitable habitat for <i>Yucca sterilis</i>. However, no populations are present. Given the exclusively clonal nature of the species, the potential for future establishment is negligible.</li> </ul> <p>The above species has not been identified in the Project Area per BLM</p>	Christine Cimiluca	08/8/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		GIS review and is not expected to be impacted as a result of the Proposed Action.		
NI	Plants:  Threatened, Endangered, Proposed, or Candidate	The following Federally listed, proposed, or candidate plant species is present or expected in the same or an adjacent subwatershed as the proposed project: Pariette cactus ( <i>Sclerocactus brevispinus</i> ) and Uinta Basin hookless cactus ( <i>Sclerocactus wetlandicus</i> ).  <ul style="list-style-type: none"> <li>• Pariette cactus is restricted to the Pariette and Castle Peak Draws and the surrounding benches. Therefore, the proposed project is not located within potential habitat for Pariette cactus.</li> <li>• Suitable habitat for Uinta Basin hookless cactus may be present in the Project Area. However, the proposed project lies outside the 2013 USFWS potential habitat polygon for this species per BLM GIS review, and impacts to this species are not anticipated as a result of the Proposed Action.</li> </ul>	Christine Cimiluca	08/8/2014
NP	Plants: Wetland/Riparian	No inventoried or observed riparian areas are located at or near the proposed well location per BLM GIS review.	Christine Cimiluca	08/8/2014
NI	Recreation	Proposed project takes place in the Vernal Extensive Recreation Management Area; currently the VFO does not track quantifiable visitor use data within the project area. Limited recreation has been observed within the project area during field visits, however; predominate recreational activity is based on driving to the Pariette wetlands or Sandwash Boat Ramp, but these are not within the project area.	William Civish	08/20/2014
NI	Socio-Economics	No impact to the social or economic status of the county or nearby communities would occur from this project due to its small size in relation to ongoing development throughout the basin.	Nicholas Day	08/11/2014

<b>Determination</b>	<b>Resource/Issue</b>	<b>Rationale for Determination</b>	<b>Signature</b>	<b>Date</b>
NI	Visual Resources	The viewshed within the project area is characterized by landscape based high desert look consisting of natural browns and reds, rock outcrops, horizontal and vertical broken lines with sparse, low lying vegetation.  Based on management objectives for the project area, the project meets VRM class IV requirements.	Nicholas Day	08/11/2014
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. The pit liner would be trimmed or folded and buried so that it will not reemerge at a later date.	Nicholas Day	08/11/2014
NP	Water: Floodplains	The proposed well is not located within a floodplain. The Sheep Wash floodplain is 0.5 miles to the east, and is separated by rolling hill topography.	Nicholas Day	08/11/2014
NI	Water: Groundwater Quality	Wells: 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 would be negligible.	Betty Gamber	08/12/2014
NI	Water: Hydrologic Conditions (stormwater)	The area is arid, with few storm events that result in drainage from the disturbed areas. BMPs and adherence to Gold Book Standards to control erosion would prevent transport of sediments from runoff.	Nicholas Day	08/11/2014
NI	Water: Surface Water Quality	Surface water quality would be impacted to a small degree with surface disturbing development causing soil erosion and also potential chemical spills onto soils. However the project is consistent with other approved energy development and the VFO RMP.	Nicholas Day	08/11/2014
NP	Water: Waters of the U.S.	GIS and onsite review indicate no navigable waters or waters of the U.S. are within the project area.	Nicholas Day	08/11/2014
NP	Wild Horses	No herd areas or herd management areas are present in the project area per BLM GIS database.	Nicholas Day	08/11/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
PI	Wildlife: Migratory Birds (including raptors)	Migratory birds are present (see Appendix B). There are no known or documented raptor nests within ½ mile of the proposed project area. Potential Mountain Plover habitat exists within project area.	Dan Emmett	08/14/2014
PI	Wildlife: Non-USFWS Designated	Project is not within any designated big game habitat. Water depletion will occur for the proposed project.	Dan Emmett	08/14/2014
PI	Wildlife: Threatened, Endangered, Proposed or Candidate	GIS layers and field data were reviewed and no federally listed species and / or habitat were found within the proposed project area.  Water depletion will occur for the proposed project; however, the impacts were included in the Biological Opinion referenced in Section 6.1 of the document.  Is the proposed project in sage grouse PPH or PGH? No If the answer is yes, the project must conform with WO IM 2012-043.	Dan Emmett	08/14/2014
NP	Woodlands/ Forestry	None Present as per 2008 Vernal RMP/ROD and GIS layer review	Nicholas Day	08/11/2014

FINAL REVIEW:			
Reviewer Title	Signature	Date	Comments
Environmental Coordinator	Stephanie Howard	9/2/14	
Authorized Officer		9.4.2014	

## Appendix B. Green River District Reclamation Guidelines

These guidelines apply to all surface disturbing activities upon BLM administered surface lands within the Green River District. These surface disturbing activities include all actions authorized, conducted, or funded by the BLM. Compliance with the requirements of this document will be the appropriate approval for the proposed action, which will vary by BLM programs. These guidelines are intended to be compatible with the requirements of the various BLM program objectives.

### RECLAMATION PLAN

A reclamation plan shall be provided for all proposed surface disturbing activities in accordance with BLM program directives and approved by the BLM Authorized Officer. The plan shall:

- Identify any program or regulatory specific requirements for reclamation;
- Comply with the Reclamation Goal and Reclamation Objectives described in A and B below; and
- Specify in detail how the Reclamation Objectives Actions are planned to be implemented. The plan should:
  - i. Reflect the complexity of the project;
  - ii. Consider the environmental concerns identified during project review; and
  - iii. Consider the reclamation potential for the site.

### A. RECLAMATION GOALS

1. The **short-term (interim) reclamation goal** is to immediately stabilize disturbed areas and to provide the necessary conditions to achieve the long term goal.
2. The **long-term (final) reclamation goal** is to facilitate eventual ecosystem reconstruction by returning the land to proper functioning condition.
3. Any incidental use on interim reclamation may require restoration of damage. This may require re-contouring and seeding of the damaged area along with consideration of controls of the incidental use of the land.

### B. RECLAMATION OBJECTIVES

1. ***Establish a desired self-perpetuating diverse plant community.***
  - i. Attain **75% basal cover** comprised of desired species and/or seeded species based on the standards in 1) below within 5 years of initial reclamation action.
    - a. Species diversity should approximate the surrounding undisturbed area or, for areas that are in poor range condition due to past land management practices, the species diversity should approximate the site as described in the NRCS Ecological Site Description.

*Appendix B Green River District Reclamation Guidelines*

- b. Use of non-native plant species is allowed, however, non-native species should be selected that will not displace or offer long-term competition to the native plants.
    - c. Crested wheatgrass species and forage kochia should not account for more than 30% of the total measured basal cover.
  - ii. If after three (3) growing seasons there is less than **30% of the basal cover** based on similar undisturbed native vegetative community, then the Authorized Officer may require additional reclamation efforts.
  - iii. All seed utilized will be tested prior to application to ensure BLM and State of Utah specifications for PLS, purity, noxious weeds, etc. have been met.
  - iv. As determined by the Authorized Officer, temporary fencing may be required to exclude livestock/big game grazing until seeded species have become established.
  - v. As determined by the Authorized Officer, mulching may be required.
    - a. If utilized, mulch should be applied within 24 hours following completion of seeding. Mulching should consist of crimping certified weed-free straw or certified weed-free native grass hay into the soil.
    - b. Hydro-mulching may be used in areas where crimping is impracticable, in areas of interim reclamation that were hydro-seeded, and in areas of temporary seeding regardless of seeding method.
- 2. ***Establish slope stability and desired topographic diversity.***
  - i. Reconstruct the landscape to approximate the original contour and topographic diversity.
  - ii. Implement necessary erosion controls designed to prevent sediment transport from the reclaimed area.
- 3. ***Reconstruct and stabilize altered water courses and drainage features.***
  - i. Reconstruct drainage basins to have similar features found in nearby properly functioning basins, including: basin relief ratios, valley gradients, sinuosity, and drainage densities for all reclaimed basins.
  - ii. Reconstruct drainages to have similar hydraulic characteristics found in properly functioning drainages, including: flow depth, water surface top width, cross-section area of flow, water surface slope, mean channel velocity, desired vegetation, and channel roughness.
- 4. ***Ensure the biological, chemical, and physical integrity of the topsoil resource during all phases of construction, operation, and reclamation.***

- i. Implement appropriate BMP's designed to minimize and prevent erosion, compaction, and contamination of the topsoil resource.
  - ii. Segregate topsoil from subsoil without mixing them.
  - iii. Where possible, integrate stored topsoil into existing production landscape.
  - iv. Stabilize all stored topsoil against erosion. Seed topsoil stored beyond one growing season with an approved seed mixture.
  - v. Identify topsoil storage with appropriate signage, to prevent improper use of the stored topsoil.
  - vi. Redistribute the topsoil to pre-disturbance depth.
5. ***Re-establish the visual composition and characteristics to blend with the natural surroundings.***
- i. Ensure the overall location, landform, scale, shape, color, and orientation of major landscape features blends into the adjacent area and meets the needs of the planned post disturbance land use.
6. ***Control the occurrences of noxious weeds and undesirable invasive species by utilizing principles of integrated weed management including prevention, mechanical, chemical, and/or biological control methods.***
- i. Inventory and document noxious and invasive plant infestations before reclamation actions begin.
    - a. A pre-disturbance noxious weed inventory shall be conducted on all surface disturbing projects to determine the presence of noxious weeds prior to beginning the project, and to determine whether treatment is needed prior to disturbance. Results of the inventory shall be documented in the annual reclamation report (see 8.iii).
    - b. If noxious weeds are found, an additional report including the following data shall be submitted to the BLM individual responsible for the Pesticide Use Proposal (PUP) prior to the disturbance occurring:
      - A GPS location recorded in North American Datum 1983,
      - Species,
      - Canopy cover or number of plants, and
      - Size of infestation (estimate of square feet or acres).
  - ii. Control and manage invasive and noxious weed infestations using principles of integrated weed management including chemical, mechanical, and biological control methods.

- a. If herbicides are planned for use, an approved Pesticide Use Proposal (PUP) by the BLM is required.
- b. Herbicides must be applied by a certified applicator with a current Utah Pesticide Applicators License.
- c. A Biological Use Proposal is required for new bio-control agents in each Field Office.

**7. *Manage all waste materials.***

- a. Segregate all waste materials from the subsoil and topsoil.
- b. All waste materials must be disposed in an authorized disposal facility in accordance with local, State and Federal requirements.

**8. *Conduct monitoring that is able to assess the success of reclamation actions and adaptively manage to correct failures.***

- i. Monitoring methodology will be an accepted BLM method designed to monitor basal vegetative cover. Monitoring criteria include the following:
  - a. Qualitative monitoring data should be collected after the 2nd growing season following reclamation actions.
  - b. Quantitative data should be collected after the 3rd and 5th growing seasons, and the year that the applicant determines that reclamation meets the long term objective of 75% basal cover as compared to the reference site. General view photographs of the reclaimed areas should be submitted with the quantitative data. Photographs should be taken at the same photo point each time, and as close to the same time of year as previous photos were taken to reduce differences in plant growth characteristics.
- ii. An undisturbed reference site will be selected prior to monitoring. One reference site may be used for multiple reclamation sites as long as the site potentials are similar.
  - a. Reference sites shall be permanently marked, and the location recorded by Global Positioning System (GPS) North American Datum 1983.
  - b. A photograph consisting of a general view of the marked reference site should be submitted with the Reference site data.
  - c. All linear ROW's will have one monitoring transect per each NRCS ecological site that the ROW passes through for greater than 0.75 mile.

- iii. Each applicant will submit all reclamation efforts annually to the Green River District Data management System (GRDMS) by March 1st. Reclamation efforts will include:
  - a. Document compliance with all aspects of the reclamation goals, objectives, and actions and describe the reclamation accomplished.
  - b. Document the results of the noxious weed inventory (see 6.i.1); and
  - c. Recommend revised reclamation strategies, if necessary.
- iv. Implement revised reclamation strategies as needed.
- v. Repeat the process of monitoring, evaluating, documenting/reporting, and implementing, until reclamation goals are achieved, as determined by the Authorized Officer.

## C. RECOMMENDED PRACTICES

### 1. Drill Seeding

- i. Drill Seeding is the preferred method of seed application unless site conditions preclude the use of drill seeding equipment. 1) Drill seeds at the minimum rate of 45 Pure Live Seeds (PLS) per linear foot. Seeds should be drilled to a depth of 0.25 to 0.5 inch.
    - a. Drill Seeding is the preferred method of seed application unless site conditions preclude the use of drill seeding equipment. 1) Drill seeds at the minimum rate of 45 Pure Live Seeds (PLS) per linear foot. Seeds should be drilled to a depth of 0.25 to 0.5 inch.
    - b. Some plant seeds should not be drilled. If those species are used, the application method should fit the seed type requirements.
    - c. Areas in excess of 40% slope or that are excessively rocky will be broadcast seeded at 80-90 PLS and covered to a maximum of 0.25 inch by harrowing, drag bar, or roller.
  - ii. Seeding efforts should be conducted between August 15 and prior to winter freezing of the soil.
2. Ensure the biological, chemical, and physical integrity of the topsoil resource during all phases of construction, operation, and reclamation.
    - i. Reduce soil/subsoil compaction to the anticipated root depth of the desired plant species.
      - a. Compaction relief typically should be designed for 18-24 inches in depth.

- b. Compaction relief should be designed to create a cross hatch pattern, and distance between furrows should not be greater than 2 feet.
  - ii. Re-spread the topsoil according to the following standards.
    - a. If the topsoil to be re-spread is greater than 6" in depth, then topsoil should be applied *before* compaction relief is implemented.
    - b. If the topsoil to be re-spread is less than 6", then topsoil should be applied *after* compaction relief is implemented.
    - c. If large clumps/clods occur, disking may be necessary.

## GLOSSARY

- Contamination — :** The presence of man-made chemicals or other alterations in the natural soil or water environment (pesticides, hazardous substances, petroleum, salts).[Adapted from various sources ]
- Interim Reclamation – :** Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of the well site not needed for safe production operations. The portions of the well site not needed for operational and safety purposes will be re-contoured to a final appearance that blends with the surrounding topography. Topsoil will be spread over these areas. The operator will spread the topsoil over the entire location except where an all-weather surface, access route, or turnaround is needed. Production facilities should be clustered or placed offsite to maximize the opportunity for interim reclamation.
- Invasive Species –:** A species that is not native (or is alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.[Executive Order 13112 ]
- Noxious Species —:** In the United States, the legislation that defines a noxious weed is the Federal Noxious Weed Act, 1974. It defines a noxious weed as, any living stage (including seeds and reproductive parts) of a parasitic or other 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, other useful plants, livestock, poultry or other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or the public health (United States Congress 1974).[Executive Order 13112 ]
- Reclamation Plan – :** A written document that addresses the reconstruction of disturbed ecosystems to a condition approximate or equal to that which existed prior to disturbance or as described in the NRCS Ecological Site Description.

**Surface Disturbing Activities –:**

An action whether authorized or taken in trespass that alters the mineral soil resource, and/or surface geologic features, beyond natural site conditions and on a scale that affects other Public Land values. Examples of surface disturbing activities may include: operation of heavy equipment to construct well pads, roads, pits and reservoirs; installation of pipelines and power lines; implementation of several types of vegetation treatments; sand and gravel pit use; commercial rock removal operations; trail construction, fire rehabilitation; range improvement projects; etc. Any Surface disturbing activity.

**Waste materials – :**

Any material that can interfere with successful reclamation, safety, and long term stability of a site (contaminated soil or water, drilling muds, solid waste). [Adapted from various sources]