

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

Environmental Assessment

December 2015

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management
Worland Field Office



Environmental Assessment

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Chapter 1. Introduction

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1.1. Identifying Information

1.1.1. Title, EA number, and type of project:

Koch Exploration Company, LLC Access Road, Construction Area and Fritz Federal State
16-44H Well Pad Rights-of-way

DOI-BLM-WY-R010-2016-0004-EA

Type of Project: Rights-of-way Access Road Amendment, Construction & Well Pad Applications

1.1.2. General Location of Proposed Action:

6th PM, Big Horn County, Wyoming,

T. 50 N., R. 95 W., (Access Road WYW-141807 and WYW-141807-01)

sec. 3, lot 8, SW $\frac{1}{4}$ NW $\frac{1}{4}$, N $\frac{1}{2}$ SW $\frac{1}{4}$, W $\frac{1}{2}$ S $\frac{1}{4}$ E;

sec. 9, lots 1, 2, 3 and 4, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$;

sec. 10, W $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$, N $\frac{1}{2}$ SE $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$;

sec. 16, lot 7, Tracts 38 lots 2, 3, and 9;

T. 51 N., R. 95 W.,

sec. 33, lot 18, SE $\frac{1}{4}$ SE $\frac{1}{4}$, Tract 43 16;

sec. 34, SW $\frac{1}{4}$ SW $\frac{1}{4}$.

T. 50 N., R. 95 W., (Well Pad WYW-165339)

sec. 9, lot 4.

1.1.3. Name and Location of Preparing Office:

Worland Field Office

101 S. 23rd St.

Worland, WY 82401

1.1.4. Lease/Serial/Case file number:

WYW-141807, WYW-141807-01 and WYW-165339

1.1.5. Applicant Name:

Koch Exploration Company, LLC

1.1.6. Background Information:

Koch Exploration Company, LLC has submitted a SF 299 Application and Plan of Development (POD) to the Bureau of Land Management (BLM), Worland Field Office proposing to amend their existing access road ROW, serial number WYW-141807, construction ROW, serial number WYW-141807-01, to serve Fritz Federal State 16-44H well pad, and a SF 299 Application and Plan of Development (POD) for the construction of Fritz Federal State 16-44H well pad ROW, serial number WYW-165339, located in the Worland Field, Big Horn County, Wyoming. The drilling plan and the operator's surface use plan are considered part of the proposed action. These documents include site-specific plans describing the proposed development (i.e., drilling plans with casing/cementing program; surface use plans with road and drill pad construction details; site-specific reclamation plans).

The access road would include the use of 0.569 miles of acquired BLM easement, 4.6 miles of BLM Road #1135, and the remaining access would include upgrading 0.444 miles of existing road on BLM. The total ROW across public lands would be 5.613 miles, for a total ROW of 33.33 acres more or less.

The project area for the well pad surface is under public lands (administered by the BLM) in T. 50 N., R. 95 W., sec. 9, lot 4; the Fritz Federal State 16-44H well would extract minerals under section 16, SESE; which are owned by the State of Wyoming. No Federal minerals would be extracted by the Fritz Federal State 16-44H. The ROW across public lands for the well pad would be 3.62 acres more or less.

The proposed activities would occur on lands administered by the BLM, Worland Field Office and mineral estate owned by the State of Wyoming in T. 50 N., R. 95 W., sec. 16 (the surface was reconveyed to the United States in 1937). Construction activities are planned for the fall of 2015, or as soon as required approvals are obtained.

1.2. Purpose and Need for Action:

The need for the right-of-way action is established by the BLM's responsibility under Title V of the Federal Land Policy and Management Act of 1976, as Amended (FLPMA) to respond to a request for a right-of-way (ROW) grant and to ensure the activity protects the natural resources of public lands and prevents unnecessary or undue degradation. The purpose of the proposed action is for the BLM to respond to the request.

1.3. Decision to be made:

The Authorized Officer (AO) must determine whether or not to approve the rights-of-way and thus grant authorization of the amendment access road, construction area, and well pad across public lands. The AO could decide not to issue a grant if it would cause unnecessary or undue degradation to the public lands, or if it would threaten to violate another Federal law.

If it is decided to issue the grant, the AO must decide what Terms and Conditions, would apply to the grant. Terms and Conditions could include specification of construction, design, mitigation measures, and abandonment/reclamation activities for the proposed project area.

Finally, the AO must determine whether or not the proposed action could result in significant impact to the human environment. If not, this determination would be documented in a Finding of No Significant Impact (FONSI.) If the impacts could be significant, an environmental impact statement would be necessary.

1.4. Conformance

Land Use Plan Name: Worland Field Office Resource Management Plan

Date Approved: September 21, 2015

This plan has been reviewed to determine if the proposed action conforms to the land use plan as required by 43 CFR 1610.5. The proposed action conforms to the Record of Decision and Approved Resource Management Plan for Worland dated September 21, 2015. The decisions in the Worland Field Office Resource Management Plan (WRMP) provide overall management direction for resources on BLM-administered land in the Worland Field Office, Wyoming.

The proposed action is in conformance with the applicable LUP because it is specifically provided for in the following LUP decisions:

WRMP/ROD record numbers:

6000, Manage public lands to meet transportation and ROW needs consistent with goals and objectives of other resources.

6001, Consider land use authorizations (permits, leases, etc.) on a case by case basis consistent with other resource objectives.

6023, The preferred location of new ROW will be in or adjacent to existing disturbed areas associated with existing ROW or high traffic gravel roads or highways, where possible.

6029, Manage 1,767,274 acres as ROW avoidance areas (Map 3-24). Manage PHMAs as ROW avoidance areas for new ROW or SUA permits (799,391 acres). Within PHMAs where new ROWs/SUAs are necessary, locate new ROWs/SUAs within designated RMP corridors or adjacent to existing ROWs/SUAs where technically feasible. Subject to valid existing rights, including non-federal land inholdings, locate new, required ROWs/SUAs adjacent to existing ROWs/SUAs or where impacts to Greater Sage-Grouse are minimized. Work with proponents to design ROW applications to protect Greater Sage-Grouse.

The Worland RMP (pgs 107-109) delineates preferred right-of-way corridors, right-of-way avoidance areas, right-of-way exclusion area, and area available for right-of-way. The Worland RMP states that the BLM would manage public lands to meet transportation and ROW needs by providing opportunities to meet ROW demands while protecting important resources.

1.5. Relationship to Statutes, Regulations, Plans or Other Environmental Analysis:

This Environmental Assessment (EA) is prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA) and complies with applicable regulations and laws passed subsequent to the Act. In addition, this EA is prepared utilizing the stipulations and

format outlined in the BLM NEPA Handbook H-1790-1 (BLM 1988). The Proposed Action and alternatives would comply with relevant federal, state, and local regulations, plans, and policies.

Title V of FLPMA, sec. 501. [43 U.S.C. 1761] (a) The Secretary, with respect to the public lands (including public lands, as defined in section 103(e) of this Act, which are reserved from entry pursuant to section 24 of the Federal Power Act (16 U.S.C. 818)) [P.L. 102-486, 1992] and, the Secretary of Agriculture, with respect to lands within the National Forest System (except in each case land designated as wilderness), are authorized to grant, issue, or renew rights-of-way over, upon, under, or through such lands for— (6) roads, trails, highways, railroads, canals, tunnels, tramways, airways, livestock driveways, or other means of transportation except where such facilities are constructed and maintained in connection with commercial recreation facilities on lands in the National Forest System; and (7) such other necessary transportation or other systems or facilities which are in the public interest and which require rights-of-way over, upon, under, or through such lands.

43 CFR §2800 It is BLM's objective to grant rights-of-way under the regulations in this part to any qualified individual, business, or government entity and to direct and control the use of rights-of-way on public lands in a manner that:

- (a) Protects the natural resources associated with public lands and adjacent lands, whether private or administered by a government entity;
- (b) Prevents unnecessary or undue degradation to public lands;
- (c) Promotes the use of rights-of-way in common considering engineering and technological compatibility, national security, and land use plans; and
- (d) Coordinates, to the fullest extent possible, all BLM actions under the regulations in this part with state and local governments, interested individuals, and appropriate quasi-public entities.

The BLM Land Use Planning Handbook (H.1601-1) states that the BLM must consider the management of lands with wilderness characteristics during the land use planning process. The criteria used to identify these lands are essentially the same criteria used for determining wilderness characteristics for wilderness study areas (WSA). However, the authority set forth in Section 603(a) of FLPMA to complete the three part wilderness review process (inventory, study, and report to Congress) expired on October 21, 1993; therefore, FLPMA does not apply to new WSA proposals and consideration of new WSA proposals on BLM-administered public lands is no longer valid. As required by FLPMA, Section 201, the alternatives were evaluated and screened for wilderness characteristics.

1.6. Scoping, Public Involvement and Issues:

1.6.1. Scoping

The right-of-way access road amendment application, construction area and well pad application were received by the Worland Field Office on July 30, 2015 and were considered complete on October 28, 2015. Based on the size and routine nature of the proposed project, it was determined that external scoping was not necessary. Notification of preparation of this proposal was also provided on the ePlanning BLM internet NEPA register

(https://eplanning.blm.gov/epl-front-office/eplanning/nepa/nepa_register.do) on October 8, 2015. Staff specialists reviewed the proposal and identified impacts and appropriate mitigation measures.

1.6.2. Issues Identified

Cultural: How would the proposed surface disturbance affect cultural resources eligible or unevaluated for the National Register of Historic Places?

Paleontology: How would the proposed surface disturbance affect significant paleontological localities?

Recreation: How will the proposed action affect Visual Resource Management (VRM) Class IV landscape?

How will the proposed action affect nearby Wilderness Study Areas (WSA's) and Lands with Wilderness Characteristics (LWC's)?

How will the proposed action affect the Badlands SRMA and Tour de Badlands RMZ?

Soils: How will the proposed action affect runoff and erosion? What is the likelihood of successful reclamation?

Wildlife: What impact will the proposed access route and well pad surface disturbance, and vehicle traffic and drilling disruption, have on nesting mountain plover and/or raptors, if present?

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Chapter 2. Proposed Action and Alternatives

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2.1. Description of the No Action Alternative:

No Action implies that on-going development and activities would be allowed to continue in the area, but the proposed action would be disallowed. Additional actions would be considered by the BLM on a case-by-case basis.

2.2. Description of the Proposed Action:

The Proposed Action would consider the rights-of-way applications complete, and BLM would consider whether to issue the ROW as submitted with special terms and conditions consistent with 43 CFR 2805.12, as well as specific mitigation and monitoring measures for the proposed project area, which may be defined through the NEPA analysis.

Koch Exploration Company, LLC has submitted a- SF 299 Application and Plan of Development (POD) to the Bureau of Land Management (BLM), Worland Field Office proposing to amend their existing access road ROW, serial number WYW-141807, construction area ROW, serial number WYW-141807-01, to serve Fritz Federal State 16-44H well pad, and Fritz Federal State 16-44H well pad ROW, serial number WYW-165339, located in the Worland Oil Field. The drilling plan and the operator's surface use plan are considered part of the proposed action. These documents include site-specific plans describing the proposed development (i.e., drilling plans with casing/cementing program; surface use plans with road and drill pad construction details; site-specific reclamation plans).

The proposed existing access road, construction area, and well pad are located in Big Horn County, Wyoming. The proposed action is to upgrade and maintain an existing road to serve Fritz Federal State 16-44H well pad and for the construction of Fritz Federal State 16-44H well pad. The requested ROWs are for an amendment to expand the existing access road width from 30 feet to a total of 60 feet in width, 24,288 feet in length (4.6 miles), 30 feet in width involving 16.72 acres more or less; new/upgrade existing access road, 2,348 feet in length, 60 feet in width involving 3.23 acres more or less; and the use of acquired BLM easement 3,005.64 feet in length, 60 feet in width, involving 4.14 acres more or less (WYW-141807), construction area, 4 envelopes involving a total of 9.24 acres more or less (WYW-141807-01), and Fritz Federal State 16-44H well pad, 350 feet in length 450 feet in width involving a total of 3.62 acres more or less, (WYW-165339).

The proposed location has been surveyed and staked by GDA Engineers. An onsite of the location was conducted on February 23, 2015 with the following people in attendance:

Darci Stafford, NRS, BLM

Leta Rinker, Realty Specialist

Monica Geopferd, Eng., BLM

Frank Sanders, PE, BLM

Tim Stephens, Biol., BLM

Alex Jensen, Geologist, BLM

Jared Dalebout, Hydrologist, BLM

Todd Spivey, 2-Dot Consulting

Deidre Duffy, 2-Dot Consulting

Peter DiPilla, Surveyor

Construction and Drilling

The following is a general discussion of proposed construction techniques to be used in the proposed action. Roads, power lines and flowlines constructed in association with this project could require BLM right-of-way (ROW) authorizations and include additional mitigation to minimize environmental impacts.

Access Road (Existing and New Construction)

To access the proposed Fritz Federal State 16-44H well location from the town of Basin, WY, begin at the intersection of Highway 16-20 and Highway 30 in Basin and proceed west on Highway 30 for 11.8 miles. Turn left (south) onto County Rd 16 for 3.6 miles to BLM Road 1135. Proceed southwest for 3.16 miles, turn right (west) for 1.95 miles to the proposed well location.

The existing access road would be upgraded and width would be expanded to the well location. The total length of the road is 26,636.0, on BLM surface. The amendment width would be increased by 30' x 24,288.0' and additional existing/upgraded road of 60' width x 2,348.0' length. The use of acquired BLM easement access road would involve 60' width x 3005.64' length. An additional 9.24 acres would be needed beyond the 60' ROW (four envelopes surrounding new culverts) for construction, resulting in a ROW on BLM surface lands of 33.33 acres.

The proposed existing access road would be constructed and improved for the anticipated levels of use of truck traffic which would be traveling the road, which includes both light and heavy duty trucks. The existing road would be crowned and ditched with a 14-24 foot running surface; and 5 culverts would be installed in 4 locations in defined areas as shown on Figures 1.2, 2.1 and 2.2. The additional upgraded road would be constructed to a 12-14 foot running surface with a 14 foot subgrade; a turnout would be provided in 1 location, and 3 culverts may be installed as shown on Figure 2.2. Borrow ditches would be back-sloped to 2:1 gradient, and maximum grade on the road would be 3.4%. Surface materials would consist of road base gravel obtained from a permitted source as outlined in the SUPO.

The anticipated truck traffic use during construction and drilling is anticipated to be a high of 60 trucks per day for approximately 8 days, to 6-20 trucks for 95 days. The anticipated production use would be 1-2 trucks per day for the life of the well.

The access road is designed to meet the standards of the anticipated traffic flow and all-weather requirements. The access road would not be constructed using frozen material or during periods when the soil material is saturated or when watershed damage is likely to occur.

Access roads, surface disturbing activities and maintenance would conform to standards outlined in the BLM and Forest Service publication: *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, The Gold Book, Fourth Edition* (2007) and BLM Manual Section 9113.

Koch Exploration Company, LLC would maintain the right-of-way in a way that would contain **periodically** monitoring the roadways. A regular maintenance program would include, but would

not be limited to, graveling, blading, ditching, culvert installation, and surfacing. Work would not occur when conditions are too muddy. No excess dirt would be placed in any existing drainage.

Well Pad Design and Construction

The well pad would be prepared by clearing an area approximately 300' x 370'. The well location would be cleared of vegetation and topsoil (up to four inches), which would be stockpiled for future use in reclamation. Erosion would be monitored around the toe of the proposed stockpiles. Control steps would be implemented, if necessary, to prevent soil erosion. The pad would be leveled using standard cut-and-fill construction techniques. Construction would not commence during times when soils are saturated or when damage to adjacent water sheds could occur. Construction would not use frozen materials. The well pad site would be approximately 350' x 450'. Total disturbance on the pad during drilling and completion is estimated to be 3.62 acres as shown in Figure 4 and includes the disturbance for cuts and fills, storage piles, and working areas.

Drilling Operations and Well Completion

Drilling the well would utilize a completion drilling rig. Additional equipment and material needed for drilling operations would be trucked to the well site.

Drilling fluid would be contained in a closed-loop system. All drilling fluids would be contained in temporary above ground storage tanks and disposed of at a Wyoming DEQ approved disposal facility. A 400 bbl Emergency storage tank would be located on the well pad; the tank would provide emergency containment of drilling fluids in case of a mechanical problem with the closed loop system.

Produced fluid would be contained in test tanks during completion and testing.

Produced water would be disposed of at a Wyoming DEQ approved disposal facility.

A cuttings pit would be constructed on the well pad; the pit would provide storage for the drill cuttings from the closed loop system. The pit would be constructed on the cut side of the pad and be designed to prevent the collection of surface runoff.

Drill cuttings would be stored in the cuttings pit. Cuttings would be tested per Wyoming Department of Environmental Quality (DEQ) standards, if cuttings meet DEQ standards, the cuttings would be buried to a minimum depth of 3 feet and covered with clean fill.

If drill cuttings do not meet DEQ standards, the cuttings would be solidified onsite and disposed of at a DEQ approved disposal facility.

Location of Water Supply

Water for drilling, completing, and operating would be obtained from a well 2.2 miles east of Manderson, WY. Koch is estimating to use 80,000 bbls of fresh water during drilling and completion.

Waste Disposal

Waste disposal would be handled in the following manner:

A cuttings pit would be constructed on the well pad; the pit would provide storage for the drill cuttings from the closed loop system. The pit would be constructed on the cut side of the pad

and be designed to prevent the collection of surface runoff. Drill cuttings would be stored in the cuttings pit. Cuttings would be tested per Wyoming Department of Environmental Quality (DEQ) standards, if cuttings meet DEQ standards, the cuttings would be buried to a minimum depth of 3 feet and covered with clean fill. If drill cuttings do not meet DEQ standards, the cuttings would be solidified onsite and disposed of at a DEQ approved disposal facility. The pit would be lined with a 12 mm liner that is weather and puncture resistant. Liners from the drill cuttings pit would be buried onsite. If fluids are in the pit, the pit would be netted per BLM approval.

Drilling fluid would be contained in a closed-loop system. All drilling fluids would be contained in temporary aboveground storage tanks and disposed of at a Wyoming DEQ approved disposal facility. Produced fluid would be contained in test tanks during completion and testing. Produced water would be disposed of at a Wyoming DEQ approved disposal facility.

Koch Exploration Company, LLC would be responsible for recognizing and handling hazardous materials. All spills of reportable quantity would be contained, reported, and cleaned up in accordance with State and Federal regulations (DEQ/EPA).

Sewage would be handled in self-contained, chemical-treated portable toilets and contents would be hauled off location to an authorized DEQ approved sanitary disposal facility in accordance with state and local regulations.

Garbage and other burnable waste would be contained in a portable trash cage that would be totally enclosed with small mesh wire. Cage and contents would be transported to and dumped at a DEQ approved disposal facility.

Ancillary Facilities

Ancillary facilities would not be required to support the Fritz Federal State 16-44H.

Production Operations

Well Production Facilities

Koch is proposing to place the following facilities on the well pad if the well is completed as a producer: 18,000 gallon Natural Gas Liquid tanks, a GGC 5000 mechanical refrigeration unit, 2 – 200 KW CRS generators, a separator, a meter house, a dehy, a combustor, and 2 400 bbl oil tanks.

Power Generation

Koch would use a generator fueled by produced natural gas if the well is economical to produce.

Flowlines

If the well is successful the existing above ground pipeline (WYW-129953) would be used to transport product to sales (located in section 14, T50N, R96W).

Operations and Maintenance

All operations would be conducted in accordance with industry standards for safe and efficient operation. The access road and the well would be inspected periodically by the operator and the BLM and maintained by the operator to minimize any resource damage or loss and ensure safe operating conditions.

Workforce and Traffic

The drilling and completion operation would require approximately eight people at a time; including 2 Welders, 4 Roustabouts, 1 Heavy Equipment Operator, and 1 Koch Representative. One dozer, 4 pickup trucks, and 1 crane (one day only) would be used during facility construction. Facilities would be brought in to the site in three (3) truckloads: 1 load at 25 tons (includes truck weight) and 2 loads at 20 tons each (includes truck weight). The crane (25 tons) would be used to set the 2 tanks, dehydrator, and separator.

A trencher (8 tons) may be required to trench the flow line paths.

Summary of Estimated Disturbances

Implementation of the proposed action would result in surface disturbance. The proposed action would include disturbances for the proposed access road and well pad on BLM surface lands.

(New & Existing Disturbance)

| ROW | Well Pad Site | Upgraded Access Road | Existing Access Road Amendment | BLM Acquired Easement | Construction Areas |
|--|---|--|---|---|--|
| WYW-165339 | 350' x 450'; 3.62 acres, more or less | | | | |
| WYW-141807 | | 2,348.0' x 60'; 3.23 acres, more or less | 24,288' x 30'; 16.72 acres, more or less | 3005.64' x 60' 4.14 acres, more or less | |
| WYW-141807-01 | | | | | 4 envelopes: 2.61, 1.99, 4.46, 0.18; 9.24 acres, more or less |
| Total Acreage for Rights-of-Way | | | | | 36.95 |

Interim Reclamation and Final Abandonment

The plans for reclamation are described in the following attachment to the Surface Use Plan, entitled "Fritz Federal State 16-44H Well Pad and Access Road Reclamation Plan," which is available in the administrative record and incorporated here by reference. During interim reclamation, all disturbed areas not needed for production operations would be recontoured to approximate natural topography, all topsoil would be respread, and the area would be seeded with a seed mix appropriate for the ecological site. Topsoil would be spread back into the borrow ditches of the road, and the area would be seeded back to the running surface. During final reclamation, all production and surface facilities would be removed. Topsoil would be stripped from the interim reclamation areas, and the entire site would be recontoured back to the original contours. The topsoil would be respreads over the entire site, and seeded with an appropriate seed mix for the ecological site. The access road would be recontoured to the original contours, and the area would be ripped and seeded to return to a two-track condition.

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Chapter 3. AFFECTED ENVIRONMENT and *ENVIRONMENTAL EFFECTS*

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This chapter characterizes the resources and uses that have the potential to be affected by the proposed action, followed by a comparative analysis of the direct, indirect and cumulative impacts of the alternatives. **Direct** effects are caused by the action and occur at the same time and place. **Indirect** effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. **Cumulative** impacts result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions.

3.1. Introduction

3.1.1. General Setting and Geographic Scope of the project area

The project area is located within Big Horn County, Wyoming. Worland Field is approximately 20.91 miles west of Basin, Wyoming. Land use consists of oil and gas production, livestock grazing, hunting and motorized recreational activities. The proposed activity should not interfere with current land use. Vegetation varies from eroded, barren hillsides to gently rolling or flat areas with a saltbrush, sage brush, and cactus and perennial grass vegetative community.

3.1.2. Resources Not Analyzed

Resources and features not present or not effected by the proposed action or alternatives, and not discussed in this EA, include: Environmental Justice, Prime or Unique Farmlands, Flood Plains, Native American Religious Concerns, Traditional Cultural Properties, riparian areas, Class I visual management areas, Class I Airsheds, Wild and Scenic Rivers, Wetlands, Wilderness Values or Inventoried Lands with Wilderness Characteristics. (Add/Delete to list as needed) Land Use/Access, Air Quality, Geology & Mineral Resources, Vegetation, Threatened and Endangered, BLM Special Status Plant Species, Invasive, Non Native Species Noxious Weeds, Rangelands, Water Resources , , Socioeconomic, Wastes - Hazardous or Solid , Public Health and Safety, Fuels, and Forests., Hydrological Resources

3.2. Resources Carried Forward for Analysis

3.2.1. Cultural Resources

Issue(s) Identified:

How would the proposed surface disturbance affect cultural resources eligible or unevaluated for the NRHP?

Affected Environment

The area of potential effect (APE) is defined by the Wyoming State Protocol Agreement between the BLM and the SHPO (State Protocol) as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties (cultural resources eligible or unevaluated for the National Register of Historic Places), if any such properties exist. The area of potential effect is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

The APE was defined for the current undertaking to include the right-of-ways (ROW) amendment to expand the width from 30-foot to 60-foot, the proposed construction ROW for road maintenance, the use of acquired BLM easement for 3,005.64 feet in length, 60 feet in width, and the ROW to upgrade the well pad access and well pad. The amended ROWs add 16.72 acres to the grant, which includes 9.24 acres of disturbance in the construction ROW. The proposed Fritz Federal State 16-44H ROW entails an estimated 3.23 acres of disturbance for upgrading well access, 4.14 acres previous disturbance from easement, and 3.62 acres of disturbance for the well pad resulting in 16.09 disturbed acres for the proposed undertaking. A class III cultural resource inventory was completed for the APE which includes the proposed well pad and access roads, and the expanded and construction ROWs respectively (BLM heritage resource project #010-2015-067 and 010-2015-067a). Approximately 162.6 acres were inventoried to determine effects to historic properties within the APE. Four prehistoric sites and five isolated resources were identified. No historic properties were identified within the APE.

Direct and Indirect Effects

No Action

Under the No Action Alternative, the development of the proposed action would not occur. No resulting effects on cultural resources would be expected to occur beyond the current situation.

Proposed Action

Impacts occur to historic properties when a proposed project would directly or indirectly alter any of the qualities of that property that qualify it for inclusion in the NRHP. Potential impacts from the proposed action include; physical destruction of or damage to all or part of a property (direct impact) or introduction of visual or atmospheric elements that diminish the integrity of a property's significant features (indirect impact).

No historic properties were identified within the project's APE. Surface disturbance resulting from the proposed action, approximately 16.09 acres, would have no effect on known historic properties. As with the No Action alternative, the Proposed Action will have no effect on known historic properties. Unknown cultural resources may be affected by surface disturbing activities.

Mitigation

As described in the Proposed Action, unknown cultural resources may be affected by surface disturbing activities. For the protection of unknown cultural resources the standard cultural stipulations apply and are included in the conditions of approval. The standard cultural stipulations include measures for mitigating adverse effects discovered during surface disturbing activities.

Cumulative Effects

Construction and development of oil and gas resources impact cultural resources through ground disturbance, unauthorized collection, and visual intrusion of the setting of historic properties. Potential impacts to historic properties are mitigated under the Proposed Action. Since there would be no direct or indirect effects on contributing segments of known historic properties, there can be no cumulative effects.

3.2.2. Paleontological Resources

Issues Identified:

How would the proposed surface disturbance affect significant paleontological localities?

Affected Environment

The project area is located within the Willwood Formation. This formation has been given a PFYC rating of 5, meaning it has very high sensitivity for paleontological resources. The late Paleocene and early Eocene Willwood Formation is scientifically important due to its abundant, diverse, and well-preserved fossils found in temporally continuous strata that has been used to study a wide variety of depositional environments and ancient climatic conditions. Typical fossils found within this formation include mammals, reptiles, and plant fossils. Paleontological resources are determined to be significant when they are scientifically important because it is rare, of high quality and well-preserved, provides new information, or has educational value (IM2009-011).

The area of potential effect (APE) was defined to include the proposed surface disturbance for the Fritz Federal State 16-44H ROW, approximately 6.85 acres. A paleontology inventory was completed for the APE which includes the proposed well pad and access road (BLM project #010-2015-067 paleo). Approximately 20 acres were inventoried to determine effects to significant localities within the APE. A total of 14 paleontology localities were identified. Two localities were evaluated as significant.

Direct and Indirect Effects

No Action

Under the No Action Alternative, the development of the proposed action would not occur. No resulting effects on paleontological resources would be expected to occur beyond the current situation.

Proposed Action

Surface disturbance, approximately 6.85 acres, would occur as a result of approving the Fritz Federal State 16-44H ROW. Significant fossil localities were identified by a paleontology survey. Two of the localities are located within the APE. Impacts to these known significant localities were mitigated during the survey with partial to complete collection. Surface disturbance resulting from the proposed action will have no effect on significant fossil localities located on the surface. Unknown fossil localities may be affected once disturbances are implemented as proposed. If additional fossil resources are disturbed on the 6.85 acres of disturbance there may be effects to significant paleontological resources.

Mitigation

To mitigate affects to unknown subsurface significant paleontology localities, the surface-disturbing activities associated with construction of the Fritz Federal State 16-44H well pad and access road will be monitored by a BLM permitted paleontologist. The monitor will focus on areas where paleontological localities Fritz062415-3 and Fritz062415-13 were recorded on the surface in T50N R95W S9. Standard paleontology stipulations and spot check monitor plan apply and are included in the conditions of approval.

Paleontology Construction Monitoring: The Operator will provide a Paleontological Resource Use Permittee (PRUP) to monitor all bedrock disturbed by activities associated with construction of the well pads and access roads for Fritz Federal State 16-44H (project area). The project area will be monitored with the spot-checking method, performed during or after surface disturbance (but before placement of facilities) or at key times during the progress of the project. The monitor will focus on areas where paleontological localities were recorded on the surface. The PRUP may briefly suspend activity to inspect and mitigate possible discoveries.

In the event previously unidentified significant paleontological localities are found within the project area the following general procedures will be followed:

- The operator will cease operations within thirty (30) meters of the discovery and notify the BLM. The find will be preserved as discovered and protected from further physical or human impacts as much as possible. At the discretion of the BLM authorized officer (AO), an order suspending operations in proximity to the discovery will be issued.
- The BLM Worland Field Office paleontology coordinator and other appropriate staff may visit the location to ascertain the present situation, e.g. what the materials appear to be, what condition they appear to be in and the area within which operations must remain shutdown to avoid further effects to the materials.
- The AO may, at his/ her discretion, identify a buffer zone around the discovery beyond which construction operations may be allowed to continue. The AO shall seek the advice of the Field Office paleontology coordinator and PRUP before making this determination.
- Any paleontological resources located will be recorded and evaluated by the PRUP as follows:
 - The resource (eg. paleontological materials) located will be flagged to indicate the appropriate buffer zone (see above).
 - Any fossils in immediate danger of damage or destruction should be collected by the PRUP as soon as possible.
 - A stratigraphic profile and/or plan view sketch will be drawn of the paleontological materials.
 - Overview photographs showing key stratigraphic position and context will be taken. If appropriate, photographs of the fossils in situ should be taken.
 - Location information will be recorded with GPS units.
 - Where recommended by the BLM Field Office paleontology coordinator, sediment samples will be collected to allow for analysis of sedimentologic, lithologic, or geochemical data.
- Careful visual inspection of the ground surface and any exposed bedrock will be conducted to determine the boundaries of the locality. As necessary, the BLM Field Office paleontology coordinator in verbal consultation with BLM Regional Paleontologist will determine the need for full recovery, further excavation, or other sampling in locations where paleontological materials were discovered.
- All collected fossils will be deposited at an approved repository.
- Within five working days the AO will inform the operator as to:

- Whether the materials appear to warrant additional work;
- The mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary).
- At the discretion of the AO an observer or guard may be posted at the location to maintain a log of all persons visiting the location of the discovery.
- The PRUP will provide a report within 30 days of the completion of the construction documenting the results of the monitoring. An appropriate locality form (eg. acceptable to the BLM) will be completed for each new locality located or an amended form will be completed for previously recorded locality.

Cumulative Effects

Construction and development of oil and gas resources impact significant paleontological localities through ground disturbance and unauthorized collection. Potential impacts to significant localities are mitigated under the proposed action. Since there would be no direct or indirect effects on known significant paleontological localities, there can be no cumulative effects.

3.2.3. Recreation and Visual Resource Management; Special Designations (Including ACECs, Wild and Scenic Rivers, Lands with Wilderness Characteristics)

Issue(s) Identified

How will the proposed action affect VRM Class IV landscape?

How will the proposed action affect nearby Wilderness Study Areas (WSA's) and Lands with Wilderness Characteristics (LWC's)?

How will the proposed action affect the Badlands SRMA and Tour de Badlands RMZ?

Affected Environment

The project area is located within Big Horn County, Wyoming. The Worland Field is approximately 20.91 miles west of Basin, Wyoming. Land use consists of oil and gas production, livestock grazing, hunting and motorized recreational activities. Vegetation varies from eroded, barren hillsides to gently rolling or flat areas with a saltbrush, sage brush, and cactus and perennial grass vegetative community. The project is within VRM Class IV landscape.

The proposed road improvements and new drilling pad are located close to two WSA's (Sheep Mountain and Red Butte) and three LWC's (509 AK Dorsey Creek, Red Butte North CP, and 668 AK). This area is relatively close to the communities of Basin, Burlington, Otto, Worland, Meeteetsee, and Greybull. It has been identified in the 2015 WFO RMP as Front- and Middle-Country for recreational opportunities, and particularly well-suited for easy motorized access to high scenic quality badlands environments.

Direct and Indirect Effects

No Action

Under this alternative, no road improvements would be made and no drilling pad would be constructed. Existing recreational activities would continue without any impacts. No impacts to VRM Class IV would occur.

Proposed Action

VRM Class IV

The improvement of existing roads and construction of new drilling pads falls within the objectives for VRM Class IV management:

"The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements." (BLM Manual H-8410 – Visual Resource Inventory).

The proposed action represents impacts that are consistent with VRM Class IV objectives and the proposed developments therefore are not in conflict with the visual resource at the project location. The general area is recognized for high scenic quality and managed as such for recreational opportunities. This management strategy for the area should be considered in project design and reclamation.

Recreation - Badlands SRMA and Tour de Badlands RMZ

That Badlands SRMA is composed of three RMZ's - Tour de Badlands, Wild Badlands, and Tatman Mountain. The project area falls within the Tour de Badlands RMZ. Management decisions affecting the project area will be based on Tour de Badlands RMZ objectives.

The Tour de Badlands RMZ is to be managed for "motorized recreationists to engage in motorized sightseeing, touring, wildlife viewing, and nature viewing so that affected community residents report realizing a 'moderate' level of recreation experience..." These 'moderate' experiences include having easy access to natural landscapes and close-to-home outdoor amenities.

The road improvements associated with the proposed action align with the management objectives of the Tour de Badlands RMZ. These improvements represent a positive impact to the recreation opportunities in the area.

The project area experiences an increase in recreational use during hunting seasons. The process of improving the road and constructing the new drilling pad will temporarily involve increased traffic including heavy truck traffic, damage to the existing road, and airborne dust, all of which may have adverse effects on recreationists and hunters.

WSA's and LWC's

The proposed action does not directly impact WSA's or LWC's, however; its close proximity to two WSA's (Sheep Mountain and Red Butte) and three LWC's (509 AK Dorsey Creek, Red Butte North CP, and 668 AK) means it has the potential to indirectly impact these lands due to improved road access and minor visual impacts of a new drilling pad.

Chapter 3 AFFECTED ENVIRONMENT and ENVIRONMENTAL EFFECTS

Recreation and Visual Resource Management; Special Designations (Including ACECs, Wild and Scenic Rivers, Lands with Wilderness Characteristics)

The management of Lands with Wilderness Characteristics is to be "consistent with other resource objectives." Even with some indirect impacts, the proposed action is consistent with current management of LWC's within the purview of the Worland Field Office.

The proposed action does not affect any roads immediately adjacent to or entering either of the WSA's. It does call for improving a road that approaches the area in which the WSA's are located, thus affording visitor's better access to the general area.

Mitigation

Effects to recreational users can be mitigated by the proponent's timing of operations to avoid spikes in recreational use associated with hunting seasons and timely repair of road damage. The proponent should conduct road improvement operations to avoid the opening days and weekends for antelope and deer hunting seasons, archery and rifle and that road repairs should be conducted as soon as possible.

The drilling pad shall be reclaimed to as close as possible to its original form, line, and color including revegetation when the well becomes inactive or fails to produce.

Improvements to the existing roads may be left in place as they serve the management objectives of the Tour de Badlands RMZ.

Cumulative Effects

Past Actions

There are several pre-existing primitive roads and drilling pads in the vicinity of the proposed action. The new drilling pad and improved road constitute cumulative impacts to the area.

Present and Ongoing Actions

Active resource/mineral extraction takes place concurrently with recreational activities and in some ways, the access to the area provided by extractive industry has enhanced the recreational opportunities in the area. The project area is managed for recreational opportunities associated with motorized use, scenic quality, hunting, semi-primitive experiences, and relatively easy access from nearby communities.

Foreseeable Future Actions

There are no approved or pending applications within the CIA. However, if the new well proves to be productive, it is reasonable to expect that requests may be submitted for further development including additional drilling pads, roads, pipelines, and other infrastructure. Future development in the area shall be limited and/or mitigated as it encroaches upon WSA's and VRM Class I terrain; it should also be limited and/or mitigated to preserve the scenic quality of the general area.

3.2.4. Soils

Issue(s) Identified

How will the proposed action affect runoff and erosion? What is the likelihood of successful reclamation?

Affected Environment

The project area does not fall within a soil survey, but an onsite visit determined the soils to be shale and sandstone outcrops. The soil textures are clay loam and high in sodium and gypsum. Most of the soils are exposed and are rated by Web Soil Survey as “Highly Susceptible” to wind erosion. The soil rutting hazard for this area is rated severe due to low soil strength. Restoration potential for these soils is low mostly due to the salinity of the soil.

Direct and Indirect Effects

No Action

Under the no action alternative, soils in the project area would remain at the current state. No further influence on erosion, dispersal, or rutting would occur. The site would continue to be highly susceptible to erosion and soil strength would continue to be low.

Proposed Action

Surface disturbance, approximately 6.85 acres, would occur as a result of the proposed action. Heavy truck traffic in and out of the project site will cause soil fluffing and dispersion of soil. If soils become wet, accessing the site may not be possible and rutting can be expected. According to Web Soil Survey, the probability of successful reclamation for this area is rated as low. The soils in this area will continue to degrade regardless of the proposed action.

Mitigation

Reclamation efforts will be followed as outlined in “Fritz Federal State 16-44H Well Pad and Access Road Reclamation Plan,” which is available in the administrative record.

3.2.5. Fish/Wildlife (Including Threatened, Endangered, Candidate and BLM Sensitive Species)

Issue(s) Identified: What impact will the proposed access route and well pad surface disturbance, and vehicle traffic and drilling disruption, have on nesting mountain plover and/or raptors, if present?

Affected Environment

The wildlife habitat within the proposed ROW and well pad area consists of badlands topography bounded by incised drainages, buttes and ridges with the dominant vegetation being patchwork of saline upland sites dominated by saline tolerant grasses and Wyoming sagebrush communities. The area provides habitat for several wildlife species, some seasonally and some yearlong. Those portions of habitat with relatively gentle to flat topography and little to no vegetation, along the proposed access road and well pad site could be providing suitable Mountain plover nesting and foraging habitat. And those habitats within this same area with rougher topography like, buttes, bluffs and rock outcrops provide suitable nesting substrate for several different species of raptors. The proposed access route and well pad were buffered out to .5 miles and this area was inventoried for raptor nests in the spring of 2015 by 2-Dot Consulting, LLC, and they identified 3 raptor nests (see Wildlife Resources Map - nests 23, 24, & 26) (2-Dot Consulting, LLC 2015). No known threatened or endangered animal species are known to inhabit this area, but the Mountain plover and raptors are both Wyoming BLM Sensitive Species and migratory birds.

Direct and Indirect Effects

*Chapter 3 AFFECTED ENVIRONMENT and ENVIRONMENTAL EFFECTS
Fish/Wildlife (Including Threatened, Endangered, Candidate and BLM Sensitive Species)*

No Action

Under the No Action Alternative the surface disturbing and disruptive activities from the proposed road improvements, well drilling activities and vehicle traffic volume would not occur and displacement of nesting birds would not be anticipated. No resulting effects on wildlife resources would be expected to occur beyond the normal preexisting traffic volume.

Proposed Action Alternative 1

The proposed 30 to 40 acres of surface disturbance from the access road improvements and well pad construction will result in long term direct impacts in the form of habitat loss and possible fragmentation, until reclamation and native vegetation reestablishment are providing habitat again, which will likely be 20 to 30 years post reclamation. The disruption caused by increased vehicle traffic and human presence from both the road improvement and well drilling phase will also result in short term direct impacts in the form of temporary disruption and potential displacement of wildlife out of the proposed project area, particularly during critical nesting periods for those species mentioned above. On page 169 of the 2015 Worland Field Office RMP disruptive activity is defined as “those activities that disrupt or alter wildlife actions at key times, during important activities, or in important areas (feeding, breeding, nesting, herd movement, winter habitat)”.

Typically human presence increases as vehicle traffic increases, and both vehicle noise and human presence are the disruption that can result in wildlife displacement. From access road and well pad construction through the drilling and completion phase, there will be varying levels and types of vehicle traffic disturbance or disruption. During the initial 7 to 14 days of road work, vehicle trips will likely average 5 to 10 per day, and during the estimated 30 to 40 day drilling/demobilization /completion phase, vehicle trips will increase to 40 trips per day for approximately 20 of these days. The anticipated production vehicle use would be 1-2 trucks per day for the life of the well. However maintenance and production activities like well plugging or work over operations that last 24 to 48 hours or longer are considered disruptive activities, (Worland Field Office RMP 2015, p 169).

The proposed disruption has the potential to render these surrounding Mountain plover and raptor nesting habitats undesirable and likely unsuitable for nesting and foraging. Mountain plover, if nesting on or close to the access road or well pad, could suffer nest destruction. And if the 3 raptor nests identified in spring of 2015 are found to be active again during the proposed disturbance, depending on the raptor species and sensitivity, this amount of human disruption at this proximity could result in nest abandonment, or even egg or hatchling abandonment. “Generally, courtship, nest construction, incubation, and early brooding are considered higher risk periods during which adults are easily prone to desert temporarily or permanently abandon nests in response to disturbance, leaving the eggs and/or young susceptible to the effects of inclement weather, solar radiation, and predation. Out-of vehicle recreational activities are generally considered more disturbing to raptors than in-vehicle recreational activities. Stopped vehicles, particularly when occupants exit the vehicle, have been reported to provoke negative responses from nesting or perching raptors more often than moving vehicles” (Romin and Muck 2002).

Mitigation

Mountain Plover

To minimize or mitigate the potential impacts to nesting Mountain plovers, a timing limitation from 4/10 – 7/10 prohibiting any surface disturbing or disruptive activities within suitable nesting

habitat prior to surveys being conducted, for those portions of the proposed access roads and well pads within potential Mountain plover nesting habitat, as shown on the Wildlife Resources Map, is recommended.

In lieu of the timing limitation, a survey for Mountain plover nests, following survey protocols, would be accepted. If no nesting activity is documented, then the timing limitation for Mountain plover nesting would not be implemented for the remainder of that season. A survey confirming nesting activity would need to be conducted before any surface disturbing or disruptive activity would be allowed during the nesting season. The survey would need to be done during the peak nesting season (4/10 – 7/10).

Nesting Raptors

To minimize or mitigate the potential impacts to nesting raptors, a timing limitation from 2/1 – 7/31 prohibiting any surface disturbing or disruptive activities within 0.25 to 1 mile depending on species, and line of sight, for the proposed access roads, well pads, and related activities (construction, installation, and reclamation) is recommended. This TLS will apply to those portions of the proposed access roads and well pad sites within T. 50 R. 95 Sections 9, 10, and 16, and within the 1 Mile raptor nesting buffer delineated on the Wildlife Resources Map.

In lieu of the timing limitation, a survey of these known raptor nests, following survey protocols, would be accepted. If no nesting activity is documented, then the timing limitation for nesting raptors would not be implemented for the remainder of that season. A survey confirming activity or occupation of these raptor nests would need to be conducted before any surface disturbing or disruptive activity would be allowed during the nesting season. The survey would need to be done during the peak nesting season (2/1 – 7/31, depending on species).

After the road improvements, drilling and completion phases are completed, normal well maintenance and emergency work to prevent or control a threat to either human health/safety or the environment will not be considered a disruptive behavior. However maintenance and production activities like well plugging or work over operations that last 24 to 48 hours or longer scheduled during the TLS period are considered disruptive activities, (Worland Field Office RMP 2015, p 169). After the well is completed, only activities involving additional surface disturbance, such as flowlines or power lines, would be subject to seasonal stipulations.

The implementation of the above mitigation measures will mitigate the major issues of wildlife displacement identified in the proposed action impacting nesting Mountain plover and raptors.

Residual Effects

Cumulative Effects

There are no known additional, reasonable foreseeable actions that would affect the wildlife resources in the proposed project area, other than the same kinds and levels of land uses that have historically taken place.

Chapter 4. Tribes, Individuals, Organizations, or Agencies Consulted:

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4.1. List of Persons, Agencies and Organizations Consulted

| Name | Purpose & Authorities for Consultation or Coordination |
|----------------|--|
| Mary Hopkins | SHPO Section 106 |
| Diedre Duffy | 2 Dot Consulting |
| Todd Spivey | |
| Douglas Howard | Koch Exploration Company, LLC |

4.2. List of Preparers

| Name | Title |
|-------------------|---|
| Darci Stafford | Natural Resource Specialist, Fluid Minerals |
| Dora Ridenour | Archaeologist |
| Tim Stephens | Wildlife Biologist |
| Leslie Coleman | Natural Resource Specialist, Invasive Species and Soils |
| Adam Babcock | Recreation/Visual Specialist |
| Karen Hepp | Range Management Specialist (T&E/Sensitive Plants) |
| Cam Henrichsen | Range Management Specialist |
| Jim Critz | Civil Engineer |
| Jared Dalebout | Hydrologist |
| Connie Craft | Realty Specialist |
| Eve Warren | Natural Resource Specialist, Fire Ecology |
| Jim Gates | Forester |
| Franklin Sanders | Petroleum Engineer |
| Holly Elliott | Planning & Environmental Coordinator |
| Ameila Pennington | Assistant Field Manager, Lands and Minerals |
| Marit Bovee | Acting, Assistant Field Manager, Resources |

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Chapter 5. References Cited

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Worland Field Office ARMP, pg 169

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Chapter 6. Appendix1 Wildlife Resources Map

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