RECORD OF DECISION

for

Newfield Exploration Company
Monument Butte Oil and Gas Development Project

in Uintah and Duchesne Counties, Utah

UT-G010-2009-0217

DOI-BLM-UT-G010-2016-0065

U.S. Department of Interior
Bureau of Land Management
Vernal Field Office

170 South 500 East

Vernal, Utah 84078

2016

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Contents

1. Approval

I approve the Monument Butte Oil and Gas Development Project as described in the Decision section of this document (Section 3) and the maps and figures in Attachment 1, subject to the Data Collection and Reporting Requirements and Conditions of Approval contained in Attachment 2, which are formed from the FEIS, the Air Quality Strategy (Attachment 3), the Final Cactus Strategy (Attachment 4), and the Biological Opinion (Attachment 5).

Approved By:

SEP 3 0 2016

Jenna Whitlock
Acting State Director

Date

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2.0 Summary

Pursuant to Section 102(2)(C) of the National Environmental Policy Act of 1969, the United States (U.S.) Bureau of Land Management (BLM) Vernal Field Office has prepared a Final Environmental Impact Statement on the impacts of proposed oil and natural gas development within the Greater Monument Butte Project Area (MBPA) (Attachment 1). The MBPA is located in southeastern Duchesne County and southwestern Uintah County. The MBPA consists of approximately 119,743 acres of Federal, State, and private lands. The Bureau of Land Management Utah State Director is the Authorized Officer for this decision. Implementation of the Decision has been delegated to the Vernal Field Office and/or the Green River District.

Newfield Exploration Company (Newfield) notified the BLM Vernal Field Office on January 14, 2009 of its need and plan to expand their ongoing oil and natural gas development within the MBPA. This Record of Decision (ROD) documents the BLM's final decision regarding Newfield's plan (Section 3) as well as the BLM's management considerations (Section 4) in making the decision including: purpose and need of the project, conformance of the project with existing Land Use Plans, the potential impacts of the proposed oil and natural gas development under the four alternatives as documented in the Final Environmental Impact Statement (FEIS), outcomes of the consultations undertaken for the project, and responses to public comments on the FEIS (Attachment 6) and the resulting FEIS errata (Attachment 7). The form to be completed by any party adversely affected by and wishing to appeal the Decision is included as Attachment 8.

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3.0 The Decision

BLM has determined that the analysis contained in the FEIS is adequate for the purposes of reaching an informed decision regarding implementation of Newfield's plan on BLM-administered lands or minerals. However, all components of the selected alternative as described below are subject to further site-specific permitting and NEPA requirements. Newfield must obtain federal, state, and local permits, along with right-of-way (ROW)[1] grants, licenses, easement agreements, and other authorizing actions to proceed with all project-related development.

3.1 What the Decision Includes

The decision is hereby made to allow oil and natural gas drilling on leased federal lands as described in the FEIS Section 2.6 Alternative D – Agency Preferred Alternative subject to the attached Conditions of Approval (hereafter referred to as the Selected Alternative). The Selected Alternative is programmatically depicted in Map 2-4 included in Attachment 1 of this ROD. The Conditions of Approval are listed in Attachment 2: Data Collection and Reporting Requirements and Conditions of Approval, and formed from the FEIS, the Air Quality Strategy in Attachment 3, the Final Cactus Strategy in Attachment 4, and the Biological Opinion in Attachment 5.

3.1.1 The Selected Alternative

The Selected Alternative includes the following primary components.

1) Wells and facility development and construction in the project area as described in FEIS Section 2.6 including:

    a. Development of up to 750 new Green River vertical oil wells to be drilled from a combination of new, small and large well pads, all of which would eventually be converted into waterflood injection wells;

    b. Development of up to 2,500 new deep gas wells that would be vertically or directionally drilled from a combination of new and existing, large well pads;

    c. Development of up to 2,500 new 20-acre downhole spacing Green River oil production wells to be directionally drilled from a combination of new or existing, small and large well pads;

    d. Construction of up to 226 miles of new 100-foot-wide ROWs that would be used for new road construction (40-foot width) and pipeline installation (60-foot width).

    e. Construction of ROWs up to 70-foot-width adjacent to approximately 318 miles of existing roads ROWs for road upgrade (10-foot width) and pipeline installation (60-

[1] Throughout this document, the term ROW is used to generically indicate infrastructure corridors, for example pipelines and roads that may or may not require an actual ROW grant.

foot width);

f. Construction of 20 new compressor stations for deep gas well development;

g. Expansion of three existing Green River oil well compressor stations and construction of one new compressor station for gas associated with Green River oil well development;

h. Construction of up to one 50-MMscf/d centralized Green River oil well gas processing plant;

i. Construction of up to 13 gas driven water treatment and injection facilities for management, distribution, and injection of produced water;

j. Construction of up to 12 Gas Oil Separation Plants (GOSP) for oil and produced water collection;

k. Development of one fresh water collector well for waterflood operations;

l. Construction of six water pump stations, and

m. Applicant Committed Measures as carried forward into the Conditions of Approval.

2) New development in the project area outside the Pariette Wetlands ACEC and threatened cactus core conservation areas based on existing well density (See Attachment 1 Map 2.6-1):

a. High-density development areas are those areas that already have from six to 16 well pads per 640-acre section (i.e., one well pad per 40 to 106 acres). Within high-density development areas, four large, existing well pads per section could be expanded by about 0.2 to 0.8 acres per new well (anticipated to be up to six wells per existing pad consisting of: one existing vertical 40-ac water injection well, one new directional 20-ac oil well, one new vertical deep gas well, and three new directional deep gas wells). Additionally, within high-density development areas, 12 small well pads per section could be expanded by about 0.2 acres per well to accommodate one new directional 20-ac oil well (i.e., each existing well pad is anticipated to contain up to two wells, consisting of one existing vertical 40-ac oil/injection and one new directional 20-ac oil).

b. Low-density development areas are defined as those areas that have had no development at all or contain up to five well pads per section. For low-density development areas with zero to five existing well pads per section, the proposed surface density would be no more than four large, new well pads per 640-acre section (i.e., one large well pad per 160 acres) and twelve small, new well pads per 640-acre section (i.e., three small well pads per 160 acres). See Figures 2.6-2 (Attachment 1) for a graphical representation of this alternative as compared to the Proposed Action. There would be no restriction on the number of wells that could be drilled from those well pads, provided that the wells conform to downhole spacing requirements.

3) Pariette Wetlands Area of Critical Environmental Concern (ACEC) development guidelines and restrictions to protect the Relevant and Important Values:

    a. Development restrictions for 100-year Floodplains, Riparian Areas, Water Resources, and Special Status Species habitats as described in the attached Conditions of Approval.

    b. In the remainder of the ACEC, new or expanded well pads could be built following the low density development guidance described in 2b (above) so long as surface disturbance is minimized to the extent possible and no impacts occur to the relevant and important values.

4) Project area development restrictions for Sclerocactus suitable habitat and core conservation areas as described in the attached Conditions of Approval and Attachment 4.

5) Project area development restrictions for 100-year Floodplains, Riparian Areas, and other Water Resources as described in the attached Conditions of Approval.

6) Biological Opinion reporting requirements and development restrictions to protect threatened and endangered species and their habitats (see Attachment 5).

7) Unprecedented applicant committed measures for the project area to protect air quality (detailed in Attachments 2 and 3) including: "no net increase emissions" development restrictions to be documented annually on an emissions balance sheet, a Directed Inspection and Maintenance (DI&M) program, and an Ozone Action Mitigation Plan.

3.1.2 Big Wash Lands with Wilderness Characteristics Submission

There currently are no lands with wilderness characteristics identified within the project area. BLM has previously documented the absence of wilderness characteristics within the project area. In late 2014, information was submitted to the BLM which identified potential lands with wilderness characteristics in the Big Wash area. Due to staffing issues and other priorities, BLM's review of this submission has not yet been completed. Approximately 100 acres of the Big Wash submission overlaps the MBPA (see the following Big Wash Wilderness Characteristics map). Because the review has not been completed it is unknown if BLM considers the area to contain wilderness characteristics or not. The conceptual impacts of facility development in this area have been analyzed in the FEIS for all resources except wilderness characteristics. The BLM therefore commits to conduct a review of the Big Wash Wilderness Characteristics submission as a part of, or prior to as priorities allow (whichever is first), the review process of any site-specific surface use applications. If the BLM determines wilderness characteristics are present in the area, then the site-specific NEPA for any surface use applications in that 100 acre-area will disclose and mitigate as appropriate the impacts to any affected resources.

3.2 What the Decision Does Not Include

3.2.1 Decisions on Lands or Minerals other than BLM-Administered

Decisions contained within this ROD do not apply to lands or minerals administered by agencies or individuals other than the BLM. However, other agencies or individuals may, at their discretion, use the analysis in the FEIS to inform their own decisions on their lands or minerals.

3.2.2 Site-Specific Permits

This ROD does not directly authorize any site-specific permits or the construction of any particular facility on BLM-administered lands or minerals. Rather, the proponent or affiliate are required to submit applications for permit to drill, sundry notices, right of way, or other applications for approval of wells, well pads, pipelines, roads, or other ancillary facilities associated with project development. Those applications will be subject to an appropriate level of site-specific NEPA review before construction may be authorized.

3.2.3 Acquired Land in the Pariette ACEC

In March 2014, the BLM acquired 160 acres of private lands and minerals in the Pariette Wetlands Area of Critical Environmental Concern. The affected lands are in Township 9 South, Range 19 East, Section 8, E2NW, NESW, NWSE. Transfer of the minerals required ratification by the lease holder. Newfield elected to continue their lease with the BLM under the terms of the original Easement, Right-of-Way and Surface Use Agreement dated November 11, 2008. Decisions in this ROD will not supersede that agreement, which is a valid, pre-existing right.

3.2.5 FEIS Mitigation Measures Not Carried Forward as ROD COAs

3.2.5.1 Project Design Mitigation

The following cactus mitigation measures identified in the FEIS have been superseded by more specific requirements in the Biological Opinion, and were therefore not carried forward as conditions of approval in the ROD.

FEIS Page 4-166 Lines 21-45:

- Design project infrastructure to minimize impacts within potential habitat:
    - Reduce well pad size to the minimum needed, without compromising safety;
    - Limit new access routes created by the project;
    - Roads and utilities should share common ROWs where possible;
    - Reduce width of ROWs and minimize the depth of excavation needed for the road bed or use the natural ground surface for the road within habitat where feasible;
    - Place signing to limit off-road travel in sensitive areas; and
    - Stay on designated routes and other cleared/approved areas, and
    - All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area and non-native species that are not likely to invade other areas.

- Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:
    - Follow the above recommendations for project design within potential habitats;
    - Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.;
    - Where technically and economically feasible, use directional drilling or multiple wells from the same pad;
    - Designs will avoid concentrating water flows or sediments into occupied habitat;
    - Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat;
    - Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible;

3.2.5.2 Cactus Survey Protocols

The following mitigation measures identified in the FEIS are older survey protocols. During the ESA Section 7 consultation, the BLM committed to comply with the USFWS's latest survey protocols. Therefore, recitation of the older protocols in the BLM's decision document is not necessary.

FEIS Page 4-165 Lines 7-19

- Sclerocactus surveys for access roads, buried pipelines, well pads, and other facilities requiring removal of vegetation (e.g., compressor stations) will include the project area and/or right-of-way (ROW), and 300 feet from the edges of the project disturbance and/or ROW.
- Sclerocactus surveys for surface pipelines placed within an existing road ROW, and within 10 feet from the edge of the disturbed surface of the road, will include the ROW and 50 feet from the edge of the ROW on the pipeline side of the road.
- Sclerocactus surveys for cross-country surface pipelines (pipelines over 10 feet from a road), where the pipeline will be laid by hand with minimal disturbance and no vehicle use, will include the ROW and 50 feet from the edges of both sides of the ROW.
- Surveys for all other cross-country surface pipelines (vehicles or equipment used, not laid out by hand) will include the ROW and 300 feet from the edges of both sides of the ROW.
- Sclerocactus surveys will not be necessary when pipelines are buried in existing roads.

3.2.5.3 Closed Loop Drilling in Sensitive Floodplains

The following applicant committed measure is superseded by the ESA Section 7 consultation requirements that: 1) no well pad related activities would be allowed within active floodplains; and 2) a 200 foot setback be implemented for all tributaries that drain

directly to Pariette Draw or the Green River. Since this measure as worded is specific to well drilling in floodplains and named drainages, it was excluded from the COAs to prevent future confusion. However, a condensed version of it was inserted into the general COA section which states: "Newfield would use closed-loop drilling techniques for all proposed wells located near sensitive areas as determined necessary during the onsite process".

FEIS Page 2-36 Lines 25-28

- Newfield would use closed-loop drilling techniques for all proposed wells located in sensitive areas, such as the 100-year floodplain of Pariette Draw, and in all U.S. Geological Survey (USGS) named drainages within 3 miles of the Green River. Additional locations where closed-loop drilling may be merited would be determined during the onsite process.

3.2.5.4 Annual Raptor Surveys Duplicate Measures

The following measures are duplicative of other raptor survey and buffer measures, and as such have been removed for simplification purposes.

FEIS Page 2-37 Line 37:

- Annual raptor surveys within the MBPA would be conducted by a BLM-qualified biologist.

FEIS Page 4-161 Lines 31-36

- Project-related development in areas directly associated with raptor nest and roost areas would be guided by the use of Best Management Practices for Raptors and Their Associated Habitats in Utah (found in Appendix A of the Vernal RMP [BLM 2008b]) and the USFWS Utah Field Office's Guidelines for Raptors Protection from Human and Land Use Disturbances (Romin and Muck 2002) that use seasonal and spatial buffers as well as mitigation to maintain and enhance raptor nesting and foraging habitat, while allowing for other resource uses.

3.2.5.5 Unclear Active Drainage Measure

The following measure is poorly worded and its meaning is unclear, so it was not carried forward as a COA. Other measures were included which accomplish the intent of this measure.

FEIS Page 4-203 Lines 43-44

- Well pads would not be located in active drainages.

3.2.5.6 Conflicting ACEC mitigation

FEIS Page 4-50 Line 22

- Directional drilling would be used to reduce or avoid impacts to the ACEC relevant values where feasible (all relevant and important values of ACECs and ORVs of proposed WSR).

4.0 Management Considerations

My Decision to approve this project was made after consideration of the relevant factors discussed below.

4.1 Purpose and Need

The purpose of the Monument Butte FEIS is to facilitate the BLM decision-making process as to whether to approve, approve with modifications, or disapprove Newfield's proposed project and project components based on an evaluation of the expected impacts. The BLM's purpose is to minimize or avoid environmental impacts to the extent possible, while allowing Newfield to exercise its valid lease rights.

The need for a BLM action is to respond to this proposal. The Federal Land Policy and Management Act of 1976, or FLPMA (Public Law 94-579, 43 United States Code [U.S.C.] 1701 et seq.), recognizes oil and gas development as one of the "principal" uses of the public lands. Federal mineral leasing statutes, including the Mineral Leasing Act of 1920, 30 U.S.C. 181 et seq., and the implementing regulations by which they are enforced recognize the statutory right of lease holders to develop federal mineral resources to meet continuing national needs and economic demands, subject to lease stipulations and reasonable measures that BLM may require to minimize adverse impacts.

It has been determined that the Selected Alternative meets this purpose and need because environmental restrictions, such as high density and low density pad placement and sensitive area avoidance or other restrictions, have been incorporated that have reduced surface disturbance by about 40% in comparison to the proposed action. In addition, the applicant has committed to, and the Selected Alternative incorporates, extensive air quality mitigation measures beyond those required by regulation to minimize the emissions to the environment from the proposed development.

4.2 Conformance with BLM Land Use Plans, Laws, and Policy

Management objectives for lands under the authority of the VFO are contained within the Vernal ROD and approved Resource Management Plan (RMP) (BLM 2008b), as amended. The RMP allows for the exploration and development of oil and gas resources while protecting or mitigating impacts to other resource values.

The goals and objectives of the Minerals and Energy Resources management decisions of the Approved RMP are as follows:

- Meet local and national non-renewable and renewable energy and other public mineral needs.
- Support a viable long-term mineral industry related to energy development while providing reasonable and necessary protections to other resources.
- The following principles will be applied:

- Encourage and facilitate the development by private industry of public land mineral resources in a manner that satisfies national and local needs and provides for economical and environmentally sound exploration, extraction and reclamation practices.
- Process applications, permits, operating plans, mineral exchanges, leases, and other use authorizations for public lands in accordance with policy and guidance.
- Monitor salable and leasable mineral operations to ensure proper resource recovery and evaluation, production verification, diligence, and inspection and enforcement of contract sales, common use areas, community pits, free use permits, leases and prospecting permits.

- This RMP will recognize and be consistent with the National Energy Policy by:
  - Recognizing the need for diversity in obtaining energy supplies
  - Conserving sensitive resource values
  - Improving energy distribution opportunities (BLM 2008b).

Most of the subject leases in the project area were issued prior to the completion of the Vernal ROD and Approved RMP with stipulations that were standard at that time. The Approved RMP does not affect valid existing rights and does not affect terms of existing leases (BLM 2008b page 21).

The Selected Alternative is deemed in conformance with management decisions made in the Vernal ROD and Approved RMP because it meets the goals and objectives of the Minerals and Energy Resources management decisions as listed above. The Selected Alternative allows for the development of valid existing rights, and it does not affect the terms of the existing leases, although it does provide for protection of the various sensitive resources found throughout the project area.

4.3 Consistency with Other Plans, Statutes, and Objectives

The Selected Alternative would be in compliance with the Federal Land Policy and Management Act of 1976, or FLPMA (Public Law 94-579, 43 United States Code [U.S.C.] 1701 et seq.), which recognizes oil and gas development as one of the "principal" uses of the public lands. Federal mineral leasing statutes, including the Mineral Leasing Act of 1920, 30 U.S.C. 181 et. seq., and the implementing regulations by which they are enforced recognize the statutory right of lease holders to develop federal mineral resources to meet continuing national needs and economic demands, subject to lease stipulations and reasonable measures that BLM may require to minimize adverse impacts.

The Selected Alternative would be in compliance with other Federal, State, and local laws and regulations. Increased development of oil and gas resources on public lands is consistent with Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA), Comprehensive National Energy Strategy announced by the U.S. Department of Energy in April 2008, the Energy Policy and Conservation Act (42 U.S.C. 6201), and the Energy Policy Act of 2005.

Utah Code Section 63J-8-105.5 established the Uintah Basin Energy Zone, which includes the

MBPA. The highest management priority for these lands is responsible development of energy resources. SITLA has leased all of the state lands within the MBPA and permits on-going oil and gas production. These actions are consistent with SITLA's primary objective to fund the state school system. The Selected Alternative would allow for oil and gas production on federal leases and would be consistent with the objectives of the Uintah Basin Energy Zone.

The Selected Alternative would be in compliance with the Duchesne County General Plan, as amended (Duchesne County 2005, 2007, 2012, 2013). This General Plan supports responsible natural resource use and development and emphasizes the need to keep public lands open for oil and gas exploration and development under multiple-use and sustained yield principles.

The Selected Alternative would be in compliance with the Uintah County General Plan 2005, as amended (Uintah County 2005, 2012). This General Plan supports oil and gas development, emphasizes responsible multiple-use of public lands, and optimizes utilization of public resources.

4.4 Alternatives

The range of alternatives that were available to the agency was constrained given that leases had previously been issued and are valid existing rights. Four alternatives were identified and considered in detail in the Final EIS. The total number of wells drilled under each alternative would depend largely on outside factors such as production success, engineering technology, reservoir characteristics, economic factors, commodity prices, rig availability, and lease stipulations. The anticipated life of an individual well under each alternative is 20 to 30 years, and the anticipated time it would take for field abandonment and final reclamation is an estimated 5 years. For a complete description of these alternatives, refer to FEIS Sections 2.2 through 2.7. The BLM considered the environmental impacts anticipated under each of these alternatives, including climate change impacts. For a summary of the environmental impacts, please refer to FEIS Table ES-2. The following subsections highlight the major components of these alternatives, and the relevant factors that BLM considered when preparing this decision.

4.4.1 Alternative A: Proposed Action

Under the Proposed Action Alternative, Newfield plans to drill up to 5,750 wells and associated facilities at an average rate of 360 wells per year until the resource base is fully developed. Construction, drilling, and completion would occur for approximately 16 years. The anticipated life of project (LOP) under the Proposed Action would be from 41 to 51 years. Additionally this alternative includes the construction of approximately 243 miles of new roads and pipelines, 363 miles of new pipeline adjacent to existing roads, 21 new and 3 expanded compressor stations, one gas processing plant, seven new and six expanded water treatment and injection facilities, 12 gas and oil separation plants, six water pump stations, as well as the drilling of one freshwater collector well. Total new surface disturbance under the Proposed Action would be approximately 16,129 acres, which would be reduced to 7,808 acres through interim reclamation.

The Proposed Action Alternative meets the BLM's Need for the project in that it allows for development of the valid existing leases. It also conforms to federal, state, and local laws and policies and the BLM's land use plan. It is anticipated to create 32,743 jobs in Duchesne and Uintah Counties, and directly employ about 478 people per day during construction (16 years)

and 46 people per day during production (20 to 30 years). It is estimated to generate about $3.6 billion in personal income in Uintah and Duchesne Counties, $73.6 million in taxes for Uintah and Duchesne Counties, and about $138.7 million in taxes for the State. However, upon review of the FEIS, it was determined that additional measures could be taken to further reduce impacts including disturbance to sensitive surface resources in accordance with the BLM's Purpose for the project. Therefore, the BLM did not carry this alternative forward as the selected alternative.

4.4.2 Alternative B: No Action (Environmentally Preferable Alternative)

The No Action Alternative evaluates development, production, and maintenance of the remaining approximately 241 wells approved under the August 2005 ROD for the Castle Peak and Eight Mile Flat Oil and Gas Expansion EIS on BLM-administered lands, as well as an additional approximately 547 oil and gas wells estimated to be developed on State and private lands or minerals.

Under the No Action Alternative, up to 788 wells would be developed on BLM, State, and private lands at an average rate of up to 360 wells per year. Construction, drilling, and completion of all wells would occur over an approximately 2.2-year period. The anticipated LOP under the No Action Alternative would be approximately 28 to 38 years. Additionally this alternative includes the construction of approximately 23.5 miles of new roads and pipelines, 45 miles of new pipeline adjacent to existing roads, 2 new compressor stations, one gas processing plant, one new water treatment and injection facility, one gas and oil separation plant, and one water pump stations. Total new surface disturbance under the No Action Alternative would be 870 acres of new disturbance, which would be reduced to 659 acres through interim reclamation.

NEPA implementing regulation 40 CFR 1505.2(a) requires the identification of the alternative or alternatives which are considered to be environmentally preferable. For the Monument Butte FEIS, the environmentally preferable alternative is Alternative B: No Action because it proposes acres of disturbance and the fewest emissions due to the low number of new wells and other facilities.

The No Action Alternative nearly eliminated impacts including surface disturbance to sensitive surface resources in accordance with the BLM's Purpose for the project. In addition, the development that would occur under this alternative conforms to federal, state, and local laws and policies and the BLM's land use plan. It is anticipated to create 4,487 jobs in Duchesne and Uintah Counties, and directly employ about 468 people per day during construction (2 years) and 24 people per day during production (20 to 30 years). It is estimated to generate about $496 million in personal income in Uintah and Duchesne Counties, $10.1 million in taxes for Uintah and Duchesne Counties, and about $19 million in taxes for the State. However, upon final review it was determined that this alternative does not meet the BLM's Need to allow for the development of the valid existing Federal leases in conformance with FLPMA and the lease terms. Therefore, the BLM did not carry this alternative forward as the selected alternative.

4.4.3 Alternative C: Field-Wide Electrification

The Field-Wide Electrification Alternative was developed in response to air quality issues raised during the public and agency scoping process. The principal component of this alternative entails a phased field-wide electrification system that would be integrated in the MBPA over an estimated 7-year period. This alternative would incorporate the same construction and

operational components described in Section 2.2 of the Final EIS (Development Activities Common to all Alternatives), except that gas-driven motors would be converted to electric motors as field electrification is phased into the MBPA.

Under the Field-Wide Electrification Alternative, up to 5,750 wells would be developed on BLM, State, and private lands at an average rate of up to 360 wells per year. Construction, drilling, and completion of all 5,750 wells would occur for approximately 16 years. The anticipated LOP under Alternative C would be 41 to 51 years. The phased field-wide electrification component consists of construction of 35 miles of overhead cross-country 69kV transmission lines, 156 miles of distribution lines, and 11 substations. Additionally this alternative includes the construction of approximately 243 miles of new roads and pipelines, 363 miles of new pipeline adjacent to existing roads, 21 new compressor stations, three expanded compressor stations, one gas processing plant, seven new and six expanded water treatment and injection facilities, 12 gas and oil separation plants, six water pump stations, as well as the drilling of one freshwater collector well. Total new surface disturbance under this alternative would be approximately 20,112 acres, which would be reduced to 10,173 acres through interim reclamation.

The Field Wide Electrification Alternative meets the BLM's Need for the project in that it allows for development of the valid existing leases. It also conforms to federal, state, and local laws and policies and the BLM's land use plan. It is anticipated to create 32,743 jobs in Duchesne and Uintah Counties, and directly employ about 486 people per day during construction (16 years) and 46 people per day during production (20 to 30 years). It is estimated to generate about $3.6 billion in personal income in Uintah and Duchesne Counties, $73.6 million in taxes for Uintah and Duchesne Counties, and about $138.7 million in taxes for the State. However, upon review of the FEIS, it was determined that additional measures could be taken to further reduce impacts including disturbance to sensitive surface resources in accordance with the BLM's Purpose for the project. Also, electrification of the field in general is not technically feasible. The power demands of the field for this electrification alternative would exceed the current capacity of the Bonanza Coal Fired Power Plant. In addition, Newfield assessed the Alternative and determined that it would be completely cost prohibitive. Newfield estimated the lifetime cost of self-generation at $600 million each for 11 generation stations, including distribution systems but excluding on-drill pad electrification costs and fuel value. The aggregate costs would exceed $1.4 million per well, which is more than the current development cost per well. Therefore, the BLM did not carry this alternative forward as the selected alternative.

4.4.4 DEIS Alternative D: Original Resource Protection (Agency Preferred Alternative)

The DEIS agency preferred alternative focused on reducing the number of new well pads, and preventing new surface disturbance in the Pariette Wetlands ACEC. The development scenario called for four (4) surface well pad locations (160 surface pad spacing) per one square mile. Each surface well pad location would be a high well density installation, with six or more wells on each well pad, each targeting either the formation containing the shallow oil (depth between 4,500 and 7,000 ft) or the formation(s) containing the deep gas (depth between 13,000 and 18,000 ft). With the alternative D program setup, about fifty percent of the wells on the surface pad location would be directional wells, with a vertical section displacement of around 2,000 ft

(inclination angle 20 degrees). The alternative also contained an aggressive reclamation program for the waterflood injection well pads.

The BLM revised the Agency Preferred Alternative between draft and final based on public comment which pointed out the technical infeasibility of the alternative as relates to: 1) inefficient waterflood sweep, 2) directional well downhole equipment failure, 3) potential well bore collision, and 4) insufficient injection well pad size for safe operations. BLM engineers reviewed the comment and determined the technical points of the comment were correct. These technical issues affected the proponent's ability to diligently and efficiently develop oil and gas resources as required by regulation and the terms of their leases. Therefore the BLM determined adjustments to the agency preferred alternative were necessary to bring the alternative into conformance with the purpose and need of this EIS, so the alternative as presented in the DEIS was not carried forward as the selected alternative. Please note that the Agency Preferred Alternative revisions were wholly within the range of alternatives considered in the DEIS, therefore the BLM determined that a Supplement to the draft was not warranted.

4.4.5 FEIS Alternative D: Resource Protection (Agency Preferred Alternative)

The primary objective of the Resource Protection Alternative is to meet the purpose and need for the Project while 1) protecting the relevant and important values of the Pariette Wetlands Area of Critical Environmental Concern (ACEC); 2) minimizing the amount of new surface disturbance and habitat fragmentation within and around USFWS proposed Level 1 and 2 Core Conservation Areas (for two federally-listed plant species: the Uinta Basin hookless and the Pariette cactus); 3) precluding new well pads (with the exception of Newfield's proposed water collector well) and minimizing new surface disturbance (roads or pipelines) within 100-year floodplains; 4) precluding new well pads, pipelines, or roads within riparian habitats; and 5) minimizing overall impacts from the proposed oil and gas development through the use of directional drilling technology.

Under the Resource Protection Alternative, up to 5,750 wells would be developed on BLM, State, and private lands at an average rate of up to 360 wells per year. Construction, drilling, and completion of all 5,750 wells would occur for approximately 16 years. The anticipated LOP under Alternative D would be 41 to 51 years. Additionally this alternative includes the construction of approximately 226 miles of new roads and pipelines, 318 miles of new pipeline adjacent to existing roads, 21 new and 3 expanded compressor stations, one gas processing plant, seven new and six expanded water treatment and injection facilities, 12 gas and oil separation plants, six water pump stations, as well as the drilling of one freshwater collector well. Total new surface disturbance under the Agency Preferred Alternative would be approximately 10,122 acres, which would be reduced to 4,978 acres through interim reclamation.

The Resource Protection Alternative meets the BLM's Purpose and Need for the project in that it minimizes the impacts to surface resources while allowing for development of the valid existing leases. It also conforms to federal, state, and local laws and policies and the BLM's land use plan. It is anticipated to create 32,743 jobs in Duchesne and Uintah Counties, and directly employ about 478 people per day during construction (16 years) and 46 people per day during production (20 to 30 years). It is estimated to generate about $3.6 billion in personal income in Uintah and Duchesne Counties, $73.6 million in taxes for Uintah and Duchesne Counties, and

about $138.7 million in taxes for the State. The Resource Protection Alternative, as modified by the Conditions of Approval, was therefore carried forward as the selected alternative.

4.5 Consultation and Coordination

4.5.1 Cooperating Agencies

The following entities were invited to be Cooperating Agencies:

- U.S. Environmental Protection Agency (EPA);
- State of Utah, (via the Governor's Public Lands Policy and Coordination Office (PLPCO));
- Duchesne County;
- Uintah County;
- Bureau of Indian Affairs (BIA)-Uintah and Ouray Agency, and
- The Ute Indian Tribe.

The EPA, PLPCO, Duchesne County, and Uintah County agreed to participate as Cooperating Agencies and signed related memorandums of understanding (MOUs).

The U.S. Fish and Wildlife Service (USFWS) and the U.S. Army Corps of Engineers (USACE) have been on-going Cooperating Agencies under the BLM Energy Pilot Office program authorized by the Energy Policy Act of 2005. Major reviews conducted by the Cooperating Agencies during development of alternatives and preparation of the DEIS were conducted as follows:

- August 24, 2009, Uintah County MOU signed
- August 31, 2009, Duchesne County MOU signed
- September 30, 2011, Utah PLPCO MOU signed
- February 8, 2012, EPA MOU signed
- September-October 2012 Chapters 1 and 2 review
- September 26, 2012 Cooperators meeting held
- November-December 2012 revised alternatives review
- January 23, 2013 meeting to provide status updates and discuss alternatives
- February-March 2013 Chapters 1 and 2 review
- July-August 2013 PDEIS review
- October 2013 revised PDEIS review
- June 2014 revised alternative update to cooperators
- July 2014 COE discussed cooperating agency status

- October 2014 PFEIS cooperator review

4.5.2 Air Resource Coordination

There was extensive coordination with the BLM Utah Air Resource Technical Advisory Group (RTAG) throughout the preparation and finalization of the air quality analysis for the FEIS, in conformance with the *NEPA Air Quality MOU for Federal Oil and Gas Decisions* (signed June 23, 2011). The main participants in the RTAG are the EPA, National Park Service, US Forest Service, US Fish and Wildlife Service, and Utah Department of Environmental Quality. The major RTAG and other air quality reviews occurred as follows. All reviews were by the RTAG unless otherwise indicated:

- May 2012 BLM applicant committed measures preliminary review
- September-October 2012 BLM/EPA early coordination regarding applicant committed measures, "net zero" and pollutant "trading"
- December 2012-January 2013 Air modeling protocol review
- February-March 2013 BLM/EPA Emission Inventory report review
- April-October 2013 BLM/EPA/Newfield worked on a draft net zero/adaptive management approach
- July-September 2014 development of proposed ARMS model protocol
- September-October 2014 BLM/EPA adaptive management plan review
- October-November 2014 ARMS model protocol review
- February-April 1, 2015 ARMS model report review
- May-August 2015 controls and mitigation review
- June 2015-July 2016 BLM/EPA/Newfield discussion regarding feasible mitigation measures and existing ozone situation
- July 2016 final air measures agreed to by BLM, EPA, and Newfield

4.5.3 NHPA Section 106 Consultation and Government to Government Consultation

Section 106 consultation and Tribal consultation milestones are summarized below:

- December 22, 2010: The BLM sent an initiation of consultation letter which summarized the proposed project to the thirteen tribes with ties to the Basin.
- June 4, 2012: A BLM letter initiated the Section 106 process and proposed consulting parties.
- August 1, 2012: Utah State Historic Preservation office confirmed the proposed consulting parties list.
- September 20, 2012: The BLM sent a letter announcing the October 11 meeting, and inviting the proposed consulting parties to participate.

- September 27, 2012: The Laguna Pueblo Tribe response indicated that the "undertaking will not have a significant impact at this time".
- September 27, 2012: A response letter was received from Duchesne County asking for an invitation to participate.
- October 1, 2012: The Hopi Tribe response requested continued consultation.
- October 11, 2012: The consulting parties defined the Area of Potential Effect as the project area, and determined that a Programmatic Agreement was not needed.
- December 1, 2014: A conclusion of consultation letter was sent by the BLM.
- December 4, 2014: Section 106 consultation with Utah SHPO and any potentially affected Native American Tribes was finalized with the receipt of Utah SHPO's concurrence letter.
- December 14, 2014: Tribal consultation concluded due to lack of responses from any of the consulted Tribes.

4.5.4 ESA Section 7 Consultation

Formal Section 7 consultation under the authority of the ESA was initiated in October 2014 and finalized on September 4, 2015. Extensive coordination between Newfield, the BLM, and the FWS occurred to ensure impacts to listed species are minimized or compensated to the extent possible. A chronology of Consultation Events is included below:

- October 22, 2014-April 8, 2015: Meetings and correspondence held among USFWS, BLM and Newfield to discuss Sclerocactus Strategy.
- June 2, 2015: USFWS received the BA and letter requesting formal consultation.
- June 15, 2015: USFWS received edited acreage calculations for the amount of disturbance associated with this project in Sclerocactus habitat.
- July 9, 2015: Meeting was held between USFWS, BLM, and Newfield to discuss conservation measures and request accurate information regarding water depletions. USFWS also received follow-up emails with corrected water right and depletion information from BLM.
- July 17, 2015: USFWS received a letter from BLM stating that they have changed their determination from adversely modify critical habitat to may affect likely to adversely affect critical habitat for listed Colorado River fish. USFWS also received an email from BLM with updated conservation measures for all listed species.
- July 18, 2015: USFWS received updated conservation measures with additional questions from BLM. USFWS had a phone conversation with BLM to clarify conservation measures.
- August 6, 2015: USFWS received updated applicant-committed conservation measures from BLM and Newfield in an email.
- August 10, 2015: USFWS had a phone conversation with BLM to discuss conservation

measures for Ute ladies' -tresses and Western yellow-billed cuckoo.

- August 27, 2015: USFWS received an email from BLM stating that they would implement the final conservation measures in the proposed action and ROD.
- September 2, 2015: USFWS received a signed copy of the final conservation measures.
- September 3, 2015: USFWS received an email from BLM changing their determination for Colorado River fish critical habitat from may affect likely to adversely affect to may affect not likely to adversely affect the critical habitat.
- September 4, 2015: Biological Opinion was signed.

In the Biological Opinion, the USFWS determined that the effects of the action on Western yellow-billed cuckoo, Ute ladies'-tresses, razorback sucker, and Colorado pikeminnow are expected to be insignificant. The USFWS indicated they may reconsider the determination for Western yellow-billed cuckoo, Ute ladies'-tresses, razorback sucker, and Colorado pikeminnow if project action changes or additional information about the distribution of the listed species becomes available.

In the Biological Opinion, the USFWS determined that the project is not likely to jeopardize the continued existence of Pariette cactus and Uinta Basin hookless cactus. Approximately 4,295 acres of surface disturbance will occur within the Sclerocactus Habitat Polygon, which represents approximately 1 percent of habitat within the Sclerocactus Habitat Polygon. Surface disturbance within Level 1 CCAs represents approximately 0.3 percent of habitat within Level 1 CCAs. Surface disturbance within Level 2 CCAs represents approximately 0.9 percent of habitat within Level 2 CCAs. The USFWS reached this conclusion based upon the applicant committed conservation measures to avoid and minimize impacts within the range of the species as well as the minimal scope of disturbance within Sclerocactus habitat.

The Biological Opinion included Reporting Requirements and Conservation Recommendations which have been incorporated into the Selected Alternative as Conditions of Approval.

4.6 Public Involvement

4.6.1 Public Scoping

The public scoping process was initiated on August 25, 2010, with the publication of a Notice of Intent (NOI) in the Federal Register. The BLM prepared a scoping information notice and provided copies to the public, other government agencies, and Tribes. These announcements included information on two open house public scoping meetings, which were held at the County Commissioner's Office in Duchesne, Utah, on September 13, 2010, and at the Western Park Convention Center in Vernal, Utah, on September 20, 2010. The scoping meetings included participants from the BLM, Ashley National Forest, Uintah County Public Lands, Newfield, El Paso County, consultants, as well as local landowners. The official scoping period ended October 9, 2010.

Public response to the NOI and meetings included seven letters: two from federal agencies; one from a state agency; one from a county agency; and three from industry or private individuals. The following concerns were identified in the letters:

- Comprehensive air-quality analyses and region-wide air-quality modeling;
- Direct and indirect effects of water injection and hydrogen sulfide on gilsonite mining operations;
- Incorporation of operational flexibility into the Record of Decision and Final EIS;
- Recognition of valid existing lease rights within the Project Area by BLM;
- Explanation of the positive air quality impacts and reduction in emissions that would result from electrification;
- Limited BLM statutory or regulatory authority to regulate air quality or enforce air quality laws;
- Economic benefits to the local and state economies and SITLA;
- Conformance of the proposed project to the Vernal RMP;
- Direct, indirect, and cumulative impacts to Waters of the U.S.;
- Direct, indirect, and cumulative air quality impacts with an emphasis on fine particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), volatile organic compounds (VOC), and ozone;
- Protection of wetland, stream, and riparian resources;
- Alternatives for water treatment and produced water management;
- Protection of groundwater, drinking water, and irrigation water;
- Impacts of fugitive dust from construction and travel on unpaved roads;
- Impacts of noise from central facilities located near residences and wildlife in the MBPA;
- Analysis of proposed project development on water quality within Pariette Draw; and
- Potential introduction and expansion of noxious weeds in the MBPA.

These concerns were considered during or incorporated into the development of alternatives and analysis in the EIS.

4.6.2 Draft EIS

The Notification of Availability for the Draft EIS was published on December 20, 2013. The Draft EIS was made available for a 45-day public comment period, which was subsequently extended by an additional 30 days at the request of the State of Utah. Three public meetings were held; one on January 21, 2014 in Salt Lake City, Utah, one on January 22, 2014 in Roosevelt, Utah, and one on January 23, 2014 in Vernal, Utah. A total of 22 unique comment letters or emails were received during the official comment period, and one letter was received after the comment period ended. The 23 comment letters or emails included one from a federal agency, one from the House of Representatives, one from a state agency, two from County governments, one from the proponent (Newfield), nine from other oil and gas industry representatives or trade groups, one from the proponent's outside legal counsel, one from a non-governmental organization, and six from private individuals. There were also 1,780 form letters received from members of the environmental community that expressed concern regarding ozone impacts, and 161 form letters received from Newfield Employees that expressed concern over impacts to their livelihoods from the Agency Preferred Alternative. A detailed list of substantive comments received and BLM's response to those comments is included in the FEIS Attachment 2. However, comments largely focused on the following:

- Comments stating that the Agency Preferred Alternative was technically flawed and would not meet the purpose and need for the project;

- Comments asking the BLM to adopt the No Action Alternative;
- Comments asking the BLM to adopt the Proposed Action Alternative;
- Direct, indirect, and cumulative impacts to Waters of the U.S.;
- Direct, indirect, and cumulative air quality impacts with an emphasis on fine particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), volatile organic compounds (VOC), and ozone;
- Limited BLM statutory or regulatory authority to regulate air quality or enforce air quality laws;
- Economic benefits to the local and state economies and SITLA;
- Protection of wetland, stream, and riparian resources;
- Alternatives for water treatment and produced water management;
- Protection of groundwater, drinking water, and irrigation water;
- Analysis of proposed project development on water quality within Pariette Draw; and
- Surface restrictions in the Pariette Wetlands ACEC and *Sclerocactus* core conservation areas.

4.6.3 Final EIS

The Notification of Availability for the Final EIS was published on June 24, 2016. The Final EIS was made available for a 45-day availability period. The longer than usual availability period was offered in response to a suggestion of the EPA due to the changes to the agency preferred alternative that occurred between Draft and Final EISsto address technical issues with the DEIS alternative. During this availability period the BLM received the following letters:

- 10 letters from the public against the project;
- 1 letter from Western Energy Alliance in favor of the project;
- 1 letter from Uintah County in favor of the proposed action;
- 26,250 for letters from the public against the project received during the availability period; and
- 1,962 form letters from the public against the project received after the close of the availability period.
- 1 petition with 20 Utah residents signatures against the project received after the close of the availability period

In addition, the BLM received seven letters that contained potentially substantive comments. These were received from: the Environmental Protection Agency Region 8; Western Environmental Law Center on the behalf of Wild Earth Guardians, Southern Utah Wilderness Alliance, Center for Biological Diversity, Sierra Club, and Utah Native Plants Society; Utah Native Plant Society; Wild Earth Guardians; Utah Physicians for a Healthy Environment; and Beatty & Wozniak on behalf of Newfield Exploration Company (two letters – an initial and a supplemental).

The BLM reviewed the comments submitted and determined that no significant new circumstances or information were contained in them. However, several comments were determined to warrant clarification to improve public and decision maker understanding, so responses to those comments are included in Attachment 6, and any errata that occurred as a

result of comment responses are documented in Attachment 7.

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5.0 Appeal Process

This decision is effective upon the date it is signed by the authorized officer. The decision is subject to appeal. This decision may be appealed to the Interior Board of Land Appeals (IBLA), Office of Hearings and Appeals, U.S. Department of the Interior, 801 North Quincy Street, Suite 300, Arlington Virginia 22203, in accordance with the regulations contained in 43 Code of Federal Regulation (CFR) Part 4. Appeal and stay procedures are outlined on Form 1842-1, which is attached to this ROD as Attachment 8.

Notice of Appeal: Within 30 days of the posting of this decision ("date of service"), a Notice of Appeal must be filed in writing to the office that issued this decision (43 CFR 4.411 and 4.413:

State Director
BLM Utah State Office
440 West 200 South, Suite 500
Salt Lake City, Utah 84101-1345

At the same time, a copy of the Notice of Appeal must also be sent to:

Regional Solicitor
U.S. Department of the Interior
6201 Federal Building
1235 South State Street
Salt Lake City, Utah 84138-1180

Statement of Reasons: Within 30 days after filing the Notice of Appeal, you must also file a complete statement of the reasons why you are appealing. This must be filed with:

U.S. Department of the Interior
Office of Hearings and Appeals
Interior Board of Land Appeals
801 N. Quincy Street, Suite 300
Arlington, Virginia 22203

If you fully stated your reasons for appealing when filing the Notice of Appeal, no additional statement is necessary (43 CFR 4.412 and 4.413).

Within 15 days after each document is filed, each adverse party named in the decision and the Regional Solicitor must be served a copy of the document.

At the end of any document that is filed in an appeal, the party filing the document must certify that service has been or will be made in accordance with the applicable rules, and specify the date and manner of service (43 CFR 4.401(c)). Unless the procedures set forth herein are followed, an appeal will be subject to dismissal (43 CFR 4.402).

Petition for a Stay: This decision becomes effective upon the expiration of the time allowed for the filing of an appeal unless a petition for a stay is timely filed with a Notice of Appeal (43 CFR 4.21). If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the IBLA, the petition for a stay must accompany your Notice of Appeal (43 CF 4.21). Except as otherwise provided by law, or applicable regulation, guideline, or policy, a petition for a stay of a decision pending appeal must show sufficient

justification based on the following standards:

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

A petition for stay of this decision must be filed in the office of the Authorized Officer, which in this case is the BLM Utah State Office.

6.0 Literature Cited

Please also refer to Ch.7 References of the Final EIS for the Monument Butte Oil & Gas Development Project

Bureau of Land Management (BLM) 1988. 1613 Areas of Critical Environmental Concern.

BLM 2012. Colorado Plateau Rapid Ecoregional Assessment Report. May 2015.

Environmental Protection Agency 2016. Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources. 81 FR 35823, dated June 3, 2016.

Utah Division of Air Quality 2014. Approval Order: General Approval Order for a Crude Oil and Natural Gas Well Site and/or Tank Battery. DAQE-AN149250001-14 dated June 5, 2014.

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Attachment 1: Maps and Figures

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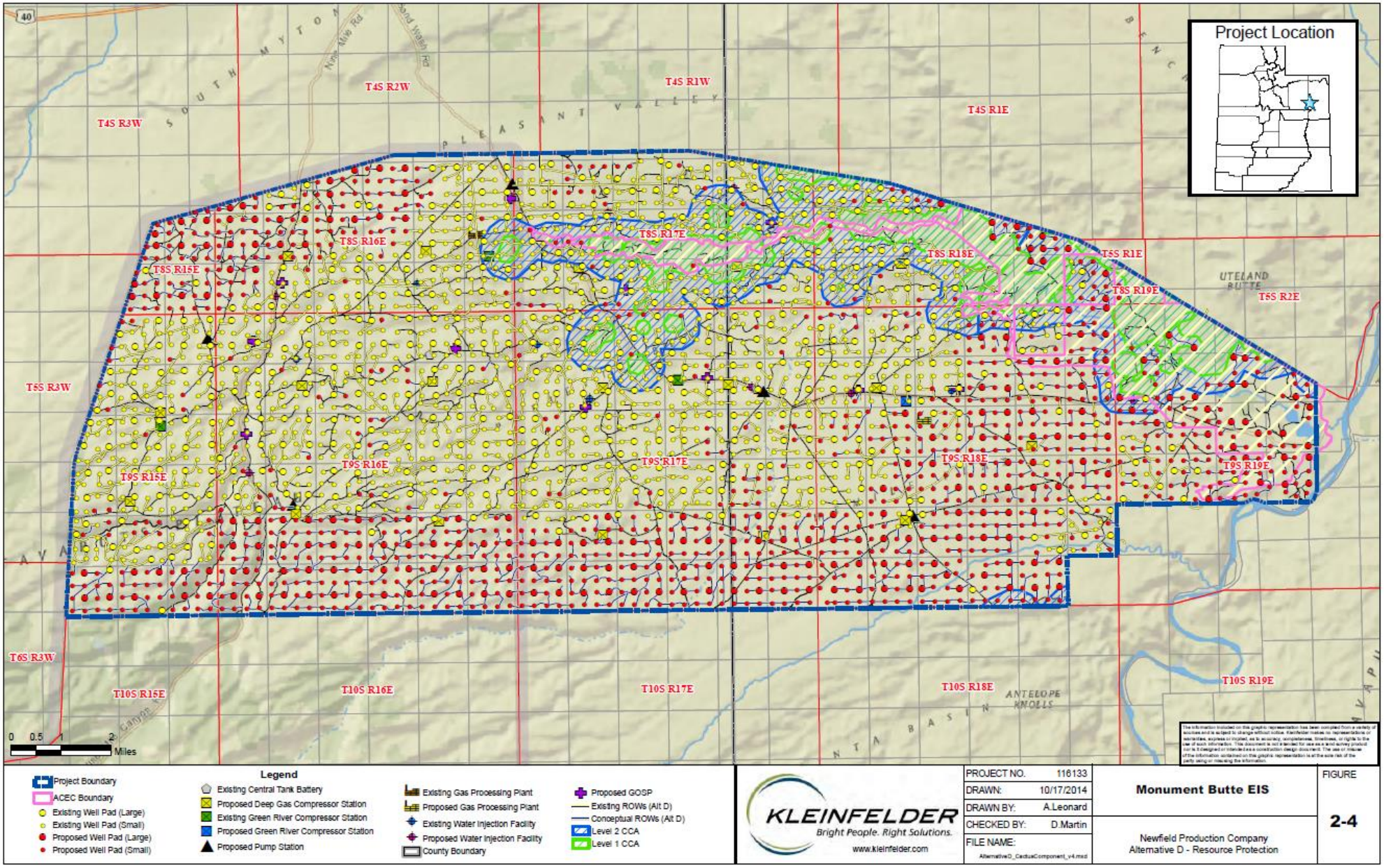
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T4S R2W
T4S R1W
T4S R1E
T8S R16E
T8S R15E
T8S R17E
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T8S R19E
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T5S R3W
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T10S R17E
T10S R18E
T10S R19E
PLEASANT VALLEY
SOUTH MYTON
UTELAND BUTTE
ANTELOPE KNOLLS
0 0.5 1 2
Miles
Legend
Project Boundary
ACEC Boundary
Existing Well Pad (Large)
Existing Well Pad (Small)
Proposed Well Pad (Large)
Proposed Well Pad (Small)
Existing Central Tank Battery
Proposed Deep Gas Compressor Station
Existing Green River Compressor Station
Proposed Green River Compressor Station
Proposed Pump Station
Existing Gas Processing Plant
Proposed Gas Processing Plant
Existing Water Injection Facility
Proposed Water Injection Facility
County Boundary
Proposed GOSP
Existing ROWs (Alt D)
Conceptual ROWs (Alt D)
Level 2 CCA
Level 1 CCA
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www.kleinfelder.com
PROJECT NO. 116133
DRAWN: 10/17/2014
DRAWN BY: A.Leonard
CHECKED BY: D.Martin
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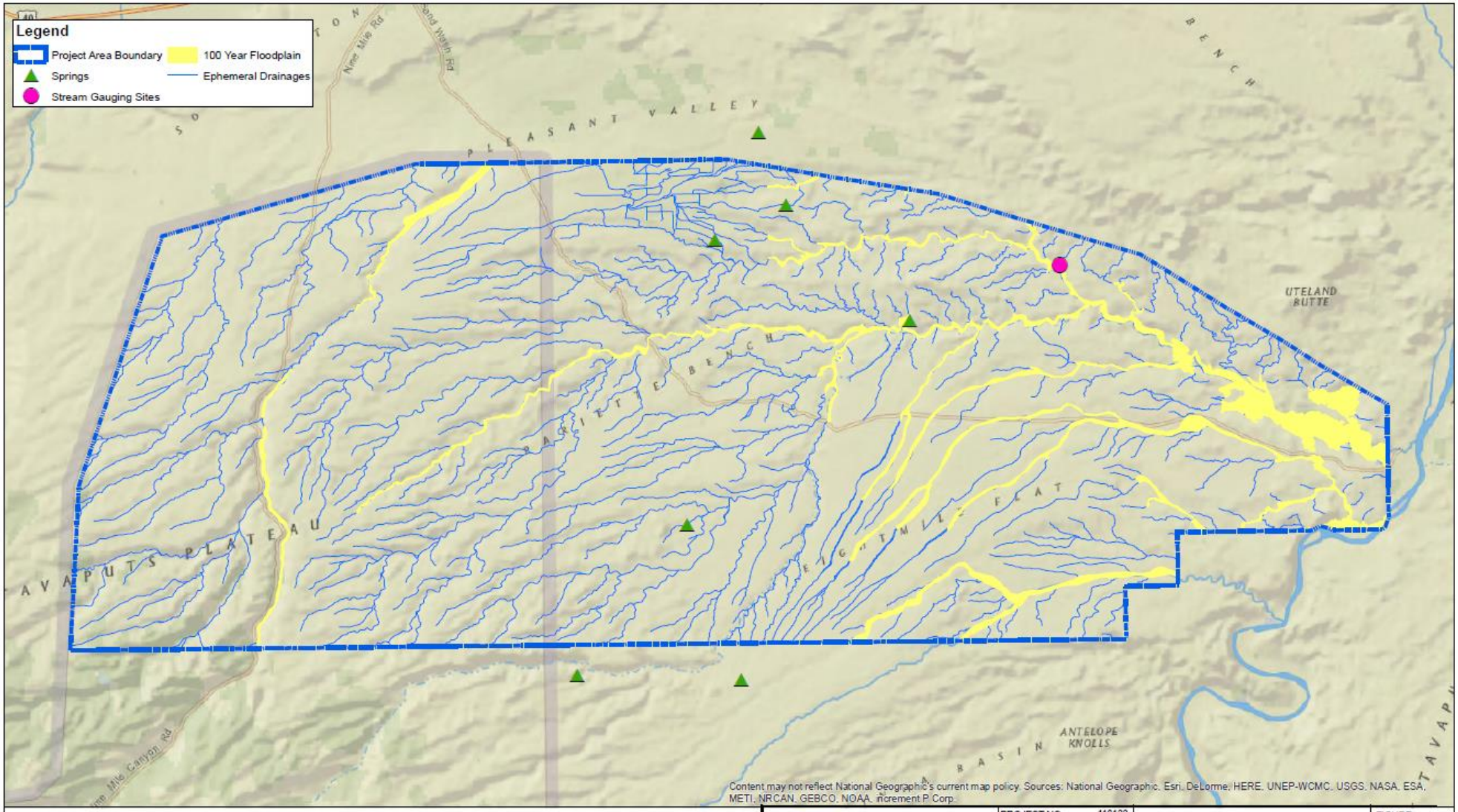
Monument Butte EIS
Newfield Production Company
Alternative D - Resource Protection
FIGURE
2-4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Project Area Boundary
100 Year Floodplain
Springs
Ephemeral Drainages
Stream Gauging Sites
PLEASANT VALLEY
BENCH
UTELAND BUTTE
BASIN
ANTELOPE KNOLLS
Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
0 1.25 2.5 5 Miles
Base Map: ESRI Online Map
Floodplain Data: Utah SGID ArcSDE Database (1995)
Stream Data: Utah SGID ArcSDE Database (2011)
Stream Guage Data: USGS (2004)
Springs Data: Utah SGID ArcSDE Database (2011)
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PROJECT NO. 116133
DRAWN: 3/27/2015
DRAWN BY: A.Leonard
CHECKED BY: D.Martin
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Newfield Exploration Company
Monument Butte EIS
Surface Water and Floodplains
Uintah & Duchesne Counties, Utah
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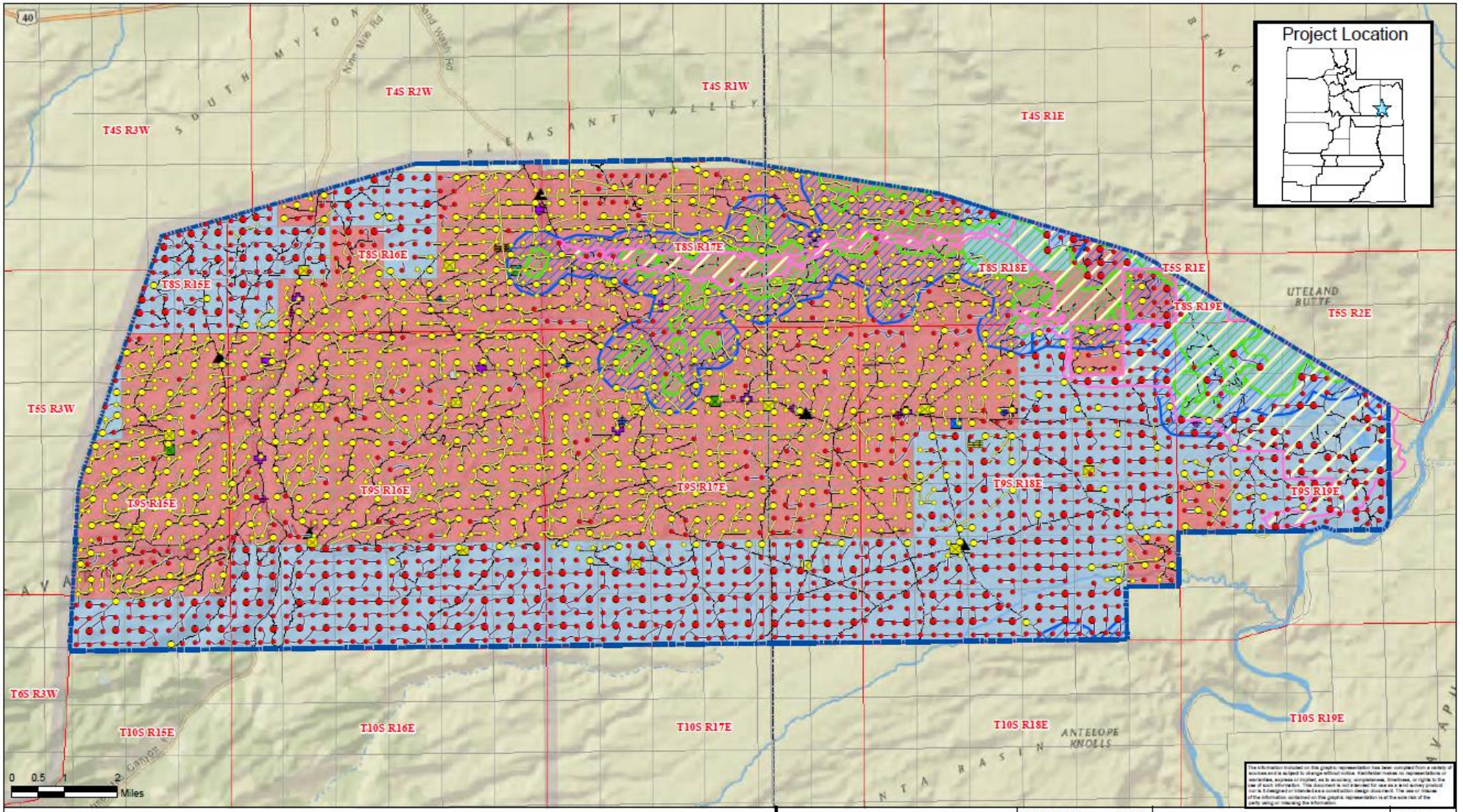
Project Location
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UTELAND BUTTE
ANTELOPE KNOLLS
PLEASANT VALLEY
SOUTH MYTON
0 0.5 1 2 Miles
Legend
Project Boundary
ACEC Boundary
Existing Well Pad (Large)
Existing Well Pad (Small)
Proposed Well Pad (Large)
Proposed Well Pad (Small)
Existing Central Tank Battery
Proposed Deep Gas Compressor Station
Existing Green River Compressor Station
Proposed Green River Compressor Station
Proposed Pump Station
Existing Gas Processing Plant
Proposed Gas Processing Plant
Existing Water Injection Facility
Proposed Water Injection Facility
County Boundary
Proposed GOSP
Existing ROWs (Alt D)
Conceptual ROWs (Alt D)
High Well Density Area
Low Well Density Area
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PROJECT NO. 116133
DRAWN: 10/17/2014
DRAWN BY: A.Leonard
CHECKED BY: D.Martin
FILE NAME:
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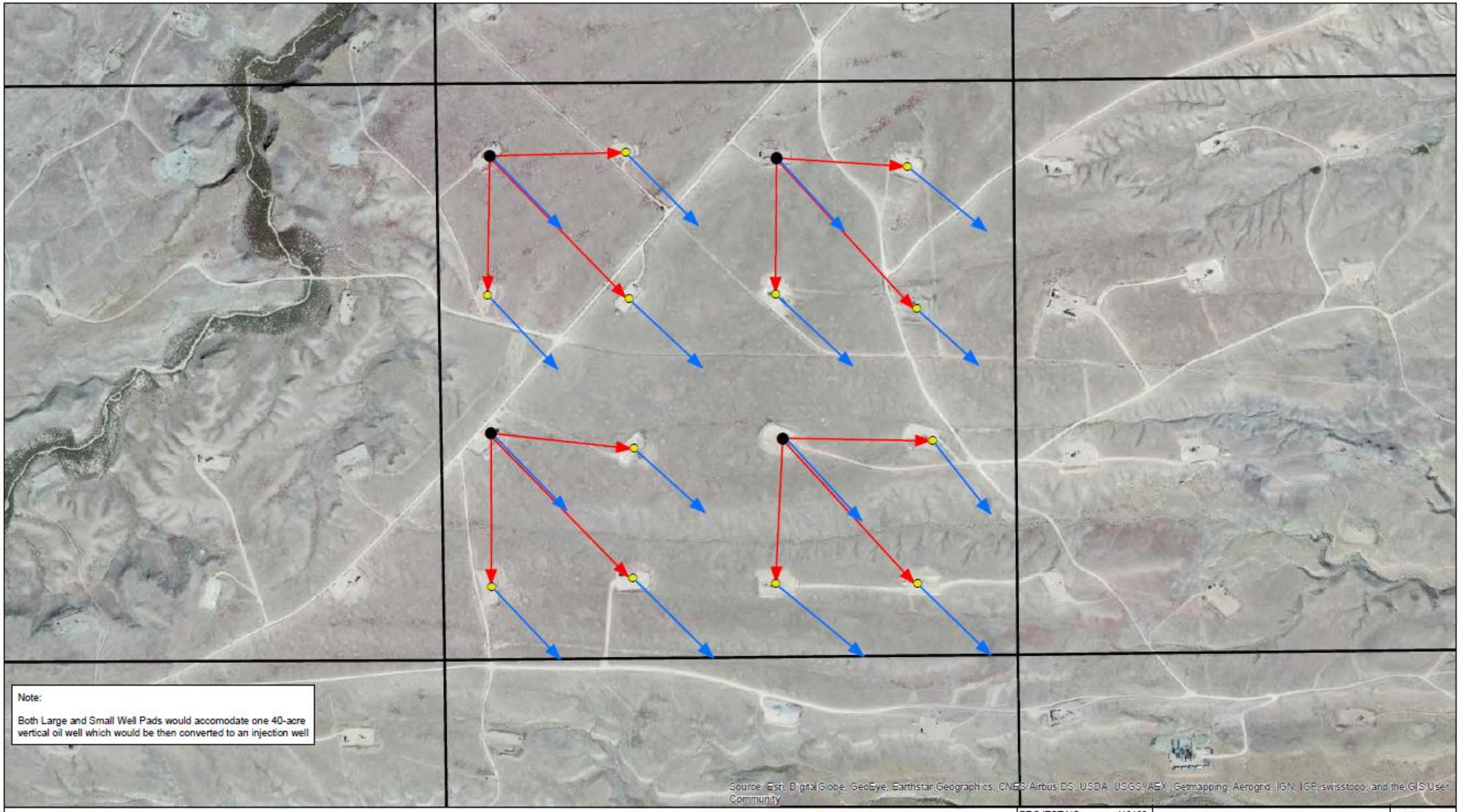
Monument Butte EIS
Newfield Production Company
High- and Low-Density Development Areas
Under Alternative D
FIGURE
2.6-1


Note:
Both Large and Small Well Pads would accomodate one 40-acre vertical oil well which would be then converted to an injection well
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
0 250 500 1,000 Feet
Legend
Large Well Pad
Small Well Pad
20-ac Directional Oil Well
Directional Deep Gas Well
Section
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PROJECT NO. 116133
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DRAWN BY: A.Leonard
CHECKED BY: D.Martin
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Monument Butte EIS
Newfield Production Company
Low-Density Development
Scenario for Alternative D
FIGURE
2.6-2

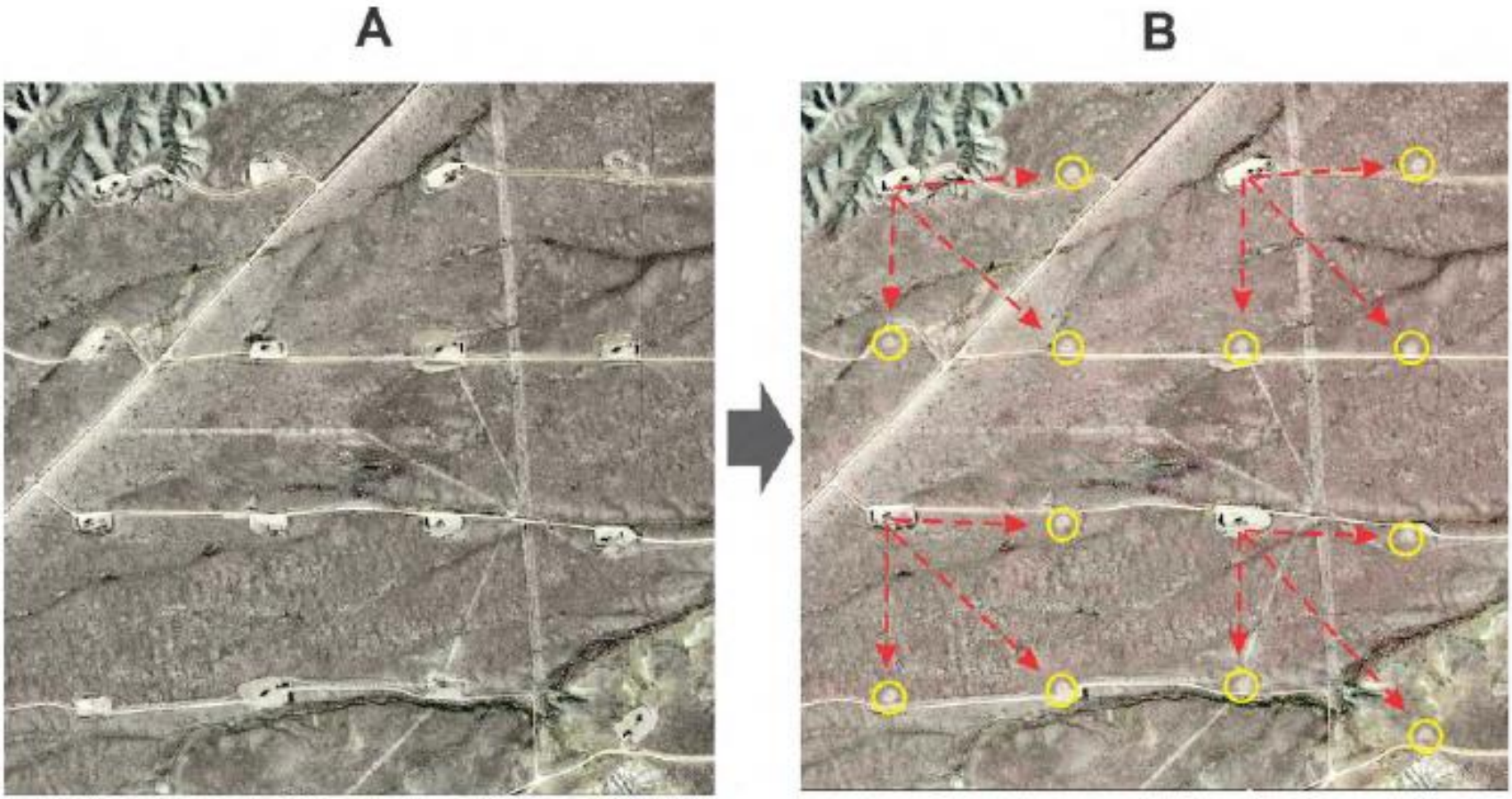

Figure 2.6-2. Comparison of a Typical 640-acre Section Drilled at a 40-acre Surface Spacing (16 Well Pads) (A), with Simulations of Four of the Well Pads Expanded for Directional Drilling, and the Conversion of the Remaining 12 Well Pads Into Water-flood Injection Wells as Shown in Yellow (B).

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Attachment 2: Data Collection and Reporting Requirements and Conditions of Approval

Table 1 summarizes the data collection and reporting requirements and responsibilities of the Selected Alterative. For a full description of the collection and reporting requirements, refer to the source document. Table 2 lists the Conditions of Approval included in the Selected Alternative.

Table 1: Data Collection and Reporting Requirements[2]

BLM	Newfield	Source	Requirement
X		Biological Opinion	Reporting Requirements for Colorado River Fishes: In order to comply with the Colorado River Recovery Program and ensure exemption from prohibitions of section 9 of the Act, the BLM is required to submit to our office an annual report of water depletions associated with oil and gas development, including the following information: i. Project name and/or applicant name ii. Permit number and/or special use authorization iii. General location and legal description iv. Depletion amount in acre-feet v. Timing of depletion vi. Identify if new or historic depletion vii. Sub-total water depletion (acre-feet) for each applicant viii. Total depletion for the entire year in acre-feet ix. Total number of APDs approved x. Total number of wells spudded Reports shall be due on a yearly basis by October 31.

[2] The BLM highly recommends that Newfield submit an annual report documenting their compliance with these data collection and reporting requirements, and other COAs as appropriate, in an annual comprehensive report. The BLM AO is willing to coordinate with Newfield on the formatting and/or elements of this report.

BLM	Newfield	Source	Requirement
X	**X**	Biological Opinion	Any annual Sclerocactus monitoring reports associated with the proposed actions must be submitted to USFWS by January 31 each year following monitoring. • Any fish impinged on the intake screen or entrained into irrigation canals would be reported to the USFWS (801-975-3330) or to the UDWR Northeastern Region, located at 318 North Vernal Avenue, Vernal, UT 84078 (435-781-9453). • Biological reports of the spot check survey will be submitted to the BLM AO, and the authorizing official will provide written approval to the operator to proceed with the project. • Spot check biological reports will also be submitted to the Service so that the Service may evaluate the efficacy of these survey methods. • If a spill occurs within the Sclerocactus T&E potential, critical, or core habitats polygon, Newfield would provide a copy of the official spill report to USFWS within the same timeframe required by the regulatory agency.
	X	Biological Opinion	If listed plants are crushed or injured during Project activities, or upon locating dead, injured; or sick listed species, immediate notification must be made to USFWS Salt Lake City Field Office at (801) 975-3330 and Division of Law Enforcement, Ogden, Utah, at (801) 625-5570, and to the BLM AO (435) 781-4400. Pertinent information including the date, time, location, and possible cause of injury or mortality of each species shall be recorded and provided to the Service.
X		Biological Opinion	As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action was retained (or is authorized by law) and if: (1) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (2) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (3) a new species is listed or critical habitat designated that may be affected by the action. If the Project changes or it is later determined that the Project affects listed species differently than identified above; it may become necessary to reinitiate section 7 consultation.
	X	Applicant	• In an effort to ensure that project activities do not increase the existence of invasive or noxious

BLM	Newfield	Source	Requirement
		Committed Measures FEIS Section 2.2.12, FEIS Section 4.7.2, and BA Section 2.3.14	weeds in the MBPA, Newfield would prepare a Weed Control Plan. Specific components of the plan would include o Conducting individual noxious weed inventories on a well-by-well basis prior to construction activities. The inventories would include examination of all proposed surface disturbance (i.e., roads, pipelines, and well pads) associated with each well. The results of these inventories would include Global Positioning System (GPS) locations indicating the type and size of each infestation. This data would be formulated into a report and submitted with the APD. o Preparation of a Pesticide Use Proposal (PUP). o Following the construction phase and drilling phase for each well, all disturbed surface would be monitored annually for the presence of noxious weeds. If monitoring shows the presence of noxious weeds, Newfield would be responsible for treating these areas. Noxious plant control measures (mechanical, cultural, chemical) would be conducted annually prior to seed set. Monitoring and treatment would be conducted annually until reclamation and weed eradication is deemed successful by the AO of the appropriate SMA. o All herbicide chemical control will be in conformance with national and local guidance, including approved chemicals, rates, and appropriate BMPs. o To prevent further spread of noxious weeds, all vehicles and equipment would be power washed at designated washing locations to remove seed and plant materials before entering the MBPA from outside of the Uinta Basin.
	X	Applicant Committed Measures FEIS 2.2.12, FEIS Section 4.9, and BA Section 2.3.14	• All wildlife law violations would be reported to the UDWR.

BLM	Newfield	Source	Requirement
	X	Applicant Committed Measures FEIS 2.2.12 expanded to contain the original wording from the Mitigation Strategy – Applicant Committed Environmental Protection Measures. See ROD Attachment 3	Mitigation Strategy – Applicant Committed Environmental Protection Measures The purpose of the mitigation strategy outlined here, as incorporated into the Final EIS and ROD, is to ensure that implementation of the Greater Monument Butte Project will not result in net emission increases of volatile organic compounds (VOC) from stationary sources located within the exterior boundaries of the Project area beyond VOC emissions levels for the 2012 operating year. To demonstrate the effectiveness of this "no net increase" strategy, both additions and reductions in VOC would be documented annually on an emissions balance sheet. This documentation along with the additional components of the mitigation strategy -- a Directed Inspection and Maintenance (DI&M) program, an Ozone Action Mitigation Plan, and the Applicant Committed Environmental Protection Measures -- shall be deemed to provide reasonable assurance that project activities analyzed in the GMBU FEIS do not cause or contribute to a Clean Air Act ozone NAAQS violation. Strategy Principles: • Be protective: Provide reasonable assurance that the Project will not cause or contribute to ozone violations in the Basin. • Be accountable and transparent: Allow BLM and Newfield to publically document the project's VOC emissions. • Be adjustable to changing regulatory environment: o Emission reductions of VOC resulting from actions taken by Newfield or natural production decline (defined in the Technical Support Document) shall be used to create headroom for project activities that result in new sources of VOC emissions. In the event of a non-attainment designation on lands including the Project Area, the documented emissions reductions shall be considered by BLM in determining Newfield's compliance with applicable ozone conformity requirements to the extent possible. o Upon the implementation of any new regulation applying to activities within the Project area, such requirement(s) shall replace any comparable component of this mitigation strategy if BLM determines, according to the process outlined below, that compliance with the new requirement(s) commits Newfield to measures that will reduce VOC

BLM	Newfield	Source	Requirement
			emissions. ▪ Provide a process for internal review and assessment conducted by BLM, in consultation with Newfield, to assess whether components of the mitigation strategy can be removed for being equivalent in effect or duplicative of new state or federal air quality regulatory requirements, and whether it is necessary for BLM to continue to require the annual emissions balance sheet and subsequent annual reviews. o In the event of an ozone nonattainment designation and subsequent implementation of an ozone attainment FIP/SIP/TIP (or General Conformity or comparable provisions if the area is classified as marginal), the new requirements shall replace this mitigation strategy. • Flexible: Newfield determines how to accomplish the no-net increase strategy. • Be Cost Effective: Implementation of the components of this mitigation strategy should not impose significant increased operational costs on Newfield beyond those of the Applicant Committed Measures specified in the DEIS in the absence of promulgation and issuance of a new regulation or a SIP/FIP/TIP. Adaptive Management - Annual Emissions Balance Sheet[3] Newfield will ensure that new stationary sources authorized by the ROD will not result in net increases of volatile organic compounds (VOC) emissions. This will be accomplished by achieving reductions of VOC emissions from existing stationary sources prior to operating new sources, balanced on a calendar year annual basis. Newfield will document such reductions in VOC, as well as additions in VOC, from stationary sources in an Annual Emissions Balance Sheet that will have sufficient information for BLM to verify the Operator's actions. The Project Area shall be defined as the area analyzed in the GMBU FEIS (this shall be the "geographic area" as referenced elsewhere in this document). Stationary sources include, but are not limited to, engines, heaters, glycol dehydrators, oil and produced water storage tanks, truck loading, pneumatic controls, pneumatic pumps, and fugitive leaks.

[3]The Annual Emissions Balance Sheet will be submitted to the BLM AO.

BLM	Newfield	Source	Requirement
			Newfield will develop and use the Initial Emissions Balance Sheet as follows: 1. The reporting tool for the Initial Emissions Balance Sheet will be the emissions inventory workbook created by UDAQ and EPA for the Uinta Basin 2014 inventory (2014 emissions inventory workbook), which provides facility-by-facility and source-by-source emissions detail. 2. Newfield will use the emissions quantification methods used in the 2014 emissions inventory workbook to calculate VOC emissions for the 2012 operating year. This calculation of VOC emissions for the 2012 operating year will serve as the initial inventory against which subsequent increases or decreases in VOC emissions will be calculated and documented. 3. Technical corrections and revised calculation methodologies may be applied to the 2014 emissions inventory workbook following consultation between UDAQ, EPA, BLM and Newfield. For subsequent year Annual Emissions Balance Sheets, the above-referenced 2012 emissions inventory calculated by using the 2014 emissions inventory workbook shall continue to serve as the template from which further emissions reductions and additions are calculated and documented. A separate 2015 or 2016 inventory of VOC emissions, as appropriate based upon the timing for the issuance of the ROD, will subsequently be prepared for comparison with the calculations of VOC emissions for the 2012 operating year to determine the net change in VOC emissions and available VOC headroom for project activities that result in new sources of VOC emissions. VOC emissions reductions including, but not limited to, actions taken in response to voluntary actions, the implementation of applicant committed environmental protection measures, natural production decline (defined in the Technical Support Document), existing or new regulations, and/or ozone attainment and maintenance plans can be used to create headroom for project activities that result in new sources of VOC emissions. Annually, or upon request by Newfield, the BLM AO will conduct an internal review and assessment and confer with Newfield to consider new state and federal regulatory requirements and evaluate if portions of this mitigation strategy are no longer necessary. Upon review and Newfield consultation, BLM may remove components of the mitigation strategy that are determined to be equivalent in effect or duplicative of state or federal regulatory requirements or otherwise create contradictory or overlapping requirements. The review will also evaluate the impact of new regulations upon project VOC emissions

BLM	Newfield	Source	Requirement
			and the need to continue the annual emissions balance sheet requirement. The implementation of General Conformity requirements following an ozone non-attainment designation shall be considered equivalent to the annual emissions balance sheet provisions of this strategy, and the annual emissions balance sheet requirements may be terminated at Newfield's option. Upon adoption of a nonattainment FIP/SIP/TIP (or comparable provisions if the area is classified as marginal), this mitigation strategy in its entirety shall be replaced by the FIP/SIP/TIP.
	X	Applicant Committed Measures FEIS 2.2.12 and the Mitigation Strategy – Applicant Committed Environmental Protection Measures. See ROD Attachment 3	Newfield will conduct Audio-Visual-Olfactory (AVO) leak inspections on all existing and new facilities within the Project Area on an annual basis and repair observed leaks. Newfield will utilize IR Camera observations in place of AVO inspections for 10% of facility inspections. If future regulations are implemented to address leak detection and repair requirements, the regulatory program will replace the voluntary inspection program. • Newfield will develop, and submit for BLM approval, o a corrective action plan for the Project Area that would include appropriate timeframes to complete necessary repairs that may be identified in the future through the Monitoring Program. o an annual report listing the facilities where leaks were observed, the date the leak was observed, the cause of the leak, and the date corrective actions were completed at such facilities.
	X	Applicant Committed Measures FEIS 2.2.12	• Notice of any reportable spill or leakage, as defined in BLM NTL 3A or subsequent revisions, would be reported by Newfield to the AO of the appropriate SMA as required by law. Oral notice would be given as soon as possible, but within no more than 24 hours, and those oral notices would be confirmed in writing within 72 hours of any such occurrence.
	X	FEIS Section 4.8.2	• Project activities would be coordinated to minimize conflicts with ranching operations. This would include conducting an annual meeting with the BLM and livestock operators to discuss the upcoming year's development activities, to identify potential issues, and to determine potential corrective actions by either the livestock permittee and/or proponent; establishing effective and

BLM	Newfield	Source	Requirement
			frequent communication with affected permittees during the year; and scheduling project activities to minimize potential disturbance of livestock activities. • Damage to livestock and livestock facilities would be reported as quickly as possible to the BLM and to affected livestock operators.
X		Hopi Consultation Reply Letter October 1, 2012	• Continue consultation on this proposal including being provided with copies of the cultural resource survey reports as they are generated and any proposed treatment plans for review and comment.
X		Pueblo of the Laguna Consultation Reply Letter September 27, 2012	• In the event that any new archaeological sites are discovered and any new artifacts are removed, notify the tribe and provide the discovery results including photographs to the Tribe for review and comment.
	X	Water Quality Monitoring Plan FEIS Appendix H	• Develop a comprehensive quality assurance project plan (QAPP), including a comprehensive sampling analysis plan (SAP). The QAPP would be prepared prior to any sampling collection, including baseline sampling, prior to commencement of the project.
	X	Water Quality Monitoring Plan FEIS Appendix H	• Prior to commencement of the Greater Monument Butte project, baseline data would be collected in accordance with the QAPP and SAP for all parameters listed in FEIS Appendix H Tables H-2, H-4, and H-6 for surface water, springs, and groundwater, respectively. Data would be collected from appropriate monitoring sites, as described in Sections H.3.1, H.3.2, and H.3.3.
	X	Water Quality Monitoring Plan FEIS Appendix H	• Quarterly water monitoring results would be entered into a database and summarized into a report quarterly. • The annual water monitoring report would contain a description of the monitoring results that identifies by location, observed trends in water quality, any identified potential impacts to water quality, flow conditions, changes in depth to groundwater, recommendations for changes in the long-term monitoring program, and recommendations for mitigation measures to reduce any impacts observed

BLM	Newfield	Source	Requirement
			• In addition to the annual reports, a cumulative assessment of the previous five years of monitoring results would be compiled every five years • A final report would also be completed at the conclusion of the project, which would summarize the entire monitoring program and include a final assessment of all sites monitored throughout the LOP. • All monitoring reports would be submitted to the BLM, EPA, UDWQ, and UDOGM, and they would be made available to the public upon request.
X		Water Quality Monitoring Plan FEIS Appendix H	• The BLM would review the monitoring plan every two years to determine 1) if the plan needs to be changed to adapt to data results; 2) the locations of active project construction; and 3) other project variables.

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Table 2: Conditions of Approval[4]

Source	Resource	Conditions of Approval
Selected Alternative Description FEIS Section 2.6.3	General	• Within high-density development areas[5], four large, existing well pads per section could be expanded by about 0.2 to 0.8 acres per new well (anticipated to be up to six wells per existing pad, consisting of one existing vertical 40-ac oil/injection one new directional 20-ac oil one new vertical deep gas; and three new directional deep gas). Additionally, within high-density development areas, 12 small well pads per section could be expanded by about 0.2 acres per well to accommodate one new directional 20-ac oil well (i.e., each existing well pad is anticipated to contain up to two wells, consisting of one existing vertical 40-ac oil/injection and one new directional 20-ac oil). • For low-density development areas[6], the proposed surface density would be no more than four large, new well pads per 640-acre section (i.e., one large well pad per 160 acres) and twelve small, new well pads per 640-acre section (i.e., three small well pads per 160 acres). See Figures 2.6-2 (Attachment 1) for a graphical representation of this alternative as compared to the Proposed Action. There would be no restriction on the number of wells that could be drilled from those well pads, provided that the wells conform to downhole spacing requirements. • Newfield would use closed-loop drilling techniques for all proposed wells located near sensitive areas as determined necessary during the onsite process.
Applicant Committed Measures FEIS 2.2.12 and the Mitigation	Air Quality	General • Newfield would use water or other BLM-approved dust suppressants as needed during drilling, completion, and high traffic production operations for dust abatement. • Newfield employees would comply with posted speed limits on unpaved county roads used for

[4] These Conditions of Approval were pulled from the Applicant Committed Measures, the Agency Preferred Alternative components, the FEIS mitigation measures, the Biological Assessment and the Biological Opinion. Duplicate measures between these sources were removed or consolidated to the extent possible without losing or altering intent. If any Applicant Committed Measures, Agency Preferred Alternative components, FEIS mitigation measures, or Biological Assessment measures conflicted with the Biological Opinion requirements, the Biological Opinion requirements were left in and the conflicting measures were removed.

[5] High-density development areas are those areas that already have from six to 16 well pads per 640-acre section (i.e., one well pad per 40 to 106 acres).

[6] Low-density development areas are defined as those areas that have had no development at all or contain up to five well pads per section.

Source	Resource	Conditions of Approval
Strategy – Applicant Committed Environmental Protection Measures. See ROD Attachment 3		access and would use safe vehicle speeds on other unpaved access roads. Newfield would instruct contractors to comply with posted speed limits. • The use of carpooling would be encouraged to minimize vehicle traffic and related emissions and Newfield would implement a vehicle policy to minimize idling while also recognizing safety concerns. • Newfield would conduct a pilot test to evaluate the feasibility for converting fleet vehicles to cleaner-burning compressed natural gas (CNG) or liquefied natural gas (LNG) fuels. The results of this pilot test would be submitted to the AO. Drilling / Completion Operations • Newfield would use Tier II diesel drill rig engines or equivalent, with the phase-in of Tier IV engines or equivalent emission reduction technology by 2018. • Newfield would employ reduced-emission completion practices, including: using the recovered gas as fuel for another useful purpose when feasible; routing all saleable quality gas to a flow line as soon as practicable; and safely maximizing resource recovery and minimizing potential VOC emissions from hydraulically fractured, high-pressure gas well flowback operations (not including low-pressure oil wells). If high-pressure gas well flowback emissions cannot be routed to a flow line, they will be captured and routed to a completion combustion device, unless such device will result in a fire or explosion hazard. Production Operations • Newfield would utilize for new construction low- or intermittent-bleed pneumatic devices to minimize VOC emissions. High-bleed devices may be allowed for critical safety and/or process purposes. • High-bleed pneumatic devices at existing Newfield facilities would be replaced/retrofitted with low- or intermittent-bleed devices when repair or replacement is warranted, and no later than 6 months after the ROD is signed. High-bleed devices may be allowed to remain in service for critical safety and/or process purposes. • Newfield would employ for new construction glycol dehydrator still vent emission controls with

Source	Resource	Conditions of Approval
		a control efficiency of 95 percent or greater. • Newfield would conduct a study to evaluate the feasibility for the implementation of "low emission" glycol dehydrators. The results of this study would be submitted to the AO. o Newfield would install emission controls with an efficiency of 95 percent on tanks that have been constructed, modified or re-constructed after August 23, 2011, with the potential to emit greater than 6 tons per year (tpy) VOC. • Newfield would implement a telemetry monitoring system where feasible to provide for the effective management of production exceptions, while reducing the number of vehicle trips and miles traveled. Central Facilities • Newfield would install electric motor driven compression where feasible. Where electrification is not feasible, Newfield would utilize lean-burn natural gas fired compressor engines or equivalent rich-burn engines with catalysts. Lean-burn engines would be fitted with oxidation catalysts to minimize carbon monoxide and VOC emissions. • Newfield would maximize the use of central compression, thereby reducing the need for smaller and less efficient (higher emission) well site compressor units. • Newfield would periodically replace rod packing systems on reciprocating compressors and when feasible use dry seals on centrifugal compressors to minimize the loss of VOC. • Newfield would employ for new construction glycol dehydrator still vent emission controls with a control efficiency of 95 percent or greater. • Newfield would install for new construction emission controls with an efficiency of 95 percent or greater on stock tanks that have the potential to emit VOC greater than 6 tpy. GOSP Implementation • Where feasible, Newfield would implement Green River oil gathering systems and construct GOSPs. With GOSP implementation, the majority of the stock tanks, produced water tanks, and related tank heaters at affected existing well sites would be removed from service. New wells

Source	Resource	Conditions of Approval
		served by a GOSP would be constructed without tank batteries, thereby eliminating tank battery and related tanker truck emissions. • The GOSP facilities would be specifically designed to minimize the emission of VOC. Storage tank emissions would be captured and reused within the facility process or sold as product. Vapors from truck loading operations would be controlled by 95 percent. Cooperative Efforts and Outreach • Newfield would encourage and lend technical support to scientific research efforts focused on improving the understanding of ozone formation chemistry within the Uinta Basin, emission inventory enhancements, source apportionment studies, ozone precursor transport studies, precursor sensitivity studies, and evaluations of cost effective control strategies. • Newfield would incorporate ozone awareness and specific actions for reducing ozone precursor emissions into the current employee training program. Ozone Training for Operations Personnel • Newfield will develop an Ozone Action Mitigation Plan which includes an operator training component as well as a list of Project activities that could be delayed or minimized during ozone episodes. o For the purposes of the Ozone Actions Mitigation Plan, an ozone episode would be any next day that the UDAQ air quality forecast is Unhealthy for Sensitive Groups (Code Orange – minimum ozone concentration of 0.071) or higher as published on the UDAQ website (current link is: http://air.utah.gov/forecast.php?id=v4). • Newfield will develop and submit for BLM approval an Ozone Action Mitigation Plan which includes the following components: o Newfield will incorporate in its current employee training program ozone awareness and specific actions for reducing ozone precursor emissions. o To the extent practical, Newfield will halt, defer and/or otherwise schedule activities that may contribute to ozone formation to periods outside of ozone episodes.

Source	Resource	Conditions of Approval
		• Operations personnel shall receive training prior to ozone season. Training programs shall cover the following: o Ozone – what it is and how it impacts air quality and human health. o Ozone formation ingredients – NOx, VOCs, and weather conditions. o Ozone attainment status in the Uinta Basin. o Review of applicable regulations. o What can be done to prevent and/or reduce emissions of ozone precursor gases – such as limiting driving, maintaining equipment, delaying optional activities (e.g. equipment and well blowdowns, well completions, etc.). o The importance of proper maintenance of tank hatches, vapor capture and combustor systems, and other equipment that reduces emissions. Work Practices • Newfield will remain fully compliant with applicable UDEQ-DAQ rules at all times, including permitting for new and existing sources, and specifically found in Utah Administrative Code Title R307 501 through 504. • Newfield will comply with Utah Division of Air Quality (UDAQ) Rule 307-502 requiring effective December 1, 2015, all existing pneumatic controllers in Duchesne County or Uintah County meet the standards established for pneumatic controller affected facilities that are constructed, modified or reconstructed on or after October 15, 2013, as specified in 40 CFR 60, Subpart OOOO Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution to minimize VOC emissions. High-bleed devices may be allowed for critical safety and/or process purposes. • When technically and/or economically feasible, Newfield will consider non-gas driven (no bleed) pneumatics and potential opportunities for power supply for such devices through renewable resources for both existing and new development. • Newfield would comply with the applicable requirements of UDAQ Rule 307-401-8a as they

Source	Resource	Conditions of Approval
		apply to the installation of Best Available Control Technology (BACT) compliant emission controls on glycol dehydrator still vents which requires the degree of pollution control for emissions, to be at least best available control technology. When determining best available control technology for a new or modified source in an ozone nonattainment or maintenance area that will emit volatile organic compounds or nitrogen oxides, best available control technology shall be at least as stringent as any Control Technique Guidance document that has been published by EPA that is applicable to the source. The control efficiency shall be at least 95 percent or greater. • Newfield would comply with the applicable requirements of UDAQ Rule 307-401-8a as they apply to the installation of Best Available Control Technology (BACT) compliant emission controls on tanks which requires the degree of pollution control for emissions to be at least best available control technology. When determining best available control technology for a new or modified source in an ozone nonattainment or maintenance area that will emit volatile organic compounds or nitrogen oxides, best available control technology shall be at least as stringent as any Control Technique Guidance document that has been published by EPA that is applicable to the source. • When technically and/or economically feasible, Newfield would route salable gas from oil/water/gas separators to a gas gathering pipeline or otherwise control emissions via a vapor combustor or equivalent methodology. • Wells that utilize plunger lift systems (or otherwise automated systems) shall be operated so as to minimize fugitive emission from well pressure fluctuation and liquid accumulation within the well. • The GOSP facilities would be specifically designed to minimize the emission of VOC. Storage tank emissions would be captured and reused within the facility process or sold as product. Vapors from truck loading operations would be controlled through a vapor capture system utilizing Best Available Control Technology (BACT) compliant with UDAQ Rule 307-401-8(a) which requires the degree of pollution control for emissions to be at least best available control technology. When determining best available control technology for a new or modified source in an ozone nonattainment or maintenance area that will emit volatile organic compounds or

Source	Resource	Conditions of Approval
		nitrogen oxides, best available control technology shall be at least as stringent as any Control Technique Guidance document that has been published by EPA that is applicable to the source. • Evaporation Ponds: Newfield would not own or operate evaporation ponds for the storage or disposal of liquids. • Dehydrators: Optimize dehydrator recirculation rates for the prevailing conditions • Venting Blow Downs: Defer and/or minimize blow down of wells, pipelines, and pressure vessels during ozone events • Pneumatic Pumps: Adjust and optimize pneumatic heat trace pump rates for the prevailing conditions • General Episodic Practices: To the extent practical, defer and/or otherwise schedule activities that may contribute to ozone formation to periods outside of ozone events • Limit Vehicle Idle Time: Limit vehicle idle time to the extent practical
Applicant Committed Measures FEIS 2.2.12	Cultural Resources	• A Class III inventory would be conducted in all areas within Federal lands proposed for surface disturbance. These surveys would be conducted on a site-specific basis prior to the initiation of construction activities. • Whenever feasible, prehistoric and historic sites documented during the Class III inventory as eligible for listing on the National Register of Historic Places (NRHP), as well as areas identified as having a high probability of subsurface materials, would be avoided by development. Specifically, well pad locations and access/gas and water line routes would be altered or rerouted as necessary to avoid impacting NRHP-eligible sites. • If avoidance is not feasible or does not provide the required protection, adverse effects would be mitigated (e.g., data recovery through excavation). • Newfield would inform their employees, contractors, and subcontractors about relevant Federal regulations intended to protect archaeological and cultural resources. All personnel would be informed that collecting artifacts is a violation of Federal law and that employees engaged in this

Source	Resource	Conditions of Approval
		activity would be subject to disciplinary action. • If cultural resources are uncovered during surface-disturbing activities, Newfield would suspend operations at the site and immediately contact the appropriate AO, who would arrange for a determination of eligibility in consultation with the Utah State Historic Preservation Office (SHPO) and if necessary, would recommend a recovery or avoidance plan.
Applicant Committed Measures FEIS 2.2.12, FEIS Section 4.9, and BA Section 2.3.14	Fish and Wildlife[7]	• As required by BLM's Gold Book, Newfield would remove any visible accumulation of oil from the reserve pit immediately upon release of drilling rig to prevent exposure of wildlife to petroleum products. • To minimize wildlife mortality due to vehicle collisions, Newfield would advise project personnel regarding appropriate speed limits in the Monument Butte Project Area. • Employees and contractors would be educated about anti-poaching laws. • If wildlife law violations are discovered, the offending employee would be subject to disciplinary action by Newfield. All wildlife law violations would be reported to the UDWR. • To reduce potential stress from facility construction to antelope, Newfield would install two antelope guzzlers per year for five years within the MBPA. These new facilities would not be subject to setbacks. • Proposed wells and roads located within pinyon-juniper woodland-dominated habitat would be sited, whenever possible, to reduce the amount of disturbance to mule deer foraging habitat. • All proposed roads and well pads would be sited as far from permanent water sources as possible. • All open exhaust stacks would be capped with screen cones to exclude their use by birds and bats. • All open pits or tanks containing liquids would be covered or netted to exclude their use by birds, bats, and other wildlife.

[7] Measures for special status species from section 2.2.12 and the BA have been moved to the special status species section of this table.

Source	Resource	Conditions of Approval
		• All applicable surface stipulations from Appendix K, subject to valid existing rights, and Fluid Minerals BMPs from Appendix R of the Vernal RMP (BLM 2008b) would be implemented. • Exploration, drilling, and other development activity would not be conducted within crucial elk calving and deer habitat from May 15 to June 30. • A Worker Environmental Awareness Program would be implemented for construction and drilling crews prior to the commencement of the project activities. Training materials and briefings would include, but would not be limited to, discussion of the Federal ESA, the consequences of noncompliance with this Act, identification and values of wildlife and natural plant communities, threatened and endangered species within the MBPA, hazardous substance spill prevention and containment measures, and review of all required and recommended mitigation measures.
FES Section 4.3.2	Geology and Minerals	All applicable Fluid Minerals BMPs from Appendix R of the Vernal RMP (BLM 2008b) would be incorporated as needed to avoid resource conflicts or impacts to mineral resources. These include: • Interim reclamation of the well and access road will begin as soon as practicable after a well is placed in production. Facilities will be grouped on the pads to allow for maximum interim reclamation. Interim reclamation will include road cuts and fills and will extend to within close proximity of the wellhead and production facilities. • All above ground facilities including power boxes, building doors, roofs, and any visible equipment will be painted a color selected from the latest national color charts that best allows the facility to blend into the background. • All new roads will be designed and constructed to a safe and appropriate standard, "no higher than necessary" to accommodate intended vehicular use. Roads will follow the contour of the land where practical. Existing oil and gas roads that are in eroded condition or contribute to other resource concerns will be brought to BLM standards within a reasonable period of time. • Final reclamation of all oil and gas disturbance will involve recontouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography and revegetating all disturbed areas.

Source	Resource	Conditions of Approval
		• Raptor perch avoidance devices will be installed on all new powerlines and existing lines that present a potential hazard to raptors. • All powerlines to individual well locations (excluding major power source lines to the operating oil or gas field) and all flow lines will be buried in or immediately adjacent to the access roads where feasible. • In developing oil and gas fields, all production facilities may be centralized to avoid tanks and associated facilities on each well pad where necessary to address resource issues. • Multiple wells will be drilled from a single well pad wherever feasible. • Noise reduction techniques and designs will be used to reduce noise from compressors or other motorized equipment. • Seasonal restrictions on public vehicular access will be evaluated where there are wildlife conflict or road damage/maintenance issues. • Monitoring of wildlife to evaluate the effects of oil and gas development • Avoiding placement of production facilities on hilltops and ridgelines; • Screening facilities from view; • Bioremediating oil field wastes and spills; and • Using common utility or Right-of-Way corridors containing roads, powerlines, and pipelines.
Applicant Committed Measures FEIS 2.2.12 and BA Section 2.3.14	Health and Safety and Hazardous Materials	• Newfield would institute a Hazard Communication Program (HCP) for its employees and require the subcontractor to operate in accordance with Occupational Safety and Health Administration (OSHA) (29 CFR 1910.1200). • As required by OSHA, Newfield would place warning signs near hazardous areas and along access roads. • In accordance with 29 CFR 1910.1200, a Material Safety Data Sheet (MSDS) for every chemical or hazardous material brought on-site would be kept on file in Newfield's field office.

Source	Resource	Conditions of Approval
		• Newfield would transport and/or dispose of any hazardous wastes, as defined by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, in accordance with all applicable Federal, State, and local regulations. • All storage tanks that contain produced water, or other fluids which may constitute a hazard to public health or safety, would be surrounded by a secondary means of containment for the entire contents of the tank plus freeboard for precipitation, or 110 percent of the capacity of the largest tank. Production facilities that have the potential to leak produced water, or other fluids which may constitute a hazard to public health or safety, would be placed within an appropriate containment and/or diversionary structure to prevent spilled or leaking fluid from reaching groundwater or surface waters. • Newfield would provide portable sanitation facilities at drill sites, would 1 place trash cage at each construction site to collect and store garbage and refuse, and would ensure that all garbage and refuse is transported to a State-approved sanitary landfill for disposal.
FEIS Section 4.12	Land Use and Transportation	• Newfield employees and contractors would comply with posted speed limits while driving roads within the MBPA and would adhere to speed limits outside the MBPA. • Additional permanent and temporary signage would be placed along roadsides to alert motorists of upcoming construction vehicles to lower the probability of accidents. • Newfield would coordinate with the appropriate AO when constructing, maintaining, or reclaiming roads. • Cooperative road management plans would be developed among Newfield, Duchesne County, Uintah County, the State of Utah, and private landowners to address maintenance requirements and responsibilities, and to ensure that roads used by project vehicles are not degraded. • Whenever practicable, heavy and/or slow-moving equipment would be moved at night or during non-peak driving times to minimize delays to other users. Flaggers and/or flag cars would be used to alert non-project traffic to upcoming project equipment. • Gas and water pipelines would be buried at road crossings. Newfield would bury all pipelines crossing County roads to a minimum depth of 5 feet to ensure the safety of road maintenance

Source	Resource	Conditions of Approval
		workers and activities. • Signs would be installed in areas of heavy equipment and truck traffic to warn other users. • Passing areas would be constructed as directed by the AO so other users can safely pass project related vehicles. • Newfield would use centralized tank locations for water and condensate tanks to reduce vehicle trips whenever possible. The feasibility of centralizing tank facilities would be determined on a site-specific basis. • All applicable Fluid Minerals BMPs from Appendix R of the Vernal RMP (BLM 2008b) would be implemented.
Applicant Committed Measures FEIS 2.2.12 and FEIS Section 4.8	Livestock Grazing and Range Resources	• Newfield would repair or replace any fences, cattle guards, gates, drift fences, and natural barriers that are damaged as a result of the Proposed Action. Cattle guards or gates would be installed for livestock control on roads when fences are crossed, and these structures would be maintained by Newfield for the life of the road. • During the APD permitting process, surveys would be conducted to identify active range improvements, including livestock and wildlife water sources/systems, sheep lambing areas, and shearing areas in coordination with the BLM and the livestock operators. Based on the results of these surveys, no roads, well pads, construction/production facilities, or linear facilities would be placed within 200 meters of range improvements, including livestock and wildlife water sources/systems (not to include antelope guzzlers as proposed by Newfield in Section 2.2.12.7). If avoidance is not feasible, features would be relocated to an alternate location per the SMA or AO guidance. Alternate locations would be approved by the BLM on BLM-administered lands, and by appropriate SMA on all other lands. • • Operators would develop and employ prevention measures to avoid damaging fences, gates, and cattle guards, including upgrading cattle guard gate widths and load-bearing requirements. • Speed limits would be followed and signs would be erected in active lambing/calving areas,

Source	Resource	Conditions of Approval
		shipping pastures, or adjacent to working corrals to warn vehicle operators. • Project activities would adhere to the Utah BLM Rangeland Health Standards, as required by the Vernal RMP (BLM 2008b).
Applicant Committed Measures FEIS 2.2.12	Paleontological Resources	• Paleontological surveys would be conducted by an SMA-approved paleontologist prior to any surface disturbance on State and Federal surface. • If fossils are encountered during the survey, the paleontologist would assess and document the discovery, and either collect the fossils or recommend the area be avoided so as not to destroy the resource. • The AO of the SMA would determine the need for further monitoring of the area or mitigation of the site during ground-disturbing activities. • If paleontological resources are encountered during excavation, construction would be suspended, and the AO of the SMA would be notified. Construction would not resume until the paleontological resources are assessed by the AO of the SMA, and appropriate mitigation measures are developed and implemented.
Applicant Committed Measures FEIS 2.2.12, FEIS Section 4.13, and FEIS Section 4.14	Recreation and Visual Resources	• To reduce visual impacts to recreationists using the Green River, low-profile tanks would be used at all well pads located within 0.5 mile or within line of sight (whichever is less) of the Green River. • Low-profile tanks would be used to reduce visual impacts to recreationists in visually sensitive areas at the direction of the AO. • Newfield would use offsite tanks or centralized tank batteries at production locations to reduce visual impacts to recreationists whenever possible. The feasibility of using offsite tanks or centralized tank batteries would be determined on a site-specific basis. • Newfield and the AO would perform the following actions during APD processing when feasible: o Jointly determine the use of topographic features to serve as visual screens

Source	Resource	Conditions of Approval
		○ Place facilities away from highly visible points such as ridgelines ○ Use low-profile tanks to reduce visibility where taller tanks would be more visible ○ Use noise-reducing technology to reduce noise levels experienced by river recreationists to "quiet" levels ○ Avoid excessive side-casting of earth materials from ridgelines and steep slopes • No wells, roads, or other surface disturbance would be allowed on the Pariette Wetlands trail or parking lot. • Except for the proposed water collector well, no surface-disturbing activities would occur within 0.5 miles or line of sight of the river. • The proposed water collector well would be screened from the viewshed of the river as much as possible. • Camouflage coloring, facility design, low-profile structures, proper placement, edge feathering along access roads and vegetation/road boundaries, and/or topographic screening would be used to reduce or eliminate the observable effects of well pads, roads, and infrastructure. Topographic screening and proper placement could include hiding the facilities behind ridge lines, in natural depressions, behind vegetation, or behind rock outcrops. • Surface disturbances would be minimized by sharing ROWs, off-site directional drilling, and off site placement of storage tanks. • Pipelines would be buried in the road when feasible • In VRM Class II areas, night-lighting and light pollution sky glow impacts would be reduced (as feasible) by using only the minimal lighting required for safety and security, installing lights at the minimal heights required, and installing hoods on lights to reduce light diffusion. • Newfield would use centralized tank locations for water and condensate tanks to reduce visual impacts whenever possible. The feasibility of centralizing tank facilities would be determined on a site-specific basis.

Source	Resource	Conditions of Approval
		• Unless no other alternative exists, surface disturbances would be avoided in VRM Class II areas.
Applicant Committed Measures FEIS 2.2.12, and 4.5.2, and BA Section 2.3.14	Soil Resources	• During project construction, surface disturbance and placement of gas and water lines would be limited to the approved location and access routes. • No oil, lubricants, or toxic substances would be drained onto the ground surface. • All areas used for soil storage would be stripped of topsoil before soil placement. • Where directed by the appropriate SMA, Newfield would construct erosion control devices (e.g., riprap, bales, and heavy vegetation) at culvert outlets. All construction activities would be performed to retain natural water flows to the greatest extent possible. • In areas with unstable soils where seeding alone may not adequately control erosion, grading would be used to minimize slopes and water bars would be installed on disturbed slopes. • Erosion control efforts would be monitored by Newfield, and modifications would be made to control erosion if necessary. • Erosion protection and silt retention would be provided by the construction of silt catchment dams where needed and as feasible. • No surface disturbance would occur on slopes between 40 percent and 60 percent. If it is not feasible to avoid these slopes, then the applicant would provide the AO with an erosion control plan, a road maintenance plan, and an engineered drawing of the proposed road. Approval from the AO would be required for all proposed roads traversing slopes between 40 percent and 60 percent. • Surface disturbance would be minimized on slopes between 21 and 40 percent. • The presence of biological soil crusts would be assessed on a site-specific basis during well pad and road development and siting. Areas with crusts would be avoided as feasible, and any unavoidable disturbance would be mitigated as necessary. • Erosion and sedimentation would be reduced through the use of BMPs, including but not limited to berms, sediment control structures, grading, mulching, revegetation, and interim reclamation.

Source	Resource	Conditions of Approval
		• Reclamation would be performed in accordance with the Green River District Reclamation Guidelines for Reclamation Plans (BLM 2011a). Additional measures to ensure successful reclamation would be implemented, as determined by the AO. They would consist of, but would not be limited to, hydro mulching, supplemental mycorrhizal applications, erosion blankets, spray-on fiber matrices, tackifiers, etc.
FEIS Section 4.15	Special Designations	• Newfield and the AO would perform the following actions during APD processing when feasible: o Jointly determine the use of topographic features to serve as visual screens; o Place facilities away from highly visible points such as ridgelines; o Use low-profile tanks to reduce visibility where taller tanks would be more visible; and o Avoid excessive side-casting of earth materials from ridgelines and steep slopes (Scenic value in Lower Green River ACEC, recreational value in Lower Green River proposed WSR). • Placement of tanks and drilling pads would be considered, and off-site tanks may be used to minimize visual impacts (Scenic value in Lower Green River ACEC, recreational value in Lower Green River proposed WSR). • Newfield would use offsite tanks or centralized tank batteries at production locations to reduce visual impacts whenever possible. The feasibility of using offsite tanks or centralized tank batteries would be determined on a site-specific basis (Scenic value in Lower Green River ACEC, recreational value in Lower Green River proposed WSR). •
BA Attachment G, BO Section IX Conservation Recommendations FEIS Section 4.10.5 and	Special Status Species Habitat	• Special Status Plants: 1) Within suitable habitat, site-specific inventories will be conducted to determine occupancy. The inventories will be conducted for lands within 300 feet of proposed surface disturbance; 2) In suitable habitat, the project infrastructure will be designed to minimize impacts; and 3) Within occupied habitat, the project infrastructure will be designed to avoid direct disturbance and to minimize indirect impacts to populations and individual plants. The nearest proposed surface disturbance to a plant will be at least 300 feet away.

Source	Resource	Conditions of Approval
Appendix J. See Volume 3 PDF Page 1050		• As required by the Endangered Species Act (ESA) of 1973, as amended, no activities would be permitted that would jeopardize the continued existence of threatened or endangered plant species. • Interim reclamation of the well and access road will begin as soon as practicable after a well is placed in production. Facilities will be grouped on the pads to allow for maximum interim reclamation. Interim reclamation will include road cuts and fills and will extend to within close proximity of the wellhead and production facilities. • While construction in the 100-year floodplain or wetlands is occurring, heavy equipment working on wet soils shall be placed on mats. Work should be conducted primarily while the ground is frozen or soils are dry. • Silt fence shall be properly installed in 100-year floodplains and wetlands where project disturbance may erode into waters during a precipitation event. All applicable surface stipulations from Appendix K, subject to valid existing rights, and Fluid Minerals BMPs from Appendix R of the Vernal RMP (BLM 2008b) would be implemented. These include: • Interim reclamation of the well and access road will begin as soon as practicable after a well is placed in production. Facilities will be grouped on the pads to allow for maximum interim reclamation. Interim reclamation will include road cuts and fills and will extend to within close proximity of the wellhead and production facilities. • All above ground facilities including power boxes, building doors, roofs, and any visible equipment will be painted a color selected from the latest national color charts that best allows the facility to blend into the background. • All new roads will be designed and constructed to a safe and appropriate standard, "no higher than necessary" to accommodate intended vehicular use. Roads will follow the contour of the land where practical. Existing oil and gas roads that are in eroded condition or contribute to other resource concerns will be brought to BLM standards within a reasonable period of time. • Final reclamation of all oil and gas disturbance will involve recontouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography and revegetating all disturbed areas.

Source	Resource	Conditions of Approval
		• Raptor perch avoidance devices will be installed on all new powerlines and existing lines that present a potential hazard to raptors. • All powerlines to individual well locations (excluding major power source lines to the operating oil or gas field) and all flow lines will be buried in or immediately adjacent to the access roads where feasible. • In developing oil and gas fields, all production facilities may be centralized to avoid tanks and associated facilities on each well pad where necessary to address resource issues. • Multiple wells will be drilled from a single well pad wherever feasible. • Noise reduction techniques and designs will be used to reduce noise from compressors or other motorized equipment. • Seasonal restrictions on public vehicular access will be evaluated where there are wildlife conflict or road damage/maintenance issues. • Monitoring of wildlife to evaluate the effects of oil and gas development • Avoiding placement of production facilities on hilltops and ridgelines; • Screening facilities from view; • Bioremediating oil field wastes and spills; and • Using common utility or Right-of-Way corridors containing roads, powerlines, and pipelines.
FEIS Section 4.10.5 and Biological Assessment Attachment G Section 7 Applicant Committed	Special Status Species – Fish *(See also the Water Resources Including 100-year Floodplains, Wetlands/Riparian, Springs section of*	• Newfield and its contractors would locate, handle, and store hazardous substances in locations that would prevent accidental spill or delivery to the Green River or its tributaries. • Natural gas-condensate pipelines that cross mapped 100-year floodplain, mapped riparian, or wetland areas would be routinely pigged (as technically feasible) and would have emergency shutoff valves located immediately outside the floodplain. • Natural gas pipelines that cross perennial, intermittent, and ephemeral stream channels would be buried below the predicted scour depth for an equivalent flood event. The construction

Source	Resource	Conditions of Approval
Measures and FEIS Appendix J. See Volume 3 PDF Pages 1357 - 1360	*these COAs)*	requirements for each type of crossing would be determined on a site-specific basis and would consider the technical guidance of the document entitled, "Hydraulic Considerations for Pipeline Crossings of Stream Crossings," which is found in Appendix B of the Vernal RMP (BLM 2008b). • Natural gas pipelines that cross perennial, intermittent, and ephemeral stream channels would have automatic shutoff valves directly beyond the area at risk of flooding to reduce the magnitude of contamination in the event of an accidental pipeline break. • Natural gas pipelines that cross perennial, intermittent, and ephemeral stream channels would be buried at least 5 feet below the channel bottom. • With the exception of the water collector well, wells proposed within the Green River's 100-year floodplain would be relocated to non-floodplain areas or drilled directionally from beyond the floodplain. • Wells proposed in all 100-year floodplains within 3 miles of the Green River would use measures including the use of closed-loop drilling methods, berming, and secondary containment of all tanks and pits, as well as drilling during non-flood prone seasons. • All applicable BLM-committed Conservation Measures for Colorado River fishes, as described in Appendix L of the Vernal RMP (BLM 2008b), would be used as needed to mitigate potential impacts to endangered and sensitive fishes and their habitat. • To avoid entrainment, water would be pumped from an off-channel location - one that does not connect to the river during high spring flows. An infiltration gallery constructed in a location approved by USFWS would be used. • If the pump head is located in the river channel, the following stipulations would apply: o The pump would not be situated in a low-flow or no-flow area, because these habitats tend to concentrate larval fishes. o The amount of pumping would be limited, to the greatest extent possible, during that period of the year when larval fish may be present (April 1- August 31). The amount of pumping would be limited, to the greatest extent possible, during the 2 midnight hours (10

Source	Resource	Conditions of Approval
		PM to 2 AM), because larval drift studies indicate that this is the period of greatest daily activity. Dusk is the preferred pumping time, because larval drift abundance is lowest during this time. o All pump intakes would be screened with 3/32-inch mesh material. o Approach velocities for intake structures would follow the National Marine Fisheries and USFWS 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 would not exceed 0.33 feet per second. o Any fish impinged on the intake screen or entrained into irrigation canals would be reported to the USFWS (801-975-3330) or to the UDWR Northeastern Region, located at 318 North Vernal Avenue, Vernal, UT 84078 (435-781-9453). • For all tributaries that drain directly to Pariette Draw or directly to the Green River, roads and well pads would be set back a minimum of 300 feet from the active stream channel (average 3-feet wide or greater without an associated riparian zone), unless site specific analysis demonstrates that 1) the proposed well or road could be placed on higher terrain above the 100-year floodplain, 2) the 100-year floodplain can be demonstrated to be narrower than 200 feet in the area proposed for well location; or 3) the well pad or road can be increased in height to avoid a predicted over-topping 50-year flood. In these situations, the well pad or road would not be placed closer than 100 feet from the stream channel. • All new stream crossings would be kept to a minimum. In the case of an unavoidable stream crossing, culverts would be designed and constructed to allow fish passage. All stream crossings would be designed and constructed to keep impacts to riparian and aquatic habitat to a minimum. • Appropriate BMPs needed to mitigate water impacts anticipated to occur from surface-disturbing activities would be identified during the onsite process and may include, but would not be limited to, proper culvert design, installation of energy dissipation devices, proper site selection (avoidance of steep slopes, riparian areas, wetlands, areas subject to severe soil movement, and areas of shallow groundwater and natural watercourses), and using closed-loop drilling. • Water production will be managed to ensure maintenance or enhancement of riparian habitat.

Source	Resource	Conditions of Approval
		• Avoid loss or disturbance of riparian habitats. • Where technically and economically feasible, use directional drilling or multiple wells from the same pad to reduce surface disturbance and eliminate drilling in suitable riparian habitat. Ensure that such directional drilling does not intercept or degrade alluvial aquifers. • Implement the Utah Oil and Gas Pipeline Crossing Guidance (from BLM National Science and Technology Center). • Oil or gas drilling will not occur within 100-year floodplains of rivers or tributaries to rivers that contain listed fish species or critical habitat. • In areas adjacent to 100-year flood plains, particularly in systems prone to flash floods, analyze the risk for flash floods to impact facilities, and use closed loop drilling, and pipeline burial or suspension according to the Utah Oil and Gas Pipeline Crossing Guidance, to minimize the potential for equipment damage and resulting leaks or spills. • Construction activities in the 100-year floodplain of the Green River will be timed to reduce impacts to seasonal fish movements, spawning activity, and rearing activity by avoiding construction from April 1 through August 31. • No work will occur directly in the Green River or other rivers that are considered to be critical habitat for listed Colorado River fish. • Best Management Practices (BMPs) would be used to minimize sedimentation, temporary erosion of stream banks, and needless damage or alteration to the Green River streambed. BMPs should also ensure construction related byproducts do not enter the riverine ecosystem that will cause negative impacts to aquatic organisms. • Construction activities in designated critical habitat of the listed Colorado River fish will not occur during active flooding events (when the water level rises more than 6 inches above the normal wetted channel). If construction materials are displaced by high flow the applicant will contact our office as soon as possible to coordinate the least intrusive retrieval methods. • No more than 1 acre of ground disturbance will occur within the critical habitat of listed

Source	Resource	Conditions of Approval
		Colorado River fish. • Temporary and permanent construction-related impacts to Colorado pikeminnnow and razorback sucker critical habitat will be addressed by revegetation of construction affected areas. • Imported and site source materials will be stored in the staging area away from the 100-year floodplains of the Green River. For chemicals being used on-site, the contractor or responsible representative shall provide watertight tanks or barrels for the storage and disposal of chemical pollutants, including those that are produced as byproducts of the construction activities, such as drained lubricating or transmission fluids, grease, or soaps. Upon completion of construction work, these containers will be removed from the action area and their contents disposed of at a designated disposal location. • Machinery will be fueled offsite or in a confined, designated area to prevent spillage into any surface water. Refueling will not occur within the 100-year floodplain of the Green River. • Contaminant control measures will be installed to prevent contaminants release into the Green River channel. • Sediment control measures will be implemented to prevent project-related sediment from entering the critical habitat of the flowing stream channel. • Materials should not be stockpiled in the 100-year floodplain or wetlands. • Mitigation for permanent impacts to designated critical habitat of the Colorado River Fish will be achieved through completion of a riparian restoration project implemented at a ratio of 3:1 for all permanent disturbed areas. Temporary impacts will be mitigated at a 2:1 ratio for all disturbed areas. For every 1 acre of temporary disturbance 2 acres will be restored. For every 1 acre of permanent disturbance, 3 acres will be restored. • Disturbed areas in Colorado River Fish Critical Habitat will be restored to natural grade, tilled if necessary to loosen compacted soils, and planted with a combination of native, certified weed-free riparian trees, shrubs, and other vegetation. The applicant will work with the U.S. Fish and Wildlife Service Utah Ecological Services Field Office (USFWS) to complete a restoration plan. This plan will include planting willows, cottonwoods, or other native vegetation, removal of

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		noxious weeds, and other measures to be determined on a site-specific basis. The planting success criteria and monitoring will be coordinated with the USFWS Utah Ecological Services Field Office. • The mitigation restoration project will occur within one year post-construction.
FEIS Section 4.10	Special Status Species – Raptors and Migratory Birds	• For any surface-disturbing activities proposed between January 1 and September 31, a BLM-approved biologist would survey proposed development sites for the presence of raptor nests. The survey area would be determined on a site-specific basis by the AO of the appropriate SMA. On BLM lands, if occupied/active raptor nests are found, construction would not occur during the nesting season for that species within the species-specific buffer described in "Best Management Practices for Raptors and Their Associated Habitats in Utah." As specified in the Raptor BMPs, modifications of these spatial and seasonal buffers for BLM-authorized actions would be permitted, so long as protection of nesting raptors was ensured (see Appendix A of the Vernal ROD and Approved RMP) (BLM 2008b). Fee and SITLA lands would be excluded from this measure. • All applicable surface stipulations from Appendix K, subject to valid existing rights, and Fluid Minerals BMPs from Appendix R of the Vernal RMP (BLM 2008b) would be implemented. • Electric distribution and transmission structures would be designed according to criteria presented in Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006 (APLIC 2006). In addition, strategies for minimizing collision risk with power lines would follow criteria presented in Reducing Avian Collisions with Power Lines: the State of the Art in 2012 (APLIC 2012). • Between March 1 and August 31, new construction or surface-disturbing activities would not occur within 0.25 miles of active burrowing owl and short-eared owl nests. • Between May 1 and June 15, new construction or surface-disturbing activities would not occur in mountain plover habitat to protect the species during the breeding and nesting season. • As required by BLM's Gold Book, Newfield would remove any visible accumulation of oil from the reserve pit immediately upon release of drilling rig to prevent exposure of migratory birds to

Source	Resource	Conditions of Approval
		petroleum products.
FEIS Section 2.6.1.2 and 4.10.5 as modified by BO and its Section 7 Applicant Committed Measures. See FEIS Appendix J-Attachment 1-Appendix A Volume 3 PDF pages 1311-1316 and 1350 - 1353	Special Status Species – Sclerocactus	• The Conservation, Restoration, and Mitigation Strategy for the Pariette and Uinta Basin Hookless Cactus for the Newfield Greater Monument Butte Project (ROD Attachment 4) developed by USFWS and Newfield will be implemented under this Alternative. • Surveys will be completed in accordance with the latest conservation measures and USFWS protocols and Memorandums of Understanding. The BLM's current understanding of these protocols is as follows: Sclerocactus Surveys • Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat prior to any ground-disturbing activities to determine if suitable Sclerocactus habitat is present. • Pre-construction Sclerocactus surveys will occur following the pre-project habitat assessments that identified any potential habitat within the project area. These pre-construction surveys must follow U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed, and Candidate Plants. Surveys will be conducted in suitable habitat prior to initiation of project activities, at a time when the plant can be detected, and during appropriate flowering periods: • Sclerocactus brevispinus surveys must be conducted between March 15th and June 30th, unless an extension is provided in writing by the USFWS, • Sclerocactus wetlandicus surveys can be done any time of the year provided there is no snow cover. • Sclerocactus surveys will be conducted by a qualified botanist. Qualifications are defined in the USFWS Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants, http://www.fws.gov/utahfieldoffice/SurveyorInfo.html. Qualified botanists must also attend the USFWS Uinta Basin Rare Plant Workshop,

Source	Resource	Conditions of Approval
		http://www.fws.gov/utahfieldoffice/UBRarePlants.html. • Surveys will be valid per the FWS Survey Methods and Protocol for *Sclerocactus brevispinus* and *Sclerocactus wetlandicus.* • Sclerocactus spot check surveys will be conducted on an annual basis by a qualified botanist, and reviewed by the Bureau of Land Management (BLM) and our office for all planned disturbance areas if the project has not been completed within the year following pre-construction plant surveys. Review of spot checks may result in additional pre-construction plant surveys as directed the BLM and our office. If the proposed action has not occurred within four years of the original survey, additional coordination with the BLM and our office must occur and a new clearance survey may be necessary prior to ground disturbing activities. • Sclerocactus surveys for access roads, buried pipelines, well pads, and other facilities requiring removal of vegetation (e.g., compressor stations) will include the project area and/or right-of-way (ROW), and 300 feet (ft.) from the edges of the project disturbance and/or ROW. • Sclerocactus surveys for surface pipelines placed within an existing road ROW, and within 10 ft. from the edge of the disturbed surface of the road, will include the ROW and 50 ft. from the edge of the ROW on the pipeline side of the road. • Sclerocactus surveys for cross-country surface pipelines (pipelines over 10 ft. from a road), where the pipeline will be laid by hand with minimal disturbance and no vehicle use will include the ROW and 50 ft. from the edges of both sides of the ROW. • Surveys for all other cross-country surface pipelines (vehicles or equipment used, not laid out by hand) will include the ROW and 300 ft. from the edges of both sides of the ROW. • *Sclerocactus* surveys will not be necessary when pipelines are buried in existing roads. • Sclerocactus brevispinus and S. wetlandicus Survey Methods and Protocol: o Initial pre-disturbance 100% clearance surveys will be conducted following standard methodology and will be valid for a period of 4 years. ▪ If more than 4 years pass between the original surveys and construction, a new 100% clearance survey will be required. ▪ If construction is to occur within the 4 year window, an additional, reduced-effort "spot check" survey will be conducted following the below methodology in the

Source	Resource	Conditions of Approval

		year of project construction.
		• Sclerocactus Spot Check Survey Methods:
		  ○ Spot checks will be conducted by qualified individuals according to BLM and Service standards for plant surveyors (i.e. attendance at Uinta Basin Rare Plant Workshop, qualifying education and experience).
		  ○ Spot check surveys will occur during the year of construction.
		  ○ Timing limitations for spot check surveys will follow existing protocols for regular surveys:
		  ▪ S. brevispinus: March 15 through June 30 unless extended by prior written approval by the Service;
		  ▪ S. wetlandicus: During any time of year with no snow cover.
		• Within 30 feet (10 meters) of the perimeter of the previous survey, spot check surveys will occur at a moderate intensity (survey lines spaced 10 feet or so apart at a moderately slow speed; this can be done via a meander survey method) except in the following locations:
		  ○ Original survey areas that are within 300 feet and downslope of known plant locations, where seeds are likely to disperse during rain events. Locations meeting these criteria will require 100% clearance surveys.
		  ○ Areas immediately adjacent to ant mounds/colonies that fall within the original 100% clearance survey boundary. Another known mechanism for Sclerocactus seed dispersal is harvester ants, so the area immediately adjacent to active and inactive ant mounds (approximate 10 foot diameter) should be surveyed following standard survey protocols for new germinants of Sclerocactus.
		• Surveys will be completed prior to any ground disturbing activities. Operators may not proceed on the basis of a preliminary negative spot check survey.
		• Biological reports of the spot check survey will be submitted to the BLM AO, and the authorizing official will provide written approval to the operator to proceed with the project.

Source	Resource	Conditions of Approval
		• Spot check biological reports will also be submitted to the Service so that the Service may evaluate the efficacy of these survey methods. PROJECTS PROPOSED WITHIN SCLEROCACTUS HABITAT General Measures • The BLM's priority will be to locate any new surface disturbance more than 300 feet from Sclerocactus populations or individuals, except for surface pipelines, which is 50 feet. • Access roads, buried pipelines, well pads, and other facilities requiring removal of vegetation (e.g., compressor stations) will be located a minimum distance of 300 feet from individual Sclerocactus plants and/or populations where feasible (and in accordance with Core Area 1 and Core Area 2 conservation recommendations, as outlined below). • When the edge of an unavoidable surface disturbance[8] is located within 300 feet of populations or individuals of Sclerocactus, the following actions will be taken to minimize the impacts: o A qualified botanist will be on site to monitor surface-disturbing activities when cacti are within 300 feet of any surface disturbance. o Cacti within 300 feet of a proposed surface disturbance will be flagged immediately prior to surface-disturbing activities, and flags will be removed immediately after surface-disturbing activities are completed. Leaving cacti flagged for as short a time as possible will minimize drawing attention to the cacti and reduce the potential for theft; o New pipelines will be sited to maximize the distance from adjacent Sclerocactus wetlandicus, S. brevispinus, and hybrids. o Project personnel associated with construction activities will be instructed to drive at a speed limit of 15 miles per hour on unpaved roads and to remain on the existing roads and ROWs at all times.

[8] Unavoidable surface disturbance for this document is defined as a buried pipeline adjacent to an existing road or a well pad expansion. However, in limited cases as defined in the FWS/Newfield Conservation, Restoration, and Mitigation Strategy for the Pariette and Uinta Basin Hookless Cactus (FEIS Appendix J Biological Assessment - Attachment F) it may be possible to install a new well pad and road within 300 feet of cactus.

Source	Resource	Conditions of Approval
		○ All crews will be informed of potential Sclerocactus presence, identification, and legal repercussions associated with "take' of a listed species. ○ If a spill occurs within the Sclerocactus T&E potential, critical, or core habitats polygon, Newfield would provide a copy of the official spill report to USFWS within the same timeframe required by the regulatory agency. ○ Ground disturbing activities in Level 1 CCAs, and within 300 feet of individual Sclerocactus plants and/or populations, must occur outside of the flowering period, April 1 - May 30 (and in accordance with Core Area 1 and Core Area 2 conservation recommendations, as outlined below). • Surface pipelines will be located at a minimum of 50 feet from individual Sclerocactus plants and/or populations where feasible (and in accordance with Core Area 1 and Core Area 2 conservation recommendations, as outlined below). • New surface pipelines located closer than 50 feet to known *Sclerocactus* individuals will be secured in place to prevent pipeline movement (and in accordance with Level 1 and 2 CCA conservation recommendations, as outlined below). • Existing surface pipelines located closer than 50 feet to known Sclerocactus individuals will be secured in place to prevent pipeline movement (and in accordance with Core Area 1 and Core Area 2 conservation recommendations, as outlined below). • Dust abatement will be employed in suitable Sclerocactus habitat over the life of the project during the time of the year when Sclerocactus species are most vulnerable to dust-related impacts (March through August). ○ Only water and methods approved by the AO (no chemicals, reclaimed production water or oil field brine) will be used for dust abatement measures within cactus habitat. • Noxious weeds within Sclerocactus habitat may be controlled with herbicides, in accordance with the BLM Herbicide PEIS (http://www.blm.gov/wo/st/en/prog/more/veg_eis.html). Guidelines and the BLM's Standard Operating Procedures for Threatened and Endangered Plant Species (BLM Herbicide PEIS Appendix B Tables B-1 and B-2).

Source	Resource	Conditions of Approval
		○ Application for a 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. • Erosion control measures (e.g., silt fencing) will be implemented to minimize sedimentation to Sclerocactus plants and populations located down slope of proposed surface disturbance activities, and should only be implemented within the area proposed for disturbance. • All disturbed areas will be reclaimed with plant species native to Utah, or seed mixtures approved by the BLM and USFWS, which may include the use of sterile, non-native, non-invasive, annuals to help secure topsoil and encourage native perennials to establish. • The BLM AO can halt construction as necessary based on new plant location information obtained from sources other than the operator or the contractor hired by the operator. Core Conservation Area Level 1 (CCA): • New wells could be directionally drilled from existing well pads, and new pipelines could be installed in existing roads so long as no new surface disturbance is required. • Avoid new surface disturbance[9], including well pads, roads, pipelines, or any other surface disturbing activities where feasible. Expansion of existing facilities[10] will be allowed - e.g., widening existing access roads, expanding well pads, installation of pipelines to access existing facilities (along existing alignments or roadways). • Where new surface disturbance occurs within the Level 1 CCAs, mitigation must be completed following the Conservation and Mitigation Strategy For the Pariette Cactus and Uinta Basin Hookless Cactus, Newfield Greater Monument Butte Project (Strategy). Where new surface disturbance directly affects Sclerocactus (Sclerocactus are directly removed), a monetary amount

[9] Actions that occur entirely within previously disturbed areas (such as reopening reserve pits so long as the spoils do not disperse onto adjacent undisturbed areas or burying pipelines in existing roads), are not considered "new" surface disturbance. Temporary use areas (areas that are outside of the current edge of disturbance, i.e. outside reclaimed reserve pits, that would be used to erect and disassemble the drilling derrick) are considered "new" surface disturbance.

[10] BLM designated plugged and abandoned wells (P&A) for purposes of this EIS are considered by the BLM to be fully reclaimed but are given preference for construction of new well pads over previously undisturbed areas. A well that is BLM P&A status has had a Final Abandonment Notice (FAN) submitted by the company, accepted by the BLM thus releasing the company from obligation to the well (note: this definition differs from the State of Utah, which defines P&A as the well is plugged but the location is not reclaimed).

Source	Resource	Conditions of Approval
		($640 per Sclerocactus) will be contributed to the Sclerocactus Mitigation Fund-BLM to aid in the recovery of Sclerocactus species impacted by the project. These contributions are in addition to payments requested for indirect effects to Sclerocactus. Contributions will be negotiated between the Operator and the USFWS office and will be based on the number of Sclerocactus directly impacted and in relation to the USFWS's current management guidelines for Sclerocactus. • Ground disturbing activities in Level 1 CCAs, and within 300 feet of individual Sclerocactus plants and/or populations, must occur outside of the flowering period, April 1 - May 30. • Where access roads are widened, well pads are expanded, or buried pipelines access existing facilities, design projects to minimize impacts: o Locate project a minimum distance of 300 feet from individual Sclerocactus plants and/or populations (except for surface pipelines which is 50 feet). o Utilize existing well pads and infrastructure. o Use common ROWs for roads and utilities where possible. o Place signing to limit off-road travel in sensitive areas. • Several options for mitigation of Level 1 CCAs are present (see Strategy). If mitigation funds are established, funds will be paid to: Sclerocactus Mitigation Fund – BLM, Impact-Directed Environmental Accounts, National Fish and Wildlife Foundation Fifteenth Street NW, Suite 1100 Washington, DC 20005 Core Conservation Area Level 2: • New wells could be directionally drilled from existing well pads, and new pipelines could be installed in existing roads so long as no new surface disturbance is required. • New surface disturbance, including well pads, roads, pipelines, or any other surface-disturbing activities will not exceed a 5% surface disturbance threshold where feasible. • If the total cumulative surface disturbance is below the 5% threshold, and where access roads, buried pipelines, well pads, or other facilities requiring removal of vegetation (e.g., compressor

Source	Resource	Conditions of Approval
		stations) will be constructed, design project to minimize impacts locating a project a minimum distance of 300 feet from individual Sclerocactus plants and/or populations (except for surface pipelines which is 50 feet). • If the total cumulative surface disturbance is above the 5% threshold, and/or where new surface disturbance indirectly affects Sclerocactus (cactus within 300 feet of proposed disturbance), the mitigation will occur following the Strategy. • Where new surface disturbance directly affects Sclerocactus (cacti are directly removed), a monetary amount ($640 per cactus) will be contributed to the Sclerocactus Mitigation Fund-BLM to aid in the recovery of Sclerocactus species impacted by the project. These contributions are in addition to payments requested for indirect effects to cacti (see previous measure). Contributions will be negotiated between the Operator and the USFWS based on the number of cacti directly impacted and in relation to the USFWS' current management guidelines for Sclerocactus. • Several options for mitigation of Level 2 CCAs are available (see Strategy). If mitigation funds are established, funds will be paid to: Sclerocactus Mitigation Fund – BLM, Impact-Directed Environmental Accounts, National Fish and Wildlife Foundation, 1133 Fifteenth Street NW, Suite 1100, Washington, DC 20005 Sclerocactus Habitat Polygon: • Where access roads, buried pipelines, well pads, or other facilities requiring removal of vegetation (e.g., compressor stations) will be constructed, design project to minimize impacts by locating the project a minimum distance of 300 feet from individual Sclerocactus plants and/or populations (except for surface pipelines which is 50 feet). • Where new surface disturbance indirectly affects Sclerocactus (cactus within 300 feet of proposed disturbance), mitigation will occur following the Strategy. • Where new surface disturbance directly affects Sclerocactus (cacti are directly removed), a monetary amount ($640 per acre) will be contributed to the Sclerocactus Mitigation Fund-BLM to aid in the recovery of Sclerocactus species impacted by the project. Contributions will be negotiated between the Operator and the USFWS based on the number of cacti directly impacted

Source	Resource	Conditions of Approval
		and in relation to the USFWS' current management guidelines for Sclerocactus. • Several options for mitigation of the *Sclerocactus* Habitat Polygon are available (see Strategy). If mitigation funds are established, funds will be paid to: *Sclerocactus* Mitigation Fund – BLM, Impact-Directed Environmental Accounts National Fish and Wildlife Foundation 1133 Fifteenth Street NW, Suite 1100 Washington, DC 20005.
Section 7 Applicant Committed Measures and FEIS Appendix J See Volume 3 PDF Pages 1350 - 1353 and Pages 1357 - 1360.	Special Status Species – Ute Ladies' Tresses	• The edge of surface disturbing activities will be sited 300 feet or more from suitable habitat whenever possible. If possible, surface pipelines will be laid such that a 50-foot buffer exists between the edge of the right of way and suitable habitat, using stabilizing and anchoring techniques when the pipeline crosses habitat to ensure the pipelines do not move towards the habitat. • If suitable habitat is determined to be present within 300 feet of the proposed surface disturbance, surveys will be conducted within suitable habitat to determine occupancy. • Surveys: o Must be conducted by qualified individual(s) and according to Service accepted survey protocols, o Will be conducted in all suitable habitat within 300 feet of the area proposed for surface disturbance, o Will be conducted prior to initiation of project activities and within the same growing season, at a time when the plant can be detected, and during appropriate flowering periods (usually August 1st and August 31st in the Uinta Basin; however, surveyors should verify that the plant is flowering by contacting a BLM or USFWS botanist or demonstrating that the nearest known population is in flower), o Will include, but not be limited to, plant species lists, habitat characteristics, source of hydrology, and estimated hydroperiod o Will be valid for three consecutive years following the last survey. o Will be conducted for at least one year prior to any USFWS-defined temporary

Source	Resource	Conditions of Approval
		disturbance in suitable habitat (e.g., overland travel to access geotechnical boring location). o Will be conducted for three consecutive years prior to any USFWS-defined permanent disturbance (e.g., road widening, new road construction, placement of other infrastructure). Suitable habitat will be deemed unoccupied if no plants are detected in the three consecutive years of surveys. The surveys will be valid for three consecutive years following the Inst survey. o If three consecutive years of surveys cannot be performed prior to any USFWS defined permanent disturbance, the applicant and BLM will reinitiate Section 7 consultation. • If suitable habitat is deemed unoccupied, and direct disturbance to suitable habitat is not avoidable the following measures will be implemented: o All areas will be re-vegetated with species approved by USFWS and BLM Authorized Officer. o Avoid soil compaction in Ute ladies'-tresses habitat. o The upper part of the soil profile shall be salvaged and retained as intact as possible during construction. The soil profile shall be repositioned on the appropriately grazed backfilled trench to maintain a level soil surface and consistent, pre-construction hydrology. o Minimize soil disturbance by operating heavy equipment on top of temporary earth fills. o Minimize soil erosion with the use of silt fences. o Equipment will be cleaned to remove noxious weeds/seeds and petroleum products prior to moving on site. o Fueling of machinery will occur outside of suitable habitat. o Materials will not be stockpiled in the suitable habitat. o Fill materials will be free of waste, pollutants, and noxious weeds/seeds.

Source	Resource	Conditions of Approval
		○ Ingress and egress access will be kept to a minimum. ○ Excavated soils will be sorted into sub soils and top soils. When backfilling a disturbed site top soils will be placed on top to provide a seed bed for native plants. ○ Disturbed areas will be monitored and controlled for noxious and undesirable plant species during the life of the project. • Reinitiation of Section 7 consultation with our office will be sought if project activities are proposed within occupied habitat (within 300 feet of a Ute Ladies tresses individual).
FEIS Section 4.10.5	Special Status Species – White Tailed Prairie Dog	In accordance with the Conditional Use Stipulations included in Appendix K of the Vernal RMP and ROD: • Do not allow surface-disturbing activities within 660 feet of prairie dog colonies identified within prairie dog habitat. No permanent aboveground facilities are allowed within the 660-foot buffer. ○ Exception: An exception may be granted if the applicant submits a plan that indicates that impacts of the proposed action can be adequately mitigated or, if due to the size of the town, there is no reasonable location to develop a lease and avoid colonies the Field Manager will allow for loss of prairie dog colonies and/or habitat to satisfy terms and conditions of the lease. ○ Modification: The Field Manager may modify the boundaries of the stipulation area if portions of the area does not include prairie dog habitat or active colonies are found outside the current defined area, as determined by the BLM. ○ Waiver: May be granted if, in the leasehold, it is determined that habitat no longer exists or has been destroyed.
FEIS Section 4.10.5, Section 7 Applicant Committed Measures and FEIS Appendix J.	Special Status Species – Yellow Billed Cuckoo	• Suitable habitat within 0.5 mile of the action area will be identified and delineated on a map in accordance with the USFWS Utah Field Office Guidelines for identification of suitable breeding and nesting habitat for western yellow-billed cuckoo in Utah. Delineated suitable habitat will be submitted by the BLM as a shape file to USFWS's Utah Field Office. • If any project feature is proposed within 0.5 mile of suitable habitat, protocol level breeding

Source	Resource	Conditions of Approval
See Volume 3 PDF Pages 1350 - 1353		season surveys (A Natural History Summary and Survey Protocol for the Western Distinct Population Segment of the Yellow-billed Cuckoo, Final Draft 22 April 2015) will be conducted prior to any surface disturbance within 0.5 mile of suitable habitat. • Prior to any surface-disturbing activity within WYBC habitat during the June 1 through August 31 breeding season, surveys would be conducted by a qualified biologist to determine if breeding or nesting WYBC are present. If WYBC are present, surface disturbance or drilling activity would be precluded within one mile of occupied habitat to avoid disturbance to breeding birds or nests. • Surface disturbing activities will be sited 0.5 mile or more from suitable habitat whenever possible. For any project feature proposed within a 0.5 mile buffer of suitable habitat, the following measures will be implemented to minimize the effects of noise, human disturbance, and light pollution: o Construction and drilling activity shall occur outside the breeding and nesting season for western yellow-billed cuckoo (no construction and drilling activity will occur between June 1 and August 31). o Facilities and structures that generate short or long-term noise above ambient conditions shall be fitted with noise-abating equipment to preclude increases in noise levels (above ambient conditions) at the edge of suitable habitat. o Implement lighting with full cut off optics (no light above the 90-degree angle), short heights, light shielding, low illumination accent lighting, timers, and motion sensors to focus non-target lighting downwards on target areas and away from suitable habitat. o If the area is unoccupied, then the Authorized Officer may authorize the commencement of activity. • If proposed construction would occur within 0.5 mile of riparian habitat, the habitat will be analyzed in accordance USFWS's Yellow Billed Cuckoo Suitable Habitat Identification Guidelines to determine habitat suitability. Delineated suitable habitat will be submitted as a shape file to USFWS's Utah Field Office to identify survey needs.

Source	Resource	Conditions of Approval

		• If construction activities are sited within occupied habitat, the following will be implemented:
		  o Machinery will be equipped with noise mufflers to minimize increases in baseline noise levels at the source;
		  o Insecticides and herbicides will not be used in occupied habitat to preclude loss of prey base for cuckoo;
		  o Sediment control measures will be implemented to prevent project related sediment from moving downstream.
		• Vegetation management, including removal, mowing, drive-and-crush, or pesticide application, will not occur within 300 feet of suitable habitat. Pesticides include herbicides and insecticides.
		• Any temporary disturbance within suitable habitat for western yellow-billed cuckoo shall be reclaimed to preclude invasion of noxious plants, such as tamarisk and Russian olive.
		  o Any permanent impacts to suitable habitat for western yellow-billed cuckoo within the project area shall be offset at a 3:1 acreage ratio. For every 1 acre of new disturbance within suitable habitat, 3 acres will be restored. Restoration may include treatment of noxious weeds, planting of native cottonwoods and willows, and other measures that benefit yellow-billed cuckoos.

Applicant Committed Measures FEIS Section 2.2.12, FEIS Section 4.7.2, and BA Section 2.3.14	Vegetation[11] Including Noxious and Invasive Species	• Mulching, soil amendments, and other state-of-the-art techniques would be used on a site-specific basis as determined necessary to assure the highest possible revegetation success. • In areas that contain environmentally sensitive fragile soils and vegetation, the operator may be required to perform special measures such as mulching, installing erosion fencing, use of erosion fabric, etc. (per the direction of the AO) to stabilize any disturbed areas and ensure the reestablishment of long-term perennial vegetation. • Inter-seeding (i.e., seeding into existing vegetation), secondary seeding, or staggered seeding may be used as determined necessary on a site-specific basis to accomplish specific revegetation

[11] Measures from 2.2.12 and BA that deal with special status species have been moved to the special status species portion of this table. Measures from Section 4.7.2 that deal with water or wetlands have been moved to the water portion of this table.

Source	Resource	Conditions of Approval
		objectives. • Vegetation removed from short-term surface-disturbance areas would be spread over the disturbed site to capture native seed and facilitate revegetation. • In accordance with the appropriate AO's guidance and direction, regular, qualitative and quantitative field monitoring of reclaimed areas would be conducted over the life of the project to determine the effectiveness of the applied reclamation actions. Should the prescribed reclamation actions not have the desired or anticipated results, or are not moving in a direction to achieve the desired/anticipated results, revised reclamation objectives may be appropriate and additional or new reclamation methods would be implemented. • All products (such as mulches, straw bales, etc.) used for erosion control would be certified weed free. • Construction equipment and vehicles coming from outside of the Uinta Basin would be power washed prior to entering the MBPA. Any construction or operational vehicles traveling between the MBPA and areas outside of the Uinta Basin would be power-washed prior to re-entrance. • Areas disturbed by project-related activities, including roads, well pads, etc., with soils that are susceptible to wind erosion would be surfaced (covering of piles where appropriate, graveling or surfactants applied to roads, etc.) on a site-specific basis, as directed by the AO, to reduce fugitive dust generated by traffic and related activities. Such treatments would also be applied as directed by the AO on local and resource roads that represent a dust problem. • All applicable surface stipulations from Appendix K, subject to valid existing rights, and Fluid Minerals BMPs from Appendix R of the Vernal RMP (BLM 2008b) would be implemented. • As required by the Noxious Weed Act of 1974, as amended, and by Executive Order 13112-1999, noxious weeds would be controlled in the MBPA by Newfield on all disturbances associated with its existing well pads, road, and pipeline routes, as well as infestations that would occur as a result of the project. • Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g., using previously disturbed areas and existing easements where feasible,

Source	Resource	Conditions of Approval
		placing pipelines adjacent to roads, limiting well pad expansion, etc.). ○
Selected Alternative Description FEIS Section 2.6.1.1, Applicant Committed Measures FEIS 2.2.12, FEIS Sections 4.5.2, 4.6.2, and 4.7.2, FEIS Appendix J Biological Assessment Section 2.3.14, and Biological Opinion	Water Resources Including 100-year Floodplains, Wetlands/Riparian, Springs *(See also the Special Status – Fish section of these COAs)*	• No surface disturbance would occur within 500 feet of Pariette Creek or Pariette ponds. • No new well pad-related surface-disturbing activities would be allowed within active floodplains, public water reserves, or 100 meters of riparian areas. • No new pipeline- or road-related surface-disturbing activities would be allowed within active floodplains, public water reserves, or 100 meters of riparian areas, unless there are no practical alternatives or the action is designed to enhance the riparian resources. Unavoidable impacts would be fully mitigated. In addition: ○ The width of the construction areas shall be made as small as possible through the 100-year floodplains. ○ Construction activities in 100-year floodplains will not occur during active flooding events. ○ All staging areas and stockpiled material will be located outside of the 100-year floodplains. ○ The contractor will remove all construction material due to construction in the 100-year floodplains at the end of the project. ○ Equipment should be cleaned to remove noxious weeds/seed and petroleum products prior to moving on to the 100-year floodplain. ○ If fill materials are brought into the 100-year floodplain they will be free of waste, pollutants, and noxious weeds/seeds. ○ Employees and contractors will be instructed to travel at appropriate speeds to limit disturbance to soils on unpaved roads in 100-year floodplains. ○ Sediment control measures will be in conformance with the project's Storm Water Pollution Prevention Plan.

Source	Resource	Conditions of Approval
		• To ensure their protection under Section 404 of the Clean Water Act and EO 11990 – Protection of Wetlands, wetland evaluations and delineations would be completed for any surface disturbance locations occurring in potential wetland habitat. • Under Alternative D, the water collector well would be sited to avoid jurisdictional wetlands. • For all tributaries that drain directly to Pariette Draw or directly to the Green River, roads and well pads would be set back a minimum of 200 feet from the active stream channel (average 3 feet wide or greater without an associated riparian zone) unless site-specific analysis demonstrates that one of the following situations applies in which case, the well pad or road would not be placed closer than 100 feet from the stream channel: o the proposed well or road could be placed on higher terrain above the 100-year floodplain, o the 100-year floodplain can be demonstrated to be narrower than 200 feet in the area proposed for well location; or, o the well pad or road can be increased in height to avoid a predicted over-topping 50-year flood. • Pipelines that cross or are within 100-year floodplains will either be elevated above the predicted 100-year flood event on a pipe bridge, or buried at least 5 feet below the channel bottom or below the predicted scour depth for an equivalent flood event (whichever is deeper) and in conformance with hydrological design practices. • All new stream crossings would be kept to a minimum. In the case of an unavoidable stream crossing, culverts would be designed and constructed to allow fish passage. All stream crossings would be designed and constructed to keep impacts to riparian and aquatic habitat to a minimum. • Pipelines that cross stream channels will incorporate a sediment retention system along the construction corridor to minimize movement of sediment into the water courses. These could range from silt fencing and culverts to sediment retention basins, depending on the location. • Newfield will utilize the applicable USFWS BMPs for work in Utah streams where pipelines or roads cross a stream.

Source	Resource	Conditions of Approval
		• Newfield will utilize BLM Hydraulic Considerations for Pipeline Crossings of Stream Channels (prepared by the Utah State Office BLM, Salt Lake City, Utah). • Road crossings of drainages will be built to accommodate the 100-year flood, typically using at grade crossings rather than culverts. Crossings will be designed so they will not cause siltation or accumulation of debris, nor will the roadbed block the drainage. Any culverts used will be designed and constructed to allow passage of aquatic species. • As determined necessary on a site-specific basis (based on proximity to a 100-year floodplain), wells with the potential to contaminate surface waters will have automatic shutoff valves. • Any pipeline conveying produced water or other industrial liquid across the 100-year floodplains as conceptually depicted in FEIS Figure 3.6.3.2-1 (ROD Attachment 1) would be provided with shut-off valves immediately outside the 100-year floodplain on both sides of the crossing. • Storage and parking locations for hazardous materials, lubricants, fuel tanks or trucks, and refueling activities would be a minimum distance of 100 meters from wetlands, riparian areas, and channels with defined bed and banks. Such materials storage or refueling activities would be outside the 100-year floodplains as depicted in FEIS Figure 3.6.2.3-1 (ROD Attachment 1). • Flow monitors would be installed on produced water pipelines to detect possible leaks. If any of the following impacts are observed, the adaptive management mitigation identified in the long term water monitoring plan (see Appendix H) will be implemented: o Increased sedimentation; o Increased concentrations of inorganic constituents, including metals; o Increased concentrations of selenium, boron, or total dissolved solids; o Contamination with petroleum and other organic constituents; o Reduction of spring flows; and/or, o Reduction of water levels in wells. • While construction in the 100-year floodplain or wetlands is occurring, heavy equipment working on wet soils shall be placed on mats. Work should be conducted primarily while the ground is

Source	Resource	Conditions of Approval
		frozen or soils are dry. • Silt fence shall be properly installed in 100-year floodplains and wetlands where project disturbance may erode into waters during a precipitation event. • Produced liquid and natural gas gathering pipelines that are buried across water courses would be buried in accordance with guidelines established in the Gold Book and Hydraulic Considerations for Pipelines Crossing Stream Channels, Technical Note 423, April 2007. Specific burial depths for natural gas and produced liquids pipelines that cross perennial, intermittent, and ephemeral stream channels within the MBPA would be determined during the onsite process. • In accordance with 40 CFR 112.3, Newfield would prepare and maintain SPCC plans for active facilities. Newfield would inspect each facility subject to SPCC requirements on an annual basis to ensure appropriate spill prevention measures are maintained. A management review of the SPCC plans would be conducted every 5 years. • Newfield employees would be trained annually in spill prevention and reporting requirements. Contractors would be required to promptly report all accidental releases to a Newfield Supervisor. • Newly constructed gas and water lines would be pressure tested to evaluate structural soundness and reduce the potential for leaks. • Springs will be delineated and marked on maps and on the ground before development in order to keep impacts to springs to a minimum. • Appropriate BMPs needed to mitigate water impacts anticipated to occur from surface disturbing activities would be identified during the onsite and may include, but not be limited to: proper culvert design, installation of energy dissipation devices, proper site selection (e.g., avoidance of steep slopes, riparian areas, wetlands, areas subject to severe soil movement, and areas of shallow groundwater and natural watercourses), and utilizing closed loop drilling. • To the fullest extent possible, access roads proposed in valley/drainage bottoms would be sited on the toe of the adjacent slope to the valley bottom. Roads would have appropriate energy dissipaters (e.g., water bars and silt fences) where water leaves the road and is routed toward an

Source	Resource	Conditions of Approval
		adjacent drainage. • Well pads adjacent to drainages would be bermed to prevent runoff from entering the drainage. • As conditions dictate, and as determined by the AO, diversion ditches would be constructed around the pad. • Where diversion ditches are constructed to reroute drainages around well pads, ditches would be designed to return the diverted water back to the original channel. If it is not feasible to return diverted water back to its original channel, the water would be diverted to the nearest channel, with energy-dissipating devices installed to prevent channel degradation. • If proposed activities would result in the temporary or permanent placement of dredge or fill material into existing wetlands or Waters of the U.S., Newfield would adhere to the Army Corp of Engineers (ACE) Nationwide Permit General Conditions as well as the ACE Final Sacramento District Nationwide Permit Regional Conditions for Utah.

Attachment 3: Air Mitigation Strategy – Applicant Committed Environmental Protection Measures

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Air Mitigation Strategy – Applicant Committed Environmental Protection Measures

The purpose of the mitigation strategy outlined here, as incorporated into the Final EIS and ROD, is to ensure that implementation of the Greater Monument Butte Project will not result in net emissions increases of volatile organic compounds (VOC) from stationary sources located within the exterior boundaries of the Project area beyond VOC emissions levels for the 2012 operating year. To demonstrate the effectiveness of this "no net increase" strategy, both additions and reductions in VOC would be documented annually on an emissions balance sheet. This documentation along with the additional components of the mitigation strategy -- a Directed Inspection and Maintenance (DI&M) program, an Ozone Action Mitigation Plan, and the Applicant Committed Environmental Protection Measures -- shall be deemed to provide reasonable assurance that project activities analyzed in the GMBU FEIS do not cause or contribute to a Clean Air Act ozone NAAQS violation.

Strategy Principles:

- Be protective: Provide reasonable assurance that the Project will not cause or contribute to ozone violations in the Basin.
- Be accountable and transparent: Allow BLM and Newfield to publically document the project's VOC emissions.
- Be adjustable to changing regulatory environment:
    - Emissions reductions of VOC resulting from actions taken by Newfield or natural production decline (defined in the Technical Support Document) shall be used to create headroom for project activities that result in new sources of VOC emissions. In the event of a non-attainment designation on lands including the Project Area, the documented emissions reductions shall be considered by BLM in determining Newfield's compliance with applicable ozone conformity requirements to the extent possible.
    - Upon the implementation of any new regulation applying to activities within the Project area, such requirement(s) shall replace any comparable component of this mitigation strategy if BLM determines, according to the process outlined below, that compliance with the new requirement(s) commits Newfield to measures that will reduce VOC emissions.
        - Provide a process for internal review and assessment conducted by BLM, in consultation with Newfield, to assess whether components of the mitigation strategy can be removed for being equivalent in effect or duplicative of new state or federal air quality regulatory requirements, and whether it is necessary for BLM to continue to require the annual emissions balance sheet and subsequent annual reviews.
    - In the event of an ozone nonattainment designation and subsequent implementation of an ozone attainment FIP/SIP/TIP (or General Conformity or comparable provisions if the area is classified as marginal), the new requirements shall replace this mitigation strategy.
- Be Flexible: Newfield determines how to accomplish the no-net increase strategy.
- Be Cost Effective: Implementation of the components of this mitigation strategy should not impose significant increased operational costs on Newfield beyond those of the Applicant Committed Measures specified in the DEIS in the absence of promulgation and issuance of a new regulation or a SIP/FIP/TIP.

Incorporation of Strategy in NEPA Documentation:

Section 2.2.12.1.7 Adaptive Management, will be replaced with the following language:

Annual Emissions Balance Sheet[12]

Newfield will ensure that new stationary sources authorized by the ROD will not result in net increases of volatile organic compounds (VOC) emissions. This will be accomplished by achieving reductions of VOC emissions from existing stationary sources prior to operating new sources, balanced on a calendar year annual basis. Newfield will document such reductions in VOC, as well as additions in VOC, from stationary sources in an Annual Emissions Balance Sheet that will have sufficient information for the BLM AO to verify the Operator's actions.

The Project Area shall be defined as the area analyzed in the GMBU FEIS (this shall be the "geographic area" as referenced elsewhere in this document). Stationary sources include, but are not limited to, engines, heaters, glycol dehydrators, oil and produced water storage tanks, truck loading, pneumatic controls, pneumatic pumps, and fugitive leaks.

Newfield will develop and use the Initial Emissions Balance Sheet as follows:

- The reporting tool for the Initial Emissions Balance Sheet will be the emissions inventory workbook created by UDAQ and EPA for the Uinta Basin 2014 inventory (2014 emissions inventory workbook), which provides facility-by-facility and source-by-source emissions detail.
- Newfield will use the emissions quantification methods used in the 2014 emissions inventory workbook to calculate VOC emissions for the 2012 operating year. This calculation of VOC emissions for the 2012 operating year will serve as the initial inventory against which subsequent increases or decreases in VOC emissions will be calculated and documented.
- Technical corrections and revised calculation methodologies may be applied to the 2014 emissions inventory workbook following consultation between UDAQ, EPA, BLM and Newfield.

For subsequent year Annual Emissions Balance Sheets, the above-referenced 2012 emissions inventory calculated by using the 2014 emissions inventory workbook shall continue to serve as the template from which further emissions reductions and additions are calculated and documented. A separate 2015 or 2016 inventory of VOC emissions, as appropriate based upon the timing for the issuance of the ROD, will subsequently be prepared for comparison with the calculations of VOC emissions for the 2012 operating year to determine the net change in VOC emissions and available VOC headroom for project activities that result in new sources of VOC emissions.

VOC emissions reductions including, but not limited to, actions taken in response to voluntary actions, the implementation of applicant committed environmental protection measures, natural production decline (defined in the Technical Support Document), existing or new regulations, and/or ozone attainment and maintenance plans can be used to create headroom for project activities that result in new sources of VOC emissions.

Annually, or upon request by Newfield, the BLM AO will conduct an internal review and assessment and confer with Newfield to consider new state and federal regulatory requirements and evaluate if portions of this mitigation strategy are no longer necessary. Upon review and Newfield consultation, BLM may remove components of the mitigation strategy that are determined to be equivalent in effect or duplicative of state or federal regulatory requirements or otherwise create contradictory or overlapping requirements. The review will also evaluate the impact of new regulations upon project VOC emissions and the need to continue the annual emissions balance sheet requirement.

The implementation of General Conformity requirements following an ozone non-attainment designation shall

[12] The Annual Emissions Balance Sheet will be submitted to the BLM AO.

be considered equivalent to the annual emissions balance sheet provisions of this strategy, and the annual emissions balance sheet requirements may be terminated at Newfield's option. Upon adoption of a nonattainment FIP/SIP/TIP (or comparable provisions if the area is classified as marginal), this mitigation strategy in its entirety shall be replaced by the FIP/SIP/TIP.

Section 2.2.12.1.6 Monitoring Programs will be replaced with the following language:

Newfield will conduct Audio-Visual-Olfactory (AVO) leak inspections on all existing and new facilities within the Project Area on an annual basis and repair observed leaks. Newfield will utilize IR Camera observations in place of AVO inspections for 10% of facility inspections. If future regulations are implemented to address leak detection and repair requirements, the regulatory program will replace the voluntary inspection program.

- Newfield will develop, and submit for BLM approval,
    - a corrective action plan for the Project Area that would include appropriate timeframes to complete necessary repairs that may be identified in the future through the Monitoring Program.
    - an annual report listing the facilities where leaks were observed, the date the leak was observed, the cause of the leak, and the date corrective actions were completed at such facilities.

Section 2.2.12.1.9 Ozone Training for Operations Personnel will be added with the following language:

Newfield will develop an Ozone Action Mitigation Plan which includes an operator training component as well as a list of Project activities that could be delayed or minimized during ozone episodes.

For the purposes of the Ozone Actions Mitigation Plan, an ozone episode would be any next day that the UDAQ air quality forecast is Unhealthy for Sensitive Groups (Code Orange – minimum ozone concentration of 0.071) or higher as published on the UDAQ website (current link is: http://air.utah.gov/forecast.php?id=v4).

Newfield will develop and submit for BLM approval an Ozone Action Mitigation Plan which includes the following components:

- Newfield will incorporate in its current employee training program ozone awareness and specific actions for reducing ozone precursor emissions.
- To the extent practical, Newfield will halt, defer and/or otherwise schedule activities that may contribute to ozone formation to periods outside of ozone episodes.

Operations personnel shall receive training prior to ozone season. Training programs shall cover the following:

- Ozone – what it is and how it impacts air quality and human health.
- Ozone formation ingredients – NOx, VOCs, and weather conditions.
- Ozone attainment status in the Uinta Basin.
- Review of applicable regulations.
- What can be done to prevent and/or reduce emissions of ozone precursor gases – such as limiting driving, maintaining equipment, delaying optional activities (e.g. equipment and well blowdowns, well completions, etc.).
- The importance of proper maintenance of tank hatches, vapor capture and combustor systems, and other equipment that reduces emissions.

FEIS Modification:

In addition to the modifications outlined above, *Section 2.2.14 BLM Air Quality Control Measures* will be deleted. *Section 2.2.12 Applicant-Committed Environmental Protection Measures* (ACEPMs) will present all air quality mitigation in one section for more clear disclosure and ease of reading. The Work Practices section of *2.2.14 BLM Air Quality Control Measures* will be moved to a new 2.2.12.1.10 subsection.

Attachment 4: Final Cactus Conservation and Mitigation Strategy

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Final Conservation and Mitigation Strategy For the Pariette Cactus and Uinta Basin Hookless Cactus, Newfield Greater Monument Butte Project

5/26/2015

Introduction

Pariette cactus (*Sclerocactus brevispinus*) and Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) (collectively referred to as *Sclerocactus*) are listed as threatened species under authority of the Endangered Species Act (ESA). Threats include mineral and energy development, illegal collection, recreational off-road vehicle use, and grazing [U.S. Fish and Wildlife Service (USFWS) 2010]. The primary goal of the endangered species program under the ESA is recovery of the species. In order to reach this goal, threats to the survival must be reduced and the species must be a secure, self-sustaining part of its ecosystem. While project proponents are not be required to recover a species through project-specific authorizations by Bureau of Land Management (BLM), under the Section 7 consultation process, the USFWS works with the applicant and action agency to develop conservation measures that benefit the species. A net benefit to *Sclerocactus* can be achieved through the protection of the cactus and suitable habitat throughout the species' range, reduction of threats through minimization of ground surface impacts, mitigation of project impacts, and restoration of previously disturbed lands.

Newfield is proposing to construct 5,750 wells on 1,245 new well pads, and accompanying roads and pipelines on its valid existing leases within the Greater Monument Butte Federal Oil and Gas Unit authorized by BLM. In the USFWS's designated core conservation areas (CCAs) for *Sclerocactus* and the *Sclerocactus* habitat polygon, Newfield is committed to avoiding direct impacts to *Sclerocactus* individuals when siting new well pads, well pad expansions, pipelines, access roads, and the installation of product flow lines that significantly reduce the impacts of truck traffic and associated dust impacts. Newfield commits to the *Sclerocactus* specific applicant committed conservation measures outlined in the USFWS Recommended Conservation Measures for *Sclerocactus*: Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) and Pariette cactus (*Sclerocactus brevispinus*), 2014 (Appendix A). This includes a commitment to conduct surface disturbing activity outside of the *Sclerocactus* flowering period (March 15-August 30) for all work proposed within Level 1 CCAs and within 300 feet (ft) of *Sclerocactus* in Level 2 CCAs and the *Sclerocactus* Habitat Polygon. However, there are additional remaining potential impacts to *Sclerocactus* from Newfield's proposed action, including habitat disturbance and potential indirect impacts to the species from the remaining effects of dust.

This strategy has been devised to avoid, minimize, and mitigate for *Sclerocactus* throughout the Newfield Greater Monument Butte project area, while also being consistent with Newfield's valid existing lease rights, federal unit obligations, and proposed development, as well as BLM's legal authority and jurisdiction. The strategy is designed to allow the use of successful mitigation to offset Newfield's proposed new surface disturbance in Level 1 CCAs, surface disturbance above 5 percent or within 300 ft of *Sclerocactus* in Level 2 CCAs, and surface disturbance within 300 ft of *Sclerocactus* within the *Sclerocactus* Habitat Polygon.

Sclerocactus Habitat Mitigation

Tables 1 and 2 represent potential mitigation measures that may be completed in order to offset impacts associated with the Newfield Greater Monument Butte Project. Table 1 identifies mitigation options,

and Table 2 explains the amount of mitigation needed per acre of new surface disturbance. Descriptive text follows the tables.

Table 1. Mitigation options to offset impacts to *Sclerocactus* habitat.

Requested Disturbance	Conservation Easement/NSO	Habitat Restoration, *Sclerocactus* Survival, Recruitment	Reduction in Truck Traffic	Mitigation Fund
CCA 1: 8 New Well Pads	x	x		
CCA 1: Well Pad Expansion	x	x	x	x
CCA 2: Current disturbance >5% and < 25%	x	x	x	x
CCA 2: Current disturbance < 5% and *Sclerocactus* within 300 ft	x	x	x	x
Sclerocactus Habitat Polygon: Disturbance within 300 ft of *Sclerocactus*	x	x	x	x

Table 2. Mitigation Ratios (mitigated acres:disturbance acres)

Disturbance Location	Disturbance Type	Mitigation Method								
		Conservation Easement/NSO		Restoration of Entire Facilities[1] (full well pads, roads, and pipelines)			Restoration Facility Edges[1]	Truck Traffic Reduction		Mitigation Fund (Appendix B)
		High Cactus Densities (A.1)	Moderate Cactus Densities (A.2)	Habitat Restoration	+Cactus Survival	+Cactus Recruitment		CCA 1	CCA 2	
CCA 1	8 new well pads	3:1	--	5:1	3:1	2:1	--	--	--	--
	Well pad expansion	3:1	--	5:1	3:1	2:1	--	20:1	--	$7,510/acre
Occupied habitat in CCA 2 or *Sclerocactus* Habitat Polygon[2]	All	1:1	2:1	4:1	3:1	2:1	4:1	5:1	10:1	$6,260/acre (CCA2) or $2,550/acre (Habitat Polygon)
Unoccupied habitat where CCA 2 >5% Disturbance[2,3]	All	1:1	2:1	1:1	1:2	1:3	4:1	5:1	10:1	$6,260/acre

[1] Restoration must occur in equal or greater quality habitat compared to the location of the new disturbance; e.g., restoration as mitigation for impacts to CCA2 must occur in CCA2 or CCA1 polygons.

[2] Occupied is defined as habitat < 300 ft from *Sclerocactus* individuals. Unoccupied is defined as habitat > 300 ft from *Sclerocactus* individuals.

[3] Mitigation is not required in unoccupied habitat where CCA2 <5% disturbance, or in unoccupied habitats of the *Sclerocactus* Habitat Polygon.

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A. Establishment of Conservation Easements or Voluntary No Surface Occupancy in Occupied Habitat

Conservation easements or voluntary No Surface Occupancy (NSO) areas can be used to offset impacts in:

- Level 1 CCAs from 8 new well pads not to exceed 20 acres, or well pad expansion not to exceed limits analyzed in the Environmental Impact Statement (EIS),
- Level 2 CCAs that have current cumulative disturbance between 5 and 25 percent,
- Level 2 CCAs when disturbance is < 5 percent and within 300 ft of *Sclerocactus Sclerocactus* Habitat Polygon when disturbance is within 300 ft of *Sclerocactus*

The following *Sclerocactus* density criteria must be met for new conservation easements or NSO areas, unless otherwise approved by the USFWS:

A.1 Level 1 CCAs:

To offset new disturbance impacts in Level 1 CCAs, conservation easement or NSO areas must be occupied by *Sclerocactus* at a rate of at least 25 *Sclerocactus* per 40 acres, unless otherwise approved by the Service. *Sclerocactus* density rates would be determined by a USFWS qualified botanist;

A.2 Level 2 CCAs and *Habitat Polygon:*

To offset new disturbance impacts in Level 2 CCAs (above 5 percent per Level 2 CCA unit (occupied or unoccupied); Level 2 CCAs < 5 percent and within 300 ft of *Sclerocactus*; or the *Sclerocactus* Habitat Polygon, the establishment of conservation easements or NSO must be occupied by *Sclerocactus* at a rate of at least 15 *Sclerocactus* per 40 acres, unless otherwise approved by the USFWS.

In addition, new conservation easements or NSOs must meet the following criteria:

1. Parcel quality and size:
    a. At least 50 percent of the parcel is suitable habitat for *Sclerocactus*;
    b. The parcel is within the current range of *Sclerocactus*;
    c. The parcel has less than 5 percent existing surface disturbance;
    d. The parcel is a minimum of 40 acres;
    e. The surface of the conservation easement or NSO area is closed to future surface disturbing activities. Surface disturbing activities include but are not limited to new blading and leveling on ground surface, plowing, disking, harrowing, and any other activities that negatively affect habitat conditions or population stability; and
2. The conservation easement or NSO must be finalized and recorded prior to new disturbance.
3. Should the proposed easement or NSO parcel meet the criteria defined above, a proposal will be prepared by Newfield and submitted to the USFWS. Upon receipt, the USFWS will have 60 days to review and approve the conservation easement or NSO area.
4. The conservation easement or NSO shall be recorded with the property in perpetuity, or identified in the BLM land use plan as an NSO for the conservation and recovery of the *Sclerocactus*. The use of conservation easements or NSOs for mitigation will need to be approved by the USFWS on a site-specific basis. For BLM NSOs, USFWS approval will be in part dependent on the ability of BLM to: 1) reach an agreement for NSOs with lease holders, 2) ensure the long-term protection of the mitigation area by showing the intent to maintain the NSO designation in future land use plans, and 3) agree to discuss any future NSO changes and resultant additional conservation measures with USFWS.
5. The USFWS will be allowed access to the conservation easement to monitor the
6. *Sclerocactus* and its habitat.
7. The purpose of the conservation easement or NSO area is to: (1) preserve the property in its existing, comparable, or better condition as suitable habitat for *Sclerocactus*; (2) preserve and protect the

conservation values of the property; and (3) prevent any use of the property that will impair or interfere with *Sclerocactus*, its habitat, or other conservation values of the property.

8. Conservation Easement/NSO Monitoring and Management: Newfield will conduct a baseline assessment and mapping of the *Sclerocactus* population and assessment of habitat quality on conservation easement and NSO lands. Funding for future monitoring and management of NSOs on BLM land will be determined through coordination between Newfield and BLM.

   In the event that Newfield purchases private property and places a conservation easement on that property for the protection of *Sclerocactus* and/or its habitat, any future monitoring and management shall be contracted for and funded with Newfield's contributions to the *Sclerocactus* Mitigation Fund for this Greater Monument Butte Project.

   In the event that Newfield purchases a conservation easement through a third party private property owner for the protection of *Sclerocactus* and/or its habitat, then Newfield, USFWS, and the private property owner shall determine whether additional funds or other financial assurances to cover the costs of monitoring and any maintenance actions are deemed necessary. In the event such assurances are needed, then Newfield, USFWS, and the private property owner shall determine what mechanism will be most suitable at that time. Financial assurance for easements could be a one-time payment made by Newfield to an endowment which then would then bear interest to cover the monitoring and management costs. Financial assurances may also be similar one-time payments in the form of performance bonds, escrow accounts, insurance, collateral assignment of a certificate of deposit, certified or cashier's check, letter of deposit, or other approved instrument. Such assurances may be phased-out or reduced once it has been demonstrated that the easement is of low risk.

Conservation Easement or Voluntary NSO Exchange Ratios:

a. A 3:1 ratio (3 acres of conservation easement or NSO per 1 acre of new disturbance) will be implemented for Level 1 CCA disturbance if a conservation easement or NSO parcel is acquired according to the criteria as listed above (section A.1). No more than 20 acres of new well pads (associated with Newfield's proposed 8 new well pads) will be permitted in Level 1 CCAs. Disturbance acres for well pad expansions will not exceed the limit analyzed in the EIS.

b. A 1:1 ratio (1 acre of conservation easement or NSO per 1 acre of new disturbance) will be implemented for disturbance in Level 2 CCA and the *Sclerocactus* Habitat Polygon, if a conservation easement or NSO parcel is acquired according to the criteria as listed above (section A.1). All disturbances must be within the analyzed limit addressed in the EIS. This ratio will be used to offset impacts in Level 2 CCAs where new disturbance is within 300 ft of *Sclerocactus* or above the 5 percent disturbance threshold. This ratio will also be used to offset impacts where disturbance is within 300' of *Sclerocactus* within the *Sclerocactus* Habitat Polygon.

c. A 2:1 ratio (2 acres of conservation easement or NSO per 1 acre of new disturbance) will be implemented for disturbance in Level 2 CCA and *Sclerocactus* Habitat Polygon if a conservation easement or NSO parcel is acquired according to the criteria as listed above (section A.2). All disturbances must be within the analyzed limit addressed in the EIS. This ratio will be used to offset impacts in Level 2 CCAs where new disturbance is within 300 ft of *Sclerocactus* or above 5 percent disturbance threshold within Level 2 CCAs. This ratio will also be used to offset impacts where disturbance is within 300 ft of *Sclerocactus* within the *Sclerocactus* Habitat Polygon.

B. Sclerocactus Habitat Restoration, Sclerocactus Survival, and Sclerocactus Recruitment

There are opportunities in CCAs to reduce the existing surface disturbance of old well pads, roads, and cross-country pipeline rights-of-way, thereby restoring *Sclerocactus* habitat conditions and reducing fragmentation.

The applicant will use USFWS Mitigation Guidelines (USFWS 2014; Appendix B) and subsequent versions (as current information on arid lands restoration and *Sclerocactus* recovery evolves) to restore disturbed areas. Restoration includes additional measures beyond those used by the BLM in their reclamation guidelines. Topsoil development in arid lands is an extremely slow process. Once topsoil is removed, amendments may be necessary to provide the appropriate organic and inorganic soil constituents needed to support the biological community (Eldridge et al. 2012). The applicant will use the BLM Green River District Reclamation Guidelines and subsequent versions to reclaim disturbed areas. BLM reclamation guidelines require recontouring sites and reseeding them with native species. All areas will be reclaimed and restored and the applicant cannot re-disturb the restoration sites unless additional compensation (taking into account the prior loss of *Sclerocactus* habitats) fully offsets the loss.

Successful habitat restoration, survival, and recruitment (see Table 2) can be used to offset impacts in:

- Level 1 CCAs for new surface disturbance from the 8 new well pads.
- Level 1 CCAs for new surface disturbance from well pad expansion.
- Level 2 CCAs where cumulative disturbance level is between 5 and 25 percent for new surface disturbance.
- Level 2 CCAs that are below 5 percent cumulative disturbance for new surface disturbance that is within 300 ft of *Sclerocactus*.
- *Sclerocactus* Habitat Polygon for new surface disturbance where new disturbance is within 300 ft of *Sclerocactus*.

Restoration Standard

Restoration of Habitat shall be deemed sufficient if it meets the following criteria:

1. Reclamation meets the BLMs Green River District Reclamation Guidelines;
2. Restoration meets the 2014 Restoration Mitigation Guidelines (Appendix B); and
3. *Sclerocactus* are outplanted into the habitat via seed or starts from a Service approved authorized source and by a USFWS approved authorized individual that has been hired by Newfield.
4. If *Sclerocactus* do not survive within the first 5 years post outplanting, Newfield will consult with USFWS and outplant *Sclerocactus* a second time in order to achieve the Survival Standard. Only one additional outplanting is required (if the initial planting is not successful) after the initial *Sclerocactus* outplanting. After the initial outplanting, no *Sclercactus* monitoring is required past 5 years, regardless if a second outplanting is conducted.

Survival Standard

Survival of *Sclerocactus* shall be deemed sufficient if it meets the following criteria:

1. Within Level 1 CCAs an average of 8 or more *Sclerocactus* per acre are documented in the restored area after 5 years of monitoring, as verified by a botanist acceptable to the Service.
2. Within Level 2 CCAs an average of 4 or more *Sclerocactus* per acre rate are documented in the restored area after 5 years of monitoring, as verified by a botanist acceptable to the USFWS.

Recruitment Standard

Recruitment of *Sclerocactus* shall be deemed sufficient if it meets the following criteria:

- New seedlings germinate within *Sclerocactus* habitat and survive to the juvenile life stage

(approximately 2.5-4 cm).

Documentation and Monitoring

1. Documentation and Monitoring reports for restoration of habitat that will be sent to the USFWS on an annual basis shall include:
    a. A report detailing number *Sclerocactus* individuals outplanted on reclaimed and restored habitat each year, the source of the propagated *Sclerocactus,* restoration company qualifications, GIS location of the outplanted *Sclerocactus*, and all methods used in the propagation and outplanting.
    b. Third Year after Outplanting – report detailing the survival rate of the *Sclerocactus*, health (may be measured by size, color, or damage), recruitment, and reproduction, including photo documentation and field notes.
    c. Fifth Year after Outplanting – report detailing the survival rate of the *Sclerocactus*, health (may be measured by size, color, or damage), recruitment, and reproduction, including photo documentation and field notes.

Restoration, Sclerocactus Survival, and Sclerocactus Recruitment Ratios

Table 2 lists ratios associated with restoration, survival, and recruitment.

Bond

If Newfield would like to start oil and gas development work before achieving successful habitat restoration, they will implement restoration and they will contribute to a bond. The bond price will be based upon the cost of restoration work plus an additional 25 percent to cover inflation and future increases in restoration costs. The total bond price will be $9,388 ($7,510 plus 25 percent) per acre of new disturbance within Level 1 CCA. The total bond price will be $7,825 ($6,260 plus 25 percent) per acre of new surface disturbance within: (1) Level 2 CCAs above 5 percent disturbance, but below 25 percent disturbance; or (2) Level 2 CCAs < 5 percent disturbance and within 300 ft of *Sclerocactus*. The total bond price will be $3,188 ($2,550 plus 25 percent) per acre of new surface disturbance within 300 ft of *Sclerocactus* in the *Sclerocactus* Habitat Polygon.

If the applicant does not choose to secure a bond, they will be responsible for successful habitat restoration (*Sclerocactus* propagation, outplanting, survival, and recruitment after 5 years of monitoring) prior to new surface disturbance: for Level 1 CCA, above 5 percent cumulative disturbance within Level 2 CCAs, < 5 percent and within 300 ft of *Sclerocactus* in Level 2 CCAs, and within 300 ft of *Sclerocactus* in the *Sclerocactus* Habitat Polygon.

Bond Release

The bond will be released after:

- Newfield has implemented complete restoration actions that meet the Restoration Standard (above).

C. Reduction of Dust Impacts

Reduction of dust impacts can be used to offset impacts in:

- Level 1 CCAs for well pad expansions
- Level 2 CCAs and the *Sclerocactus* Habitat Polygon.

Removal of oil and gas production facilities and equipment and replacement with pipeline conveyance systems will result in significant truck traffic reduction, which in turn reduces dust and related indirect impacts on listed plant species. For example, according to Newfield production data, approximately 340 tanker trucks travel to existing facilities in Level 1 CCAs each month. This volume is projected to increase between 500 to 700 tanker trucks per month between 2015 and 2018, and during maximum production, truck traffic could increase to over 3,000 tanker trucks per month. If produced oil and gas can be conveyed with flow lines and offsite tank batteries, all tanker truck traffic to producing well pads will be eliminated. Traffic will then be limited to operational, safety, and environmental compliance inspections which are conducted every other day by pick-up truck, as well as periodic work-overs and their associated traffic. By installing flow lines and offsite tank batteries, it is estimated that total traffic will be reduced by 95 percent from current volumes, and this percentage will increase over time.

According to Newfield, a total of 131.2 acres of roads in Level 1 CCAs and 298.6 acres of roads in Level 2 CCAs will be affected by this 95 percent reduction of tanker truck traffic if the flow line installation occurs. Road acreage is calculated by the acres of road width disturbance. The following mitigation ratios provide an exchange of dust abatement efforts for corresponding well pad expansions in Level 1 CCAs and new disturbance less than 5 percent in Level 2 CCAs.

1. Reduction of Truck Traffic and Dust Ratio
    a. For every 20 acres of roads that have reduced truck traffic by 95 percent within Level 1 CCAs, a well pad can be expanded by 1 acre within Level 1 CCAs.
    b. For every 5 acres of roads that have reduced truck traffic by 95 percent within Level 1 CCAs, Newfield could disturb 1 additional acre within Level 2 CCAs or the *Sclerocactus* Habitat Polygon.
    c. For every 10 acres of roads that have 95 percent reduced truck traffic within Level 2 CCAs, Newfield could disturb 1 acre of terrain within Level 2 CCAs or the *Sclerocactus* Habitat Polygon.

D. Sclerocactus Mitigation Fund

Sclerocactus Mitigation Fund and guidelines for restoration are included in Appendix B.

Literature Cited

Eldridge, J.D., E. F. Redente, and M. Paschke. 2012. The Use of Seedbed Modifications and Wood Chips to Accelerate Restoration of Well Pad Sites in Western Colorado, U.S.A. Restoration Ecology 4:524-531.

USFWS. 2010. Recovery Outline for the Sclerocactus *wetlandicus*. Utah Ecological Services Field Office, Salt Lake City, Utah.

USFWS. 2014. 2014 Ecological restoration mitigation calculation guidelines for impacts to Sclerocactus *wetlandicus* and Sclerocactus *brevispinus* habitat. Utah Ecological Services Field Office, Salt Lake City, Utah.

Appendix A: Fish and Wildlife Service Recommended Conservation Measures for Sclerocactus: Uinta Basin hookless cactus (Sclerocactus wetlandicus)Pariette cactus (Sclerocactus brevispinus) March 11, 2014

Conservation measures are actions that the action agency and applicant agree to implement to further species recovery. The beneficial effects of conservation measures are taken into consideration for determining the overall project impacts to species. The following list of conservation measures for Uinta Basin hookless cactus (*Sclerocactus wetlandicus*) and/or Pariette cactus (*Sclerocactus brevispinus*) (collectively referred to as *Sclerocactus*) will help minimize the impacts of a proposed action to these threatened species.

SCLEROCACTUS SURVEYS

- Pre-project habitat assessments will be completed across 100 percent of the project disturbance area within potential habitat prior to any ground disturbing activities to determine if suitable *Sclerocactus* habitat is present.
- Pre-construction *Sclerocactus* surveys will occur following the pre-project habitat assessments that identified any suitable habitat within the project area. These pre- construction surveys must follow U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed, and Candidate Plants. Surveys will be conducted in suitable habitat prior to initiation of project activities, at a time when the plant can be detected, and during appropriate flowering periods:
    - *Sclerocactus brevispinus* surveys must be conducted between March 15th and June 30th, unless an extension is provided in writing by the USFWS
    - *Sclerocactus wetlandicus* surveys can be done any time of the year, provided there is no snow cover.
- *Sclerocactus* surveys will be conducted by a qualified botanist. Qualifications are defined in the USFWS Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants, http://www.fws.gov/utahfieldoffice/SurveyorInfo.html. Qualified botanists must also attend the USFWS Uinta Basin Rare Plant Workshop, http://www.fws.gov/utahfieldoffice/UBRarePlants.html.
- Surveys will be valid for one year from the survey date for *Sclerocactus brevispinus* and *Sclerocactus wetlandicus*.
- *Sclerocactus* spot check surveys will be conducted on an annual basis by a qualified botanist, and reviewed by the Bureau of Land Management (BLM) and our office for all planned disturbance areas if the project has not been completed within the year following pre-construction plant surveys. Review of spot checks may result in additional pre-construction plant surveys as directed the BLM and our office. If the proposed action has not occurred within four years of the original survey, additional coordination with the BLM and our office must occur and a new clearance survey may be necessary prior to ground disturbing activities.
- *Sclerocactus* surveys for access roads, buried pipelines, well pads, and other facilities requiring removal of vegetation (e.g., compressor stations) will include the project area and/or right-of-way (ROW), and 300 feet (ft) from the edges of the project disturbance and/or ROW.
- *Sclerocactus* surveys for surface pipelines placed within an existing road ROW, and within 10 ft from the edge of the disturbed surface of the road, will include the ROW and 50 ft from the edge of the ROW on the pipeline side of the road.
- *Sclerocactus* surveys for cross-country surface pipelines (pipelines over 10 ft from a road), where the

pipeline will be laid by hand with minimal disturbance and no vehicle use will include the ROW and 50 ft from the edges of both sides of the ROW.

- Surveys for all other cross-country surface pipelines (vehicles or equipment used, not laid out by hand) will include the ROW and 300 ft from the edges of both sides of the ROW.
- *Sclerocactus* surveys will not be necessary when pipelines are buried in existing roads.

PROJECTS PROPOSED WITHIN *SCLEROCACTUS* HABITAT

General Measures

- Ground disturbing activities in Level 1 CCAs and within 300 ft of individual *Sclerocactus* plants and/or populations must occur outside of the flowering period, April 1 - May 30.
- Access roads, buried pipelines, well pads, and other facilities requiring removal of vegetation (e.g., compressor stations) will be located a minimum distance of 300 ft from individual *Sclerocactus* plants and/or populations where feasible (and in accordance with Level 1 and 2 CCA conservation recommendations, as outlined below).
- Surface pipelines will be located at a minimum of 50 feet from individual *Sclerocactus* plants and/or populations where feasible (and in accordance with Level 1 and 2 CCA conservation recommendations, as outlined below).
- New surface pipelines located closer than 50 feet to known *Sclerocactus* individuals will be secured in place to prevent pipeline movement (and in accordance with Level 1 and 2 CCA conservation recommendations, as outlined below).
- Only water and methods approved by the BLM (no chemicals, reclaimed production water or oil field brine) will be used for dust abatement measures within *Sclerocactus* habitat.
- Dust abatement will be employed in suitable *Sclerocactus* habitat over the life of the project during the time of the year when *Sclerocactus* species are most vulnerable to dust- related impacts (March through August).
- Noxious weeds within *Sclerocactus* habitat may be controlled with herbicides, in accordance with the BLM Herbicide PEIS (http://www.blm.gov/wo/st/en/prog/more/veg_eis.html). Guidelines and the BLM's Standard Operating Procedures for Threatened and Endangered Plant Species (Table 1).
- Application for a 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*.
- Erosion control measures (e.g., silt fencing) will be implemented to minimize sedimentation to *Sclerocactus* plants and populations located down slope of proposed surface disturbance activities, and should only be implemented within the area proposed for disturbance.
- All disturbed areas will be reclaimed with plant species native to Utah, or seed mixtures approved by the BLM and our office, which may include the use of sterile, non-native, non-invasive, annuals to help secure topsoil and encourage native perennials to establish.

Level 1 CCAs:

- Avoid new surface disturbance, including well pads, roads, pipelines, or any other surface disturbing activities where feasible. Expansion of existing facilities will be allowed— e.g., widening existing

access roads, expanding well pads, installation of pipelines to access existing facilities (along existing alignments or roadways).

- Where access roads are widened, well pads are expanded, or buried pipelines access existing facilities, design projects to minimize impacts by:
    - Locating project a minimum distance of 300 ft from individual *Sclerocactus* plants and/or populations (except for surface pipelines which is 50 ft),
    - Utilizing existing well pads and infrastructure,
    - Using common ROWs for roads and utilities where possible, and
    - Placing signing to limit off-road travel in sensitive areas.
- Where new surface disturbance occurs within the Level 1 CCAs, mitigation must be completed following the Conservation and Mitigation Strategy For the Pariette Cactus and Uinta Basin Hookless Cactus, Newfield Greater Monument Butte Project (Strategy).
- Where new surface disturbance directly affects *Sclerocactus* (*Sclerocactus* are directly removed), a monetary amount ($640 per *Sclerocactus*) will be contributed to the *Sclerocactus* Mitigation Fund-BLM to aid in the recovery of *Sclerocactus* species impacted by the project. These contributions are in addition to payments requested for indirect effects to *Sclerocactus*. Contributions will be negotiated between the Operator and our office in consultation and will be based on the number of *Sclerocactus* directly impacted and in relation to our office's current management guidelines for *Sclerocactus*.
- Several options for mitigation of Level 1 CCAs are present (see Strategy). If mitigation funds are established, funds will be paid to: *Sclerocactus* Mitigation Fund – BLM Michelle Olson, Manager Impact-Directed Environmental Accounts National Fish and Wildlife Foundation Fifteenth Street NW, Suite 1100 Washington, DC 20005

Level 2 CCAs:

- New surface disturbance, including well pads, roads, pipelines, or any other surface disturbing activities will not exceed a 5 percent surface disturbance threshold where feasible.
- If the total cumulative surface disturbance is below the 5 percent threshold, and where access roads, buried pipelines, well pads, or other facilities requiring removal of vegetation (e.g., compressor stations) will be constructed, design project to minimize impacts by:
    - Locating project a minimum distance of 300 ft from individual *Sclerocactus* plants and/or populations (except for surface pipelines which is 50 ft).
- If the total cumulative surface disturbance is above the 5 percent threshold, and/or where new surface disturbance indirectly affects *Sclerocactus* (*Sclerocactus* within 300 ft of proposed disturbance), mitigation will occur following the Strategy.
- Where new surface disturbance directly affects *Sclerocactus* (*Sclerocactus* are directly removed), a monetary amount ($640 per cactus) will be contributed to the *Sclerocactus* Mitigation Fund-BLM to aid in the recovery of *Sclerocactus* species impacted by the project. These contributions are in addition to payments requested for indirect effects to cacti (see previous measure). Contributions will be negotiated between the Operator and our office based on the number of *Sclerocactus* directly impacted and in relation to the current management guidelines for *Sclerocactus*.
- Several options for mitigation of Level 2 CCAs are available (see Strategy). If mitigation funds are

established, funds will be paid to: *Sclerocactus* Mitigation Fund – BLM Michelle Olson, Manager Impact-Directed Environmental Accounts National Fish and Wildlife Foundation 1133 Fifteenth Street NW, Suite 1100 Washington, DC 20005

Sclerocactus Habitat Polygon:

- Where access roads, buried pipelines, well pads, or other facilities requiring removal of vegetation (e.g., compressor stations) will be constructed, design project to minimize impacts by:
    - Locating project a minimum distance of 300 ft from individual *Sclerocactus* plants and/or populations (except for surface pipelines, which is 50 ft).
- Where new surface disturbance indirectly affects *Sclerocactus* (Sclerocactus within 300 ft of proposed disturbance), mitigation will occur following the Strategy.
- Where new surface disturbance directly affects *Sclerocactus* (*Sclerocactus* are directly removed), a monetary amount ($640 per *Sclerocactus*) will be contributed to the *Sclerocactus* Mitigation Fund- BLM to aid in the recovery of *Sclerocactus* species impacted by the project. These contributions are in addition to payments requested for indirect effects to cacti (see previous measure). Contributions will be negotiated between the Operator and our office based on the number of *Sclerocactus* directly impacted and in relation to our current management guidelines for *Sclerocactus*.
- Several options for mitigation of the *Sclerocactus* Habitat Polygon are available (see Strategy). If mitigation funds are established, funds will be paid to: *Sclerocactus* Mitigation Fund – BLM Impact-Directed Environmental Accounts National Fish and Wildlife Foundation 1133 Fifteenth Street NW, Suite 1100 Washington, DC 20005

Appendix B: 2014 Ecological Restoration Mitigation Calculation Guidelines for impacts to Sclerocactus wetlandicus and Sclerocactus brevispinus Habitat

U.S. Fish and Wildlife Service, Utah Ecological Services Field Office December 2014

Background:

The State of Utah ranks as the 10th and 11th largest producers nationally for gas and oil, and the majority of the state's production is centered in the Uinta Basin (Vanden Berg 2014). Total producing and active oil and gas wells in the Uinta Basin number more than 13,000, on 9,197 well pads (BLM 2012), with surface disturbance totaling more than 45,000 acres (assumes average of 5 acres of disturbance per well pad). Bureau of Land Management (BLM) analysis of 2011 data on pending NEPA projects forecasts more than 70,000 acres of additional oil and gas construction related disturbance in the next 15-20 years (BLM 2012). Current and projected energy development in the Uinta Basin overlaps with more than 90 percent of the range of the threatened Pariette cactus and Uinta Basin hookless cactus.

In 2012 we developed landscape scale conservation guidelines for the threatened Pariette cactus and Uinta Basin hookless cactus. The guidelines were developed to conserve and recover the species and prevent further habitat loss and fragmentation from energy development. Our strategy involved establishing core conservation areas (CCAs) that included dense aggregations of the threatened cactus species along with disturbance limits and pollinator buffers that allow for continued connectivity among these aggregations. The protection of pollinators and their habitat is important because these species depend primarily on pollination to produce seed. In order to further manage recovery of these cactus species across the landscape, our CCAs are grouped geographically into 8 Conservation Units in order to ensure genetic and ecological representation over the range of the species.

Level 1 CCAs include the densest aggregations of known cactus locations and were delineated based on a 400 m buffer around known plant locations (the buffer distance is based on foraging distances of primary pollinators; Tepedino 2010). Within these Level 1 CCAs our goal is to have no new surface disturbance; well pad and road expansion may be considered, but only after avoidance and minimization efforts along with appropriate compensatory mitigation. Level 2 CCAs are adjacent to Level 1 CCAs and include less dense aggregations of cactus, but are still considered important for overall population and habitat connectivity in the Uinta Basin. Level 2 CCAs were developed using a 1,000 m buffer around plants to allow for genetic connectivity and pollinator travel between Level 1 CCAs, and to provide additional habitat for cactus expansion and recruitment (Service 2012). Our goal is to maintain no more than 5 percent total surface disturbance within these Level 2 CCAs (Service 2012). Disturbance over 5 percent in Level 2 CCAs can occur once ecological restoration of disturbed habitat is completed so that disturbance stays at or below 5 percent. We recognize that some of the Level 2 CCAs are already above 5 percent surface disturbance. For these areas, we recommend that any disturbance above 5 percent in Level 2 CCAs be reclaimed to keep total disturbance at or below 5 percent and cumulative disturbance including areas that are reclaimed stay below 25 percent (Service 2012).

Reclamation of arid lands is difficult and full ecological restoration within the habitat of listed cactus species in Utah has not been successful (Grossl et al. 2012). We define full ecological restoration as supporting appropriate native community components and structure, returning land to a state with moderate to high ecological function that can support most processes and components of the pre-disturbance natural community, integrating into the surrounding landscape, resilient to environmental stressors, similar to a reference ecosystem (Society for Ecological Restoration (SER) 2004) and especially supporting listed plants and their habitat. Avoidance and minimization of impacts to listed species and their habitat is the first step in offsetting impacts.

Where impacts to listed plants and their habitats cannot be avoided or minimized we will consider ecological restoration as mitigation to offset these impacts. However, because we are currently unable to ensure successful ecological restoration, initial efforts will focus on researching restoration methods that may lead to improved

techniques. As methods and inputs improve the estimated costs for restoration may change correspondingly. We have based the following 2014 mitigation costs on available information of the components needed for ecological restoration.

Ecological Restoration Components and Costs:

The following components are needed for ecological restoration of oil and gas impacts in the Uinta Basin:

1. *Treatment of non-native and invasive plants for 2 years.* Treatment and control of non- native plants is vital to reducing competition prior to establishing native plants (Sieg et al. 2003). Non-native and invasive plants increase dramatically in response to soil disturbance so treatment needs to be conducted before and after grading and re-contouring of well pads, roads and other disturbed areas (Sieg et al. 2003). These activities are required by BLM's Green River Reclamation Guidelines (see Objective 6; Attachment 1 *in* BLM 2011) so although we recognize that this activity is an important component of restoration we are not including them in our mitigation costs as long as they are implemented as part of BLM's requirements. Where these measures are not required as part of BLM reclamation requirements, these costs will apply in our mitigation calculation. Cost estimates were determined at \$0.02- \$0.03 per ft^2 (Musich Custom Spraying, Oct 29, 2014, personal communication) for a cost of \$1,307 per acre.

2. *Grading and plowing of disturbed site (well pad, road).* Well pads, roads and other disturbed sites result in soil loss and compaction (Buto et al. 2010). In addition, many sites are leveled so that the topography no longer matches the surrounding area thus leading to wind and water erosion, disruption of weathering processes, water path, sedimentation, barriers to species movement (Service 2010). Re-contouring disturbed sites to match surrounding topography integrates the restored area into the larger landscape and reduces negative impacts to ecological communities. Subsequent plowing is necessary to ensure a favorable recipient site prior to planting native seed or plants.

   Re-contouring of disturbed sites is required by the BLM Green River District's Reclamation Guidelines (see Objective 2 and 3: Attachment 1 *in* BLM 2011). Where these measures are not required as part of BLM reclamation requirements, these costs will apply in our mitigation calculation.

   Plowing of the site or similar soil improvement immediately prior to seeding is not required by BLM so we have incorporated it into our costs. We estimate that plowing costs will be \$500 per acre given that heavy equipment will be needed to loosen soil in preparation for direct seeding and to provide necessary aeration and sufficient drainage for *Sclerocactus* species (J&L Oilfield Service Inc., Josh Justice, Oct 2, 2014, personal communication) and the low end cost for leveling well pads (~4 acres) is estimated at \$2,000 per acre but average costs are \$6,025 per acre (or \$24,100 per well pad) which is the cost we are using for the mitigation calculation.

3. *Soil amendments including cobble, topsoil, char, wood chips, biological soil crust inoculant or other nutrients/minerals.* Restoring soils in arid lands is an important component for restoring and supporting native plant communities. Topsoil development in arid lands is an extremely slow process so once topsoil is removed amendments may be necessary to provide the appropriate organic and inorganic soil constituents needed support the biological community. (Whisenant 1995; Eldridge et al. 2012). In addition, we know that biological soil crusts are an important component of these arid ecosystesms so restoration will include re-establishment of biological soil crusts (Rosentreter and Belnap 2001; Bowker et al. 2005). This is an ongoing area of restoration ecology and we will likely learn more through experimentation and analysis. Current cost estimates for soil amendment were estimated to range from \$1,200 to \$6,000 per acre (Schneider 2014, Western States Reclamation, Inc,), and adding local topsoil would cost \$300 per dump truck load (12 yards which covers 3,600 ft^2 at 1 inch depth) (Allred Paving, KW Trucking, Tri-County Concrete, Oct 2014, personal communication). Eleven truck loads are needed to cover one acre with one inch of soil amendment, costing \$3,300 per acre. We are using the \$3,300 per

acre cost for our mitigation estimates.

4. *Collecting seed from a diversity of native plants.* Full restoration includes restoring the entire plant species composition that supports ecological functions and processes. Seed from native flowering plants will help increase diversity, and support pollinators with floral resources that are available at different times of year. Seed also needs to be collected from *Sclerocactus* in order to be able to propagate them for outplanting. Costs are estimated at $1,500 per acre as knowledgeable botanists and multiple trips are needed to gather seed from a diversity of species that best mimics intact site conditions.

5. *Planting seed from habitat specific native plants including wildflowers.* Establishing specific target native plants from the natural community where restoration is to occur is important in establishing the community components and processes (*i.e.,* pollination) important for a functioning ecosystem. Seed will be hand planted or drill seeded immediately after plowing or tilling of the site to ensure good seed-soil contact. Costs for this activity were estimated from two different sources ranging from $1,250 to $2,500 per acre (Schneider 2014) and $500 to $1,000 per acre, or a median cost of $750 per acre (Mike Thomas, Great Bear Restoration, MT, Mar 2014, personal communication). We are using the $750 per acre cost for our mitigation estimates.

6. *Listed Sclerocactus species propagation.* Propagating and planting juvenile to young adult plants will help establish cactus on the restored area. *Sclerocactus* species can take 4-6 years from seed propagation before it can outplanted on a restoration site. Costs for propagating cactus were estimated by Red Butte Garden (R. Reisor, Feb 11, 2014, personal communication), and total $100 per cactus.

7. *Planting propagated Sclerocactus plants. Sclerocactus* that are propagated will be planted at 10 cacti per acre in Level 1 CCAs and 5 cacti per acre in Level 2 CCAs to establish listed *Sclerocactus* species at the restored site. We expect mortality and reduced reproduction from planted *Sclerocactus* so we anticipate final survival and reproduction of 8 *Sclerocactus* in Level 1 CCAs and 4 *Sclerocactus* per acre in Level 2 CCAs. Costs for planting cactus were estimated by Red Butte Garden (R. Reisor, Feb 11, 2014, personal communication) and total $42 per cactus. For restoration activities, five *Sclerocactus* plants would be planted per acre for a cost of $210 per acre.

8. *Planting commercially available habitat specific native plant species seed (twice) including grasses and shrubs.* This task would lead to the establishment of the portion of native plant community that would integrate formerly disturbed areas into the landscape, support ecosystem functions and stabilize the site. The BLM requires establishment of a desired self-perpetuating plant community in their Green River District Reclamation Guidelines (see Objective 1; Attachment 1 *in* BLM 2011) so we have not included these requirements in our mitigation costs. Where these measures are not required as part of BLM reclamation, these costs will apply in our mitigation calculation. In addition, only native, habitat specific plant species will be allowed in listed *Sclerocactus* habitat in order to achieve full ecological restoration. Costs include seed mix purchase and planting of seed. Costs for purchasing an appropriate seed mix are $500 per acre and include *Artemisia nova*, *Atriplex canescens*, *Pleuraphis jamesii*, *Achnatherum hymenoides, Linum lewisii* and *Sphaeralcea munroana* (J. Poulos Apr. 2014, personal communication). Costs for direct seeding are $750 per acre and are discussed above in number 5.

9. *Monitoring.* Monitoring of the restoration site is necessary to determine if the site is proceeding toward ecological restoration goals and to help inform management decisions to ensure restoration goals are met. Monitoring is required as part of BLM's Green River District Reclamation Guidelines (Objective 8) so we have not included them in our mitigation costs. However, we will work with BLM on a project-specific basis to determine the goals, objectives, and requirements of restoration monitoring plans. Where these measures are not required as part of reclamation these costs will apply in our mitigation calculation.

Calculating Acres to be Mitigated:

Mitigation costs are based on the amount of habitat impacted and the quality of that habitat as determined by the U.S. Fish and Wildlife Service and delineated into 3 strata: Level 1 CCAs, Level 2 CCAs, and suitable habitat outside of the CCAs. Mitigation is applied only where impacts cannot be avoided. Mitigation will occur for any impacts occurring within Level 1 CCAs for any surface disturbances. Mitigation will occur in Level 2 CCAs where surface disturbance exceeds 5 percent. Mitigation will occur in suitable habitat where impacts are within 300 ft of listed *Sclerocactus* plants. This habitat mitigation approach does not apply to direct impacts to listed plants. Mitigation for direct impacts are addressed through another mitigation calculation as discussed below.

The amount of habitat impacted will be calculated as follows:

1. For Level 1 CCAs all disturbed acres inside designated Level 1 CCAs will be mitigated. To meet our objective of no disturbance in Level 1 CCAs, we anticipate the only additional disturbance will come from well expansions not new roads or well pads.
2. For Level 2 CCAs the number of acres currently disturbed that are not reclaimed, and exceed the 5 percent disturbance cap will be mitigated.
3. For impacts outside of Level 1 and 2 CCAs and within 300 ft of *Sclerocactus*:
    a. The total acreage of the well pad that is within 300 ft of *Sclerocactus* will be mitigated.
    b. The distance of the Right-of-Way (ROW) where the edge is within 300 ft of *Sclerocactus* for buried and cross country pipelines and 50 ft for hand-laid surface pipelines adjacent to roads multiplied times the width for the stretch of ROW (for a pipeline or road) will be mitigated.

Summary of Mitigation Costs:

Mitigation costs include topographical contouring, soil preparation, seed collection and planting, cactus propagation and planting, and monitoring. These costs vary based on the importance of the three habitat areas for *Sclerocactus*—Level 1 CCAs, Level 2 CCAs, and Suitable Habitat outside of CCAs.

Level 1 CCAs: Mitigation costs per acre in Level 1 CCAs includes costs associated with plowing the soil, amending the soil, propagating *Sclerocactus* and planting at a density of 10 cacti per acre, and collecting seed and planting a diversity of native plant species from adjacent sites. Level 1 CCAs areas support the highest density of *Sclerocactus* thus we have included costs for restoring a high density at 10 *Sclerocactus* per acres assuming some mortality and reduced reproduction from transplanting and poor soils.

Level 2 CCAs: Mitigation costs per acre in Level 2 CCAs includes costs associated with amending the soil, propagating *Sclerocactus* and planting at a density of 5 cacti per acre and collecting seed and planting a diversity of native plant species from adjacent sites.

Suitable habitat: Mitigation costs per acre in suitable habitat includes costs associated with collecting and planting a diversity of native seed and re-establishing biological soil crust by inoculation.

Other costs associated with restoration that are already required and included in BLM's Green River Reclamation Guidelines such as grading of site and seeding and establishment of common native plants commercially available are not included in our mitigation costs because we assume these restoration actions will be conducted as part of BLM's requirements. Where these actions are not required or completed these costs will be included in our total costs for mitigation.

Table 1. *Sclerocactus* compensatory mitigation calculation

Mitigation habitat type	Acres	Cost per acre	Explanation of restoration costs
Level 1 CCA (any level of disturbance)	1.0	$7,510.00	Includes amending soil, cactus propagation and planting (10 cacti per acre), and native species seed collection and planting. Assumes costs for BLM required measures are already being implemented.
Level 2 CCA (over 5% disturbance or within 300 ft of cactus)	1.0	$6,260.00	Includes amending soil, cactus propagation and planting (5 cacti per acre), and native species seed collection and planting. Assumes costs for BLM required measures are already being implemented.
Sclerocactus habitat (Disturbance within 300 ft of cactus)	1.0	$2,550.00	Native species seed collection and planting and biological soil crust inoculation. Assumes costs for BLM required measures are already being implemented.

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Attachment 5: Biological Opinion

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

September 4, 2015

FWS/R6ES/UT

06E23000-2015-F-0040

Memorandum

To: Field Manager, Bureau of Land Management, Vernal, Utah

From: Utah Field Supervisor, Ecological Field Services, U.S. Fish and Wildlife Service, West Valle

Subject: Conclusion of formal section 7 consultation for Newfield Exploration Corporation Greater Natural Butte 5,750 Well Project

In accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.), and the Interagency Cooperation Regulations (50 CFR 402), this transmits our final biological opinion (BO) based on review of the Newfield Exploration Corporation's (hereafter, Newfield) Greater Natural Butte 5,750 Well Project (hereafter, Project) and its effects on Uinta Basin hook.less cactus *(Sclerocactus wetlandicus)* and Pariette cactus *(Sclerocactus brevispinus).* This BO is based on information provided in your June 2, 2015, Biological Assessment (BA), and subsequent email and letter correspondence (see Consultation History, below).

Ute ladies'-tresses *(Spiranthes diluvialis)* and western yellow-billed cuckoo *(Cocytus americanus)* were also analyzed in the BA. We concur that the project may affect, but is not likely to adversely affect Ute ladies'-tresses and western yellow-billed cuckoo based on largely on commitments to conduct ground disturbing activities outside of the flowering and nesting seasons, respectively, and reduce light and noise disturbance to the birds (emails between BLMand our office dated July 17, 2015 and August 6, 2015; see Consultation History, below).

Razorback sucker and Colorado pikeminnow were also analyzed in the BA. We concur that the project may affect, but is not likely to adversely affect razorback sucker and Colorado pikeminnow based on a very small level of impact from a 1 acre water well development in critical habitat and timing stipulations to avoid seasonal fish movements, and spawning and rearing activities.

The Project will require a maximum of 3,924 acre-feet (ac-ft) of water annually. A portion of the water for the Project will come from water rights #43-7478 and 47-1358, which are historic

sources. Water rights filed and developed prior to January 1988 are classified as "historic depletions" under the Upper Colorado River Endangered Fish Recovery Program's (Recovery Program) 1993 section 7 agreement and do not require further consultation. Because this water depletion is considered historic, the Recovery Program and its activities will serve as the conservation measures necessary to minimize adverse effects to listed fish. In addition, the other portion of the water for the Project has previously been completed and will not require further consultation. The consultations that have been previously completed are associated with water rights #41-3530, 47-1817, 47-1821, 47-1802, and 47-1804. These water rights were consulted on during the Castle Peak Eightmile Flat (06_F_0026), Rocky Point (12_F_0085), and 20-Acre Infill (12_F_0024) Projects.

Based upon the above information, the effects of the action on Western yellow-billed cuckoo, Ute ladies'-tresses, razorback sucker, and Colorado pikeminnow are expected to be insignificant. We may reconsider the determination for Western yellow-billed cuckoo, Ute ladies'-tresses, razorback sucker, and Colorado pikeminnow if project action changes or additional information about the distribution of the listed species becomes available.

Consultation History

Chronology of Consultation Events

- **October 22, 2014-April 8, 2015:** Meetings and correspondence with BLM and Newfield to discuss *Sclerocactus* Strategy.
- **June 2, 2015:** We received the BA and letter requesting formal consultation.
- **June 15, 2015:** We received edited acreage calculations for the amount of disturbance associated with this project in *Sclerocactus* habitat.
- **July 9, 2015:** Meeting was held between our office, BLM, and Newfield to discuss conservation measures and request accurate information regarding water depletions. We also received follow-up emails with corrected water right and depletion information from BLM.
- **July 17, 2015:** We received a letter from BLM stating that they have changed their determination from adversely modify critical habitat to may affect likely to adverselyaffect critical habitat for listed Colorado River fish. We also received an email from BLM with updated conservation measures for all listed species.
- **July 18, 2015:** We received updated conservation measures with additional questions from BLM. We had a phone conversation with BLM to clarify conservation measures.
- **August 6, 2015:** We received updated applicant-committed conservation measures from BLM and Newfield in an email.
- **August 10, 2015:** We had a phone conversation with BLM to discuss conservation measures for Ute ladies'-tresses and Western yellow-billed cuckoo.
- **August 27, 2015:** We received an email from BLM stating that they would implement the final conservation measures in the proposed action and ROD. We received a signed copy on September 2, 2015.
- **September 3, 2015:** We received an email from BLM changing their determination

for Colorado River fish critical habitat from may affect likely to adversely affect to may affect not likely to adversely affect the critical habitat.

Biological Opinion

I. Description of the Proposed Action

Newfield proposes to construct, drill, produce, and upon termination, reclaim:

- 750 vertical oil wells that will be converted into waterflood injection wells
- 2,500 deep gas wells
- 2,500 directionally drilled oil wells

Newfield proposes to construct:

- 226 miles of new roads and pipelines
- 21 new compressor stations
- one 50-MMscf/d centralized oil well gas processing plant
- 13 gas driven water treatment and injection facilities
- 12 gas oil separation plants
- 1 fresh water collector
- 6 water pump stations.

Newfield proposes to expand:

- 318 miles of existing roads
- 3 existing oil well compressor stations

As listed in Table 2.3.12-1 of the BA, maintenance and operations of wells, well pads, roads, and central facilities will occur throughout the life of the project. Upon abandonment, the operator will reclaim well pads, roads, and pipelines as directed by the surface owner. The anticipated life of each well is 20 to 30 years and it will take approximately 5 years for full abandonment and reclamation. Approximately 4,978 acres of disturbance will remain post interim reclamation. Reclamation will follow the measures outlined in Appendix D of the Environmental Impact Statement (EIS) for this Project and the Green River District Guidelines for Reclamation Plan (BLM 2011). Surface disturbance for well pads, roads, pipeline rights-of- way (ROW), and other surface facilities will be approximately 10,122 acres. The action area is located within Township 4 South, Range 1 East; Township 5 South, Range 3 West; Township 8 South, Range 15-19 East; Township 9 South, Range 15-19 East; and Township 10 South, Range 15-18 East.

Action Area

The action area is defined in 50 CFR 402 to mean "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of this consultation, we define the action area to encompass all surface disturbance within the Greater Monument Butte boundary plus a 300 ft buffer around surface disturbance, as these areas will be directly and indirectly affected by the action (Service 2014). Due to the programmatic nature of this project, specific locations of surface disturbance have not yet been identified.

Applicant Committed Conservation Measures

All general applicant-committed environmental protection measures as listed in Section 2.3.1.4 and Appendix G of the BA will be implemented.

- The Final Conservation and Mitigation Strategy for the Pariette Cactus and Uinta Basin Hookless Cactus Newfield Greater Monument Butte Project (Attachment 1, Appendix A) will be followed.

II. Status of the Species

The purpose of this section is to summarize the best available information regarding the current range-wide status of the listed plant species. Additional information regarding listed species may be obtained from the sources of information cited for these species.

Sclerocactus glaucus (Colorado hookless cactus; hereafter *S. glaucus),* which included three identified subpopulations, was listed as a threatened species in 1979 (44 FR 58870). The inclusion of these subpopulations under a single species was not supported by more recent genetic and morphological research. The argument to separate *S. glaucus* into three species is supported by recent genetic studies (Porter et al. 2007), common garden experiments (Welsh et al. 2003), and a reevaluation of morphological characteristics (Heil and Porter 2004). We currently recognize *S. glaucus* as three distinct species: *S. brevispinus* (Pariette cactus), *S. wetlandicus* (Uinta Basin hookless cactus), and *S. glaucus* (Colorado hookless cactus). These three species retain their threatened status (74 FR 47112, September 15, 2009).

Pariette cactus grows on fine soils in clay badlands derived from the Uinta geologic formation (Service 1990). It is found on "stony, gravelly, hilly terrain" and is frequently, although not always, associated with desert pavement (soil with a high percentage of thin rock fragments covering the surface). Pariette cactus habitat is a sparsely vegetated desert shrub land dominated by saltbush (*Atriplex*), rabbitbrush (*Chrysothamnus*), and horsebrush (*Tetradymia*) species (Service 1990).

Uinta Basin hookless cactus is generally found on coarse soils derived from cobble and gravel stream terrace deposits, or rocky surfaces on mesa slopes at 1,350 to 1,900 meters (4,400 to 6,200 ft) elevation (Service 1990; Heil and Porter 2004). However, the habitat type for Uinta Basin hook.less cactus has expanded with recent reports of individual cacti found in atypical habitat.

Both of the *Sclerocactus* species are outcrossing species, meaning they require pollen from the flower of a different plant to produce viable seed (Tepedino et al. 2010). Flowers of both *Sclerocactus* species typically open in mid-day and close late in the afternoon for three to five days (Tepedino et al. 2010). A broad assemblage of native, ground-nesting bees, mostly from the family Halictidae (Tepedino et al. 2010), pollinate *Sclerocactus.* These bees can travel from 0.4 to 1 kilometer (km) between plants (Tepedino pers. Comm. 17 November 2010). Other insects, including ants and beetles, may also pollinate Sclerocactus (Service 1990). Limiting the amount of fragmentation and disturbance within the habitats of Sclerocactus is important to maintain adequate pollinator habitats and healthy cactus populations.

Approximately 4 to 5 weeks after flowering, the fruits of these cacti species reach maturity, each containing approximately 20 seeds (Tepedino et al. 2010). The fruits open and fall away, leaving the seeds on the apex of the plant where they are washed to the ground and dispersed by rain

(Tepedino et al. 2010). The life history and population dynamics of these species are poorly known, but they are thought to be long-lived perennials, usually flowering after 3 or 4 years.

We have early population trend data for *Sclerocactus* that show an observed decline in population size and growth rate over a three year period from 2012-2014 (SWCA 2015). Population viability analysis also shows a negative population growth vital rate of 0.89 and 0.82 for Uinta Basin hookless cactus and Pariette cactus, respectively. Modeled data out to 10 years also shows a decline in population growth rate and population size (SWCA 2015). We recognize that this data covers a short period of time and that long-term data are required in order to fully understand the population trends. Information from this study will be updated as it becomes available. Additionally, as described below, the high levels of energy development result in the loss and fragmentation of habitat for these species. Thus, we conclude that it is likely that these species and their available habitat are declining.

Both Pariette cactus and Uinta Basin hookless cactus are included in this consultation because the proposed Project occurs in an area where both species could occur. Additional information on these species' life histories, population dynamics, status, and distribution is described in detail within the "Recovery Plan for the Uinta Basin Hookless Cactus" (Service 1990) and the more recent recovery outlines (Service 2010a; Service 2010b).

III. Environmental Baseline

Regulations implementing the Act (50 CFR 402.2) define the environmental baseline as follows:

- The past and present impacts of all Federal, State, or private actions and other human activities in the action area;
- The anticipated impacts of all proposed State or Federal projects in the action area that have already undergone formal or early section 7 consultation; and
- The impact of State or private actions which are contemporaneous with the consultation process.

Status of the Species within the Action Area

In April 2010, we developed recovery outlines for *Sclerocactus* (Service 2010a, Service 2010b). In 2013, we developed Level 1 Core Conservation Areas (CCAs), Level 2 CCAs, and a general suitable habitat polygon (Service 2013). These polygons can be adjusted annually as more known locations are documented. The CCAs were developed to guide the protection of important population areas of high cactus density and maintain connectivity across the range of both species (Service 2013). Core areas were based on pollinator travel distance and were designed to provide habitat connectivity between populations and individuals (Tepedino 2010). Level 1 CCA polygons include the densest concentrations of cactus locations and the most restrictive management recommendations. Level 1 CCA polygons were developed using a 400-meter buffer around plants to allow for pollinator travel. Level 2 CCA polygons include less-dense cactus areas and less restrictive management recommendations, while still maintaining a minimum amount of undisturbed habitat to protect *Sclerocactus* species. Level 2 CCA polygons were developed using a 1,000-meter buffer around plants.

The total area of potential *Sclerocactus* habitat, including CCAs, is currently 537,565 acres (Service 2013 *Sclerocactus* Habitat Polygon), which includes 421,665 acres of Uinta Basin

hookless cactus habitat, and 115,900 acres of Pariette cactus habitat. The project is located within the Upper Pariette, Lower Pariette, and Middle Green CCAs.

Factors Affecting the Species within the Action Area

Ongoing and proposed oil and gas development are the primary threats to *Sclerocactus* species from the combined impacts of road and well pad development, fugitive dust, erosion, isolation of populations due to habitat fragmentation, impacts to pollinators and seed dispersers, increased access by off-road vehicles and illegal collectors due to an expanded road network, and pesticide and herbicide use (BLM 2008). Both *Sclerocactus* species are sought by cacti and succulent collectors around the world.

Habitat loss associated with energy development is a major threat to these species across their known range. We used available GIS data (UDOGM 2015) to estimate the approximate amount of surface disturbance in the action area. There are 8,331 existing oil and gas wells, which exclude the location abandoned wells, within the *Sclerocactus* Habitat Polygon. We used GIS analysis to calculate the amount of disturbance in Level 1 CCAs, Level 2 CCAs, and the *Sclerocactus* Habitat Polygon by estimating that there is *5* acres of disturbance associated with each well. For every additional well on a shared well pad, we estimate .25 acres of disturbance. The Greater Monument Butte action area is located within the Upper Pariette, Lower Pariette, and Middle Green CCAs. We estimate that there is currently 9.3 percent disturbance within the Upper Pariette Level 2 CCA, 3.89 percent disturbance within the Lower Pariette Level 2 CCA, and 3.25 percent disturbance within the Middle Green Level 2 CCA associated with oil and gas development. We estimate that there is currently 6.94 percent disturbance within Upper Pariette Level 1 CCA, 4.66 percent disturbance within the Lower Pariette Level 1 CCA, and 2.44 percent disturbance within the Middle Green Level 1 CCA associated with oil and gas development. We estimate that there is currently 4.7 percent disturbance within the *Sclerocactus* Habitat Polygon associated with oil and gas development.

Surface disturbance can lead to increased dust, erosion, and storm water runoff that can impact *Sclerocactus* species. Construction activities, access roads, and vehicular traffic within and near occupied habitats increase fugitive dust and particulates. Dust accumulation is higher near roads, with fugitive dust depositing up to 984 ft from the source (Everett 1980). Dust accumulation may adversely impact photosynthesis, respiration, transpiration, water use efficiency, leaf conductance, growth rate, gas exchange, and growth (Eller 1977; Spatt and Miller 1981; Thompson et al. 1984; Farmer 1993; Sharifi et al. 1997; Trombulak and Frissell 2000; Hobbs 2001). Erosion and runoff from project activities can have direct impacts to cacti from buryingto direct removal of individuals. Erosion and runoff can be natural events, but are often worsened by human activities such as vegetation removal and alteration of stream courses, making these events more catastrophic. These augmented events can lead to greater damage tonative ecosystems through additional scour and burial of soils and plants. Increases in dust, erosion, and storm water runoff interact cumulatively with other negative effects to further fragment and disturb Sclerocactus populations.

Accidental loss occurs when a cactus is kicked, stepped on, or driven over by humans inadvertently. As roads and pipelines increase within occupied habitat, the chance for accidental loss increases. Other factors, such as livestock grazing, may exacerbate this situation by focusing impacts within the remaining interspaces between roads and wells, leading to further accidental loss.

Illegal collection of *Sclerocactus* historically was one of the primary threats to the conservation and recovery of this species (BLM 2008). The increase in the number of access roads within and near occupied habitats will allow greater access to rare plant populations. This potentially could increase illegal collection of the species.

Habitat fragmentation could occur as a result of the increased number of access roads, pipeline and other utility ROWs, and long-term surface disturbance from well pads and associated facilities. The anthropogenic fragmentation of plant habitats can decrease species density (Mustajarvi et al. 2001) and result in isolated, smaller populations that are more prone to extinction. Decreased species density has the potential to adversely impact pollination and reproductive success of *Sclerocactus* (Mustajarvi et al. 2001).

Invasive plant species directly compete for resources with native species, such as *Sclerocactus,* and alter habitat making it more difficult for the species to survive and thrive. Seeds from invasive species are often carried by vehicles and spread via vehicle-caused air turbulence (Forman and Alexander 1998). Within the action area, noxious and invasive species are often present in the soil seed bank, and once an area is disturbed, these species can quickly establish. In addition, competition from noxious and invasive species can further reduce special status species' population size. Invasive plants spread more easily when other land uses, such as livestock grazing, are concentrated within the remaining interspaces between roads and wells. The spread of invasive plants may change species composition within native plant communities. This may lead to increased livestock grazing on native grasses and shrubs that act as "nurse" plants for immature cacti. Nurse plants create an environment that is more favorable for successful establishment of immature cacti by providing shade, moisture, and protection from trampling. The cumulative pressures of energy development and grazing can lead to more invasive plants in *Sclerocactus* habitat.

Pollinators and their nesting sites are directly disturbed by oil and gas activities. Additionally, habitat alteration from invasive species can alter pollinator composition in the area, thereby possibly reducing the effectiveness of pollination within the native community. All of these connected actions reduce the ability of *Sclerocactus* to thrive within its native habitat.

IV. Effects of the Action

The effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Approximately 4,295 acres of surface disturbance will occur within the *Sclerocactus* Habitat Polygon, which represents approximately 1 percent of habitat within the *Sclerocactus* Habitat Polygon. Approximately 116 acres from well pad expansions and pipelines buried adjacent to existing roads as well as 20 acres of new disturbance from new well pads will occur in Level 1 CCAs. This surface disturbance represents approximately 0.3 percent of habitat within Level 1 CCAs. Approximately 870 acres of surface disturbance will occur in Level 2 CCAs, which represents approximately 0.9 percent of habitat within Level 2 CCAs.

Newfield will complete site-specific surveys for *Sclerocactus* and submit survey results to our office. Based upon presence or absence of *Sclerocactus,* Newfield will implement applicable conservation measures. Impacts to *Sclerocactus* individuals from this action include an increase in the types of impacts mentioned in "Factors Affecting the Species within the Action Area," above. Particularly, we expect increases in fugitive dust, pollinator disturbance, weed invasion, accidental damage to individuals, and overall habitat fragmentation. Many of these direct impacts to individuals and populations resulting from oil and gas development will be minimizedthrough site-specific project design and conservation measures. Although these conservation measures will minimize the impacts of the action to *Sclerocactus* species, larger landscape-level changes, such as increased habitat fragmentation and habitat loss, pollinator disturbance, changes in erosion and water runoff, and increased weed invasion, cannot be entirely remediated. These disturbances will continue to negatively impact *Sclerocactus* species throughout the action area.

V. Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local, or private actions that are reasonably certain to occur in the action area. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Declines in the abundance or range of many special status species are attributable to various human activities on Federal, state, and private lands, such as human population expansion and associated infrastructure development; construction and operation of dams along major waterways; water retention, diversion, or dewatering of springs, wetlands, or streams; recreation, including off-road vehicle activity; expansion of agricultural or grazing activities, including alteration or clearing of native habitats for domestic animals or crops; and introductions of non-native plant, wildlife, or fish or other aquatic species, which can alter native habitats or out-compete or prey upon native species. Many of these activities are expected to continue on Tribal, State, and private lands within the range of various federally protected wildlife, fish, and plant species, and could contribute to cumulative effects to the species within the action area. Species with small population sizes, endemic locations, or slow reproductive rates will generally be more susceptible to cumulative effects.

Non-federal activities have the potential to cumulatively affect *Sclerocactus,* as a significant portion of the species' range occurs on state, private, and tribal lands without federal mineral leases or federal surface rights. Quantified data on the future extent of these activities are difficult to obtain, but we must assume, for the purposes of this assessment, that some level of these activities are reasonably certain to occur, particularly energy and mineral exploration and development, livestock grazing, stone collecting, off-highway vehicle use, and illegal collecting. Where these future activities intersect *Sclerocactus* populations or habitats, they may cumulatively add to the existing and future impacts of activities authorized by federal agencies.

VI. Conclusion

After reviewing the current status of *Sclerocactus,* the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that this project, as described in this biological opinion, is not likely to jeopardize the continued existence of Pariette cactus and Uinta Basin hookless cactus. Approximately 4,295 acres of surface disturbance will occur within the *Sclerocactus* Habitat Polygon, which represents approximately 1 percent of habitat within the *Sclerocactus* Habitat Polygon. Surface disturbance within Level 1

CCAs represents approximately 0.3 percent of habitat within Level 1 CCAs. Surface disturbance within Level 2 CCAs represents approximately 0.9 percent of habitat within Level 2 CCAs. We reach this conclusion based upon the applicant committed conservation measures to avoid and minimize impacts within the range of the species as well as the scope of disturbance within *Sclerocactus* habitat.

VII. Incidental Take Statement

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering (50 CFR § 17.3). Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Sections 7(b)(4) and 7(o)(2) of the ESA generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the ESA prohibits the removal and reduction to possession of Federally listed endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of endangered plants on non-Federal areas in violation of State law or regulation or in the course of any violation of a State criminal trespass law.

VIII. Reporting Requirements

Colorado River Fishes

In order to comply with the Colorado River Recovery Program and ensure exemption from prohibitions of section 9 of the Act, the BLM will monitor and report the progress of their action as follows:

1. The BLM is required to submit to our office an annual report of water depletions associated with oil and gas development, including the following information:
    - Project name and/or applicant name
    - Permit number and/or special use authorization
    - General location and legal description
    - Depletion amount in acre-feet
    - Timing of depletion
    - Identify if new or historic depletion
    - Sub-total water depletion (acre-feet) for each applicant
    - Total depletion for the entire year in acre-feet
    - Total number of APDs approved
    - Total number of wells spudded

Reports shall be due to our office on a yearly basis by October 31. The address for the Utah U.S. Fish and Wildlife Service Field Office is:

2369 West Orton Circle, Suite 50
West Valley City, Utah 84119

Uinta Basin hook.less cactus and Pariette cactus

Any annual *Sclerocactus* monitoring reports associated with the proposed actions must be submitted to us by January 31 each year following monitoring.

If listed plants are crushed or injured during Project activities, or upon locating dead, injured; or sick listed species, immediate notification must be made to our Salt Lake City Field Office at (801) 975-3330 and our Division of Law Enforcement, Ogden, Utah, at (801) 625-5570, and to the BLM (435) 781-4400. Pertinent information including the date, time, location, and possible cause of injury or mortality of each species shall be recorded and provided to the Service.

IX. Conservation Recommendations

- While construction in the 100-year floodplain or wetlands is occurring, heavy equipment working on wet soils shall be placed on mats. Work should be conducted primarily while the ground is frozen or soils are dry.
- Silt fence shall be properly installed in 100-year floodplains and wetlands where project disturbance may erode into waters during a precipitation event.
- Where construction is completed, disturbed areas that are not needed for future maintenance shall be restored to the original grade and elevation immediately following construction.
- Weed control measures will be implemented throughout the action area.

X. Reinitiation – Closing Statement

This concludes formal consultation on the action outlined in your request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action was retained (or is authorized by law) and if: (1) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (2) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (3) a new species is listed or critical habitat designated that may be affected by the action.

We appreciated your efforts to work with us to protect threatened and endangered species. If the Project changes or it is later determined that the Project affects listed species differently than identified above; it may become necessary to reinitiate section 7 consultation. If we can be of further assistance, or if you have any questions, please feel free to contact Stephanie Graham at (801) 975-3330 ext. 155.

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Attachment 6: Comment Responses

1. *EPA Comment:* While the Final EIS estimates the direct greenhouse gas (GHG) emissions caused by the proposed project, it should also quantify indirect GHG emissions caused by the proposal and its alternatives, including emissions associated with the end use of the oil and gas due to the reasonably close causal relationship to the project and as provided in the Final Guidance on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews (Guidance) finalized by the Council on Environmental Quality (CEQ) on August 1, 2016. Example tools for estimating and quantifying GHG emissions can be found on CEQ's NEPA.gov website. These emissions levels can serve as a basis for comparison of the alternatives with respect to GHG impacts.

   BLM Clarification: In its Memorandum of August 1, 2016, the CEQ explained that it does not expect agencies to apply the Memorandum's guidance to proposed actions for which a final EIS or EA has already issued (CEQ Guidance at 33–34). In the case of Monument Butte, the BLM published its FEIS on June 24 and fully complied with its obligation under NEPA to consider and disclose greenhouse gas emissions. The FEIS evaluates reasonably foreseeable greenhouse gas emissions associated with the proposed action and alternatives, using quantification wherever possible. For example, Table 1-1 in Appendix B compares total estimated greenhouse gas emissions for each of the alternatives. Appendices A-1 and A-2 to the Air Quality Technical Support Document provide detail on emissions of greenhouse gases in addition to CO2 for each alternative and for both oil and gas wells. Also, the FEIS Table 5.2.6-1 discloses global, U.S., and Utah greenhouse gas emissions as well as the emissions expected from the project alternatives.

   The FEIS did not attempt to quantify indirect emissions associated with the project because of uncertainties relating to the end uses of produced oil and gas and how to evaluate the potential GHG contributions of those end uses. A rough estimate of possible indirect CO2 emissions, however, can be made based on the information presented in the FEIS and other publicly available information. For informational purposes, we have summarized these possible indirect emissions by using the estimated amount of natural gas, crude oil, and natural gas liquids anticipated to be produced under the preferred alternative and the average of several emissions factors for each of those products. Using the assumptions outlined below, the total number of indirect greenhouse gas emissions from the preferred alternative is 60,466,974 Metric Tons of CO2 equivalent.

   With respect to the rough estimate of indirect CO2 emissions, it should be noted that it is difficult to discern with certainty what end uses for the fuels extracted from a particular leasehold might be reasonably foreseeable. For instance, some end uses of fossil fuels extracted from Federal leases include: combustion of transportation fuels, fuel oils for heating and electricity generation, as well as production of asphalt and road oil, and the feedstocks used to make chemicals, plastics, and synthetic materials. The table below is based on an approximation of these end uses on a national basis using the references cited. While the BLM based these estimates on national data about typical end use of

produced oil and gas, it is important to note that the BLM does not exercise control over the specific end use of the oil and gas produced from any individual federal lease.

Green House Gases Emission Factors (CO2)		
Source	**Conversion**	**Result**
Natural Gas (541,000 mmcf)		
EPA	120,000 lbs/mmcf	64,920,000,000 lbs
EIA	117.1 lbs/mcf	63,351,100,000 lbs
IPCC	56,100 kg/TerraJoule[13]	70,600,000,000 lbs
Average		66,290,366,667 lbs
Total		30,068,780 MT
0.054717 MT of CO2 per Mcf		26,602 MT
Crude Oil (335 mmbo)[14]		
IPCC	73,300 KG/TJ	68,154,040,816 lbs
Prolysium.org	432.71 kg/bl	65,740,521,542 lbs
Numero57.net	317 *kg/bl*	*48,160,997,732 lbs*
EIA.gov[15]	0.43 MT/bl	66,947,281,179 lbs
Average		30,366,812 MT
Natural Gas Liquids (10.100 mbbl (NCL))[16]		
IPCC	64,200 kg/TJ	69,185,000 lbs
EIA	13.7 lbs/gal of prop/buta mix	31,382 MT

[13] http://www.kylesconverter.com: 1 CF of NG = 1,055,056 Joules; 1 TerraJoule = One Billion Joules; 1 kilogram is 2.205 pounds

[14] Approach is to throw out the high and the low then average the remaining: High = 144 MMt; Low = 48 billion pounds

[15] http://www.kylesconverter.com: 2204.62 pounds per metric ton

[16] Assumption: 50% Plastics, 50% Propane/Butane mix per 42 gal Barrel

Green House Gases Emission Factors (CO2)	
Summary for the Monument Butte Project:	
Estimated Indirect Emissions Total	60,466,974 Metric Tons of CO2
Sources: Intergovernmental Panel on Climate Change (IPCC), 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2, Energy, 2006; Energy Information Agency (EIA) Carbon Dioxide Emissions Coefficients February 2, 2016; EPA Environmental Protection Agency Greenhouse Gas Equivalencies Calculator May 2016; Pyrolysium.org: http://pyrolysium.org/how-much-co2-produced-by-burning-one-barrel-of-oil/ 432.71 kg CO2 per barrel; Numero57.net: http://numero57.net/2008/03/20/carbon-dioxide-emissions-per-barrel-of-crude/ 317 kg CO2 per barrel EIA.gov: http://www.eia.gov/tools/faqs/faq.cfm?id=7&t=7 0.43 metric tons CO2/barrel	

Since the rough estimates above were developed using publicly available calculators and were based on projections of future production from the project that were disclosed in the EIS, the BLM has determined that they do not constitute new information requiring supplementation. This determination is also consistent with the CEQ's statement that it does not expect federal agencies to apply its August 1 Guidance to proposed actions for which there is a final EIS that has been issued.

2. *EPA Comment:* For the Monument Butte Project, the EPA recommends that the ROD identify the mitigation measures that will reduce GHG emissions and disclose the estimated GHG reductions associated with such measures. Many of the measures included for reducing ozone precursor emissions will have co-benefits for GHG emissions.

   BLM Clarification: Any VOC emissions reductions already calculated in the FEIS are also GHG reductions. Please refer to the disclosed reductions in FEIS Table 4.2.1.1.1-2.

3. *EPA Comment:* The Final EIS inappropriately evaluates GHG emissions associated with the project by comparing them to state, U.S. and global emissions to conclude that the emissions are small. Such comparisons are "not an appropriate method for characterizing the potential impacts associated with a proposed action and its alternatives and mitigations because this approach does not reveal anything beyond the nature of the climate change itself: the fact that diverse individual sources of emissions each make a relatively small addition to global atmospheric GHG concentrations that collectively have a large impact" (Guidance, pg.11).

BLM Clarification: The sentence of concern has been stricken from the FEIS through the Errata (Attachment 7).

4. *EPA Comment:* As the BLM proceeds with implementation of the selected alternative, the EPA recommends considering climate adaptation measures based on how future climate scenarios may impact the project. The National Climate Assessment (NCA), released by the U.S. Global Change Research Program contains scenarios for regions and sectors, including energy and transportation. We recommend that the BLM use NCA or other peer reviewed climate scenarios to inform implementation because this can improve resilience and preparedness for climate change. Changing climate conditions can affect a proposed project, as well as the project's ability to meet the purpose and need presented in the Final EIS. If impacts may be exacerbated by climate change, additional mitigation measures may be warranted. For example, remediation of disturbed sites may become more challenging if the project area becomes hotter and drier.

   BLM Clarification: The BLM's Colorado Plateau Rapid Ecoregional Assessment (2012) provides an estimate of where climate change may occur, and is incorporated by reference. Section 6.2.2.3 of the Report states that

   > *The MAPSS climate results were used to predict changes in temperature, precipitation, potential evapotranspiration, and runoff; a number of the key findings from these analyses were selected to assemble into an overall relative climate change map showing different levels of climate change potential that could then be used to assess relative impacts on the specific conservation elements (Section 5.4). The fuzzy model inputs included potential for summer temperature change and potential for winter temperature change averaged into a single factor, potential for runoff change from MAPSS modeling, potential for precipitation change, and potential for vegetation change, again from MAPSS modeling. Direction of the change was not important—only degree of departure from historic measures.*

   The project area is an area predicted to be subject to moderately low change (Figure 6-14A). In particular the REA states that the pinyon-juniper and sagebrush vegetation communities in the Uinta Basin are predicted to experience Moderately Low exposure to climate. It is already difficult to conduct reclamation in the project area due to its naturally dry climate, as disclosed in the EIS. It is anticipated that this difficulty will continue into the future. Since the direction of climate change is not known, it is impossible to predict whether the reclamation difficulty may decrease or increase. The Green River District Reclamation Guidelines have been developed with this difficulty in mind, and identify standards for successful reclamation.

5. *EPA Comment:* Our understanding based on review of Chapter 4 of the Final EIS and the BLM's response to the EPA's comments is that the mitigation measures incorporated in the Resource Protection Alternative for protection of surface water resources apply throughout the project area. However, in the description of Alternative D in Chapter 2, the measures appear under the heading of Pariette Wetlands ACEC, which makes the extent of their applicability unclear. We recommend that the ROD clarify that the measures apply throughout the project area to ensure protection of water quality and

riparian habitat.

BLM Clarification: The measures in question do apply throughout the project area. This clarification is reflected in Attachment 2, Conditions of Approval.

6. *EPA Comment:* The Final EIS includes, in Section 2.2.12, many valuable environmental protection measures that have been committed to by Newfield to reduce the impacts of the proposed project on a variety of resources. We note that the document states that the measures "would apply to all Federal lands within the MBPA [Monument Butte Project Area]." Although requiring implementation of ACEPMs outside of BLM-managed land and/or minerals is not within the BLM's jurisdiction, we nonetheless recommend confirming with Newfield whether they intend to apply their ACEPMs to all wells within the MBPA.

   BLM Clarification: The BLM discussed this language with Newfield upon receipt of this comment. Newfield confirmed that the intent is to apply the applicant committed measures to all lands, however there may be instances when it is not possible to apply those measures to non-Federal land.

7. *EPA Comment:* We recommend that the BLM clarify in the ROD and in an erratum to the Final EIS that the complete ozone mitigation strategy would be applied by Newfield throughout the MBPA.

   BLM Clarification: The ozone strategy is applicable throughout the MBPA. The full strategy as finalized, including the statement that it applies throughout the project area, is in Attachment 3.

8. *Western Environmental Law (WEL) Comment:* Conservation Groups hereby incorporate by reference our prior submitted comments and attached exhibits to the Draft Environmental Impact Statement for the Monument Butte Area Oil & Gas Development Project, dated March 5, 2014.

   BLM Clarification: The previously submitted comments were previously responded to in the FEIS Attachment 2. Note also, that many comments in this letter regarding impacts to/from human health, particulate matter, ozone, Class I airsheds, visibility, regional haze, cumulative emissions, and climate change were previously addressed in the FEIS and/or DEIS comment responses and so are not responded to in the ROD. The FEIS also includes detailed analysis of anticipated impacts to all those values.

9. *WEL and Wild Earth Guardians (WEG) Comment:* Critically, the BLM failed to consider the stricter EPA ozone standards that were recently finalized. FEIS at 3-4. On schedule, on October 1, 2015, EPA published a final rule to revise NAAQS for ozone to 70 parts per billion (ppb) from the current 75 ppb. Therefore it should have been included in the agency's analysis of alternatives and should have guided consideration of the proposed project.

   BLM Clarification: Thank you for pointing out this error. The correct value has been inserted into chapters 3, 4, and FEIS Appendices B and K through the Errata (Attachment 7). Please note that the analysis showed that exceedences of the standard would occur, regardless of the fact that the older, higher number was inadvertently left in the document, so no change to the analysis occurred as a result of this correction. In addition, the air mitigation strategy was developed in recognition of and response to the

area's high ozone numbers.

10. *WEL Comment:* Conservation Groups are concerned that the FEIS does not disclose accurate background air quality conditions, particularly with regards to PM2.5, PM10, and nitrogen dioxide.

    BLM Clarification: The background values in question in Chapter 3 and Appendix B were generated from available data in the Greater Natural Buttes FEIS (BLM 2012) and the USEPA Air Quality System Data Mart web site (USEPA, 2014), which was the most recent available data available for the timeframe and model specifications. They used available data from years 2007 through 2012. Appendix B and Chapters 3 and 4 were reviewed multiple times by air quality specialists with the BLM, EPA, and others with special expertise or jurisdiction including the rest of the RTAG, and adjustments to the inventories, models, and analyses were made based on their comments. The report in Appendix B was finalized in 2013, with updates (not re-modeling) occurring in 2014 and 2015 based on the RTAG and EPA reviews. Therefore, the BLM used the most recent and best available data.

11. *WEL Comment:* Regulatory monitors have produced three years of data, which demonstrate that the Uinta Basin is significantly exceeding both the 2008 NAAQS and the recently revised (2015) NAAQS. Thus, the BLM cannot rely on the outdated "unclassifiable" designation as an accurate indicator of air quality in the Uinta Basin.

    BLM Clarification: An attainment determination is pending for the Uinta Basin, but has not yet been made. Therefore there is no change to the "unclassifiable" designation.

12. *WEL Comment:* Determination of background air quality conditions is inconsistent with 40 CFR 50 Appendices K and N methodologies.

    BLM Clarification: 40 CFR Appendices K and N are regulatory standards for making compliance determinations. BLM does not have the authority to make a regulatory compliance determination, and compliance determinations are not applicable as the area is currently designated as unclassified. The numbers disclosed in the FEIS are the best available data for the disclosure and informed decision-making purposes under NEPA.

13. *WEL and UPHE Comment:* Simply maintaining [Uinta Basin] emissions at current levels is not a justifiable goal for the Applicant-Committed Environmental Protection Measures ("ACEPMs").

    BLM Clarification: Correction of the existing air quality situation of the Uinta Basin, and reduction of existing emissions, are outside the scope of the NEPA analysis of the proposed project, are outside the jurisdiction of the BLM, and are being addressed through other methods. The EIS addresses the impact of the proposed project to the existing environment and minimizes the foreseeable impacts.

14. *WEL Comment:* These ACEPMs must be mandatory and not at the discretion of the applicant as proposed. They provide too much discretion to the applicant and fail to require emissions reductions measures for important emissions sources such as liquids unloading and pipeline maintenance and repair.

    BLM Clarification: The ACEPMs are integral to the selected alternative and have been carried forward into the ROD Attachment 2, Conditions of Approval. The air mitigation

strategy in particular is applicable to the entire project area. Please note that the measures in total exceed regulatory requirements for the area. In addition, other recent regulatory measures were not accounted for in the EIS (FEIS at 4-5), so the emissions disclosed in the EIS are conservative estimates. These include emissions benefits that would accrue from implementation of the State of Utah's General Administrative Order DAQE-AN149250001-14, or new minor source permitting requirements for Indian Country, and the New Source Performance Standards (NSPS) for the Oil and Gas Sector finalized on June 3, 2016. 40 C.F.R. Part 60 Subpart OOOOa.

15. *WEL Comment:* The Annual Emissions Balance Sheet (AEBS)proposal states that the applicant will calculate VOC emissions using the methods used for calculating the 2014 Uinta Basin Inventory to establish a proposed 2012 baseline year. However, the applicant also states that the existing 2014 Inventory already provides facility-by facility and source-by-source emissions detail. We see no reason why the existing 2014 Inventory should not be used as the baseline year to avoid the unnecessary effort of calculating a 2012 baseline year.

    BLM Clarification: The 2012 emissions year was used so any activities completed since the DEIS was published for public review can be included for credit. However, using the 2014 methodology standardizes the calculations across the years.

16. *WEL Comment:* The AEBS also proposes that the applicant will document VOC reductions and additions that will have sufficient information for BLM to verify the Operator's actions. We believe that the BLM is not equipped to verify the emissions reductions claimed by the applicant. Rather, the applicant should be required to retain the services of a third-party verification provider subject to industry standards and with safeguards against conflicts of interest. The third-party verification provider would be responsible for certifying the accuracy of the information in the annual balance sheet that is submitted to BLM for review and approval.

    BLM Clarification: The emissions reporting envisioned in the ROD has direct corollary with similar regulatory permitting requirements (i.e. self-reporting). This is sufficient for purposes of the ROD, and does not require third-party contracting. If Newfield wishes to use a contractor, that is their prerogative.

17. *WEL Comment:* We also oppose the proposal that reductions in 2015 and 2016 be counted towards reductions required in the first year of the program. This amounts to providing early action credit for reductions that were achieved in the absence of the ACEPMs. Reductions below the baseline should only be counted for the calendar year during which the record of decision is issued and thereafter.

    BLM Clarification: BLM encourages proactive emissions reductions, and the emissions management outlined in the ROD achieves that. There is no restriction or regulatory provisions that preclude this. There is also no technical reason why these emissions reduction activities should not be counted.

18. *WEL Comment:* Notably, the AEBS only addresses VOCs. As we have detailed, methane is also a critically important climate pollutant emitted by oil and gas operations. Methane must also be included and accounted for in the AEBS program, either using existing methane emissions reporting in the 2014 Inventory, or using subsequent methane emissions reporting protocols developed subsequent to 2014.

BLM Clarification: Methane is not a significant ozone precursor, which is what the VOC mitigation is intended to address. There is no expectation or requirement that GHG be included in this emissions management system. However, many of the air quality reduction measures taken under this project will have co-benefits of reducing methane emissions.

19. *WEL Comment:* We find that Table 4.2.1.1.1-3 is deficient. It should include methane emissions, and a companion table that shows emissions reductions that are forecast to offset the additional emissions resulting from the annual development of proposed action.

    BLM Clarification: The table referenced in this comment is an annual emission net change for VOC and NOX. BLM inserted VOC and NOX into Table 4.2.1.1.1-3 because of the ozone NAAQS issues in the Basin; the Basin does not have a similar problem with methane NAAQS so it was not included in the subject table. Please note that maximum emissions for methane are forecast in Table 4.2.1.1.1-1. Also, any VOC emissions reductions already calculated in the FEIS are also GHG reductions. Please refer to the disclosed reductions in FEIS Table 4.2.1.1.1-2.

20. *WEL and WEG Comment:* Despite a plan that could yield over 334.9 million barrels of oil, 540,669 million cubic feet of natural gas, 10,085 million barrels of natural gas liquids, and 6.9 trillion cubic feet of natural gas from the deep gas development through 2035, the agency later offers that the approximately 3.3 million metric tons of CO2e produced annually "are less than about five hundredths of a percent of the U.S. total shown for 2010 and about 3 percent of the statewide total projected for 2020."

    BLM Clarification: The text in question has been stricken from the document through the Errata at the request of this comment and the EPA.

21. *WEL Comment:* BLM not only has the authority, but an obligation to address GHG emissions and methane waste.

    BLM Clarification: The BLM has quantified GHG emissions anticipated from this project and cumulatively. Refer to the FEIS chapters 4 and 5 and Attachment 2 Comment Responses for discussions of GHG and CO2e. Please note that many of the ACEPM's disclosed in the EIS significantly reduce potential fugitive emissions of methane (i.e. VOC controls).

22. *WEL Comment:* Include an estimate of the projected methane emission rates from drilling and production activities authorized by the proposed action.

    BLM Clarification: CH_4 emissions from all phases of the project are accounted for throughout the FEIS and Appendices B and K.

23. *WEL Comment:* The BLM's analysis must meaningfully contemplate a transition to renewable energy generation; not only as an alternative which may eventually suppress demand for oil and gas resources, but also as a pathway toward mitigating climate change as it relates to agency decision making on federal lands

    BLM Clarification: The proposed alternative is outside of the scope of the EIS, which is defined by the BLM's need statement as being to respond to a proposal to develop valid existing oil and gas leases within the Monument Butte project area.

24. *WEL Comment:* On February 8, 2016, the BLM released a proposed rule regarding waste

prevention (Waste Prevention, Production Subject to Royalties, and Resource Conservation: Proposed Rule, 81 Fed. Reg. 6616). The BLM must consider this federal rulemaking, and the implications that this rule would have on place-based action, such as the establishment of mandatory requirements to prevent methane venting, flaring and leaks, on the Monument Butte MDP, in its planning level decision-making.

BLM Clarification: The Monument Butte EIS is not a land-use-planning level document, and the proposed rule is not in force. However, Newfield, in coordination with BLM and EPA, has committed to many ACEPMs which are 1) above and beyond regulatory requirement for preventing waste and similar to the proposed rule requirements including but not limited to an advanced leak inspection program and other physical controls to minimize or eliminate fugitive emissions and 2) the best available science available at the time the EIS was prepared. In addition, the project will be subject to the New Source Performance Standards (NSPS) for the Oil and Gas Sector which was finalized on June 3, 2016. 40 C.F.R. Part 60 Subpart OOOOa. The new regulations require the use of Reduced Emissions Completions (green completions) on new oil wells and establish emission limitations for methane as well as VOCs.

25. *WEL Comment:* The letter recommended the below ACEPM refinements collected from various sources made in reference primarily, but not solely, to methane emissions/waste. The comment stated that the existing ACEPMs didn't go far enough to reduce emissions as written.

- WEL Recommendations
    - Routing gas to a flow line (or for field use) as soon as a well begins production.
    - Require operating practices such as curtailment of well production until well pressures can be accommodated by flow lines.
    - Require only low-bleed or no-bleed devices, such as electric or air driven controllers.
    - Use electric motor driven pneumatic controllers where electric power is available.
    - Use low- and no-bleed controllers instead of intermittent-bleed pneumatic devices.
    - Use desiccant dehydrators as an alternative to glycol dehydrators.
    - Control storage tank emissions from tanks older than August 23, 2011.
    - Conduct A-V-O inspections either monthly or quarterly for higher emissions equipment, and repair within five days of detection.
    - Use IR cameras for inspections unless exemptions are specifically sought, conduct inspections semi-annually, and conduct repairs within 15 days.
- BLM's proposed methane waste rule
    - Reduce the pace or phase development.
    - Curtail production.
    - Capture and sell gas emitted from drilling, completion, production testing, pipeline maintenance, liquids unloading, and oil wells (associated gas).
    - Replace existing high- or intermittent-bleed pneumatic controllers with low or no-bleed controllers.
    - Install emissions controls on all storage tanks.
    - Replace equipment or better maintain compressors and dehydrators.
    - Quarterly inspect leaks with optical gas imaging and repair immediately.
- BLM Colorado's Tres Rios Field Office LRMP
    - Centralize facilities by using liquid gathering systems and liquid transport pipelines.
    - Use reduced emission completions/recompletions (green completions).
    - Replace high-bleed pneumatics with low-bleed/no-bleed or air-driven.

- Install pneumatic devices on all existing wells.
- Install low bleed/no bleed pneumatic devices on all new wells.
- Use dehydrator emissions controls.
- Use electric compression.

- BLM Colorado's Comprehensive Air Resources Protection Protocol:
  - Multi-well pad directional or horizontal drilling.
  - Improved engine technology (Tier 2 or 4) for diesel drill rig engines
  - Selective Catalytic Reduction (SCR) for drill rig engines and/or compressors
  - Non-selective catalytic reduction (NSCR) for drill rig engines and/or compressors
  - Natural gas fired drill rig engines
  - Electrification of drill rig engines and/or compressors
  - Improved engine technology (Tier 2, 3, or 4) for all mobile and non-road diesel engines
  - Reduced emission (a.k.a. "green") completions.
  - Flaring of completion emissions
  - Minimize/eliminate venting and/or use closed loop process where possible during "blow downs"
  - Eliminate evaporation pits for drilling fluids
  - Electrification of wellhead compression/pumping
  - Wind (or other renewable) generated power for compressors.
  - Compressor seals – replace wit with dry or use mechanical seal.
  - Compressor rod packing system – use monitoring and replacement system.
  - Centralization (or consolidation) of gas processing facilities (e.g., separation, dehydration, sweetening).
  - Liquids gathering systems for condensate and produced water).
  - Water and/or fracturing liquids delivery system.
  - Eliminate use of open top tanks.
  - Capture and control of flashing emissions from all storage tanks and separation vessels with vapor recovery and/or thermal combustion units.
  - Capture and control of produced water, crude oil, and condensate tank emissions.
  - Capture and control of dehydration equipment emissions with condensers, vapor recovery, and/or thermal combustion.
  - Use zero emissions dehydrators or use desiccants dehydrators.
  - Install plunger lift systems to reduce well blow downs.
  - Install and maintain low VOC emitting seals, valves, hatches on production equipment.
  - Initiate equipment leak detection and repair program (e.g., including use of FLIR infrared cameras, grab samples, organic vapor detection devise, and/or visual inspection).
  - Install or convert gas operated pneumatic devices to electric, solar, or instrument (or compressed) air driven devices/controllers.
  - Use low or no bleed gas operated pneumatic devices/controllers.
  - Use closed loop system or thermal combustion for gas operated pneumatic pump emissions.
  - Install or convert gas operated pneumatic pumps to electric, solar, or instrument (or compressed) air driven pumps.
  - Install vapor recovery on truck loading/unloading operations at tanks.
  - Unpaved surface treatments including watering, chemical suppressants, and gravel.
  - Use remote telemetry and automation of wellhead equipment.
  - Speed limit restrictions on unpaved roads.
  - Reduce commuter vehicle trips through car pools, commuter vans or buses, innovative work schedules, or work camps.
  - Use of ultra-low sulfur diesel (e.g., in engines, compressors, construction equipment).
  - Reduce unnecessary vehicle idling.

    - Reduce pace of (phased) development.
- NRDC's ten methane emission control technologies:
    - Green completions.
    - Plunger lift systems.
    - Tri-ethelyne glycol dehydrator emission controls.
    - Desiccant dehydrators.
    - Dry seal systems.
    - Improved compressor maintenance.
    - Low-bleed or no-bleed pneumatic controller.
    - Pipeline maintenance and repair.
    - Vapor recovery units.
    - Leak monitoring and repair.

BLM Clarification: Please note that the above measures have already been included in the ACEPMs to the extent feasible. They were developed and refined over the course of the EIS, taking into consideration the technical imitations of the proposed development, anticipated impacts, and recommendations from the EPA and State of Utah and other agencies with jurisdiction or special expertise. Methane is not a pollutant with significant issues for this project. BLM worked with the project proponent within the confines of our authority to include mitigation in excess of the regulatory requirements. The final ACEPMs are not measured against what others may have done (there is no NEPA requirement to do so) but in context of the proposed project, and as a result are unique to this project..

26. *WEL Comment:* The agency is obligated to identify and describe how the infrastructure investments identified in the EIS (i.e., gathering pipelines, compressor stations and processing facilities) will be located and adequately sized to accommodate estimated levels of production of natural gas for the duration of the proposed project to ensure that the methane captured is able to make it to market for sale and not be vented or flared.

    BLM Clarification: It is unclear to the BLM what specific obligation WEL is referring to. The BLM has regulations and policies on how gas capture is to be accomplished and measured, and those regulations and policies will be followed. Please note that central gathering and processing facilities, pipelines, and other infrastructure are included in the proposed action to minimize potential waste of produced minerals.

27. *WEL and WEG Comment:* Include a quantitative assessment of methane's long-term (100-year) global warming impact and short term (20-year) warming impact using the latest peer reviewed science. EPA's GHG inventory, which BLM has relied upon, assumes that methane has a global warming potential of 21. IPCC's new research has calculated that methane's GWP is 87. A calculation of CO2e based on the various updated global warming potentials indicates that BLM's estimates of total carbon emissions associated with methane releases are four times lower than what they should be. We would submit that for the BLM to most accurately disclose the greenhouse gas emissions associated with the Monument Butte project, the agency must analyze CO2e emissions based on both the 20-year and 100-year global warming potentials for methane, which should be 84 and 36, respectively.

FEIS Disclosure	21 GWP 100-year	25 GWP 100-year	28 GWP 100-year	36 GWP 100-year	84 GWP 20 year
12,218 tons	256,578	305,450	342,104	439,104	1,026,312

BLM Clarification: It is beyond the scope of the NEPA analysis of the proposed project to explore and present analytical methodologies that are neither approved nor required. BLM relies on vetted and approved guidance to conduct analysis, and until such time as clear detailed guidance is provided will continue to follow existing practices.

28. *WEL Comment:* EPA has identified well over 100 proven technologies and practices to reduce methane waste from wells, tanks, pipelines, valves, pneumatics, and other equipment and thereby make operations more efficient. www.epa.gov/gasstar/tools/recommended.html. BLM must consider these emission reduction strategies in its NEPA analysis both to address impacts of the proposed action, as well as to satisfy the requirements of SO 3226, FLPMA, and the MLA.

    BLM Clarification: A version of all of the referenced measures has already been included in the ACEPMs to the extent feasible. Please note that the ACEPMs as written already exceed regulatory requirements of either the State or the EPA, and were developed over the course of the EIS, taking into consideration the technical imitations of the proposed development, anticipated impacts, and recommendations from the EPA and State of Utah and other agencies with jurisdiction or special expertise. Some of the refined measures as suggested by WEL, all of which were considered during the preparation of the EIS, are not feasible for the proposed action from a technical or safety point of view. The rest of the refined measures proposed in WEL's comment are outside of the BLM's authority to implement or enforce unless the applicant commits to them because they are outside of the regulatory requirements of the Clean Air Act.

29. *WEL Comment:* The BLM must consider the resilience of our communities and their ability to adapt and respond to climate change in its NEPA analysis. Any action taken that undermines a community's welfare and capacity to provide for itself in the face of recognized changes to climate – such as the largely unabated development of oil and gas resources – fails to realize the agency's multiple use mandate under FLPMA, and, further, is indefensible pursuant to BLM's mandate to act as stewards of our public lands.

    BLM Clarification: The resilience of the community to changes in oil and gas operations is discussed in the EIS (EIS at 5-44). As disclosed in the FEIS, the lack of scientific models that predict climate change on a regional or local level prevents a project-specific quantification of potential future impacts on climate change. Similarly, the BLM's Colorado Plateau Rapid Ecoregional Assessment (2012) section 6.2.2.3 predicts that the Monument Butte project area will be subject to moderately low change (Figure 6-14A); however it acknowledges the direction of change is unknown.

30. *WEL and WEG Comment:* Notably, with regards to air quality, it appears that an analysis and assessment of truck traffic emissions impacts, to the extent it was fully completed, was limited solely to the Monument Buttes Project Area ("MBPA"). Indeed, the Air Quality Technical Support Document ("AQTSD") indicates that dispersion modeling of emissions was limited to emissions produced in the project area, not off-site. For

example, as trucks travel to and from Vernal, Utah or other towns in the region, the agency fails to identify how ambient air quality may be affected in the areas that they travel. Similarly, given that the oil produced as part of the proposed action will be trucked to refineries in and near Salt Lake City, the EIS must address the direct and indirect impacts that emissions from these trucks will have to air quality in the Salt Lake City area.

The Final EIS is also silent on the air quality and greenhouse gas impacts of oil refining, even though this is clearly an action connected with the proposed oil and gas development. Although the BLM may assert that refining of oil would take place regardless of whether the proposed action is approved, the fact is that the oil proposed to be drilled for and produced would not be refined if the BLM were to reject the proposed action. In fact, the oil that would otherwise be produced as part of the proposed action would stay in the ground and would never be refined. While the BLM may assert that it does not know where the oil will be refined, there is sufficient information to indicate the oil will be refined in facilities within or near Salt Lake City, as that is where oil currently produced in the Uinta Basin is refined. The BLM can easily analyze and assess such impacts by relying on EPA greenhouse gas inventory data (see Greenhouse Gas Reporting Data for Refineries in Utah in 2012 (attached to DEIS comments), and by relying on emissions calculation methodology from the EPA (see EPA, Emission Estimation Protocol for Petroleum Refineries (attached to DEIS comments).

The EIS also does not analyze or assess the connected combustion impacts of the produced oil and gas. Given that oil and gas is produced for one primary reason, to be consumed as fuel, the combustion impacts are a connected action and must be analyzed. Here, the EIS does not acknowledge these connected actions. Using emission factors provided by the EPA, it appears that greenhouse gas emissions may approach 4.8 billion metric tons or more under the proposed action. See http://www.epa.gov/cleanenergy/energy-resources/refs.html. We presume that the final use of the condensate and natural gas will be through combustion. However, it is very likely that the condensate and possibly the natural gas will be used to make products that are not intended for combustion, such as plastics, which are produced through energy intensive (i.e., carbon intensive) processes.

BLM Clarification: Those activities that are within the scope of this NEPA analysis are included in the emissions impacts. In addition, in related to dispersion modeling comments, the modeling protocol was reviewed by EPA and an interagency technical review group and found to be sufficient and representative of best practices. For an example of the off-site trucking from operations that was analyzed under the proposed action, please refer to FEIS Appendix B PDF page 124 of 1426. There are other offsite trucking estimations included throughout Appendix B.

The BLM has no authority to direct or regulate the end use of the produced oil and gas. As a result, the BLM can only provide an estimate of potential greenhouse gas emissions using national approximations of where or how the end use will occur because oil, condensate, and natural gas could be used for combustion of transportation fuels, fuel oils for heating and electricity generation, as well as production of asphalt and road oil, and the feedstocks used to make chemicals, plastics, and synthetic materials. Historically most of the produced oil has been trucked to refineries on the Wasatch Front, but in

recent years an increasing and unknown percentage of product is being trucked to the railway for transport to refineries in other states, such as Texas. Also, produced gas could be transported by pipeline to consumers anywhere in the United States. In response to this comment, the BLM has prepared an estimates of emissions associated with trucking, refining, and end uses. See response to EPA Comment

31. *WEL and WEG Comment:* FLPMA and applicable regulations require compliance with applicable pollution control laws, including State and Federal air, water, noise, or other pollution standard or implementation plans. The BLM may claim that it is only obligated to ensure the operator complies with state and federal air quality regulations, but such a claim flies in the face of FLPMA's plain and unambiguous language and also appears flatly contrary to its own regulations. FLPMA and applicable regulations require compliance with federal air quality standards. Although reliance on federal and state air quality regulations may be appropriate where such standards are clearly protecting the NAAQS, where such standards are not protecting the NAAQS—such as in the Uinta Basin—the BLM has an affirmative and independent duty to protect air standards and ensure compliance with the NAAQS.

    BLM Clarification: The selected alternative does not authorize any action that would be out of compliance with any laws intended for protection of the environment. In addition, no on-the-ground disturbance is authorized as a result of this ROD. Additional permitting, including applicable permitting required by regulation, will be necessary. Finally, the BLM has no jurisdiction over air quality regulation.

32. *WEL Comment:* BLM and the Service rely on a number of previous consultations regarding Newfield's existing water rights and their depletion effects on the endangered fish, but these consultations are severely outdated, failing to take into account a great deal of new information that has emerged since the Service issued its biological opinions in 2005, 2006, 2011, and 2012. Specifically, new information about (1) climate change effects on stream flows (rising temperatures, earlier snowmelt and streamflow, decreasing snowpack, declining runoff and streamflow, increasing drought severity, reduced reservoir levels, unsustainable demand for water, and increased effects from toxic spills and mercury pollution), (2) long-term drought and increased water demand which has drastically reduced water supplies, and (3) declining razorback sucker and Colorado pikeminnow populations, reveal effects of the action that may affect the species in a manner or to an extent not previously considered, and therefore trigger reinitiation of consultation.

    BLM Clarification: Although climate change is not specifically mentioned, the FEIS and the Biological Assessment do document the effects of reduced streamflow ("flow depletion" and "reductions in flow"), increased sedimentation, and potential for contamination to fish and their associated habitats from Alternative D in addition to "authorized water usage". According to the BLM REA, the project area is an area predicted to be subject to moderately low climate change (REA Figure 6-14A). In particular the REA states that the pinyon-juniper and sagebrush vegetation communities in the Uinta Basin are predicted to experience Moderately Low exposure to climate. Since the direction of change is not known, it is impossible to predict whether the streamflow may decrease or increase.

33. *WEL Comment:* The EIS and BA should address the potential for a catastrophic blowout, which could have devastating effects on critical habitat even if not occurring within the 100-year floodplain. It is also possible that large volumes of chemical substances escape undetected until reaching surface sediments or waters, but the BA does not address such hazards, which could result in chronic sub-lethal effects. The potential for leaks and spills of produced water is also ignored. The BA also makes no mention of the potential for truck accidents which may result in the spillage of large volumes of produced waters, wastewaters, fracking fluids, or other chemicals which may be transported to or from the project site. The BA fails to discuss baseline environmental conditions regarding the existing risk of spills from all past and present projects, as well as any foreseeable risks of spills from state and private future projects. The FEIS and the BA fail to explain how mitigation measure of siting wells outside the floodplain would mitigate spills from pipelines located directly in the streams at nearly 1000 places.

BLM Clarification: Although trucks and produced water are not specifically mentioned in the fish impact sections, the FEIS and the BA do document the potential for an general increased risk of accidental spills of pollutants such as natural-gas condensate and oil into the Green River or its tributaries", including "contaminates" and catastrophic spills of up to 400-barrels (16,800 gallons), and acknowledges that magnitude of the impacts would depend on type, duration, and timing. See the EIS at page 4-126-127 and the BA at PDF page 1085 of 1426. Many additional mitigation measures were developed and committed to by the BLM, FWS, and Newfield during the consultation process. The FEIS in the cumulative impact section does address the past and present and reasonably foreseeable increase in potential releases of natural gas, condensate, hydrocarbons, or other toxic substances into the Green River or its tributaries. See the FEIS at page 5-25. There are additional measures besides siting outside the floodplain which will mitigate the potential for spills from pipelines. For example:

> *Natural gas-condensate pipelines that cross mapped 100-year floodplain, mapped riparian, or wetland areas would be routinely pigged (as technically feasible) and would have emergency shutoff valves located immediately outside the floodplain.*
>
> *Natural gas pipelines that cross perennial, intermittent, and ephemeral stream channels would be buried below the predicted scour depth for an equivalent flood event. The construction requirements for each type of crossing would be determined on a site-specific basis and would consider the technical guidance of the document entitled, "Hydraulic Considerations for Pipeline Crossings of Stream Crossings," which is found in Appendix B of the Vernal RMP (BLM 2008b).*
>
> *Natural gas pipelines that cross perennial, intermittent, and ephemeral stream channels would have automatic shutoff valves directly beyond the area at risk of flooding to reduce the magnitude of contamination in the event of an accidental pipeline break.*
>
> *Natural gas pipelines that cross perennial, intermittent, and ephemeral stream channels would be buried at least 5 feet below the channel bottom.*

Please note that the surface water quality portions of the FEIS do analyze accidental spills

from tanker trucks including produced water, glycol, fracking fluids, or petroleum products. This information was available to the FWS during the consultation process even though it was not mentioned by name in the BA. See the FEIS at 4-54-55

34. *WEL Comment:* On September 2015, BLM revised its section 7 determination to "may affect, not likely to adversely affect," without explaining its rationale as to why these sedimentation effects would no longer be "likely to affect" the endangered fish. In an email to the Service, BLM explained its revised determination was "[b]ased on [the Service's] recommendation, and in consideration of the applicant committed and BLM committed mitigation measures, as well as the small size of the impact in critical habitat." Id. An accompanying memo described additional measures incorporated into the proposed project. All of the measures geared towards reducing sedimentation impacts, however, are exclusively aimed at restoration of the fishes' critical habitat in the Green River's 100-year floodplain and do not address upstream sedimentation sources that the above passage from the BA identified as being problematic (e.g., sedimentation of the Pariette Draw). Further, even if restoration of disturbed critical habitat is intended to reduce sedimentation yield overall, the record does not support that such measures would be effective, in light of BLM's observation of "poor reclamation success" for "previously disturbed areas within the MBPA and surrounding region." BA at 87.

    BLM Clarification: There are additional measures that are being taken to reduce sedimentation. For example:

    > *Erosion and sedimentation would be reduced through the use of BMPs, including but not limited to berms, sediment control structures, grading, mulching, revegetation, and interim reclamation.*
    >
    > *Best Management Practices (BMPs) would be used to minimize sedimentation, temporary erosion of stream banks, and needless damage or alteration to the Green River streambed. BMPs should also ensure construction related byproducts do not enter the riverine ecosystem that will cause negative impacts to aquatic organisms.*
    >
    > *Sediment control measures will be implemented to prevent project-related sediment from entering the critical habitat of the flowing stream channel.*
    >
    > *Pipelines that cross stream channels will incorporate a sediment retention system along the construction corridor to minimize movement of sediment into the water courses. These could range from silt fencing and culverts to sediment retention basins, depending on the location.*
    >
    > *Natural gas-condensate pipelines that cross mapped 100-year floodplain, mapped riparian, or wetland areas would be routinely pigged (as technically feasible) and would have emergency shutoff valves located immediately outside the floodplain.*
    >
    > *Natural gas pipelines that cross perennial, intermittent, and ephemeral stream channels would be buried below the predicted scour depth for an equivalent flood event. The construction requirements for each type of crossing would be determined on a site-specific basis and would consider the technical guidance of the document entitled, "Hydraulic*

Considerations for Pipeline Crossings of Stream Crossings," which is found in Appendix B of the Vernal RMP (BLM 2008b).

Natural gas pipelines that cross perennial, intermittent, and ephemeral stream channels would have automatic shutoff valves directly beyond the area at risk of flooding to reduce the magnitude of contamination in the event of an accidental pipeline break.

Natural gas pipelines that cross perennial, intermittent, and ephemeral stream channels would be buried at least 5 feet below the channel bottom.

35. *WEL and Utah Native Plant Society (UNPS) Comment:* The document incorrectly lumps S. wetlandicus and S. brevispinus together in analyzing impacts numerous times. This is wrong and requires correction. You cannot lump these two species together any longer, and as was commonly done in the past. The BLM's analysis of effects to the two listed cactus species, S. wetlandicus and S. brevispinus, is founded on the erroneous assumption that both species have identical habitat and life cycle requirements.

    BLM Clarification: Pariette Cactus and Uinta Basin hookless cactus are described separately. See the EIS at 3-54-55 and the BA PDF page 1080-1081. Their habitat overlaps, so the core conservation areas are treated collectively. In addition, impacts are similar, so the impacts are treated similarly. See the EIS at 3-55-56, 4-128, and BA PDF page 1081-1082. Please note that Uinta Basin hookless cactus is found primarily in the Lower Pariette Core areas. The FEIS at 5-31 and 5-32 breaks down the cumulative impact to the Upper Pariette and Lower Pariette Core areas, so the proportional impacts to the different species may be inferred by that table.

36. *WEL and UNPS Comment:* The Center for Native Ecosystems and the Utah Native Society have previously petitioned the BLM to consider designation of an expanded Area of Critical Environmental Concern that would be more effective in protecting habitat for both S. wetlandicus and S. brevispinus, including areas outside the immediate drainage. BLM must avoid actions, such as the proposed Monument Butte project, that would impair its ability to meet its ACEC obligation. The ACEC should fully protect S. brevispinus and drilling SHOULD NOT BE ALLOWED IN ITS HABITAT, period. It is one of the most critically imperiled species in Utah as result of Newfield's activities. The BLM acknowledged having overlooked our joint 2006 ACEC request but has failed to act on it. The request pre-dates this project and cannot continue to be allowed to stay in limbo while this project is then approved.

    BLM Clarification: In the Vernal RMP ROD, the BLM acknowledged the oversight and committed to address the issue in the next planning cycle. The present NEPA analysis (Draft and Final EISs) of the proposed project is not a land use planning document. In addition, this analysis concerns the proposed development of valid existing rights. The BLM's ACEC Manual 1613 identifies valid existing rights as factors which may influence management prescriptions for the ACEC. In addition, the BLM's Planning Manual 1601 Valid specifies that all decisions made in land use plans and subsequent implementation decisions, will be subject to valid existing rights. Therefore, no change in management of the valid existing rights is anticipated when the review of the proposed ACEC occurs.

37. *WEL and UNPS Comment:* The assumption that a 300-foot buffer will alleviate impacts to the plants' survival ignores the uncontested opinion of Dr. Tepedino that the plants are dependent on pollinators with a flying range of 400-1000 meters, and require a buffer distance of at least 1 mile. In our 2006 ACEC recommendations based on the based available information then available also from Dr. Tepedino he recommended an ABSOLUTE MINIMUM DISTANCE OF 800 METERS. There are confusing references to 300 feet with regards to the Sclerocacti that should be struck/corrected.

    BLM Clarification: Comment noted. The BLM did cite Dr. Tependino's research in the EIS. See FEIS page 3-56. Please note that the FWS has regulatory responsibility regarding management of listed species, therefore the BLM has adopted and consulted on their recommended buffer of 300 feet.

38. *WEL Comment:* The FEIS and Biological Assessment's conclusion that the project, despite disturbing some approximately 16,000 acres of habitat (with a substantially larger indirect footprint) will not jeopardize the continued existence of the two cacti is founded in large part on monetary contributions to a Sclerocactus Mitigation Fund. See FEIS at 4-167 to 4-169. The "amount is based on an estimate for the cost to grow and transplant a cactus to the wild." FEIS at 4-167. These assumption, however, are unsupported by evidence that (a) suitable and protected habitat for transplanted cacti exists, (b) transplantation can be successful, or that (c) available habitat and likelihood of success will contribute to the survival and recovery of the species, despite the acknowledged certainty of unmitigatable habitat loss from the project , FEIS at 4-170.

    BLM Clarification: Comment noted. Please note that the FWS has regulatory responsibility (jurisdiction) and special expertise regarding management of listed species in general, and the two Sclerocactus species in particular, therefore the BLM has adopted and consulted on their recommended determination of impacts and mitigation strategy.

39. *WEL Comment:* The FEIS and BA also fail to take into account significant new information regarding effects of ground-level ozone and climate change on the listed cacti and their pollinators.

    BLM Clarification: The BLM is unaware of any studies that document the effects of ground-level ozone on the cacti and their pollinators. Please note that the high ozone levels occur in snowy winters when the plants and their pollinators are dormant, and presumably covered by snow (or by soil and rocks in the case of S. brevispinus, which has been noted to recede into the ground during the winter months), so it is reasonable to assume that impacts to individual plants or pollinators are minimal. According to the BLM REA, the project area is an area predicted to be subject to moderately low climate change (REA Figure 6-14A). In particular the REA states that the pinyon-juniper and sagebrush vegetation communities in the Uinta Basin are predicted to experience Moderately Low exposure to climate change. Since the direction of climate change is not known, it is not possible to reasonably predict the effects of such change on the cacti or their pollinators.

40. *WEL and UNPS Comment:* Page D-4 of the Appendix mentions that fact that a BLM sensitive species, Yucca sterilis, occurs in the project area. There is no reference to it in terms of mitigation. And yet the Utah Native Plant Society ranks that species as "extremely high" priority i.e. one of only 38 species (that includes Sclerocactus

brevispinus) in that category. There is an occurrence of it along the section of road that trucks will be extensively using. Where are the other occurrences in relationship to this project? And where is the analysis for the impacts on that species? Without knowing the locations of remaining sterile yucca occurrences, the amount of remaining habitat, the effects of loss of 1,213 acres to the project, and the reliability of the proposed mitigation measures, BLM's conclusion that the project "is not likely to result in a trend towards federal listing of the species," FEIS 4-161, is arbitrary and unsupported. Review of the projected project locations suggests that at least one known occurrence of Y. sterilis occurs along a road that would be affected by heavy vehicle traffic. The FEIS fails to map or disclose species occurrences, or to conduct any analysis whatsoever of the effects of vehicle traffic and resulting dust, erosion, and human disturbance on the survival of individual populations or the overall trend for the species and its habitat.

BLM Clarification: The BLM tries not to disclose the specific locations of sensitive plant species in public documents to protect them from collection. However, all proposed site specific actions within the MBPA would be evaluated in relation to the habitat for this species on an individual basis. If such actions are proposed within suitable habitat for Yucca sterilis then clearance surveys for the species would be required before ground disturbance could occur. If a population of Y. sterilis is identified during the clearance surveys then the proposed action would be required to avoid the population by an established buffer distance of 300 feet. This measure was inadvertently omitted from the FEIS, and has been added back in via the errata, and carried forward as a COA into Attachment 2. Additional mitigation measures to protect identified populations of Y. sterilis may be developed and applied on a site-specific basis as necessary. Since the species is thought to exclusively reproduce vegetatively through rhizomes, pollinator impacts due to the proposed action are not anticipated. Dust impacts due to truck traffic on access roads in the MBPA are possible; however, implementation of the proposed action would not represent a significant increase in traffic to the project area from current levels. Dust impacts in general are addressed on FEIS page 4-139.

41. *UNPS Comment:* On P. 2 of the appendix there is a statement that ". . . the Pariette wetlands ACEC was developed, in part to protect Sclerocactus brevispinus." This is absolutely not true. The narrow band of Pariette wetlands was designed to protect riparian areas along the draw and a very narrow riparian corridor (as evidence by the map you sent as well). It only somewhat protects rare Sclerocacti and the species that it somewhat helps to protect is S. wetlandicus and NOT S. brevispinus, or if S. brevispinus, only to a VERY minor degree. Page 2 requires correction, and a different analysis is required.

    BLM Clarification: The statement in question was prepared by the FWS, and is contained in a draft document. The draft document was attached to the EIS as a result of public comment which requested the documentation behind the USFWS management guidelines for the Core Conservation Areas. The relevant portions of this document to the FEIS are the Purpose and Explanation of Core Conservation Areas, Implications for Future Consultations, and General Management Recommendations sections, not the History of Sclerocactus and Energy Development in the Uinta Basin section in which the erroneous statement is found. No change to the FEIS is necessary.

42. *UNPS Comment:* Since the USFWS has already determined that S. brevispinus is

warranted for being recognized as endangered, your analysis should reflect that and it should be treated as an endangered rather than a threatened species, and hence the need for completely separate impact and other analyses.

BLM Clarification: The 12-month finding on the petition to list S. brevispinus as an endangered or threatened species (72 FR 53211, dated September 18, 2007) reviewed information available at the time, and made the recommendation that listing S. brevispinus is warranted. However, the species was precluded from listing at the time because it already receives protection under the Endangered Species Act due to its threatened status, and is therefore not a high priority for a revised listing. The BLM will continue to protect the species and ensure that no actions are authorized, funded or carried out that are likely to jeopardize the continued existence of the species. When and if the status of the species is changed to endangered, and/or following the completion of the Recovery Plan for the species, the BLM will incorporate additional conservation measures to protect the species as necessary.

43. *WEG Comment:* The project would effectively industrialize this entire region, effectively handing over American public lands to Newfield Energy Company to do with as they please. Despite ostensibly being managed for all Americans, the BLM's Vernal Field Office is already virtually completely dedicated to the oil and gas industry. The Monument Butte project would perpetuate this de facto transfer of public lands into private hands.

    BLM Clarification: The proposed action involves the development of valid existing federal leases and does not propose or involve in any way the transfer of land or mineral custody to another party.

44. *WEG Comment:* BLM did not fully disclose direct, indirect, and cumulative greenhouse gas emissions, namely the Crescent Point energy Project, the Greater Chapita Wells project, the BLM leasing projects, the Enefit Utility project, and Applications for Permit to Drill being considered for approval in the region.

    BLM Clarification: Direct and indirect greenhouse gas emissions expected from the project are disclosed in Table 4-1 of FEIS Appendix B Air Quality Technical Support Document for the proposed Monument Butte Oil and Gas Development Project page 4 of 85 among others. Cumulative emission impacts are incorporated by reference to IPCC's fourth assessment report for global emissions, Inventory of US Greenhouse Gas Emissions and Sinks for US emissions, and the Greater Natural Buttes Table 4.1-7 for Utah emissions. The emission years for the Greater Natural Buttes analysis specifically, as the analysis most specific to the region of the Monument Butte project area, are reported values for 1990, 2000, and 2005. Those emissions were then used to predict emissions for 2010, and 2020. Although the Chapita, Enefit, and Crescent Point projects and other current or recent Applications for Permit to Drill did not exist at that time of the measured values, the emission future year predictions are sufficient to cover those projects, especially since oil and gas development was occurring then at a faster rate as compared to now due to the current decline in gas and oil prices. The Greater Natural Buttes FEIS paragraph regarding Table 4.1-7 states that "the 2020 predictions reflect a reasonable best estimate of statewide No Action GHG emissions". See the Greater Natural Buttes FEIS page 4-10.

45. *WEG Comment:* BLM failed to conduct any analysis and assessment of climate impacts using readily available methodologies, namely the social cost of carbon protocol. Depending on the discount rate and the year during which the carbon emissions are produced, the Interagency Working Group estimates the cost of carbon emissions, and therefore the benefits of reducing carbon emissions, to range from $11 to $220 per metric ton of carbon dioxide. In its most recent update to the Social Cost of Carbon Technical Support Document, the White House's central estimate was reported to be $36 per metric ton. Although often utilized in the context of agency rulemakings, the protocol has been recommended for use and has been used in project-level decisions. Using the discount rates from the most recent Technical Support Document, the climate costs could range from as low as $94.88 million to as high as $931.6 million annually. However, this is based on the BLM's disclosures in the FEIS, which fail to account for all direct, indirect, and cumulative greenhouse gas emissions. The climate costs would actually be much higher, and therefore represents a significantly conservative estimate of carbon costs. We are not suggesting that the BLM conduct a comprehensive cost-benefit analysis, but rather highlighting how carbon costs shed important light on the significance of the climate impacts of the Monument Butte project

Discount Rate 2016	*5.0%*	*3.0%*	*2.5%*	*3.0% 95th percentile*
SCC Value $/ton of CO_2e	*$11*	*$38*	*$57*	*$108*
Total Costs	*$33,421,729*	*$115,456,882*	*$173,185,323*	*$328,140,612*

BLM Clarification: EPA and other federal agencies use the social cost of carbon (SC-CO_2) to estimate the climate benefits of rulemakings. The FEIS is not a rule making effort. CO_2 emissions have been estimated for the project and disclosed in the FEIS. Climate change has also been disclosed to the extent possible.

46. *WEG Comment:* The FEIS plainly discloses that under the Proposed Action, as well as the BLM's preferred alternative, the amount of VOC emissions will actually increase as compared to the No Action Alternative. As the FEIS states, total VOC emissions under the No Action Alternative are projected to be 2,116.9 tons per year, whereas emissions under the Proposed Action will be 10,360.9 tons per year. Although the BLM claims that emissions will be reduced under the Proposed Action, this is actually a misleading claim in the FEIS. There will not be a reduction in emissions, but rather with the implementation of the agency's "Adaptive Management" strategy, the increase in emissions under the Proposed Action would not be as great. The FEIS confirms this, showing, for example, that under the Proposed Action emissions of VOCs from a subset of activities would be more than 12,000 tons annually without Adaptive Management, but nearly 4,000 tons annually with mitigation. See FEIS at 4-8. This does not represent a reduction in emissions as compared to the No Action Alternative; it simply shows that emissions will not be as high as if the BLM refused to require any mitigation.

BLM Clarification: Page 4-19 of the EIS states that the proposed action's impacts are expected to be lower than the no action alternative over its first couple of years due to the

proposed action's applicant committed measures. Given that the drilling rate under both alternatives is assumed to be the same (up to 360 wells per year), and that the no action alternative is anticipated to occur over a 2.2 year timeframe, this is an accurate statement. Stated another way, drilling 720 ACEPM and regulation controlled wells would result in fewer emissions than drilling 720 wells subject only to the applicable regulations. No change to the EIS is warranted.

47. *WEG Comment:* Pursuant to Clean Air Act, the BLM is prohibited from undertaking any activity in a nonattainment area that does not conform to an applicable implementation plan, including a state and/or federal implementation plan. See 42 U.S.C. § 7506(a)(c); see also 40 C.F.R. §93.150(a). Specifically, the BLM must make a conformity determination for any activity authorized in an ozone nonattainment area that has direct and indirect emissions of VOCs or nitrogen oxides ("NOx") that exceed 100 tons per year. See 40 CFR § 93.153(b)(1).13 Although the Uinta Basin is not yet designated an ozone nonattainment area by the EPA, all indications are that such a designation will be made by October of 2017. Once that designation is made, then Clean Air Act general conformity requirements will apply to the Monument Butte project and any Record of Decision, particularly given that federal agency action will be ongoing through the issuance of Applications for Permits to Drill ("APD"). 1) The agency must explicitly commit to make a general conformity determination for any and all outstanding development left to be approved under the Record of Decision once the nonattainment designation is made and 2) The agency must explicitly state that it must deny any subsequently reviewed APD and/or APDs that do not conform to any implementation plan under the Clean Air Act. To this end, we would urge the BLM to conduct a general conformity analysis now in order to eliminate significant future uncertainty and risk. Most importantly, we would urge the BLM to conduct such an analysis in order to ensure adequate protection of clean air and public health.

    BLM Clarification: FEIS Table 1.6-1 Key Federal, State, and Local Permits, Approvals, and Authorizing Actions for Construction, Operation, Maintenance, and Abandonment of the Proposed Project species that the project is subject to EPA and Utah Clean Air Act permitting programs. There is no way to conduct a conformity analysis now since the SIP/TIP/FIP to which the BLM would supposedly be conforming does not exist.

48. *WEG Comment:* In its EIS, the BLM consistently avoids using 2013 data on the ground that it has not been sufficient error-checked. But there is a wealth of directly-measured 2013 data on VOC and ozone emissions available from a special study by the Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder. That study's field measurements of various constituent VOCs were found to range between two-to-three hundred times regional and seasonal background levels. The study reasoned that the difference between measured concentrations of non-methane hydrocarbons (NMHC) and background levels of those compounds represented fugitive emissions. Based on that assumption, it estimated fugitive NMHS emissions equivalent to 1.4 million barrels of oil, or the equivalent of the annual average NMHC emissions of 100 million cars. Combining fugitive methane with fugitive NMHC, the study estimated a total hydrocarbon/natural gas production loss rate of 8.4−15.9%.

    BLM Clarification: Appendix G "Far-Field Modeling for the Newfield Exploration Company Monument Butte Oil and Gas Development Project Environmental Impact

Statement" cites several 2013 data sources. Page 1-4 discusses high values of zone monitored in the Uintah Basin, page 2-8 and Table 2-4 on pages 2-12 and 2-13 discusses the November 2013 "Utah State BLM Emissions Inventory Technical Support Document" which was prepared for the BLM ARMS strategy, and page 3-6 Table 3-1 cites the DEQ 2013 monitoring data. In addition, Appendix B "Air Quality Technical Support Document for the Proposed Monument Butte Oil and Gas Development Project" Table 3-2 on page 22 of 85 includes 2013 values for ozone and NO_2, and Table 3-3 Pre-Project Background Ambient Air Quality Values Used in AQIA has been revised to incorporate 2013 data for NO_2 and O_3. Table 3-3 in particular was carried forward into the FEIS Table 3.2.3.2-1 on page 3-8.

49. *Utah Physicians for a Healthy Environment (UPHE) Comment:* VOC concentrations that seasonally approach the notorious levels suffered by Mexico City are not a worthy objective for an Environmental Impact Statement to set, particularly where the approval of the project is offered ahead of time, and compliance is sought when the leverage of project approval has already been given away. This is not an effective regulatory approach, particularly if the goal is bring VOC levels down to levels that protect human health, rather than to merely avoid further deterioration. A credible, basin-wide VOC reduction plan should be drawn up, and [Newfield] should agree to follow it, before approval of the project is granted.

    BLM Clarification: Comment noted. One of the BLM's purposes in its NEPA analysis of the proposed project is to assess measures to minimize impacts to the extent possible within the confines of the proposed development of valid existing rights. A Basin wide VOC reduction plan is outside the scope of this process. However, BLM is participating with other jurisdictional agencies in other efforts independent of this project to identify and respond to the monitored air quality violations.

50. *UPHE Comment:* In this EIS, the BLM analyzes the impact on human health of approving [Newfield]'s project by focusing almost exclusively on whether, and how often, and by how much, ozone concentrations in the Uinta Basin violate the NAAQS ambient air standard. The BLM proposes to deal with the reality that the Uinta Basin is already in violation of that standard by approving of [Newfield]'s proposed massive expansion of current drilling in the basin, but promising to require [Newfield] to adapt its processes, or even slow its project build out, just enough to get the basin's ozone pollution barely back under the limit. See EIS, page 2-7. This focus on the NAAQS standard is misplaced if genuinely protecting human health is the objective because the standard is a political compromise that doesn't reflect the current scientific consensus. Substantial harm to human health has been consistently demonstrated by epidemiological studies and animal models to be caused by ozone exposure to concentrations well below the current NAAQS standard, as can be seen from the research summarized in the letter.

    BLM Clarification: Comment noted. Please note that the BLM makes no claim in the FEIS to be able to eliminate a basin-wide ozone issue through this project alone. However, BLM is participating with other jurisdictional agencies in other efforts independent of this project to identify and respond to the monitored air quality violations.

51. *UPHE Comment:* The EIS has no air dispersion model of the impact of the implementing the project (Alternatives A and D) on the concentration of VOCs or ozone.

It does, however, have a model of another project in Colorado that makes reference to the [Newfield] project. It purports to show that the [Newfield] project would only add 2% to the background level of ozone (even though the background level of ozone would still be well in excess of the NAAQs of 70 ppb.) This, however, lacks credibility when compared to 40% increase in NOx that is projected and the 33% increase in VOC that is projected. As to why such substantial increases in these ozone precursors would have virtually no effect on ozone concentrations, the EIS says only that the effect of ozone precursors on ozone is "non-linear."

BLM Clarification: This comment is incorrect, and it is unclear what Colorado model the comment refers to. For this project the BLM utilized the Air Resource Management Strategy model to disclose cumulative impacts, and to determine the project specific effects, the model was run again with the project subtracted from the model. The model protocol was reviewed by multiple agencies with jurisdiction or special expertise before the model was run. The statement that the NOx and VOC reaction is non-linear is correct. The relationship between the two is being studied to improve understanding.

52. *Beatty & Wozniak (B&W) Comment:* The ROD approving the Final EIS for the Project will be programmatic and subject to site-specific approvals. BLM must ensure operational flexibility is provided for site-specific conditions. Specifically, for the numerous prohibitions and numerous restrictions placed on development in the FEIS, BLM must include exception, waiver and modification criteria to afford operational flexibility for Newfield. These criteria will also afford regulatory flexibility for BLM. Without this operational and regulatory flexibility, there will be significant waste of federal oil and gas resources.

    BLM Clarification: Exception, waiver, and modification criteria are planning concepts. This document is not a land use planning effort, therefore the application of those criteria would be inappropriate.

53. *B&W Comment:* The Record of Decision should explicitly acknowledge the scope of ACMs adopted in the FEIS to address air quality issues and the collaborative efforts of Newfield, BLM and EPA in developing that package of ACMs.

    BLM Clarification: The BLM acknowledges that the ACEPMs involve the implementation of protective measures that go beyond what the BLM has the regulatory authority to require and were collaboratively developed between Newfield, the BLM and the EPA.

54. *B&W Comment:* The BLM did not account for the emissions benefits that would accrue from implementation of the State of Utah's General Administrative Order DAQE-AN149250001-14, or new minor source permitting requirements for Indian Country. FEIS at 4-5. The FEIS also does not account for emission reductions that will result from implementation of New Source Performance Standards (NSPS) for the Oil and Gas Sector finalized on June 3, 2016. 40 C.F.R. Part 60 Subpart OOOOa. While in some respects these new regulations update the Subpart OOOO regulations promulgated in 2012, the new standards also impose emissions controls on new and modified existing source categories. For example, the new regulations require the use of Reduced Emissions Completions (green completions) on new oil wells, while the preexisting regulations required such controls only for new natural gas wells. These regulations will

materially reduce emissions from new, reconstructed, and modified sources within the oil and gas sector over and above emissions benefits accounted for in the FEIS. Just as important, the OOOOa regulations establish emission limitations for methane, a greenhouse gas, as well as VOCs. "The actions taken to comply with the final NSPS are anticipated to prevent significant new emissions between now and 2020, including 300,000 tons of methane; 150,000 tons of VOCs; and 1,900 tons of [hazardous air pollutants]." See 81 Federal Register 35824, 35827 (June 3, 2016). The methane emissions prevented in 2030 are anticipated to be 510,000 tons. While BLM lacks the statutory authority to regulate air quality, these regulations represent comprehensive mitigation of emissions of greenhouse gases and their effect on the environment. It also is important to note that many of the ACMs developed to reduce emissions of volatile organic compounds also will have the significant co-benefit of reducing emissions of methane, the principal component of natural gas and a greenhouse forcing gas.

BLM Clarification: Comment noted. This comment is correct in that the listed requirements were not accounted for in the EIS, so their resulting benefits to air quality are not quantified. This means that the existing EIS analysis is a conservatively high estimate of the actual impacts that may occur under the various alternatives.

55. *B&W Comment:* In addition, EPA has stated its intent to propose a Federal Implementation Plan for the Uintah and Ouray Reservation in an effort to reduce emissions from existing oil and gas facilities within Indian Country. While EPA has not released any specific information on the rules to be proposed, the intent as communicated would be to reduce emissions from existing sources. These future emissions benefits also were not acknowledged as a possibility or accounted for in the FEIS analysis. EPA also has announced its intention to promulgate nationwide regulations to reduce methane emissions from existing sources in the oil and gas sector and is preparing an information request to inform the development of such regulations. Finally, BLM has proposed a venting and flaring rule that would reduce VOC and methane emissions from many sources including certain activities not covered by any of the EPA programs. All of these measures, if adopted and implemented, will provide additional emissions benefits over and above those for which BLM took credit in evaluating the proposed action.

    BLM Clarification: Comment noted.

56. *B&W Comment:* The Final Report of the 2014 Uinta Basin Winter Ozone Study provides a valuable insight into what is known about winter ozone formation and efforts to model those episodes. That 2014 Final report was the culmination of a multi-phase study that began in 2012 in order to better understand winter ozone formation. Specifically, the study was designed to identify emission sources and to assess the unique photochemical processes that cause elevated winter ozone concentrations in the Uinta Basin. This study can be found at the following Utah DEQ website address: http://www.deq.utah.gov/locations/U/uintahbasin/ozone/docs/2015/02Feb/UBWOS_2014_Final. pdf.

    The Final 2014 Report built upon reports on the 2012 and 2013 field seasons. The 2012 report included measurements of ambient ozone and ozone precursor levels as well as meteorological conditions. While the meteorological conditions during the 2012 study period were not conducive to the formation of ozone (there were no exceedances during that period), the study authors collected valuable data. The 2013 report was able to take

advantage of meteorological conditions that were favorable to ozone formation and provided significant additional information about winter ozone formation in the Basin. http://www.deq.utah.gov/locations/U/uintahbasin/ozone/strategies /studies/UBOS-2013.htm. While the 2012 and 2013 reports provided substantial new information, they also suggested that additional field measurements would be useful to address areas of uncertainty, particularly involving the chemical conditions that are involved in winter ozone formation. The result of that additional work was the 2014 Uinta Basin Winter Ozone Study.

This compendium of studies currently represents the best available science regarding the formation of ozone during winter periods in the Uinta Basin. Nevertheless, the 2014 Final report makes clear that significant questions and uncertainties remain about the mechanisms of winter ozone formation in the Basin.

In addition, the 2014 Final Report carefully surveyed the efforts of governmental and academic institutions to develop photochemical air quality models that would accurately and reliably predict ozone exceedances. The box model evaluations are useful in providing a superficial level of understanding of winter ozone formation, but they do not provide an assessment of the impact of basin-wide VOC or NOx emission reductions on ozone levels sufficiently robust to allow formulation of a comprehensive regulatory control structure. Meteorological modeling done by Utah State University and the BLM functioned well in mimicking natural conditions, while an EPA model run "failed to capture the intensity and longevity of cold pools, either not simulating a strong enough inversion or eroding the cap too quickly." Id. at 6-7. Several different entities conducted photochemical modeling for the Uinta Basin: the National Oceanic and Atmospheric Administration, the BLM, Utah State University, Utah Department of Air Quality, and EPA. Each set of model runs provided useful information, but none produced model results that were well correlated with monitored data.

BLM Clarification: Comment noted. The BLM has disclosed in the FEIS that data regarding winter ozone formation is lacking and that ozone formation is being further studied. The 2014 Winter Ozone study is a referenced document in the EIS under the citation UDEQ-DAQ 2014.

57. *B&W Comment:* EPA, Utah Department of Air Quality, the Ute Indian Tribe, industry and others have been working for several years on an updated oil and gas emissions inventory for the Uinta Basin. The first phase of the 2014 Uinta Basin Emissions Inventory is now available and a summary of that new inventory is attached as Appendix A to this letter. Significant additional work is needed to finalize this new emission inventory, but it is already clear that the new emissions inventory contains important new information. Among other things, this new emissions inventory reveals that VOC emissions are approximately 49% lower than previous emission inventory estimates. The inventory also notes that there are significant differences in emissions profiles between oil and gas wells in Duchesne and Uintah Counties. The regulatory agencies, industry, and others have more work to do in finalizing this new and improved emissions inventory, and understanding its implications for development of a comprehensive regulatory program to manage ozone levels in the Uinta Basin. This new inventory reinforces the need for greater collaboration among stakeholders and as well as for careful analysis before finalizing additional regulatory requirements. This new

development provides additional support for acknowledging that while the FEIS contains the best science available, the mechanism for winter ozone formation remains subject to significant uncertainty, and that creates concomitant uncertainty about the effectiveness of potential control measures.

BLM Clarification: Comment noted. The BLM has already disclosed in the FEIS that the emissions from the project as disclosed are believed to be conservatively high. See FEIS page 4-6.

58. *B&W Comment:* In Sierra Club v. Federal Energy Regulatory Commission, 2016 U.S. App. LEXIS 11744 (D.C. Cir. 2016), the Sierra Club complained that the Federal Energy Regulatory Commission (FERC) should have evaluated the direct effects of authorizing construction at a natural gas export facility but also the indirect impacts of associated exports that might result. The court, however, emphasized that the FERC did not have the authority to authorize exports themselves; the Department of Energy has the exclusive authority to do so. As a result, the court concluded that the FERC analysis did not have to address the indirect effects of the potential export of natural gas since the agency "has no ability to prevent a certain effect due to "that agency's "limited statutory authority over the relevant action." Id. at 29, citing Public Citizen, 541 U.S. at 771; see also Sierra Club v. Federal Energy Regulatory Commission, 2016 U.S. App. LEXIS 11747 (D.C. Cir. 2016). Likewise, the BLM has no authority to direct or regulate the fate of oil and natural gas produced from these leases. For Newfield's upstream project here, BLM could not possibly anticipate how, where, or for what purpose the natural gas and oil produced from this project would be used. There simply is no close causal relationship between the action evaluated in the FEIS and the eventual downstream use in some form at some place for that oil and gas.

    BLM Clarification: Comment noted. Those activities that are within the scope of this EIS are included in the emissions impacts. See also the response to EPA Comment 1 and WEL and WEG Comment 30.

59. *B&W Comment:* The preamble to the OOOOa regulations, which are now in effect for the oil and gas sector, provided an exhaustive review of the environmental and public welfare impacts of climate change and the anthropomorphic emissions that are driving climate change. 81 Fed. Reg. 35833 -35840 (June 2, 2016). The EPA referred back to its 2009 "Endangerment Finding" for greenhouse gases, under Clean Air Act section 202(a)(1). 74 Fed. Reg. 66496 (Dec. 15, 2009). In that document, EPA provided exhaustive information about trends in greenhouse gas emissions and the increasing concentrations of those gases in the atmosphere. EPA relied upon scientific assessments and observations recorded since the 2009 Endangerment Finding. Some of the referenced documents are listed in this letter.

    BLM Clarification: Comment noted. The BLM's Colorado Plateau Rapid Ecoregional Assessment (2012) also provides an estimate of where climate change may occur. The project area is in an area predicted to be subject to moderately low change (Figure 6-14A). In particular the REA states that the pinyon-juniper and sagebrush vegetation communities in the Uinta Basin are predicted to experience Moderately Low exposure to climate change. However, the direction of such climate change is not known.

60. *B&W Comment:* The BLM recently developed a landscape level Rapid Ecoregional

Assessment (REA) program to support planning and landscape level decision making over large geographic areas. Under this program, BLM developed an REA for the Colorado Plateau, which includes the Uinta Basin and eastern Utah. The Colorado Plateau REA includes a regional climate assessment, which provides an overview of a range of projected changes in temperature, precipitation, and hydroclimate variables for the region. This report presents a qualitative narrative regarding potential long-term landscape-level future conditions and impacts based upon different climate change scenarios. This qualitative assessment provides additional context for the negligible incremental increase of project greenhouse gas emissions quantified and presented in the FEIS. This report also provides additional explanation regarding the uncertainty and complex challenges of landscape level climate modeling. The Record of Decision should incorporate this report by reference and provide a short qualitative overview. The Colorado Plateau REA should also be included in the administrative record.

BLM Clarification: Comment noted. The Colorado Plateau REA has been referenced several times in responding to climate change comments received on the FEIS.

61. *B&W Comment:* The BLM should provide an overview of the Cactus Strategy, emphasizing how the cactus strategy will promote population growth through restoration, survival and recruitment standards.

BLM Clarification: The full cactus strategy can be found in Attachment 4 of this ROD. There are standards tied to recovery of the species that will promote population growth through restoration, as opposed to maintenance of the status quo, such as the juvenile recruitment standard for reclamation acceptance.

Attachment 7: Errata

The errata section of this ROD illustrates the BLM's revisions to the Final EIS. The revisions have been developed from either comments received or BLM's internal review of the Final EIS. The added text is in **bold** and deleted text is in ~~strikethrough~~.

- Page 2-32 Section 2.2.12.1.7. The original applicant committed measure agreed to between BLM, EPA, and Newfield stated *"The purpose of the mitigation strategy outlined here, as incorporated into the Final EIS and ROD, is to ensure that implementation of the Greater Monument Butte Project will not result in net emissions increases of volatile organic compounds (VOC) from stationary sources located within the exterior boundaries of the Project area beyond VOC emissions levels for the 2012 operating year."* This commitment to apply the strategy within the exterior boundary of the project area was inadvertently left out of the FEIS. That clarification is therefore being made here, and is integral to the Decision. Please refer to Attachment 3 of this ROD for the entire mitigation wording.
- Page 2-70 – 2-71 Lines 42-4. Language was inserted here as a placeholder for the Biological Opinion and Cactus Strategy. This errata corrects the measure to reflect the actual language from the Biological Opinion.
    - ~~No new well pads would be allowed except as allowed under the FWS/Newfield Conservation, Restoration, and Mitigation Strategy for the Pariette and Uinta Basin Hookless Cactus (Appendix J Biological Assessment - Attachment F). In limited cases, well pad expansions could occur and new pipelines could be installed directly adjacent to existing roads so long as new surface disturbance is minimized, use of existing disturbance is maximized, the appropriate mitigation from Section 2.6.1.2 is applied, and a monetary amount (determined by the USFWS) is contributed to the Sclerocactus mitigation fund.~~
    - **Where new surface disturbance occurs within the Level 1 CCAs, mitigation must be completed following the Conservation and Mitigation Strategy For the Pariette Cactus and Uinta Basin Hookless Cactus, Newfield Greater Monument Butte Project (Strategy). Where new surface disturbance directly affects Sclerocactus (Sclerocactus are directly removed), a monetary amount ($640 per Sclerocactus) will be contributed to the Sclerocactus Mitigation Fund-BLM to aid in the recovery of Sclerocactus species impacted by the project. These contributions are in addition to payments requested for indirect effects to Sclerocactus. Contributions will be negotiated between the Operator and the USFWS office and will be based on the number of Sclerocactus directly impacted and in relation to the USFWS's current management guidelines for Sclerocactus.**
- Page 2-71 Lines 21-38 Language was inserted here as a placeholder for the Biological Opinion and Cactus Strategy. This errata corrects the measure to reflect the actual language from the Biological Opinion.
    - ~~Scenario 2) New surface disturbance would be allowed as described below, so long as new and existing surface disturbance would not exceed the 5% disturbance cap recommended in the Draft Management Guidelines for the Core Conservation Areas (Appendix I) except as allowed under the FWS/Newfield Conservation, Restoration, and Mitigation Strategy for the Pariette and Uinta Basin Hookless Cactus (Appendix J – Biological Assessment Attachment F).~~
        - ~~New well pads would be allowed in areas where the mineral resource can't be reached from existing pads or to accommodate deep gas drilling; and~~
        - ~~Well pad expansions to accommodate additional wells, and buried pipeline installation~~

~~directly adjacent to existing roads to accommodate conversion of existing producing wells to injection, would be permitted so long as the new surface disturbance is minimized, use of existing disturbance is maximized, and the appropriate mitigation from Section 2.6.1.2 is applied.~~

- ~~In sections where existing well pads exceed four pads per section, no new well pads would be allowed, unless reclamation of current pads occurs so that the total existing plus new well pad count is four per section.~~

- ~~Well pad expansions to accommodate additional wells, and buried pipeline installation directly adjacent to existing roads to accommodate conversion of existing producing wells to injection, would be permitted so long as the new surface disturbance is minimized, and the appropriate mitigation from Section 2.6.1.2 is applied.~~

- **Scenario 2) New surface disturbance, including well pads, roads, pipelines, or any other surface-disturbing activities will not exceed a 5% surface disturbance threshold where feasible.**
- **If the total cumulative surface disturbance is below the 5% threshold, and where access roads, buried pipelines, well pads, or other facilities requiring removal of vegetation (e.g., compressor stations) will be constructed, design project to minimize impacts locating a project a minimum distance of 300 feet from individual Sclerocactus plants and/or populations (except for surface pipelines which is 50 feet).**
- **If the total cumulative surface disturbance is above the 5% threshold, and/or where new surface disturbance indirectly affects Sclerocactus (cactus within 300 feet of proposed disturbance), the mitigation will occur following the Strategy.**
- **Where new surface disturbance directly affects Sclerocactus (cacti are directly removed), a monetary amount ($640 per cactus) will be contributed to the Sclerocactus Mitigation Fund-BLM to aid in the recovery of Sclerocactus species impacted by the project. These contributions are in addition to payments requested for indirect effects to cacti (see previous measure). Contributions will be negotiated between the Operator and the USFWS based on the number of cacti directly impacted and in relation to the USFWS' current management guidelines for Sclerocactus.**
- **Several options for mitigation of Level 2 CCAs are available (see Strategy). If mitigation funds are established, funds will be paid to: Sclerocactus Mitigation Fund – BLM, Impact-Directed Environmental Accounts, National Fish and Wildlife Foundation, 1133 Fifteenth Street NW, Suite 1100, Washington, DC 20005**

- Page 2-74 Lines 1 to 2 states that up to 13 new water treatment and injection facilities would be constructed under Alternative D. However, six of the water treatment and injection facilities already exist.
  - Construction of up to ~~13~~ **seven new and expansion of six existing** gas driven water treatment and injection facilities for management and distribution and injection of produced water
- Page 3-4 Table 3.2.2.1-1, O^3 row. Replace 0.075 ppm with 0.070 ppm.
- Page 3-8 Table 3.2.3.2-1, O^3 row. Replace 0.075 ppm with 0.070 ppm.
- Page 3-9 line 14. Replace 0.075 ppm with 0.070 ppm.

- Page 4-4 Line 19 stated "no project-specific ozone impact modeling has been conducted, because the tools needed for such modeling are not yet available" and Page 4-15 lines 19-21 stated "The ARMS modeling platform was not yet available at the time of the draft EIS development and thus no project-specific photochemical modeling was performed for the Proposed Action and Alternatives at that time." This statement was true at the draft stage, but the ARMS model platform became available between draft and final so the project specific model was run and the results were incorporated into the FEIS. These statements should have been deleted from the FEIS. The FEIS does retain the incorporation of the Greater Natural Buttes model results. However, please refer to page 4-16 lines 32 through page 4-17 line 30 and FEIS Appendix K for the results of the project specific ARMS ozone model.
- Page 4-6. This page was inadvertently formatted landscape orientation, but printed portrait orientation, so some of the words go off the page. The full wording is below.
    - approximately 16 years). Accordingly, emission increases for the MBPA have also been estimated on an annual development basis.
    - Annual development emissions for NOx and VOC from the Proposed Action were estimated on an annual basis for calendar years 2012 through 2022. The annual development emissions are shown in **Table 4.2.1.1.1-3**. Only NOx and VOC emissions were estimated on an annual basis, because they are the pollutants thought responsible for ozone formation in the Uinta Basin. The annual development emissions for 2012 through 2022 provide a 10-year view of how emissions would increase as the Proposed Action is developed. As indicated, it would require at least 16 years to reach full development of the Proposed Action.
- Page 4-17 line 10. Replace 0.075 ppm with 0.070 ppm. No change to the analysis is necessary as a result of this correction.
- Page 4-25 Line 32 refers to Section 2.2.14. The BLM-required mitigation measures present in this section in the DEIS were modified or replaced by additional applicant committed measures between draft and final, and then moved into section 2.2.12.1 of the FEIS. Please replace every reference to Section 2.2.14 with a reference to Section 2.2.12.1.
- Page 4-162 Line 9. Due to technical limitations on smaller pipelines, the words "as technically feasible" have been added to the pigging requirement of this mitigation measure.
    - Natural gas-condensate pipelines that cross mapped 100-year floodplain, mapped riparian, or wetland areas would be routinely pigged **(as technically feasible)** and would have emergency shutoff valves located immediately outside the floodplain.
- Page 4-163 Line 34. Insert the following Special Status Species mitigation measure which was inadvertently left out of the FEIS.
    - 1) Within suitable habitat, site-specific inventories will be conducted to determine occupancy. The inventories will be conducted for lands within 300 feet of proposed surface disturbance; 2) In suitable habitat, the project infrastructure will be designed to minimize impacts; and 3) Within occupied habitat, the project infrastructure will be designed to avoid direct disturbance and to minimize indirect impacts to populations and individual plants. The nearest proposed surface disturbance to a plant will be at least 300 feet away.
- Page 4-163 Line 42. The biological opinion and/or the applicant committed measures upon which the biological opinion was founded, changed "potential habitat" to "suitable habitat". "Surveys will be conducted in ~~potential~~ suitable habitat prior to initiation of project activities
- Page 4-164 between Lines 10 and 11, add the following measures from the Biological Opinion:
    - Surveys will be valid for one year from the survey date for *Sclerocactus brevispinus* and *Sclerocactus wetlandicus.*

- Sclerocactus spot check surveys will be conducted on an annual basis by a qualified botanist, and reviewed by the Bureau of Land Management (BLM) and our office for all planned disturbance areas if the project has not been completed within the year following pre-construction plant surveys. Review of spot checks may result in additional pre- construction plant surveys as directed the BLM and our office. If the proposed action has not occurred within four years of the original survey, additional coordination with the BLM and our office must occur and a new clearance survey may be necessary prior to ground disturbing activities.
- Sclerocactus surveys for access roads, buried pipelines, well pads, and other facilities requiring removal of vegetation (e.g., compressor stations) will include the project area and/or right-of-way (ROW), and 300 feet (ft) from the edges of the project disturbance and/or ROW.
- Sclerocactus surveys for surface pipelines placed within an existing road ROW, and within 10 ft from the edge of the disturbed surface of the road, will include the ROW and 50 ft from the edge of the ROW on the pipeline side of the road.
- Sclerocactus surveys for cross-country surface pipelines (pipelines over 10 ft from a road), where the pipeline will be laid by hand with minimal disturbance and no vehicle use will include the ROW and 50 ft from the edges of both sides of the ROW.
- Surveys for all other cross-country surface pipelines (vehicles or equipment used, not laid out by hand) will include the ROW and 300 ft from the edges of both sides of the ROW.
- *Sclerocactus* surveys will not be necessary when pipelines are buried in existing roads.

- Page 4-165 Line 25 per the Biological Opinion: "Ground disturbing activities ~~in potential Sclerocactus habitat, and~~ **in Level 1 CCAs**, and within 300 feet of individual Sclerocactus plants and/or populations…

- Page 4-165 between Lines 37 and 39, add the following measures from the Biological Opinion
  - New surface pipelines located closer than 50 feet to known *Sclerocactus* individuals will be secured in place to prevent pipeline movement (and in accordance with Level 1 and 2 CCA conservation recommendations, as outlined below).

- Page 4-165 line 43 per the Biological Opinion: "Only water **and methods approved by the AO** (no chemicals, reclaimed production water or oil field brine)…"

- Page 4-166 Line 1 per the Biological Opinion: "Dust abatement will be employed in ~~potential~~ **suitable** Sclerocactus habitat over the life…"

- Page 4-166 Line 19 per the Biological Opinion, add the following to the end of this measure: "**, which may include the use of sterile, non-native, non-invasive, annuals to help secure topsoil and encourage native perennials to establish**."

- Page 4-167 Lines 3-8. Language was inserted here as a placeholder for the Biological Opinion and Cactus Strategy. This errata corrects the measure to reflect the actual language from the Biological Opinion.
  - Avoid new surface disturbance, including well pads, roads, pipelines, or any other surface disturbing activities ~~except as allowed by the FWS/Newfield Conservation, Restoration, and Mitigation Strategy for the Pariette and Uinta Basin Hookless Cactus (see Biological Assessment – Attachment to Appendix J, Biological Opinion)~~ **where feasible**. Expansion of existing facilities will be allowed - e.g., widening existing access roads, expanding well pads, installation of pipelines to access existing facilities (along existing alignments or roadways).

- Page 4-167 lines 19-36. Language was inserted here as a placeholder for the Biological Opinion and Cactus Strategy. This errata corrects the measure to reflect the actual language from the Biological

Opinion.

- ~~When new surface disturbance occurs within the CCA1 area, a monetary amount will be contributed to the Sclerocactus Mitigation Fund to aid in the recovery of Sclerocactus species impacted by the project.~~
- ~~Where new surface disturbance directly affects Sclerocactus (cacti are directly removed), a monetary amount will be contributed to the Sclerocactus Mitigation Fund to aid in the recovery of Sclerocactus species impacted by the project. These contributions are in addition to payments requested for indirect effects to cacti (see previous measure). Contributions will be negotiated between the Operator and the USFWS based on the number of cacti directly impacted and in relation to the USFWS' current management guidelines for Sclerocactus.~~
- ~~Funds will be paid to: Sclerocactus Mitigation Fund Michelle Olson, Manager Impact-Directed Environmental Accounts National Fish and Wildlife Foundation 1133 Fifteenth Street NW, Suite 1100 Washington, DC 20005~~
- **Where new surface disturbance occurs within the Level I CCAs, mitigation must be completed following the Conservation and Mitigation Strategy For the Pariette Cactus and Uinta Basin Hookless Cactus, Newfield Greater Monument Butte Project (Strategy). Where new surface disturbance directly affects Sclerocactus (Sclerocactus are directly removed), a monetary amount ($640 per Sclerocactus) will be contributed to the Sclerocactus Mitigation Fund-BLM to aid in the recovery of Sclerocactus species impacted by the project. These contributions are in addition to payments requested for indirect effects to Sclerocactus. Contributions will be negotiated between the Operator and the USFWS office and will be based on the number of Sclerocactus directly impacted and in relation to the USFWS's current management guidelines for Sclerocactus.**
- **Several options for mitigation of Level 1 CCAs are present (see Strategy). If mitigation funds are established, funds will be paid to: Sclerocactus Mitigation Fund – BLM, Impact-Directed Environmental Accounts National Fish and Wildlife Foundation Fifteenth Street NW, Suite 1100 Washington, DC 20005**

- Page 4-167 – 4-168 Lines 40-3. Language was inserted here as a placeholder for the Biological Opinion and Cactus Strategy. This errata corrects the measure to reflect the actual language from the Biological Opinion.
  - New surface disturbance, including well pads, roads, pipelines, or any other surface-disturbing activities will not exceed a 5% surface disturbance threshold **where feasible** ~~except as allowed by the FWS/Newfield Conservation, Restoration, and Mitigation Strategy for the Pariette and Uinta Basin Hookless Cactus (see Biological Assessment – Attachment to Appendix J, Biological Opinion)~~.
- Page 4-168 Line 34. This errata corrects the measure to reflect the actual language from the Biological Opinion. "Sclerocactus ~~Potential~~ Habitat Polygon"
- Page 4-168 Lines 42-44. This errata corrects the measure to reflect the actual language from the Biological Opinion. "Where new surface disturbance indirectly affects Sclerocactus (cactus within 300 feet of proposed disturbance), ~~a monetary amount will be contributed to the Sclerocactus Mitigation Fund to aid in the recovery of Sclerocactus species impacted by the project~~ **mitigation will occur following the Strategy**."
- Page 4-168 – 4-169 Lines 42-13. Language was inserted here as a placeholder for the Biological Opinion and Cactus Strategy. This errata corrects the measure to reflect the actual language from the

Biological Opinion.

- Where new surface disturbance directly affects Sclerocactus (cacti are directly removed), a monetary amount ($640 per acre) will be contributed to the Sclerocactus Mitigation Fund-**BLM** to aid in the recovery ~~requested for indirect effects to cacti (see previous measure)~~ of Sclerocactus species impacted by the project. Contributions will be negotiated between the Operator and the USFWS based on the number of cacti directly impacted and in relation to the USFWS' current management guidelines for Sclerocactus.
- ~~Funds will be paid to: Sclerocactus Mitigation Fund, Michelle Olson, Manager, Impact-Directed Environmental Accounts, National Fish and Wildlife Foundation, 1133 Fifteenth Street NW, Suite 1100, Washington, DC 20005~~
- **Several options for mitigation of the *Sclerocactus* Habitat Polygon are available (see Strategy). If mitigation funds are established, funds will be paid to: *Sclerocactus* Mitigation Fund – BLM, Impact-Directed Environmental Accounts National Fish and Wildlife Foundation 1133 Fifteenth Street NW, Suite 1100 Washington, DC 20005**

- Page 4-51 Line 1, Page 4-94 Line 29, Page 4-123 Line 38, Page 4-161 Line 37, and Page 4-169 Line 15, all identify the application of the Vernal RMP Appendix K Surface Stipulations Applicable to all Surface-Disturbing Activities. However, most of the leases under scrutiny in this EIS are pre-existing rights which the RMP cannot amend. Therefore, this measure in all instances has been changed as follows:
  - "All applicable surface stipulations from Appendix K**, subject to valid existing rights**, and Fluid Minerals BMPs from Appendix R of the Vernal RMP (BLM 2008b) would be implemented.
- Page 4-191 Lines 41-42. The low profile tank measure has been modified as follows because low profile tanks within 0.5 mile of the green river are already applicant proposed, and recreationists do utilize other portions of the project area:
  - Low-profile tanks would be used to reduce visual impacts to recreationists **in visually sensitive areas** at the direction of the AO.
- Page 5-8 Lines 18-19. Strike this sentence: ~~These emissions are less than about five hundredths of a percent of the U.S. total shown for 2010 and about 3 percent of the state-wide total projected for 2020.~~
- Page 6-1 Lines 19-31 omitted some consultation dates, and reported incorrect dates on a few lines. Corrected dates are as follows:
  - **December 22, 2010: The BLM sent an initiation of consultation letter which summarized the proposed project to the thirteen tribes with ties to the Basin.**
  - **September 20, 2012: The BLM sent a letter announcing the October 11 meeting, and inviting the proposed consulting parties to participate.**
  - ~~September 9, 2012~~ **September 27, 2012:** The Laguna Pueblo Tribe response indicated no significant impact.
  - **September 27, 2012: A response letter was received from Duchesne County acing the invitation to participate.**
  - ~~October 11, 2012~~ **October 01, 2012:** The Hopi Tribe response requested continued consultation.
- FEIS Attachment 2 page 37 2nd paragraph, last full line. Replace 0.075 ppm with 0.070 ppm.

- FEIS Attachment 2 page 38, last line. Replace 0.075 ppm with 0.070 ppm.
- FEIS Appendix B page 21 of 85 Table 3-1 O^3 line. Replace 0.075 ppm with 0.070 ppm.
- FEIS Appendix J (PDF page 1313) Cactus Mitigation Strategy Page 11. The final bullet on this page refers to Table 1. This reference should be to the BLM Herbicide PEIS Appendix B Tables B-1 and B-2.
- FEIS Appendix J Biological Opinion. There is a digital error in the FEIS Biological Opinion which causes some of the pages to appear blank. The Biological Opinion has been attached to this ROD as Attachment 5 to mitigate this error.
- FEIS Appendix K page 3-6 Table 3-1 ozone line. Replace 75 with 70 in 3 instances. Also in footnote 9 of this table, replace 0.075 ppm with 0.070 ppm.
- FEIS Appendix K page 3-11 Table 3-6, footnote. Replace 0.075 ppm with 0.070 ppm.

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Attachment 8: Appeals Form 1842-1

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