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

FONSI and Decision Record DOI-BLM-LLUT-G010-2014-0169
July, 2014

Newfield Production Company's Proposed GMBU East 2014-2 5 Directional Wells Drilled from 3 Existing Pads) Infill Development in the Greater Monument Butte Unit, Duchesne and Uintah Counties, Utah

Location: ***Section 34, Township 8 South, Range 17 East***
Sections 1 and 3, Township 9 South, Range 17 East
Duchesne and Uintah Counties, Utah

Applicant/Address: **Newfield Production Company**
10530 South County Road #33
Myton, Utah 84052

U.S. Department of the Interior
Bureau of Land Management
Field Office
170 South 500 East
Vernal, Utah 84078
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FINDING OF NO SIGNIFICANT IMPACT

Environmental Assessment

DOI-BLM-LLUT-G010-2014-0169
Newfield Production Company's
Proposed GMBU East 2014-4
(5 Directional Wells Drilled from 3 Existing Pads)
Infill Development in the
Greater Monument Butte Unit,
Duchesne and Uintah Counties, Utah

FINDING OF NO SIGNIFICANT IMPACT:

"Based on the analysis of potential environmental impacts contained in the attached environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that Newfield Production Company's proposal to directionally drill 5 wells from 3 existing well pads in the Greater Monument Butte Unit, Duchesne and Uintah Counties, Utah, as described in the proposed action alternative of DOI-BLM-LLUT-G010-2014-0169-EA will not have a significant effect on the human environment. An environmental impact statement is therefore not required."

Authorized Officer - ACTING

7/29/2014
Date

DECISION RECORD

Environmental Assessment
DOI-BLM-LLUT-G010-2014-0169
Newfield Production Company's
Proposed GMBU East 2014-4
(5 Directional Wells Drilled from 3 Existing Pads)
Infill Development in the
Greater Monument Butte Unit,

DECISION RECORD:

It is my decision to authorize Newfield Production Company's proposal to directionally drill 11 wells from 6 existing well pads in the Greater Monument Butte Unit, Duchesne and Uintah Counties, Utah, as described in the proposed action alternative of DOI-BLM-LLUT-G010-2014-0169-EA.

This decision is contingent on the implementation of the applicant committed measures listed in the EA and the conditions of approval, listed below.

Summary of the Selected Alternative:

- Directional drilling of up to 5 oil wells from 3 existing well pads. The pads would be redisturbed by about 0.15 acres to accommodate closed loop drilling systems. All redisturbance/TUA would be reclaimed following well completion.
- Construction of 687 feet of 3-6 inch water pipeline that would be buried within existing road corridorsEventually converting one host well to a water injection well.

All other components of the proposed action as described in Section 2.1 of DOI-BLM-LLUT-G010-2014-0095-EA.

Conditions of Approval:

Wildlife

- On level or gently sloping ground (5 percent slope or less) Newfield will elevate surface pipelines (4 inches or greater in diameter) a minimum of 6 inches above the ground to allow passage of small animals beneath the pipe. This ground clearance will be achieved by placing the pipeline on blocks at intervals of 150 to 200 feet.

- Newfield will install noise reduction devices on all pump jacks to reduce intermittent noise to 45 dBA at 660 feet from the source.

COAs derived from mitigation measure in the EA:

1. ***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. This timing restriction applies to the 10-1-9-17 host well.

2. ***Burrowing Owl (Athene cunicularia)***
If it is anticipated that construction or drilling will occur during burrowing owl nesting season (March 1st through August 31st) 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. Based on the results of the survey, permission to proceed may or may not be granted. . This timing restriction applies to the 4-34-8-17 and 10-1-9-17 host wells

For protection of T&F Fish if drawing water from the Green River

- For areas of fresh water collection, an infiltration gallery will be constructed in a Service approved location. An infiltration gallery is basically a pit or trench dug within the floodplain to a depth below the water table. Water is drawn from the pit rather than from the river directly. If this is not possible, limit pumping within the river to off-channel locations that do not connect to the river during high spring flows.

- If water cannot be drawn using the measures above and the pump head will be located in the river channel where larval fish are known to occur, the following measures apply:
    - Avoid pumping from low-flow or no-flow areas as these habitats tend to concentrate larval fished
    - Avoid pumping to the greatest extent possible, during that period of the year when larval fish may be present (see previous bullet); and
    - Avoid pumping, to the greatest extent possible, during the midnight hours (10:00 p.m. to 2:00 a.m.) 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.
    - Screen all pump intakes with 3/32-inch mesh material.

- Report any fish impinged on the intake screen to the FWS office (801.975.3330) and the:
  Utah Division of Wildlife Resources
  Northeastern Region
  318 N Vernal Ave,
  Vernal, UT 84078

Air Quality

1. All internal combustion equipment will 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 will not occur at well sites or other facilities.
4. Drill rigs will be equipped with Tier II or better diesel engines.
5. Low bleed pneumatics would be installed on separator dump valves and other controllers.

6. During completion, venting will not occur, and flaring would 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.

9. 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 NO2 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 NOX controls, time/use restrictions, and/or drill rig spacing.

10. 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 NOx per horsepower-hour. This requirement does not apply to gas field engines of less than or equal to 40 design-rated horsepower-hour.

11. 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 NOx per horsepower-hour.

12. Green completions would be used for all well completion activities where technically feasible.

13. Employ enhanced VOC emission controls with 95% control efficiency on production equipment having a potential to emit greater than 5 tons per year.

Threatened and Endangered Plants

- Documented cactus within the 300 foot survey buffers would be flagged for avoidance during construction and drilling activities.

- A qualified biological monitor would be present during construction and drilling activities to ensure that documented individual cactus are not disturbed.

- Monitoring of known cactus individuals and populations within the 300-foot survey buffer around the host locations would occur yearly for 2 years following completion of construction and drilling activities. The health of the cactus would be documented and a yearly report would be submitted to the BLM Authorized Officer (AO). The report would be submitted to the BLM by December 31st of the year the monitoring took place. This report would also be submitted to USFWS, if requested.

- Newfield will perform ground disturbing activities in *Sclerocactus ssp.* Core Conservation Areas (CCAs) outside of the flowering period, (April 1 through May 30) for all three well pads. This applies to all ground disturbance, including previously disturbed areas on existing well pads.

- Only water (no chemicals, reclaimed production water or oil field brine) will be used for dust abatement measures within all cactus habitats.

- Dust abatement will be employed in suitable *Sclerocactus ssp.* habitat over the life of the project during the time of the year when *Sclerocactus ssp.* species are most vulnerable to dust-related impacts (March through August) within all cactus habitats.

- The seed mix will be amended to exclude Siberian wheatgrass (introduced), and Snake River wheatgrass (non-native to Utah) for reclamation seeding on this project.

- Erosion control measures (i.e. silt fencing) will be implemented to minimize sedimentation to *Sclerocactus ssp.* plants and populations located down slope of proposed surface disturbance activities when working in all cactus habitats.

- Application for Pesticide Use Permit will include provisions for mechanical removal, as opposed to chemical removal, for Utah Class A, B and C noxious weeds within 50 feet of individual/populations of Sclerocactus.

- From one year of the date forward of 100% *Sclerocactus* clearance survey for this project, spot checks will be conducted and approved for all planned disturbance areas on an annual basis. (The *S. brevispinus* survey period is defined as mid-March to June 30, and the *S. wetlandicus* survey period is defined as anytime without snow cover prior.) Results of spot checks may require additional pre-construction plant surveys as directed by the BLM. If the proposed action or parts thereof have not occurred within four years of the original survey, 100% clearance re-survey will be required prior to ground disturbing activities.

Rationale for the Decision:

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

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 Proposed Action is consistent with the both the Duchesne County General Plan (Duchesne County 2012) and the Uintah County Plan (Uintah county 2011) which encompasses the Project Area. The county's plans contain specific policy statements addressing public lands (i.e. multiple-use, resource use and development, access, and wildlife management). In general, the county's plan indicate support for development proposals, such as the Proposed Action, through its emphasis of multiple-use of public land management practices, responsible use, and optimum utilization of public land resources. The county, through its plan, supports the development of natural resources as they become available or as new technology allows.

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.

The selected alternative meets the BLM's need to allow development of valid existing leases. The BLM objective to reduce impacts is met by the applicant committed measures and conditions of approval.

Onsite visits were conducted by Vernal Field Office Personnel. The onsite inspection reports do not indicate that any other locations be proposed for analysis.

Endangered Species Act Section 7 consultation, National Historic Preservation Act consultation, and Native American Tribes consultation were completed as described in **Section 6.0** of the EA.

Summary of Public Involvement Efforts and Public Response

The Proposed Action was posted on the BLM Land Use Planning and NEPA Register on June 3, 2014. No public interest has been expressed to date.

Authorized Officer ACTING

7/29/2014
Date

Appeals:

This decision is effective upon the date it is signed by the authorized officer. The decision is subject to appeal. Under BLM regulation, this decision is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, Utah State Office, 440 W., 200 S. Suite 500 Salt Lake City, Utah, 84101-1345, 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;
(4) Whether the public interest favors granting the stay.

BLM

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

Environmental Assessment DOI-BLM-UT-G010-2014-0169
July, 2014

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Location: ***Section 34, Township 8 South, Range 17 East***
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Applicant/Address: **Newfield Production Company**
10530 South County Road #33
Myton, Utah 84052

U.S. Department of the Interior
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Vernal Field Office
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Vernal, Utah 84078
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1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze Newfield Production Company's (Newfield) proposed 20-acre infill development and water flood projects within the Greater Monument Butte Unit (GMBU). 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.

During past development of the GMBU, wells were distributed on 40-acre downhole spacing with one well being analyzed per pad. But, since oil and gas reservoirs in the GMBU are contained in low permeability, tight sand formations, production from these reservoirs is hindered by the formations' capability to allow oil and gas to flow to the wellbore. Therefore, to cost-effectively drain a reservoir, additional infill wells must be drilled to increase access to the formation and water must be injected into the older unproductive wells to "push" the oil and gas towards the producing wells in order to optimize recovery of oil and gas from these reservoirs. Newfield has applied to directionally drill 5 wells from 3 existing well pads located in:

Section 34, Township 8 South, Range 17 East
Sections 1 and 3, Township 9 South, Range 17 East

The wells would be located within Newfield's GMBU, approximately 7 miles southeast of Myton, Utah. The objective for this project is to increase oil recovery from their leases by attaining 20-acre downhole spacing in the GMBU, while minimizing or mitigating to the extent feasible the environmental impacts associated with such development.

1.1 PURPOSE AND NEED

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 LAND USE PLAN CONFORMANCE

The management of BLM public lands and resources within the Project Area is directed and guided by the *Vernal Field Office Approved RMP and Record of Decision* (RMP/ROD) (BLM 2008). 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)

The RMP ROD recognizes the valid existing rights connected with oil and gas leases that were issued prior to approval of the existing RMP (RMP/ROD p. 21), such as leases in the GMBU. Also, under the no action alternative, oil and gas development within the Castle Peak and Eightmile Flat project area would still be permitted as authorized in the *Record of Decision for the Final Environmental Impact Statement for the Castle Peak and Eightmile Flat Oil and Gas Expansion Project* (2005). The no action alternative is also consistent with the objectives and goals of the RMP.

1.3 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.

The Proposed Action is consistent with the both the Duchesne County General Plan (Duchesne County as amended in 2012) and the Uintah County General Plan (Uintah County as amended in 2011), which encompasses the Project Area. The county plans contain specific policy statements addressing public lands (i.e. multiple-use, resource use and development, access, and wildlife management). In general, the county plans indicate support for development proposals, such as the Proposed Action, through its emphasis of multiple-use of public land management practices, responsible use, and optimum utilization of public land resources. The counties, through their plans, support the development of natural resources as they become available or as new technology allows.

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 *Environmental Impact Statement Castle Peak and Eightmile Flat Oil and Gas Expansion Project Newfield Rocky Mountains Inc.* (2005 EIS), which analyzed a well field development scenario similar to the proposed. After drilling approximately half the wells approved, in 2009 Newfield began concentrating the remaining undrilled wells into already developed areas using existing well pads, thereby reducing impacts to resources of concern. This analysis is tiered to the 2005 EIS.

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). 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 GMBU SOP) (Newfield 2008) 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.

1.4 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.

1.4.1 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.

1.4.2 LIVESTOCK GRAZING AND RANGELAND HEALTH STANDARDS

Issue: 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.

1.4.3 THREATENED, ENDANGERED, PROPOSED OR CANDIDATE PLANT SPECIES

Issue: All the wells are located within the Sclerocactus habitat polygon.

1.4.4 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.

2.0 DESCRIPTION OF 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 in order to drill 5 directional wells from 3 existing well pads.
- 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

Due to the extensive amount of pre-existing development via vertical drilling in the Project Area, Newfield has gained an intricate understanding of the sub-surface formations and associated pay zones. Based upon this knowledge, Newfield is 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:

- Directional drilling of up to 5 oil wells from 3 existing well pads. The pads would be redisturbed by about 0.15 acres to accommodate closed loop drilling systems. All redisturbance/TUA would be reclaimed following well completion.
- Construction of 687 feet of 3-6 inch water pipeline that would be buried within existing road corridors.
- Eventually converting one host well to a water injection well.

Construction activities would follow guidelines described in the "Gold Book," Surface Operating Standards for Oil and Gas Extraction and Development 4th Edition (Gold Book) (BLM and USFS 2007), as appropriate. **Table 2.1** summarizes the proposed wells.

2.1.1 WELL PAD CONSTRUCTION AND EXPANSION

As mentioned previously, Newfield plans to utilize three existing well pads in order to drill five wells. Approximately 0.15 acre per pad would be redisturbed to accommodate a closed loop drilling system. The existing topsoil and any existing vegetation would be cleared and topsoil would be stockpiled at predetermined storage sites (i.e., areas where original soil piles were located).

Table 2.1 Proposed Wells

Well	Host Location	Redisturbance	Total Surface Disturbance (acres)
G-3-9-17	2-3-9-17	0.15	0.15
A-33-8-17	4-34-8-17	0.15	0.15
X-27-8-17			
R-1-9-17	10-1-9-17	0.15	0.15
M-1-9-17			
Total		**0.45**	**0.45**

2.1.2 ACCESS ROADS

Existing roads would be utilized to access the proposed drilling locations and no upgrades would be required. 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 (BLM and USFS 2007).

2.1.3 DRILLING OPERATIONS

Wells 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. Newfield anticipates that no more than one drilling rig would be operating in the Project Area at any one time. Each well would take approximately 3 days to drill.

The proposed wells would target sandstone intervals within the Green River Formation and the average depth of each well would be approximately 6,300 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 per well.

Should testing suggest the potential for commercial production, facilities including a wellhead, pumping unit, separator, dehydrator, and condensate tanks would be installed at each location. All permanent (on site for 6 months or longer) structures constructed or installed would be painted Covert Green. All facilities would be painted within 6 months of installation.

Periodically, a workover or recompletion on a well may be required to ensure that efficient production is maintained. Workovers can include repairs to the well bore equipment (casing, tubing, rods, or pump), the wellhead, or the production facilities. These repairs would usually be completed in 7 days per well, 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 well 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 PIPELINES

In order to facilitate present and future water injection capabilities at existing well pad locations, a water pipeline would be buried in a 4-5' deep trench leading from five well pads to existing or proposed infrastructure. The pipelines would consist of a 3" steel water injection line and a 3" water return line. They would be buried within 15-foot wide corridors next to existing roads in trenches excavated with a trencher or backhoe. The trench would be excavated within the existing roadway.

2.1.6 CONVERSION OF WELLS TO WATERFLOOD INJECTION WELLS

To increase the ultimate recovery of hydrocarbon resources, Newfield would use waterflooding technology on the host pad well associated with the proposed water pipeline (see **Table 2.1**). The conversion of the one well to an injection well would occur shortly after installation of the proposed water pipeline.

During the injection well conversion process, oil production equipment (anchor, sucker rods, pump jacks, well head valves, flow lines, treater, water tank, and oil tanks) are removed from the well pad. A packer is installed on the end of the tubing and set no more than 100 feet above the top perforation. Pressure monitoring gauges are installed on the wellhead and casing annulus to monitor the casing pressure and the pressure at which water is injected.

The water injection lines (see Table 2.1) would be installed to connect an existing pipeline network to individual wells to provide water to triplex injection pumps. Waterflood injection wells would be equipped with flow meters and choke valves to regulate injected water volumes. After all water injection pipelines are installed, pressurized water would be injected into the oil-bearing formation.

2.1.7 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 0.39 acre-feet of water per year for dust abatement during production, or a total of 7.8 to 35.1 acre-feet of water for dust suppression during operations over the 20 to 30 year life of the project. All or part of this water usage was probably disclosed/accounted for when analyzing impacts for drilling the host wells.

Typically, 13,500 bbls (1.75 acre-feet) of water would be required to drill and complete an individual Green River Formation well, so total water use for drilling and completion of all 5 wells would be about 8.75 acre-feet.

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). Water would be hauled by a licensed trucking company. Water wells would not be drilled on the leases.

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).

Associated Waterflooding Operations

Approximately 75 to 100 barrels, or approximately 0.01 acre-feet, of water per day would be required for each waterflood injection well under the Proposed Action. Under the Proposed Action, Newfield would convert one existing well to an injection well, which would require approximately 0.01 acre-feet of injection water per day. Based on the requirement of 0.01 acre-feet of water per day, the annual water requirement for the waterflooding operations would require approximately 3.65 acre-feet of water per year, or about 73 to 109.5 acre-feet of water over the 20 to 30 year operational life of the existing wells.

The water required for this process would come from approximately half recycled produced water and half fresh water. Therefore, fresh water use would equal 0.005 acre-feet of recycled water per day for injection purposes. Based on the requirement of 0.005 acre-feet of water per day, the annual water requirement for the waterflooding operations would require approximately 1.83 acre-feet of freshwater per year, or about 36.5 to 54.8 acre-feet of water over the 20 to 30 year operational life of the existing wells.

Water Usage	**Total Acre feet**
Drilling (acre feet)	**8.75**
Water Injection (20-30 years)	**36.5-54.8**
Dust abatement (20-30 years)	**7.8 to 11.7**
Total (acre feet)	**53.05-75.25**

2.1.8 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)

2.1.9 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 from surface accumulation of liquid hydrocarbons and immediately upon well completion, any hydrocarbons would be removed (Newfield 2008). 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).

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).

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.

2.1.10 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.

2.1.11 RECLAMATION.

Interim Reclamation

Interim reclamation will begin within 6 months of well completion. Interim reclamation activities will consist of spreading the stockpiled topsile 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 1 to ground freezing. The well pad will not be ripped or recontoured as part of interim reclamation.

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) recontouring 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 1 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 locations, access roads, and other disturbed areas would be 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. Well locations, associated roads that would no longer be used, and other disturbed areas would be restored as near as practical to their original condition. All disturbed areas would be re-contoured to the approximate natural contours.

Reseeding: Reclaimed areas would be seeded with following stock seed mixture obtained from Utah Seed. The mix is certified free of noxious weeds. (Foote 2013)

Table 2.2 Interim and Pipeline Seed Mixture

Common Name	**Latin Name**	***Lbs/acre***
Grasses		
Squirreltail Bottlebrush	*Elymus elymoides*	2.44
Snake River Wheatgrass	*Elymus wawawaiensis*	2.22
Siberian Wheatgrass	*Agropyron fragile*	2.13
Indian Ricegrass	*Oryzopsis hymenoides*	2.07
Galleta Grass	*Pleuraphis jamesii*	1.56
Needle & Threadgrass	*Hesperostipa comata*	1.20
Forbs		
Blue Flax	*Linum Lewisii*	0.27
Munro Globemallow	*Sphaeralcea munroana*	0.27
Shrubs		
Mat Saltbrush	*Atriplex corrugata*	4.76
Fourwing Saltbrush	*Atriplex canescens*	4.55
Shadscale Saltbrush	*Atriplex confertifolia*	4.35
Gardner Saltbrush	*Atriplex gardnerii*	4.35
Greasewood	*Sarcobatus vermiculatus*	0.56
Black Sagebrush	*Artemisia nova*	0.30
Rubber Rabbitbrush	*Chrysothamnus nauseosus*	0.28
Total		**31.31**

In addition, if reclamation occurs in the spring or summer sterile barley is planted to compete with weeds, stabilize the soil and act as a mulch for the emerging perennials.

2.1.12 APPLICANT-COMMITTED ENVIRONMENTAL PROTECTION MEASURES

The following applicant-committed environmental protection measures (ACEPMs) would be applied to all activities on BLM lands within the Project Area.

2.1.12.1 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.

2.1.13 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 infill project would not be approved. Selection of this alternative would not preclude other oil and gas activities or proposals within the Project Area. The host well pads would continue to exist until the wells on those pads are plugged.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

No other alternatives were identified by the BLM.

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 and some Quaternary Holcene undivided Piedmont alluvium. The soils range from fine sandy loam to extremely channery loam that is shallow to moderately deep and well drained, with rocky material on the surface and with a number of rocky outcrops in some locations. The vegetation community types of the proposed well locations include desert shrub, black sagebrush, Wyoming big sagebrush, and badland. Terrain is generally flat, with rolling hills and drainages in some locations. Average annual precipitation ranges from 8 to 12 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_x, $PM_{2.5}$, and HAPs) from existing natural gas fired compressor engines used in transportation of natural gas in pipelines;
- Natural gas dehydrator still-vent emissions of CO, NO_x, $PM_{2.5}$, and HAPs;
- Gasoline and diesel-fueled vehicle tailpipe emissions of VOCs, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$;
- Oxides of sulfur (SO_x), NO_x, fugitive dust emissions from coal-fired power plants, and coal mining/ processing;
- Fugitive dust (in the form of PM_{10} and $PM_{2.5}$) from vehicle traffic on unpaved roads, wind erosion in areas of soil disturbance, and road sanding during winter months; and,
- Long-range transport of pollutants from distant sources.

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_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM_{10}) or 2.5 microns in diameter ($PM_{2.5}$). Airborne particulate matter (PM) consists of tiny coarse-mode (PM_{10}) or fine-mode ($PM_{2.5}$) particles or aerosols combined with dust, dirt, smoke, and liquid droplets. $PM_{2.5}$ is derived primarily from the incomplete combustion of fuel sources and secondarily formed aerosols, whereas PM_{10} is primarily from crushing, grinding, or abrasion of surfaces. **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 ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	Annual	0.8[2]	--[1]
	24-hour	3.9[2]	--[1]
	3-hour	10.1[2]	1,300
	1-hour	19.0[2]	197
NO_2	Annual	8.1[3]	100
	1-hour	60.2[3]	188
PM_{10}	Annual	7.0[4]	--[6]
	24-hour	16.0[4]	150
$PM_{2.5}$	Annual	9.4[3]	15
	24-hour	17.8[3]	35
CO	8-hour	3,450[4]	10,000
CO	1-hour	6,325[4]	40,000
O_3	8-hour	100.0[3,5]	75

1 – The 24-hour and annual SO2 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 PM10 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_x 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) analyzed air quality impacts, including estimates of VOC and NOx emissions, for existing and future activities in the Greater Monument Butte Unit. A VOC and NOx 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. Greater Monument Butte Unit Emissions

Source	Source Subset	VOC Emissions (tons per year)	NO_x Emissions (tons per year)
EIS Predicted Emissions	Existing Permitted Infrastructure	108	230
	Drilling[1]	45	568
	Production	1,037	4,311
	Total	**1,190**	**5,109**
Infrastructure Emissions	Current	57	202
	Proposed to 2014	18	80
	Total	**75**	**282**
Drill Rig Emissions	**Total**	**29**	**129[2]**
Production Emissions	Pumpjack Engines[3]	125	1,003
	Natural Gas Fueled Burners	59	488
	Stock Tanks	557	--
	Total	**741**	**1,491**
Total Current Emissions		**845**	**1,902**

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_x and 0.58 tons per year VOC per engine.

The UDAQ conducted limited monitoring of $PM_{2.5}$ in Vernal, Utah in December 2006. During the 2006-2007 winter season, $PM_{2.5}$ levels were higher than the $PM_{2.5}$ health standards that became effective in December 2006. The $PM_{2.5}$ levels recorded in Vernal were similar to other areas in northern Utah that experience wintertime inversions. The most likely causes of elevated $PM_{2.5}$ at the Vernal monitoring station are those common to other areas of the western U.S. (combustion and dust) plus nitrates and organics from oil and gas activities in the Basin. $PM_{2.5}$ monitoring that has been conducted in the vicinity of oil and gas operations in the Uinta Basin by the Red Wash and Ouray monitors beginning in summer 2009 have not recorded any exceedences of either the 24 hour or annual NAAQS.

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

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), 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) (2009) suggests that recent warming in the region (including the project area) was nationally

among the most rapid. Past records and future projections predict an overall increase in regional temperatures, largely in the form of warmer nights and effectively higher average daily minimum temperatures. They conclude that this warming is causing a decline in spring snowpack and reduced flows in the Colorado River. The USGCRP projects a region-wide decrease in precipitation, although with substantial variability in 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 Castle Peak and Eight Mile Flat Allotments; used for cattle grazing (see table below).

Allotment Number	Allotment Name	Livestock Number	Livestock Kind	Begin	End	Type Use	AUMS
05886	Castle Peak	461	CATTLE	11/01	04/15	83 Active	2088
05887	Eight Mile Flat	166	CATTLE	11/01	04/01	91 Active	760

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 Castle Peak and Eight-Mile Flat 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.

RANGELAND HEALTH STANDARDS:

Rangeland Health Standards were assessed for the Castle Peak and Eight Mile Flat allotments in 2008. Both allotments met Rangeland Health requirements, although location # (Eight Mile 2)EM2 did not meet all criteria for biotic integrity, and invasive encroachment was determined to be moderate to extreme for Halogeton (*Halogeton glomeratus*). Both allotments are scheduled to be re-evaluated for rangeland health standards during the 2013-14 field season.

3.3 THREATENED, ENDANGERED, PROPOSED OR CANDIDATE PLANT SPECIES

Uinta Basin Hookless Cactus (*Sclerocactus wetlandicus*) and Pariette Cactus (*Sclerocactus brevispinus*)

Two cactus species listed as threatened under the Endangered Species Act, *Sclerocactus wetlandicus* and *Sclerocactus brevispinus,* have potential habitat and individuals and populations of *Sclerocactus ssp.* have been previously documented in the Project Area. All three existing host well locations occur within the 2013 polygon established by U.S. Fish and Wildlife Service (USFWS) as potential habitat for the two

species. The existing 4-34-8-17 host well location is within the Core Conservation Area (CCA) Level 1 habitat, and the existing 2-3-9-17 host well location is within CCA Level 2. The existing 10-1-9-17 host well location is not within a CCA.

No pad expansions or other new surface disturbance would occur at the 3 existing host locations as a result of the Proposed Action. Instead, previously disturbed areas on each location (approximately 0.15 acre per location) would be used to accommodate a closed loop drilling system. None of the locations would be re-opening a pit.

Surveys were conducted in April and May 2013 for the 3 host locations. All surveys documented listed *Sclerocactus ssp.* within the survey buffers (within 300 feet of the host locations). However, as there would be no new surface disturbance as a result of the Proposed Action, there would be no surface disturbance within 300 feet of the documented cactus locations.

Green River shale-derived soils are not shown on VFO GIS database layers for these wellpads and VFO NAIP do not reveal soils suitable for additional TEPC species. VFO GIS data does reveal *Sclerocactus*.

Additional non-Green River shale TEPC plant species are precluded based on GIS soil, elevation, BLM and UNHP known location data and will not be analyzed in this EA.

Well	Host Location	Redisturbance	Total Surface Disturbance (acres)
G-3-9-17	2-3-9-17	0.15	0.15
A-33-8-17	4-34-8-17	0.15	0.15
X-27-8-17			
R-1-9-17	10-1-9-17	0.15	0.15
M-1-9-17			
Total		**0.45**	**0.45**

3.4 FISH AND WILDLIFE; THREATENED, ENDANGERED, OR CANDIDATE SPECIES; AND MIGRATORY BIRDS

3.4.1 FISH AND WILDLIFE EXCLUDING USFWS DESIGNATED SPECIES

White-tailed Prairie Dog (Cynomys leucurus)

The white-tailed prairie dog is listed as a Utah State sensitive species. Comprehensive prairie dog colony surveys and burrow density estimates have not been completed within the Project Area. The 4-34-8-17 and 10-1-9-19 host wells have potential to be within ½ mile of prairie dog colonies.

3.4.2 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, humpback chub, bonytail, and razorback sucker. 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). 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, flannelmouth sucker, and bluehead sucker. 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.

3.4.3 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). 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 currocoides*), 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).

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 10-1-9-17 host pad is in Mountain Plover habitat.

Raptors

Some of the more common and visible birds within the Project Area include raptors, or birds of prey. The Project Area provides diverse breeding and foraging habitat for raptors: mixed desert shrub communities, rocky outcrops, and pinyon-juniper woodlands. All raptor species and their nests are protected from take or disturbance under the MBTA. However, burrowing owls, are also considered to be special status wildlife species.

Burrowing Owl (Athene cunicularia)
The burrowing owl is a Utah State species of concern and a BLM sensitive species. In Utah, prairie dog burrows are the most important source of burrowing owl nest sites. Burrowing owl use of abandoned prairie dog towns is minimal, and active prairie dog towns are the primary habitat for the owls (Maxfield 2012). As the range and abundance of these burrowing mammals have decreased, so too has the status of the burrowing owl. If burrowing owls are using prairie dog colonies in the Project Area as nest sites, there are potential impacts to burrowing owls as a result of the Proposed Action. Based on the prairie dog burrows located within a half mile, the 4-34-8-17 and 10-1-9-17 host pads have potential for burrowing owl nesting.

4.0 ENVIRONMENTAL IMPACTS

4.1 PROPOSED ACTION

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.

4.1.1 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)[1]

Pollutant	Development	Production	Total
NO_X	17.36	4.87	22.23
CO	5.51	9.17	14.68
VOC	1.66	9.17	10.83
SO_2	0.09	0.02	0.11
PM_{10}	2.03	27.15	29.18
$PM_{2.5}$	0.51	3.00	3.51
Benzene	0.01	0.02	0.03
Toluene	0.00	0.01	0.02
Ethylbenzene	0.00	0.00	0.00
Xylene	0.00	0.00	0.00
n-Hexane	0.00	0.01	0.01
Formaldehyde	0.00	0.20	0.20

[1] Emissions include development and production from 5 wells and associated operations traffic during the year in which the project is developed.

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

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

Under the proposed action, emissions of NO_x and VOC, ozone precursors from the producing wells would be 22.23 tons/yr for NO_x, and 10.83 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.

Emission offsets from well conversions

Once the water pipelines are installed, the existing wells on the well pads will be converted to waterflood injection wells and connected to the water pipeline network. Water pipeline installation includes emissions from earth-moving equipment and vehicle traffic. NO_X, SO_2, and CO would be emitted from vehicle tailpipes. Fugitive dust concentrations would increase with additional vehicle traffic on unpaved roads and from wind erosion in areas of soil disturbance. During the well conversion process, the wells will no longer produce and oil and gas production equipment from the well sites will be removed resulting in a reduction of NO_X, CO, VOC, and HAP emissions as described in Table 4.2. Equipment that will be removed includes: separators, storage tanks, pumping units, and heaters. Additionally, a reduction in fugitive dust and tailpipe emissions will occur due to the reduction of oil and gas operations vehicle traffic.

Table 4-2 Proposed Action Annual Emissions (tons/year) [1]

Pollutant	Pipeline Installation	Well Conversion	Total
NO_X	0.00	-0.92	-0.92
CO	0.00	-1.72	-1.72
VOC	0.00	-1.62	-1.62
SO_2	0.00	0.00	0.00
PM_{10}	0.06	-6.52	-6.46
$PM_{2.5}$	0.01	-0.71	-0.70
Benzene	0.00	0.00	0.00
Toluene	0.00	0.00	0.00
Ethylbenzene	0.00	0.00	0.00
Xylene	0.00	0.00	0.00
n-Hexane	0.00	0.00	0.00
Formaldehyde	0.00	-0.04	-0.04

[1] Emissions include installation of 1 water pipeline segments and conversion of one existing wells to waterflood injection wells during the year in which the project occurs.

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_2 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_x 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_x 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_x 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 Eight Mile Flat 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.

Under the Proposed Action approximately 0.45 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 0.45 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 THREATENED, ENDANGERD, PROPOSED OR CANDIDATE PLANT SPECIES

Uinta Basin Hookless Cactus (*Sclerocactus wetlandicus*) and Pariette Cactus (*Sclerocactus brevispinus*)

No pad expansions or other new surface disturbance would occur at the 3 existing host locations as a result of the Proposed Action. Instead, previously disturbed areas on each location (approximately 0.15 acre per location) would be used to accommodate a closed loop drilling system. None of the locations would be re-opening a pit. All three sites occur within the 2013 United States Fish and Wildlife Service (USFWS) federally listed *Sclerocactus ssp.* potential habitat polygon. The existing 4-34-8-17 host well location is within the Core Conservation Area (CCA) Level 1 habitat, and the existing 2-3-9-17 host well location is within CCA Level 2. The existing 10-1-9-17 host well location is not within a CCA. No new surface disturbance would occur at these locations, as shown in the table below.

Table 4-3. *Sclerocactus ssp.* and Total Disturbance Table for USFWS Management Prescriptions/COA's

Host Location	Cacti within 300 feet?	Total acres of NEW disturbance in core conservation areas		BLM-added COA
		Level 2	Level 1	
2-3-9-17	yes	0	0	See Mitigation Measures in Chapter 4
4-34-8-17	yes	0	0	See Mitigation Measures in Chapter 4
10-1-9-17	yes	0	0	See Mitigation Measures in Chapter 4

Surveys were conducted in April and May 2013 for the 3 host locations. All surveys documented listed *Sclerocactus ssp.* within the survey buffers (within 300 feet of the host locations). However, as there would be no new surface disturbance as a result of the Proposed Action, there would be no surface disturbance within 300 feet of the documented cactus locations. Therefore, as long as drilling activities

are restricted to previously disturbed areas, no direct physical damage will occur to *Sclerocactus wetlandicus or Sclerocactus brevispinus* individuals as a result of the Proposed Action.

Possible dispersed direct and indirect negative impacts which may result from implementation of the Proposed Action include: loss of suitable habitat, habitat modification by invasive weed species which may compete with individuals, accidental spray or drift of herbicides used during invasive plant control, and deposition of fugitive dust from construction activities and vehicle traffic on unpaved roads. Although no new surface disturbance is proposed, fugitive dust and other secondary pollinator effects could also occur from re-disturbance on the existing well pad, increased vehicle traffic, spoil stockpiling, and drilling on site.

Due to these indirect negative impacts the Proposed Action warrants a ***"may affect, is not likely to adversely affect"*** determination for *Sclerocactus wetlandicus* and *S. brevispinus*. Informal Section 7 consultation with the USFWS was completed in November 2011, and clarifying discussions between the BLM and USFWS, including a recently released matrix, and management prescription guidance for use in Core areas (based on recent concurrence documents) occurred from March-May 2014. These discussions and applications were specific to Newfield development, within the scope of the 2011 BO continued use, up to and until the Monument Butte EIS consultation or other programmatic NEPA supplants the document.

Mitigation: The following mitigation measures will be applied as either part of the proposed action or a condition of approval (COA):

- Documented cactus within the 300 foot survey buffers would be flagged for avoidance during construction and drilling activities.

- A qualified biological monitor would be present during construction and drilling activities to ensure that documented individual cactus are not disturbed.

- Monitoring of known cactus individuals and populations within the 300-foot survey buffer around the host locations would occur yearly for 2 years following completion of construction and drilling activities. The health of the cactus would be documented and a yearly report would be submitted to the BLM Authorized Officer (AO). The report would be submitted to the BLM by December 31st of the year the monitoring took place. This report would also be submitted to USFWS, if requested.

- Newfield will perform ground disturbing activities in *Sclerocactus ssp.* Core Conservation Areas (CCAs) outside of the flowering period, (April 1 through May 30) for all three well pads. This applies to all ground disturbance, including previously disturbed areas on existing well pads.

- Only water (no chemicals, reclaimed production water or oil field brine) will be used for dust abatement measures within all cactus habitats.

- Dust abatement will be employed in suitable *Sclerocactus ssp.* habitat over the life of the project during the time of the year when *Sclerocactus ssp.* species are most vulnerable to dust-related impacts (March through August) within all cactus habitats.

- The seed mix will be amended to exclude Siberian wheatgrass (introduced), and Snake River wheatgrass (non-native to Utah) for reclamation seeding on this project.

- Erosion control measures (i.e. silt fencing) will be implemented to minimize sedimentation to *Sclerocactus ssp.* plants and populations located down slope of proposed surface disturbance activities when working in all cactus habitats.

- Application for Pesticide Use Permit will include provisions for mechanical removal, as opposed to chemical removal, for Utah Class A, B and C noxious weeds within 50 feet of individual/populations of Sclerocactus.

- From one year of the date forward of 100% *Sclerocactus* clearance survey for this project, spot checks will be conducted and approved for all planned disturbance areas on an annual basis. (The *S. brevispinus* survey period is defined as mid-March to June 30, and the *S. wetlandicus* survey period is defined as anytime without snow cover prior.) Results of spot checks may require additional pre-construction plant surveys as directed by the BLM. If the proposed action or parts thereof have not occurred within four years of the original survey, 100% clearance re-survey will be required prior to ground disturbing activities.

Discovery Stipulation: Re-initiation of Section 7 consultation with the USFWS will be sought immediately if any loss of plants or occupied habitat for Pariette cactus or Uinta Basin hookless cactus is anticipated as a result of project activities.

4.1.4 FISH AND WILDLIFE; THREATENED, ENDANGERED, OR CANDIDATE SPECIES; AND MIGRATORY BIRDS

4.1.4.1 White-tailed Prairie Dog

The Proposed Action would increase prairie dog habitat loss by up to 0.45 acres. This disturbance would contribute to the loss of prairie dog habitat and could contribute to the loss of prairie dog burrows if the proposed action occurs within a prairie dog colony. The majority of disturbance would be restricted to existing well locations. Direct impacts to prairie dogs from the Proposed Action could include increased mortality due to prairie dog-vehicle collisions caused by vehicles traveling in/near colonies. As traffic volumes and/or project-related activities increase, adjacent habitats may be avoided due to human presence and noise. Increased traffic volumes in the Project Area would be temporary and restricted to the drilling and construction of the new wells. After drilling and construction are complete, traffic volumes would most likely return to pre-project levels. Habitat quality for these species would also be degraded by the introduction of noxious and invasive weeds. Weed invasions may lead to a decrease in the amount of native perennials and bare ground, thereby degrading habitat for prairie dogs by decreasing visibility, forage quality, and burrow development. However, because the requirements of the Green River District Reclamation Guidelines would deter the spread of invasive plants or noxious weeds in the Project Area; therefore, weed invasions should be minimal and should not adversely impact prairie dog colonies.

4.1.4.2 Colorado River Fish Species

The Proposed Action would result in 53.05-75.25 acre-feet of 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. BLM and their applicants would minimize this potential by following applicant committed conservation measures (listed below and in **Chapter 2**). 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.

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.

Mitigation:

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 (10 pm 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

4.1.4.3 Migratory Birds

Under the Proposed Action, 1.61 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. 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. However, since mountain plover tend to nest in cleared areas, if birds are in the area their nests could be disturbed by construction activities.

Mitigation:

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. This timing restriction applies to the 10-1-9-17 host well.

Raptors

Implementation of the Proposed Action could affect nesting and breeding burrowing owls, which may utilize the Project Area. Impacts to these species will almost certainly occur. Some impacts include displacement from suitable nesting habitats during the breeding season due to increased noise levels and visual disturbances on the landscape, nest abandonment, reduced habitat values in foraging areas due to prey displacement, potential loss of prey habitat, and an increased potential for collisions with vehicles traveling in the project area.

In order to prevent nest abandonment, the following mitigation measures would be implemented:

Burrowing Owl (Athene cunicularia)

If it is anticipated that construction or drilling will occur during burrowing owl nesting season (March 1st through August 31st) 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. Based on the results of the survey, permission to proceed may or may not be granted. This timing restriction applies to the 4-34-8-17 and 10-1-9-17 host wells.

4.2 NO ACTION ALTERNATIVE

4.2.1 AIR QUALITY AND GREENHOUSE GAS EMISSIONS

Under the No Action Alternative, the proposed gas 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. Dust and other emissions from the existing wells will continue at current higher levels because the liquids gathering system would not be installed.

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 THREATENED, ENDANGERED, PROPOSED OR CANDIDATE PLANT SPECIES

Under the No Action Alternative, there would be no direct disturbance or indirect effects to *Sclerocactus* sp. or its associated habitat from surface-disturbing activities associated with the proposed project. Current land use trends in the area would continue, including increased industrial development, increased off-highway vehicles (OHV) traffic, and increased recreation use.

4.2.4 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.

5.0 CUMULATIVE IMPACTS ANALYSIS

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_x (tpy)	CO (tpy)	SO_x (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
Uinta Basin Total	**10,754**	**7,800**	**391**	**592**	**70,226**
Proposed Action Increment	4.64	7.67	0.02	$20.72pm_{10}$ $2.31pm_{2.5}$	7.61
No Action Increment	0.973	1.834	0.234	$5.43pm_{10}$ $0.6pm_{2.5}$	1.833

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, 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 0.45 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
Energy Development				
Drilling Locations	54	270	NA	DOGM Data
Operations Center	6	30	NA	DOGM Data
Producing Wells	1237	6,185	NA	DOGM Data
Shut In Well Locations	91	455	NA	DOGM Data
Temporarily Abandoned	12	40	NA	DOGM Data
Newfield Major Pipelines (estimated 3.5 acres/mile)	Approx. 80	280	80 miles	Available Newfield GIS Data
Reasonably Foreseeable Well Pads				

Gasco	198	990	NA	DOGM Data
MBU	946	4730	NA	DOGM Data
Other (County, Livestock, Etc.)				
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)
Total *Estimated* existing Cumulative Disturbance		**5,782 acres**	**453 miles**	
***Acreage is based on GPS data and is a rough estimate**				

The estimated cumulative disturbance is 4.8% of the total acres on the three allotments. This roughly equates to 359 AUMs for livestock, not including wildlife. There are 8,893 AUMs in the cumulative impact area.

5.3 THREATENED, ENDANGERED, PROPOSED OR CANDIDATE PLANT SPECIES

***Pariette cactus* (*Sclerocactus brevispinus*)**

The CIAA for Pariette cactus is the area delineated by the USFWS as potential habitat for the species. This area covers approximately 115,900 acres on BLM, Ute tribal, state of Utah, and privately held lands. Within the CIAA, there are approximately 426 miles of roads. Past, present and reasonably foreseeable disturbance from oil and gas will affect 10,956 acres (9.45% of the CIAA), as shown in Table 5.3. Cumulative impacts include dust impacts to plants, and plant and pollinator habitat destruction. Surface disturbance is a good indicator of the extent of these cumulative impacts. The proposed action will add 0.30 acres of disturbance to the species' known habitat ranges.

Table 5.3. Cumulative Impacts Analysis for Pariette Cactus.

	Project Area Acreage	**Surface Disturbance Analyzed**	**Project Area Acreage within the CIAA**	**Surface Disturbance within the CIAA[1]**
Ongoing Field Development				
Gasco EIS	236,165	3,604	6,692	102 acres
Greater Natural Buttes Project EIS	162,911	8,147	17	0 acres
Rocky Point Exploration and Development Agreement Leasing and	92,098	340	11,344	42 acres

Exploratory Drilling EA				
Past Developments and Current and Future Developments Not Covered by a Field Development NEPA Document				
85 abandoned wells[2,3]	NA[4]	NA	NA	422 acres
1,082 existing wells[2,3]	NA	NA	NA	4,230 acres
85 proposed wells[2,3]	NA	NA	NA	422 acres
Field Development Proposals				
Monument Butte Area Oil and Gas Development Project EIS	119,850	15,612	36,308	4,730 acres
Randlett EDA Area Programmatic Leasing and Exploration Project	53,380	2,613	20,098	984 acres
Total CIAA disturbance from oil and gas				
	--	--	--	10,932 acres (9.43%)
Current Project				
Proposed Action	NA	NA	NA	24.07 acres
No Action				
Total CIAA disturbance from oil and gas				10,956 acres (9.45%)

[1]Assumes surface disturbance was authorized evenly across the analysis area of the document.
[2]Uses the assumption contained within the Greater Uinta Basin Cumulative Impacts Technical Support Document.
[3]As of 4/10/2013
[4]NA = not applicable

Due to inclusions of areas of unsuitable habitat within the potential habitat area, the total acreage of suitable habitat is less than 115,900 acres. However, a complete survey of suitable habitat has not been performed and thus the amount of suitable habitat has not been quantified. Impacts to the species from past, current, and reasonably foreseeable actions may be greater or smaller than those described for the total area depending upon the exact distribution of actions relative to suitable habitat.

Uinta Basin hookless cactus (Sclerocactus wetlandicus)
The Project Area is located almost entirely within an area that the USFWS has identified as potential habitat for *Sclerocactus* species. Because we do not have an accurate delineation between the ranges for the *Sclerocactus* species, we are including information on Uinta Basin hookless cactus as well as Pariette Cactus.

The CIAA for Uinta Basin hookless cactus is the area delineated by the USFWS as potential habitat for the species. This area covers approximately 537,564 acres on BLM, Ute tribal, state of Utah, and privately held lands. Within the CIAA, there are approximately 1,875 miles of roads. Past, present and reasonably foreseeable disturbance from oil and gas will affect 44,698 acres (8.3% of the CIAA), as shown in Table 5.4. Cumulative impacts include dust impacts to plants, and plant and pollinator habitat destruction. Surface disturbance is a good indicator of the extent of these cumulative impacts.

Table 5.4. Cumulative Impacts Analysis for Uinta Basin Hookless Cactus

	Project Area Acreage	**Surface Disturbance Analyzed**	**Project Area Acreage within the CIAA**	**Surface Disturbance within the CIAA[1]**
Ongoing Field Development				
Chapita Wells-Stagecoach Area	31,872	1,735	22,678	1,235
Gasco Natural Gas Field Development EIS	236,165	3,604	77,339	1,180
Greater Deadman Bench Oil and Gas Producing Region EIS	98,785	1,239	22,444	282
Greater Natural Buttes Project EIS	162,911	8,147	97,529	4,877
North Alger Natural Gas Expansion Project EA	2,320	192	943	78
North Chapita Natural Gas Well Development Project EA	31,872	1,735	9,191	500
River Bend Unit Infill Development EA	17,719	924	14,892	823
Rock Point EDA Leasing and Exploratory Drilling EA	92,098	340	11,344	42
Saddletree Draw Leasing and Rock House Development EA	4,826	106	4,774	105
West Bonanza Area Natural Gas Well Development Project EA	24,813	608	1,070	26

West Tavaputs EIS	137,930	1,603	30,704	357
Past Developments and Current and Future Developments Not Covered by a Field Development NEPA Document				
729 abandoned wells[3]	NA[4]	NA	NA	3,565 acres
5,239 existing wells[3]	NA	NA	NA	19,158 acres
752 proposed well[3]	NA	NA	NA	2,377 acres
Field Development Proposals				
Greater Chapita Wells Natural Gas Infill Project EIS	40,027	3,696	31,741	2,931
Monument Butte Area Oil and Gas Development Project EIS	119,850	15,612	43,964	5,727
Randlett EDA Area Programmatic Leasing and Exploration Project	53,380	2,613	28,817	1,411
Total CIAA disturbance from oil and gas				
	--	--	--	44,674 acres (8.3%)
Current Project				
Proposed Action	NA	NA	NA	24.07
No Action	NA	NA	NA	0
Total CIAA disturbance from oil and gas				
	--	--	--	44,698 acres (8.3%)

[1]Assumes surface disturbance was authorized evenly across the analysis area of the document.
[2]Uses the assumption contained within the Greater Uinta Basin Cumulative Impacts Technical Support Document.
[3]As of 4/8/2013
[4]NA = not applicable

Due to inclusions of areas of unsuitable habitat within the potential habitat area, the total acreage of suitable habitat is less than 537,564 acres. However, a complete survey of suitable habitat has not been performed and thus the amount of suitable habitat has not been quantified. Impacts to the species from past, current, and reasonably foreseeable actions may be greater or smaller than those described for the total area depending upon the exact distribution of actions relative to suitable habitat.

5.4 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 white-tailed prairie dog, mountain plover, burrowing owl, ferruginous hawk, 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 0.45 acres of disturbance/resdisturbance.

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 53.05-75.25 acre feet of water depletion.

6.0 CONSULTATION AND COORDINATION

6.1 SECTION 7 CONSULTATION UNDER THE ESA

On October, 2011, BLM prepared a programmatic Biological Assessment (BA) for Newfield Production Company's 20-acre Infield Program. The United States Fish and Wildlife Service issued a Biological Opinion (BO) for threatened and endangered *Sclerocactus ssp.*, and for four federally listed Colorado River fish species whereby they concurred with BLM effects determinations on November 21, 2011. This project falls within the scope of this BO for both cactus and fish.

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 Monument Butte EIS, which encompasses the Project Area, on December 22, 2010. No comments were received from the requisite tribes within the 30 days allotted.

6.4 SUMMARY OF PUBLIC PARTICIPATION

This EA was posted on the BLM Land Use Planning and NEPA Register on June 3, 2014. No public interest has been expressed to date.

6.5 LIST OF BLM PREPARERS

NAME	TITLE	RESPONSIBLE FOR PREPARING THE FOLLOWING SECTION(S) OF THIS DOCUMENT
Sheri Wysong	Physical/Environmental Scientist	Team Lead
Stephanie Howard	Environmental Coordinator	Chapters 3, 4 & 5: Air Quality
Maggie Marston	Botanist	Chapters 3, 4 & 5 Threatened and Endangered Plants
Dan Emmett	Wildlife Biologist	Chapters 3, 4 & 5: Wildlife Including USFWS Designated Species; Threatened, Endangered, or Candidate Animal Species, Migratory birds
Alec Bryan	Rangeland Management Specialist	Chapters 3, 4 and 5 Rangeland Resources - Livestock Grazing, Rangeland Health Standards

7.0 REFERENCES

British Meteorological Office (BMO). 2009. British Meteorological Office's Hadley Centre,2009. Accessed January 2009 at http://www.metoffice.gov.uk/climatechange/science/monitoring/.

Bureau of Land Management (BLM). 2005. *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.

Bureau of Land Management (BLM). 2008. *Vernal Field Office Resource Management Plan.* U.S. Department of the Interior, Bureau of Land Management, Vernal District Office.

Bureau of Land Management (BLM) 2007 *Final Vegetation Treatments Using Herbicides Programmatic Environmental Impact Statement* U.S. Department of the Interior, Bureau of Land Management,

Bureau of Land Management (BLM). 2011. *Green River District Reclamation Guidelines.* U.S. Department of the Interior, Bureau of Land Management, Vernal District Office.

Bureau of Land Management (BLM). 2011. *Newfield Production Company 20-acre Infill Development Program. Biological Assessment* U.S. Department of the Interior, Bureau of Land Management, Vernal District Office.

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).

Duchesne County. 2005. *Duchesne County Public Land Use Plan* (County General Plan).

Foote, Brian, Regulatory Analyst, Newfield Production Company. Personal correspondence, February 27, 2013.

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, J.R., F.P. Howe and R.E. Norvell. 2002. *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. Global Climate Change Impacts in the United States, Thomas R. Karl, Jerry M. Melillo, and Thomas C. Peterson, (eds.). Cambridge University Press, 2009.

Uintah County. 2011. Uintah County General Plan, as amended.

U.S. Fish and Wildlife Service. (USFWS). 1994. *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.

U.S. Fish & Wildlife Service (USFWS). 2011. Final Biological Opinion for the Newfield Production's 20 acre Infield Development Project. November 21, 2011

U.S. Fish & Wildlife Service (USFWS) 2012. Final Biological Opinion for Newfield Exploration Company and Ute Energy, LLC's proposed Rocky Point Exploration and Development.

Appendix A. Interdisciplinary Team Checklist

Project Title: Newfield Productions Company's Proposed GMBU East 2014–4
NEPA Log Number: DOI-BLM-UT-G010–2014–0169
File/Serial Number: Various
Project Leader: Sheri Wysong

DETERMINATION OF STAFF: (Choose one of the following abbreviated options for the left column)
NP = not present in the area impacted by the proposed or alternative actions
NI = present, but not affected to a degree that detailed analysis is required
PI = present with potential for relevant impact that need to be analyzed in detail in the EA
NC = (DNAs only) actions and impacts not changed from those disclosed in the existing NEPA documents cited in Section D of the DNA form. The Rationale column may include NI and NP discussions.

Determination	Resource/Issue	Rationale for Determination	Signature	Date
RESOURCES AND ISSUES CONSIDERED (INCLUDES SUPPLEMENTAL AUTHORITIES APPENDIX 1 H-1790-1)				
PI	Air Quality & Greenhouse Gas Emissions	Emissions from 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	6/4/2014
NP	BLM Natural Areas	None present as per 2008 Vernal RMP and ROD/GIS layer review.	Sheri Wysong	6/4/2014
NI	Cultural: Archaeological Resources	No cultural properties were identified within the APE of the proposed project.	Leticia Neal	6/4/2014
NI	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	6/4/2014

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.	Sheri Wysong	6/4/2014
NP	Designated Areas: Wild and Scenic Rivers	None present as per 2008 Vernal RMP/ROD and GIS layer review	Sheri Wysong	6/4/2014
NP	Designated Areas: Wilderness Study Areas	None Present as per 2008 Vernal RMP/ROD and GIS layer review	Sheri Wysong	6/4/2014
NI	Environmental Justice	The Ute Tribe benefits financially from the oil and gas development in the region and is not disproportionally adversely affected by environmental impacts. There are no other minority or economically disadvantaged groups in the region that are positioned to be disproportionally adversely affected.	Sheri Wysong	6/4/2014
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.	Sheri Wysong	6/4/2014
NI	Fuels/Fire Management	No fuel management activities are planned for the project area. The proposed project would not conflict with fire management activities due to the use of existing pads.	Sheri Wysong	6/4/2014
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	Betty Gamber	6/19/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
		Gas Order No. 2, Drilling Operations". These guidelines specify the following: *... proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use.*		
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..	Sheri Wysong	
NI	Lands/Access	Current land use within the area consists of existing oil and gas development, gilsonite mining, wildlife habitat, recreational use, and sheep and cattle ranching. No existing land uses would be changed or modified by the implementation of the Proposed Action; therefore there would be no impact.	Sheri Wysong	6/4/2014
NP	Lands with Wilderness Characteristics (LWC)	None present as per 2008 Vernal RMP and ROD/GIS layer review.	Sheri Wysong	6/4/2014
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. The current well pad is within 43 meters of the floodplain this will alter water flow patterns	Alec Bryan	6/16/2014
NP	Paleontology	All sites in this document were cleared for paleo (W. Miller Reports; May 15, 2013, July 10, 2013, SWCA report May 14, 2013)	Betty Gamber	6/19/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NI	Plants: BLM Sensitive	The following UT BLM Sensitive plant species are present or expected in the same or an adjacent subwatershed as the proposed project: *Yucca sterilis* and *Cryptantha grahamii*. • Sandy soils in the vicinity of the proposed project may provide suitable habitat for *Yucca sterilis*. However, no populations are present in the Project Area and none were documented during the 2013 surveys of the host locations. Given the exclusively clonal nature of the species, the potential for future establishment is negligible. Suitable habitat for Graham's catseye (*Cryptantha grahamii*) is on Green River shales in mixed desert shrub, sagebrush or mountain shrub vegetation elevations from 5,000 -7,400 feet. This habitat (Green River shale) is not present in the Project Area, and no populations or individuals have been documented in the Project Area per BLM GIS review	Christine Cimiluca	7/22/2014
PI	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 (*Sclerocactus brevispinus*) and Uinta Basin hookless cactus (*Sclerocactus wetlandicus*). All 3 existing host locations are within the 2013 USFWS potential habitat polygon for *Sclerocactus ssp*. The 4-34-8-17 host location is in Core Conservation Area (CCA) Level 1, and the 2-3-9-17 host location is in CCA Level 2. Individuals/populations of cactus were found within 300 feet of all 3 locations during the 2013 surveys. However, as there would be no new surface disturbance as a result of the Proposed Action, there would be no surface disturbance within 300 feet of the documented cactus locations. Approximately 0.15 acre of re-disturbance would occur at each location in order to accommodate a closed loop drilling system. Because there would be no new disturbance as a result of the Proposed Action, and re-disturbance would be limited to existing well pads, there should be no direct impacts to cactus. However, indirect impacts could occur.	Christine Cimiluca	7/22/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
NP	Plants: Wetland/Riparian	No inventoried or observed riparian areas are located at or near the other well locations.	Sheri Wysong	6/4/2014
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.	Sheri Wysong	6/4/2014
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.	Sheri Wysong	6/4/2014
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. Existing structures include abandoned well pads in various states of reclamation, existing drilling structures with associated movement, form, lines, textures, and colors. Based on management objectives for the project area, the project meets VRM class III and IV requirements.	Sheri Wysong	6/4/2014
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.	Sheri Wysong	6/4/2014
NI	Water: Floodplains	GIS and onsite review indicates the proposed activities are not located within floodplains.	Sheri Wysong	6/4/2014

Determination	Resource/Issue	Rationale for Determination	Signature	Date
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	6/19/2014
NI	Water: Hydrologic Conditions (stormwater)	The Monument Butte 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.	Sheri Wysong	6/4/2014
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 VFORMP.	Sheri Wysong	6/4/2014
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.	Sheri Wysong	6/4/2014
NP	Wild Horses	No herd areas or herd management areas are present in the project area per BLM GIS database.	Sheri Wysong	6/4/2014
PI	Wildlife: Migratory Birds (including raptors)	Migratory birds are present (see Appendix B). There are known or documented raptor nests within ½ mile of the proposed project area.	Dan Emmett	6/11/2014
PI	Wildlife: Non-USFWS Designated	Priarie dogs are present within project area. No designated big game within project	Dan Emmett	6/11/2014
PI	Wildlife: Threatened, Endangered, Proposed or Candidate	GIS layers and field data was reviewed and found no federally listed species and / or habitat within the proposed project area. Water depletion will occur for the proposed project; however, the proposed project well has been analyzed under the two Biological Opinions 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	6/11/2014
NP	Woodlands/ Forestry	None Present as per 2008 Vernal RMP/ROD and GIS layer review	Sheri Wysong	6/4/2014

FINAL REVIEW:			
Reviewer Title	**Signature**	**Date**	**Comments**
Environmental Coordinator	Stephanie Howard	7/24/14	
Authorized Officer Acting		7/29/14	

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. 1) 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.
2) 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.
3) Crested wheatgrass species and forage kochia should not account for more than 30% of the total measured basal cover.

i. 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.
ii. 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.

iii. As determined by the Authorized Officer, temporary fencing may be required to exclude livestock/big game grazing until seeded species have become established.

iv. As determined by the Authorized Officer, mulching may be required.

1) 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.

2) 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.
1) 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).
2) 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. A GPS location recorded in North American Datum 1983,
   b. Species,
   c. Canopy cover or number of plants, and
   d. 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.
1) If herbicides are planned for use, an approved Pesticide Use Proposal (PUP) by the BLM is required.
2) Herbicides must be applied by a certified applicator with a current Utah Pesticide Applicators License.
3) A Biological Use Proposal is required for new bio-control agents in each Field Office.

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

i. Segregate all waste materials from the subsoil and topsoil.
ii. 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:
   1) Qualitative monitoring data should be collected after the 2nd growing season following reclamation actions.
   2) Quantitative data should be collected after the 3rd and5th 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 the site potentials are similar.
   1) Reference sites shall be permanently marked, and the location recorded by Global Positioning System (GPS) North American Datum 1983.

2) A photograph consisting of a general view of the marked reference site should be submitted with the Reference site data.
3) 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:
1) Document compliance with all aspects of the reclamation goals, objectives, and actions and describe the reclamation accomplished.
2) Document the results of the noxious weed inventory (see 6.i.1); and
3) 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.
1) Some plant seeds should not be drilled. If those species are used, the application method should fit the seed type requirements.
2) 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 August15 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.
1) Compaction relief typically should be designed for 18-24 inches in depth.
2) 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.
1) If the topsoil to be re-spread is greater than 6" in depth, then topsoil should be applied *before* compaction relief is implemented.
2) If the topsoil to be re-spread is less than 6", then topsoil should be applied *after* compaction relief is implemented.
3) 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