

DECISION RECORD
Ballard Petroleum Holdings, LLC, GDU Federal 43-4
Environmental Assessment (EA) WY-070-EA11-266
Buffalo Field Office, Bureau of Land Management

DECISION:

The BLM approves Ballard Petroleum Holdings, LLC’s (Ballard) GDU Federal 43-4 oil well application for permit to drill (APD) as described in Alternative B of the environmental assessment (EA) WY-070-EA11-266. This approval includes the well’s appurtenant infrastructure.

Compliance. This decision complies with:

- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701).
- Mineral Leasing Act of 1920 (MLA) (30 U.S.C. 181); to include On Shore Order No. 1.
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- Buffalo Resource Management Plan (RMP) 1985, Amendments 2001, 2003.
- Buffalo and Powder River Basin Final Environmental Impact Statement (PRB FEIS), 1985, 2001, 2003.
- DOI Order 3310.

A summary of the details of the approval of Alternative B follows. The EA includes a project description, including specific changes made at the onsites, and site-specific mitigation measures.

Well Site:

BLM approves the following APD and associated infrastructure:

	Well Name	Well #	Qtr/Qtr	Section	TWP	RNG	Lease #
1	GDU Federal 43-4	43-4	NESE	4	47	73	WYW80554

Limitations: There are no denials or deferrals. Also see the conditions of approval (COAs).

THE FINDING OF NO SIGNIFICANT IMPACT (FONSI). Analysis of Alternative B of the EA, WY-070-EA11-266, and the FONSI found GDU Federal 43-4 will have no significant impacts on the human environment, beyond those described in the PRB FEIS, thus an EIS is not required.

COMMENT OR NEW INFORMATION SUMMARY.

Since development of Ballard’s GDU Federal 43-4 proposal BFO received a new policy on management of sage-grouse populations and habitats, and received a new Interior Department policy on wilderness.

DECISION RATIONALE:

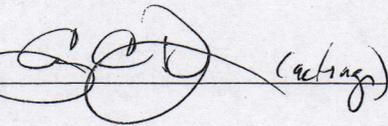
The decision to authorize the selected project, as summarized above, is based on the following:

1. Mitigation measures were included to reduce environmental impacts while meeting the project’s purpose and need. For a complete description of all site-specific COA’s associated with this approval, see the EA’s COAs.
2. The selected alternative will not result in any undue or unnecessary environmental degradation.
3. The selected alternative will help meet the nation’s energy needs, and help stimulate local economies by maintaining workforce stability.
4. The Operator committed to:
 - Comply with all applicable federal, state, and local laws and regulations.

- The operator incorporated several measures to alleviate resource impacts into their surface use plan and drilling plan submitted.
5. The Operator certified it has a surface use agreement with the Landowner(s) or bonded.
 6. The project is clearly lacking in wilderness characteristics; i.e., project area is less than 5,000 acres; has no outstanding opportunities for solitude; is surrounded by oil and gas development and infrastructure with no federally owned surface.

ADMINISTRATIVE REVIEW AND APPEAL: This decision is subject to administrative review according to 43 CFR 3165. Request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, no later than 20 business days after this Decision Record is received or considered to have been received. Any party who is adversely affected by the State Director's decision may appeal that decision to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Field Manager: _____

 (acting)

Date: _____

9/7/2011

FINDING OF NO SIGNIFICANT IMPACT
Ballard Petroleum Holdings, LLC, GDU Federal 43-4
Environmental Assessment (EA) WY-070-EA11-266
Buffalo Field Office, Bureau of Land Management

FINDING OF NO SIGNIFICANT IMPACT (FONSI): Based on the information in the environmental assessment (EA) WY-070-EA11-266, which is incorporated here by reference; it is my finding that: (1) the implementation of Alternative B will not have significant environmental impacts beyond those already addressed in the Buffalo Final Environmental Impact Statement (FEIS) 1985, and the Powder River Basin (PRB) FEIS, 2003, to which the EA is tiered; (2) Alternative B conforms to the Buffalo Field Office (BFO) Resource Management Plan (RMP) (1985, 2001, 2003); and (3) Alternative B does not constitute a major federal action having a significant effect on the human environment. Thus an EIS is not required. I base this finding on my consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to the context and to the intensity of the impacts described in the EA, and in consideration of Interior Department Order 3310.

CONTEXT: Mineral development is a long-standing and common land use in the PRB. About 42% of the nation's coal comes from the PRB. The PRB FEIS reasonably foreseeable development predicted and analyzed the development of 51,000 CBNG wells and 3,200 oil wells. The additional oil development described in Alternative B is insignificant within the national, regional, and local context.

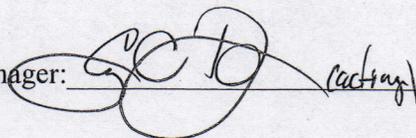
INTENSITY: The implementation of Alternative B will result in beneficial effects in the forms of energy and revenue production however; there will also be adverse effects to the environment. Design features and mitigation measures included in Alternative B will minimize adverse environmental effects. The preferred alternative does not pose a significant risk to public health and safety. The geographic area of project does not contain unique characteristics identified within the 1985 RMP, 2003 PRB FEIS, or other legislative or regulatory processes. Relevant scientific literature and professional expertise were used in preparing the EA. The scientific community is reasonably consistent with their conclusions on environmental effects relative to oil and gas development. Research findings on the nature of the environmental effects are not highly controversial, highly uncertain, or involve unique or unknown risks. The PRB FEIS predicted and analyzed oil development of the nature proposed with this project and similar projects. The selected alternative does not establish a precedent for future actions with significant effects.

There are no cultural or historical resources present that will be adversely affected by the selected alternative. The project area is clearly lacking in wilderness characteristics; i.e. the project area is less than 5,000 acres with no federally owned surface. No species listed under the Endangered Species Act or their designated critical habitat will be adversely affected. The selected alternative will not have any anticipated effects that would threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment

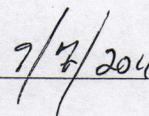
ADMINISTRATIVE REVIEW AND APPEAL: This finding is subject to administrative review according to 43 CFR 3165. Request for administrative review of this finding must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such

a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, no later than 20 business days after this FONSI is received or considered to have been received. Any party who is adversely affected by the State Director's decision may appeal that decision to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Field Manager:

A handwritten signature in black ink, appearing to be "G. C. B." followed by "(acting)" in a smaller, less legible script. The signature is written over a horizontal line.

Date:

A handwritten date "7/7/2014" in black ink, written over a horizontal line.

ENVIRONMENTAL ASSESSMENT
Ballard Petroleum Holdings, LLC, GDU Federal 43-4
WY-070-EA11-266
Buffalo Field Office, Bureau of Land Management

1. INTRODUCTION

This site-specific analysis tiers into and incorporates by reference the information and analysis contained in the Final Environmental Impact Statement and Proposed Plan Amendment for the Powder River Basin Oil and Gas Project (PRB FEIS), #WY-070-02-065, 2003, the Buffalo Resource Management Plan (RMP) (1985, 2001, 2003) and the PRB FEIS Record of Decision (ROD) pursuant to 40 CFR 1508.28 and 1502.21. One may review this document at the BLM Buffalo Field Office (BFO) and on our website.

1.1. Background

Ballard Petroleum Holdings, LLC (Ballard) submitted a Notice of Staking (NOS) for the GDU Federal 43-4 on June 29, 2010. An NOS onsite was conducted on April 13, 2011. The BLM sent a NOS post-on-site resource concern letter by certified mail on April 18, 2011. BLM received an APD on June 3, 2011. BLM received a corrected copy of an APD on June 23, 2011.

1.2. Need for the Proposed Project

The need for this project is to determine how and under what conditions to balance natural resource conservation with allowing the operator to exercise lease rights to develop fluid minerals on federal leaseholds as described in their proposed project. Information contained in the application for permit to drill (APD) is an integral part of this EA and is incorporated by reference (CFR 1502.21). The extraction of fluid minerals is important to meeting the nation's energy needs. The fluid mineral leasing programs fall under the authority of the Mineral Leasing Act of 1920 and the Federal Land Policy Management Act (FLPMA), and other laws and regulations.

1.3. Decision to be Made

The BLM will decide whether or not to approve the proposed development, and if so, under what terms and conditions to comport with the Bureau's multiple use mandate, environmental protection, and RMP.

1.4. Scoping and Issues

The BFO limited external scoping on this EA to its timely publication on the BFO website. Previously BFO conducted extensive external scoping for the PRB FEIS - discussed on p. 2-1 of the PRB FEIS and on p. 15 of the PRB ROD. This project is similar in scope to other fluid mineral development analyzed by the BFO. External scoping would be unlikely to identify new issues, as verified by the few fluid mineral EAs that were recently externally scoped such as the Clabaugh (WY-070-EA08-134) and Hollcroft/Stotts Draw (WY-070-EA07-021). Recent external scoping in 2010 and 2011 for a geographically-focused proposed RMP amendment revealed no new issues outside of the geographically-specific issues.

The BFO interdisciplinary team (ID team) conducted internal scoping by reviewing the proposed development and project location to identify potentially affected resource and land uses. The ID team identified resources and land uses present and affected by the proposed project. This EA will not discuss resources and land uses that are either not present, not affected, or that the PRB FEIS adequately addressed. The ID team identified important issues for the affected resources to focus the analysis. This

EA addresses the project and its site-specific impacts that were unknown and unavailable for review at the time of the PRB FEIS analysis to help the decision maker come to a reasoned decision. Project issues include:

- Soils and vegetation: site stability, reclamation potential, invasive species
- Cultural: National Register eligible sites

These issues are not present, or minimally so, and were analyzed in the EIS and not analyzed in this EA:

- Geological resources
- Water resources
- Cave and karst resources
- Mineral resources: locatable, leasable-coal, salable
- Fire, fuels management, and rehabilitation
- Paleontology
- Visual resources
- Forest, lands, realty
- Renewable energy
- Rights-of-way
- Transportation
- Wilderness characteristics
- Livestock grazing
- Areas of critical environmental concern (ACEC)
- Wild and scenic rivers
- Wilderness study areas
- Social and economic resources
- Environmental justice
- Tribal Treaty rights

2. PROPOSED PROJECT AND ALTERNATIVES

2.1. Alternative A - No Action

The PRB FEIS considered a No Action Alternative, Volume 1, pp. 2-54 to 2-62. This alternative must also consider and combine the PRB FEIS analysis with the subsequent analysis and development from the adjacent and intermingled POD and 49 wells within 1 mile of this proposal: Bone Pile II, WY-070-EA00-177 (see Table 3.4). This comports to the PRB FEIS which analyzed the reasonably foreseeable development rolling across the PRB of over 51,000 CBNG and 3,200 oil wells. The no action alternative would consist of no new federal wells. This alternative would deny these APDs and /or POD requiring the operator to resubmit APDs or a POD that complies with statutes and the reasonable measures in the PRB RMP ROD in order to lawfully exercise conditional lease rights. This alternative could, through secretarial discretion suspend the senior leasehold, or could administratively cancel or withdraw the lease if improperly awarded, or seek to cancel the lease through a theory of superior title. It is not possible in the abstract to identify every interest and that is beyond the scope here.

2.2. Alternative B Proposed Action

Project Name: GDU Federal 43-4

Well Name/#/Lease/Location/County:

Well Name	Well	QTR	Sec	TWP	RNG	Lease #
GDU Federal	43-4	NESE	4	47N	73W	WYW80554

Operator/Applicant: Ballard Petroleum

Surface Owners: Geis Trust

The proposed project is to drill and develop an oil well. The project would be subject to the conditions-of-approval (COAs) for drilling of an oil well on in the BFO jurisdiction. For a detailed description of design features and construction practices associated with the proposed project, refer to the surface use plan (SUP) and drilling plan included with the APD. Also see the subject APD for maps showing the proposed well location and associated facilities described above.

Design features include:

The well will be a vertical bore proposed on 40 acre spacing pattern with one well per location. The well will produce from the Parkman formation to depths of approximately 6,550 feet.

Drilling, Construction & Production:

- Ballard Petroleum anticipates completing drilling and construction in 2 years. Drilling and construction is year-round in the region. Weather may cause delays but delays rarely last multiple weeks. Timing limitations in the form of conditions of approval (COAs) and/or agreements with surface owners may impose longer temporal restrictions.
- A road network consisting of improved road and existing improved roads.
- An existing and proposed above ground power line network.
- A buried pipeline (oil, gas and produced water) to an existing central battery.
- An engineered pad with pump jack. There will be no permanent fluid storage tanks on location.
- A closed loop drilling system will be used. There will be no pits at the producing location.

Table 2.1. - Summary of Disturbance for Well & Associated Infrastructure:

Facility	Number or Miles	Factor	Disturbance
Engineered Pad	1 295ft x 210 ft	61,950 sq ft	1.42 acres
Improved Roads No Corridor	2,640 ft (0.50 mile)	30 ft	1.81 acres
Overhead Power No Corridor	1,320 ft (0.25 mile)	30 ft	0.90 acres
Buried Pipeline (Oil, gas, water)	230 ft (0.04 mile)	30 ft	0.20 acres
Total Surface Disturbance	0.79 miles		4.33 acres

Implementation of committed mitigation measures contained in the SUP and drilling plan, in addition to the COAs in the PRB FEIS ROD, as well as changes made at the onsite, are incorporated and analyzed in this alternative.

Additionally, the Operator, in their APD, committed to:

1. Comply with all applicable federal, state and local laws and regulations.
2. Obtain the necessary permits from other agencies for the drilling, completion and production of these wells including water rights appropriations, and relevant air quality permits.
3. The Operator certified he has a surface use agreement with the landowner(s) or bonded.

The Operator certified that a copy of the SUP was provided to the relevant landowner(s).

Description of Proposed Mitigation Measures:

Implementation of committed mitigation measures contained in the surface use plan of operations and drilling plan, in addition to the attached COAs, would ensure that no adverse environmental impacts would result from approval of the proposed action.

2.3. Alternatives Considered but Eliminated from Detailed Analysis

No additional alternatives were considered.

2.4. Conformance with the Land Use Plan and Other Environmental Assessments

This proposal does not diverge from the goals and objectives in the Buffalo RMP (RMP), 1985, 2001, 2003, and generally conforms to the terms and conditions of that land use plan, its amendments, and supporting FEISs, 1985, 2003 and Interior Department Order 3310.

3. AFFECTED ENVIRONMENT

This section briefly describes the physical and regulatory environment affecting the project area. Aspects of the affected environment here focus on the major issues. Find a screening of all resources and land uses potentially affected in Appendix A. Resources unaffected, or not affected beyond the level analyzed in the PRB FEIS, are outside the scope of this EA.

Project Area Description

The proposed project is within the Gaither Draw Unit, which includes an area of approximately 10,471 acres. The project area is located approximately 10 miles south of Gillette, Wyoming, and in southwestern Campbell County. Gaither Draw Unit is within the PRB geographic area (Wyoming Geographic Landforms Map). Topography within the project area contains broken ridgelines, moderately incised arroyos along ephemeral dendritic drainages. Elevations average 4,500 feet above sea level. The landform is a combination of bedrock residuum and slopewash deposits. Cabello Creek, an ephemeral drainage, and South Prong Creek are adjacent to the project area. Land uses and other disturbances occurring within the project area include wildlife habitat, livestock grazing, ranching, dry land farming, extensive mineral development (conventional oil and CBNG), and improved and unimproved roads.

3.1. Air Quality

Existing air quality throughout most of the PRB is in attainment with all ambient air quality standards. Specific air quality monitoring in the PRB occurs at 3 Wyoming state sites: Cloud Peak; Thunder Basin (NE of Gillette); and Campbell County (SSW of Gillette). Air quality in rural areas is generally very good (ozone less than 60 parts per billion (ppb), minimal nitrous oxide (NO_x) and volatile organic compounds (VOCs). However in recent years the region had some ozone ratings between 65 and 70 (ppb) and had a few air quality advisories due to dust, of which it is thought that coal mine dust contributed. The area has few and dispersed emission sources (few industrial facilities and residential emissions in the relatively small communities and isolated ranches) and good atmospheric dispersion. This results in relatively low air pollutant concentrations as the area does not have a “bowl-like” topography which may trap low-level ozone layers. Instead the open topography fosters low-level air exchange (high winds). Yet the air quality issue is receiving greater monitoring and regulatory scrutiny in Wyoming since the ozone (smog) in the Upper Green River Basin exceeded the worst in the nation for 13 days in 2011 and had air quality issues since 2005 due, in part, to affects from oil and gas field operations.

- Existing air pollutant emission sources in the region include:
- Exhaust emissions (primarily CO and nitrous oxides [NO_x]) from existing natural gas fired compressor engines used in production of natural gas and CBNG; and, gasoline and diesel vehicle tailpipe emissions of combustion pollutants;
- Dust (particulate matter) generated by vehicle travel on unpaved roads, windblown dust from neighboring areas and road sanding during the winter months;
- Transport of air pollutants from emission sources located outside the region;
- Dust (particulate matter) from coal mines;
- NO_x, particulate matter, and other emissions from diesel trains; and
- SO₂ and NO_x from power plants.

For a description of the 2003-era air quality conditions in the PRB, refer to the PRB Final EIS Volume 1, Chapter 3, pp. 3-291 to 3-299.

3.2. Soils

The soils vary from primarily 81% loamy to 17% clayey and 2% sandy throughout the Gaither Draw Unit project area. Soils differ with topographic location, slope and elevation. Topsoil depths to be salvaged for reclamation range 6 inches on ridges to 10 inches in bottomland. Erosion potential varies depending on the soil type, vegetative cover and slope. Reclamation potential of soils also varies from 75% with fair reclamation potential to 25% with poor reclamation potential throughout the project area. The GDU Federal 43-4 well and access are proposed in the center of dry-land farmed acreage, in loamy soil with fair reclamation potential.

3.3. Leasable Minerals - Fluids

The area had historic conventional oil and gas exploration and production, and more recently CBNG development. There are 49 wells (producing oil, producing CBNG, plugged and abandoned oil and CBNG, and injection wells) within 1 mile of the proposed location as of June 28, 2011.

Table 3.1. Adjacent or Overlapping Development

POD Name	Environmental Assessment #	Decision Date
Bone Pile II POD	WY-070-00-177	07/12/2000

3.4. Vegetation

Species typical of short grass prairie comprise the project area flora. Two main vegetation types were identified within the project area: Sagebrush grassland and mixed-grass prairie. Specific species in sagebrush grassland observed throughout the project area include Wyoming big sagebrush (*Artemisia* *ssp.*), silver sagebrush (*Artemisia cana*), western wheatgrass (*Agrophron smithii*), junegrass (*Keoheria macrantha*), needle and thread grass (*Hesperostipa comate*), sandbur bluegrass (*poa secunda*), prickly pear cactus, and rabbit brush (*Chrysothamnus spp.*). Specific species in mixed-grass prairie observed within the project area include needle and thread grass, western weheatgrass, grama (*Bouteloua spp.*), prickly pear cactus, and Wyoming big sagebrush. Differences in dominant species within the project area vary with soil type, aspect and topography.

3.5. Invasive Species

No state-listed noxious weeds and invasive/exotic plant infestations were discovered by a search of inventory maps and/or databases or during subsequent field investigation by the proposed project proponent. Some minor areas of cheatgrass or downy brome (*Bromus tectorum*) were discovered along existing disturbances within the project area.

Cheatgrass or downy brome (*Bromus tectorum*) and to a lesser extent, Japanese brome (*B. japonicus*) are known to exist in the affected environment. These two species are found in high densities and numerous locations throughout northeast Wyoming.

3.6. Wildlife

Several resources were consulted to identify wildlife species that may occur in the proposed project area. Resources that were consulted include the wildlife database compiled and managed by the BLM Buffalo Field Office (BFO) wildlife biologists, the PRB FEIS, the Wyoming Game and Fish Department (WGFD) big game and sage-grouse maps, and the Wyoming Natural Diversity Database (WYNDD).

Western Land Services (WLS) performed habitat assessment and wildlife inventory surveys for mountain plover, raptor nests, and prairie dog colonies according to Powder River Basin Interagency Working

Group (PRBIWG) accepted protocol in 2011 (WLS 2011). A habitat assessment was performed for greater sage-grouse, sharp-tailed grouse, and Ute ladies'-tresses orchid habitat. PRBIWG accepted protocol is available on the BFO internet website at the following URL: http://www.blm.gov/wy/st/en/field_offices/Bufalo/wildlife.html.

WGFD is the agency responsible for management of wildlife populations in the state of Wyoming. WGFD developed several guidance documents that BLM BFO wildlife staff relies upon in evaluating impacts to wildlife and wildlife habitats. WGFD documents used to analyze the proposed project under the current analysis are referenced in this section.

3.6.1. Habitat Types

Habitats located in the project area primarily consist of gently rolling sagebrush grasslands and cultivated fields. Grassland areas are dominated by native grasses and perennial forbs, ranging in height from 10 to 18 inches. Wyoming big sagebrush occurs in sparse to moderately dense stands. Mature cottonwood trees occur along Caballo Creek, approximately 0.5 miles to the north of the proposed well location. The area is drained by unnamed tributaries to Caballo Creek, an ephemeral drainage. Perennial water does not occur in the project area.

3.6.2. Threatened, Endangered, Proposed, Candidate, and BLM Sensitive Species

3.6.2.1. Threatened and Endangered Species

Threatened, endangered, candidate and proposed species occurring in the area will not be impacted beyond the level of the PRB FEIS, and a discussion of the affected environment can be found in the PRB FEIS, pp. 3-174 to 3-179. Blowout penstemon was not listed at the time the PRB FEIS was written. A description of habitat and presence for threatened, endangered, and candidate species is present in Table 4.2 located in Section 4.3.1.1 below.

Suitable habitat for black-footed ferret, blowout penstemon, and Ute ladies'-tresses orchid is not present in the project area and the species is unlikely to occur. Marginal brood-rearing habitat for greater sage-grouse occurs along Caballo Creek to the north of the project; however, extensive existing oil and gas development in proximity to the creek and the project area likely preclude grouse use.

3.6.2.2. Sensitive Species

Wyoming BLM sensitive species receive focused management efforts towards maintaining habitats under a multiple use mandate. The goals of the policy are to:

- Maintain vulnerable species and habitat components in functional BLM ecosystems
- Ensure sensitive species are considered in land management decisions
- Prevent a need for species listing under the ESA
- Prioritize needed conservation work with an emphasis on habitat

The authority for the sensitive species policy and guidance comes from the Endangered Species Act of 1973, as amended; Title II of the Sikes Act, as amended; the FLPMA, the Department Manual 235.1.1A, and BLM policy. BLM Wyoming sensitive species are not likely to be impacted beyond the level analyzed within the PRB FEIS. A discussion of the affected environment for BLM sensitive species can be found in the PRB FEIS, pp. 3-189 to 3-201. A description of habitat and species presence for BLM sensitive species is present in Table 4.3 located in Section 4.3.1.2 below.

3.6.2.3. Big Game

The PRB FEIS discussed the affected environment for pronghorn and mule deer on pp. 3-117 to 3-122 and pp. 3-127 to 3-132, respectively. The project area contains winter-yearlong range for pronghorn antelope and yearlong range for mule deer. White-tailed deer may also occur in the area. Winter-yearlong

use is when a population or a portion of a population of animals makes general use of the documented suitable habitat sites within this range on a year-round basis. During the winter months there is a significant influx of additional animals into the area from other seasonal ranges. Yearlong use is when a population of animals makes general use of suitable documented habitat sites within the range on a year round basis. Animals may leave the area under severe conditions.

3.6.2.4. Migratory Birds

The PRB FEIS discussed the affected environment for migratory birds on pp. 3-150 to 3-153. Migratory birds are birds that migrate for breeding and foraging at some point in the year. The BLM-USFWS MOU (2010) promotes the conservation of migratory birds, as directed through Executive Order 13186 (Federal Register V. 66, No. 11). BLM must include migratory birds in every NEPA analysis of actions that have potential to affect migratory bird species of concern to fulfill obligations under the MBTA. Unintentional violations of MBTA have resulted in costly prosecutions and settlements, and have initiated costly retrofitting of project components. Individual settlements have ranged from \$15,000 in fines (plus retrofitting) to a Wyoming settlement for \$10.5 million in fines, restitution and retrofitting costs. BLM encourages voluntary design features and conservation measures that comport with those in the programmatic mitigation in Appendix A of the PRB ROD (2003).

Habitats occurring near the proposed well locations include sage-brush steppe grasslands and mixed grass prairie. Many species that are of high management concern use these areas for their primary breeding habitats (Saab and Rich 1997). Nationally, grassland and shrubland birds have declined more consistently than any other ecological association of birds over the last 30 years (WGFD 2009).

The WGFD Wyoming Bird Conservation Plan (Nicholoff 2003) identified three groups of high-priority bird species in Wyoming: Level I – those that clearly need conservation action, Level II – species where the focus should be on monitoring, rather than active conservation, and Level III – species that are not otherwise of high priority but are of local interest. Those species that are anticipated to occur in the project area are listed in Table 3.2.

Table 3.2. Migratory Birds Occurring in Shrub-Steppe Habitat in NE Wyoming (Nicholoff 2003)

Level	Species	Wyoming BLM Sensitive
Level I	Brewer’s sparrow	Yes
	Ferruginous hawk	Yes
	Greater sage-grouse	Yes
	McCown’s longspur	
	Sage sparrow	Yes
Level II	Lark bunting	
	Lark sparrow	
	Loggerhead shrike	Yes
	Sage thrasher	Yes
	Vesper sparrow	
Level III	Common poorwill	
	Say’s phoebe	

3.6.2.5. Raptors

The PRB FEIS discussed the affected environment for raptors, pp. 3-141 to 3-148. There are no raptor nests documented within 0.5 miles of the project area. WLS conducted raptor nest surveys on June 6 and 7, 2011 (WLS 2011). WLS did not document the presence of any nests or foraging raptors in their report.

3.6.2.6. Plains Sharp-tailed Grouse

The PRB FEIS discussed the affected environment for plains sharp-tailed grouse, pp. 3-148 to 3-150. No known sharp-tailed dancing grounds occur in the project area. Marginal nesting and brood-rearing habitat is present in the project area, however, extensive existing oil and gas development likely preclude use and the species is not suspected to occur.

3.7. Cultural Resources

A previously reviewed and accepted Class III cultural resource inventory (BFO #70990318) adequately covered the proposed project area. No cultural resources are in the area of potential effect.

3.8. Wilderness Characteristics

The proposed project area clearly lacks wilderness characteristics as it is less than 5,000 acres.

4. ENVIRONMENTAL EFFECTS

This section analyzes and describes the environmental effects of Alternative B, on the affected environment described in Section 3. This section analyzes changes to the proposed project resulted in development of Alternative B as the preferred alternative. The changes reduced impacts to the environment which will result from this project therefore only the environmental consequences of Alternative B are described below.

4.1. Air Quality

In the project area, air quality impacts would occur during construction (due to surface disturbance by earth-moving equipment, vehicle traffic fugitive dust, well testing, as well as drilling rig and vehicle engine exhaust) and production (including non-CBNG well production equipment, booster and pipeline compression engine exhaust). The amount of air pollutant emissions during construction would be controlled by watering disturbed soils, and by air pollutant emission limitations imposed by applicable air quality regulatory agencies. Air quality impacts modeled in the PRB FEIS concluded that projected oil & gas development would not violate any local, state, tribal or federal air quality standards.

4.2. Soils & Vegetation Direct and Indirect Effects

Proposed stream crossings, including culverts and fords (low water crossings) are shown on the SUP. These structures would be constructed in accordance with sound engineering practices and BLM standards. Table 4.1 summarizes the proposed surface disturbance.

Table 4.1. - Summary of Disturbance

Facility	Number or Miles	Factor	Disturbance
Engineered Pad	1 295ft x 210 ft	61,950 sq ft	1.42 acres
Improved Roads No Corridor	2,640 ft (0.50 mile)	30 ft	1.81 acres
Overhead Power No Corridor	1,320 ft (0.25 mile)	30 ft	0.90 acres
Buried Pipeline (Oil, gas, wáter)	230 ft (0.04 mile)	30 ft	0.20 acres
Total Surface Disturbance	0.79 miles		4.33 acres

The PRB FEIS defined the designation of the duration of disturbance, pp. 4-1 and 4-151. “For this EIS, short-term effects are defined as occurring during the construction and drilling/completion phases. Long-term effects are caused by construction and operations that would remain longer”.

4.3. Invasive Species

The operator committed to the control of noxious weeds and species of concern using the following measures identified in their Integrated Pest Management Plan (IPMP):

1. Control Methods, including frequency
2. Preventive practices
3. Education

Cheatgrass or downy brome (*Bromus tectorum*) and to a lesser extent, Japanese brome (*B. japonicus*) exist in the affected environment. These species are found in such high densities and numerous locations throughout NE Wyoming that a control program is not considered feasible at this time. The use of existing facilities along with the surface disturbance associated with construction of proposed access roads, pipelines, and related facilities would present opportunities for weed invasion and spread. The activities related to the performance of the proposed project would create a favorable environment for the establishment and spread of noxious weeds/invasive plants such as salt cedar, Canada thistle and perennial pepperweed. However, mitigation as required by BLM applied COAs will reduce potential impacts from noxious weeds and invasive plants.

4.4. Wildlife

4.4.1. Threatened, Endangered, Proposed and Candidate Species

4.4.1.1. Threatened and Endangered Species

The effects to threatened, endangered, and candidate species are summarized in Table 4.2 below, and described in the PRB FEIS, pp. 4-250 to 4-257.

Table 4.2. Summary of Threatened and Endangered Species Habitat and Project Effects

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
<i>Endangered</i>				
Black-footed ferret	Black-tailed prairie dog colonies or complexes > 1,000 acres.	NP	NE	No known colonies present.
Blowout penstemon	Sparsely vegetated, shifting sand dunes	NP	NE	Habitat not present
<i>Threatened</i>				
Ute ladies'-tresses orchid	Riparian areas with permanent water	NP	NE	Habitat not present
<i>Candidate</i>				
Greater Sage-grouse	Basin-prairie shrub, mountain-foothill shrub	NS	NI	Marginal habitat present, but use is likely precluded by existing oil and gas development in the area.
Presence				
K - Known, documented observation within project area.				
S - Habitat suitable and species suspected, to occur within the project area.				
NS - Habitat suitable but species is not suspected to occur within the project area.				

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
<p>NP - Habitat not present and species unlikely to occur within the project area.</p> <p>Project Effects LAA - Likely to adversely affect NE - No Effect NLAA - May Affect, not likely to adversely affect individuals or habitat. NLJ – Not likely to jeopardize the continued existence of the species MIIH – May impact individuals and habitat NI – No impact.</p>				

4.4.1.2. Sensitive Species

BLM will take necessary actions to meet the policies set forth in sensitive species policy (BLM Manual 6840). BLM Manual 6840.22A states that “The BLM should obtain and use the best available information deemed necessary to evaluate the status of special status species in areas affected by land use plans or other proposed actions and to develop sound conservation practices. Implementation-level planning should consider all site-specific methods and procedures which are needed to bring the species and their habitats to the condition under which the provisions of the ESA are not necessary, current listings under special status species categories are no longer necessary, and future listings under special status species categories would not be necessary.”

The effects to sensitive species resulting from implementation of the project are identified in Table 4.3 below, and discussed in the PRB FEIS discusses impacts to sensitive species on pp. 4-257 to 4-265.

Table 4.3. Summary of Sensitive Species Habitat and Project Effects.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
<i>Amphibians</i>				
Northern leopard frog (<i>Rana pipiens</i>)	Beaver ponds and cattail marshes from plains to montane zones.	NP	NI	Habitat not present.
Columbia spotted frog (<i>Ranus pretiosa</i>)	Ponds, sloughs, small streams, and cattails in foothills and montane zones. Confined to headwaters of the S Tongue R drainage and tributaries.	NP	NI	The project area is outside the species' range, and the species is not expected to occur .
<i>Fish</i>				
Yellowstone cutthroat trout (<i>Oncoryhynchus clarki bouvieri</i>)	Cold-water rivers, creeks, beaver ponds, and large lakes in the Upper Tongue sub-watershed	NP	NI	The project area is outside the species' range, and the species is not expected to occur.
<i>Birds</i>				
Baird's sparrow (<i>Ammodramus bairdii</i>)	Shortgrass prairie and basin-prairie shrubland habitats; plowed and stubble fields; grazed pastures; dry lakebeds; and other sparse, bare, dry ground.	S	MIIH	Nesting and foraging habitat may be impacted by dust, noise, human activities, and direct loss. Species may avoid area.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Mature forest cover often within one mile of large water body with reliable prey source nearby.	S	MIIH	Surface disturbing and maintenance activities may impact foraging eagles and the species may avoid the area.
Brewer's sparrow (<i>Spizella breweri</i>)	Sagebrush shrubland	S	MIIH	Nesting and foraging habitat may be impacted by dust, noise, human activities, and direct loss. Species may avoid area.
Ferruginous hawk (<i>Buteo regalis</i>)	Basin-prairie shrub, grasslands, rock outcrops	NS	NI	No documented nests occur within 0.5 miles of the project area.
Loggerhead shrike (<i>Lanius ludovicianus</i>)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Nesting and foraging habitat may be impacted by dust, noise, human activities, and direct loss. Species may avoid area.
Long-billed curlew (<i>Numenius americanus</i>)	Grasslands, plains, foothills, wet meadows	S	MIIH	Nesting and foraging habitat may be impacted by dust, noise, human activities, and direct loss. Species may avoid area.
Mountain Plover	Short-grass prairie with slopes < 5%	NP	NI	Habitat not present

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Northern goshawk (<i>Accipiter gentilis</i>)	Conifer and deciduous forests	NP	NI	Habitat not present.
Peregrine falcon (<i>Falco peregrinus</i>)	Cliffs	NP	NI	Habitat not present.
Sage sparrow (<i>Amphispiza billneata</i>)	Basin-prairie shrub, mountain-foothill shrub	S	MIH	Nesting and foraging habitat may be impacted by dust, noise, human activities, and direct loss. Species may avoid area.
Sage thrasher (<i>Oreoscoptes montanus</i>)	Basin-prairie shrub, mountain-foothill shrub	S	MIH	Nesting and foraging habitat may be impacted by dust, noise, human activities, and direct loss. Species may avoid area.
Trumpeter swan (<i>Cygnus buccinator</i>)	Lakes, ponds, rivers	NP	NI	Habitat not present.
Western Burrowing owl (<i>Athene cunicularia</i>)	Grasslands, basin-prairie shrub	NP	NI	Habitat not present.
White-faced ibis (<i>Plegadis chihi</i>)	Marshes, wet meadows	NP	NI	Habitat not present.
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Open woodlands, streamside willow and alder groves	NP	NI	Habitat not present.
<i>Mammals</i>				
Black-tailed prairie dog (<i>Cynomys ludovicianus</i>)	Prairie habitats with deep, firm soils and slopes less than 10 degrees.	NP	NI	No known colonies present.
Fringed myotis (<i>Myotis thysanodes</i>)	Conifer forests, woodland chaparral, caves and mines	NP	NI	Habitat not present.
Long-eared myotis (<i>Myotis evotis</i>)	Conifer and deciduous forest, caves and mines	NP	NI	Habitat not present.
Swift fox (<i>Vulpes velox</i>)	Grasslands	NS	NI	Habitat not present.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	Caves and mines.	NP	NI	Habitat not present.
<i>Plants</i>				
Limber Pine (<i>Pinus flexilis</i>)	Mountains, associated with high elevation conifer species	NP	NI	Habitat not present.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Porter's sagebrush (<i>Artemisia porteri</i>)	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes 5300-6500 ft.	NP	NI	Habitat not present.
William's wafer parsnip (<i>Cymopterus williamsii</i>)	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides, 6000-8300 ft.	NP	NI	Project area outside of species' range.
<p>Presence K - Known, documented observation within project area. S - Habitat suitable and species suspected, to occur within the project area. NS - Habitat suitable but species is not suspected to occur within the project area. NP - Habitat not present and species unlikely to occur within the project area.</p> <p>Project Effects NI - No Impact. MIH - May Impact Individuals or Habitat, but will not likely contribute to a trend towards Federal listing or a loss of viability to the population or species. WIPV - Will Impact Individuals or Habitat with a consequence that the action may contribute to a trend towards Federal listing or cause a loss of viability to the population or species. BI - Beneficial Impact</p>				

4.4.1.3. Big Game

4.4.1.3.1. Direct and Indirect Effects

The PRB FEIS discussed impacts to big game animals from CBNG and oil development, pp.4-181 to 4-215. Big game would likely be displaced from the project area during drilling and construction. A study in central Wyoming reported that mineral drilling activities displaced mule deer by more than 0.5 miles (Hiatt and Baker 1981). The WGFD indicates a well density of 8wells per section creates a high level of impact for big game and that avoidance zones around mineral facilities overlap creating contiguous avoidance areas (WGFD 2004). A multi-year study on the Pinedale Anticline suggests not only do mule deer avoid mineral activities, but after 3 years of drilling activity the deer have not become accustomed to the disturbance (Madson 2005).

Big game animals are expected to return to the project area following construction; however, populations will likely be lower than prior to project implementation as the human activities associated with operation and maintenance continue to displace big game. Mule deer are more sensitive to operation and maintenance activities than pronghorn, and, as the Pinedale Anticline study suggests, mule deer do not readily habituate. A study in North Dakota stated “Although the population (mule deer) had over seven years to habituate to oil and gas activities, avoidance of roads and facilities was determined to be long term and chronic” (Lustig 2003). Deer have even been documented to avoid dirt roads that were used only by 4-wheel drive vehicles, trail bikes, and hikers (Jalkotzy et al. 1997).

Reclamation activities that occur within big game habitats during the spring will likely displace does and fawns due to the human presence in the area. This may cause reduced survival rate of does and fawns that must expend increased energies to avoid such activities.

4.4.1.3.2. Cumulative Effects

The cumulative effects associated with Alternative B are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, refer to the PRB FEIS, pg. 4-181 to 4-215.

4.4.1.3.3. Mitigation Measures

No mitigation is proposed with Alternative B.

4.4.1.3.4. Residual Impacts

No residual impacts area anticipated.

4.4.1.4. Migratory Birds

4.4.1.4.1. Direct and Indirect Effects

The PRB FEIS discussed direct and indirect effects to migratory birds, pp. 4-231 to 4-235. Disturbance of habitat within the project area is likely to impact migratory birds. Native habitats will be lost directly with the construction of wells, roads, and pipelines. Reclamation and other activities that occur in the spring may be detrimental to migratory bird survival. Prompt re-vegetation of short-term disturbance areas should reduce habitat loss impacts. Activities will likely displace migratory birds farther than the immediate area of physical disturbance. Drilling and construction noise can be troublesome for songbirds by interfering with the males’ ability to attract mates and defend territory, and the ability to recognize calls from conspecifics (BLM 2003).

Habitat fragmentation will result in more than just a quantitative loss in the total area of habitat available; the remaining habitat area will also be qualitatively altered (Temple and Wilcox 1986). Ingelfinger (2004) identified that the density of breeding Brewer’s sparrows declined by 36% and breeding sage sparrows declined by 57% within 100 m of dirt roads within a natural gas field. Effects occurred along roads with light traffic volume (<12 vehicles per day). The increasing density of roads constructed in developing

natural gas fields exacerbated the problem creating substantial areas of impact where indirect habitat losses through displacement were much greater than the direct physical habitat losses.

Those species that are edge-sensitive will be displaced further away from vegetative edges due to increased human activity, causing otherwise suitable habitat to be abandoned. If the interior habitat is at carrying capacity, then birds displaced from the edges will have no place to relocate. One consequence of habitat fragmentation is a geometric increase in the proportion of the remaining habitat that is near edges (Temple 1986). In severely fragmented habitats, all of the remaining habitat may be so close to edges that no interior habitat remains (Temple and Cary 1988). Over time, this leads to a loss of interior habitat species in favor of edge habitat species. Other migratory bird species that utilize the disturbed areas for nesting may be disrupted by the human activity, and nests may be destroyed by equipment.

Migratory bird species within the PRB nest in the spring and early summer and are vulnerable to the same effects as sage-grouse and raptor species. Though no timing restrictions are typically applied specifically to protect migratory bird breeding or nesting, where sage-grouse or raptor nesting timing limitations are applied, nesting migratory birds are also protected. Where these timing limitations are not applied and migratory bird species are nesting, migratory birds remain vulnerable.

4.4.1.4.2. Cumulative Effects

The cumulative effects associated with Alternative B are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, refer to the PRB FEIS, pg. 4-235. No additional mitigation measures are required.

4.4.1.4.3. Mitigation Measures

No mitigation is proposed with Alternative B.

4.4.1.4.4. Residual Effects

No residual effects are anticipated.

4.4.1.5. Raptors

4.4.1.4.5. Direct and Indirect Effects

Direct and indirect impacts to raptors, from oil and gas development, are analyzed in the PRB FEIS (pp. 4-216 to 4-221).

4.4.1.4.6. Cumulative Effects

The cumulative effects associated with Alternatives B are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, refer to the PRB FEIS, pg. 4-221.

4.4.1.4.7. Mitigation Measures

No mitigation is proposed with Alternative B.

4.4.1.4.8. Residual Impacts

No residual impacts are anticipated.

4.4.1.6. Plains Sharp-tailed Grouse Effects

4.4.1.6.4. Direct and Indirect Effects

Direct and indirect impacts to sharp-tailed grouse, from oil and gas development, are analyzed in the PRB FEIS (pp. 4-221 to 4-225).

4.4.1.6.5. Cumulative Effects

The cumulative effects associated with Alternatives B are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, refer to the PRB FEIS, pp. 4-225 to 4-226.

4.4.1.6.6. Mitigation Measures

No mitigation is proposed with Alternative B.

4.4.1.6.7. Residual Impacts

No residual impacts are anticipated.

4.5. Cultural Resources

4.5.1. Direct and Indirect Effects

No historic properties will be impacted by the proposed project. Following the Wyoming State Protocol Section VI(A)(1) the BLM electronically notified the Wyoming State Historic Preservation Officer (SHPO) on June 29, 2011 that no historic properties exist within the area of project effects (APE). If any cultural values [sites, artifacts, human remains (Appendix L PRB FEIS)] are observed during operation of this lease/permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. Further discovery procedures are explained in the Standard COA (General)(A)(1).

4.5.2. Cumulative Effects

Construction and development of oil and gas resources impacts cultural resources through ground disturbance, unauthorized collection, and visual intrusion of the setting of historic properties. This results in fewer archaeological resources available for study of past human life-ways, changes in human behavior through time, and interpreting the past to the public. Additionally, these impacts may compromise the aspects of integrity that make a historic property eligible for the National Register of Historic Places. Recording and archiving basic information about archaeological sites and the potential for subsurface cultural materials in the proposed project area serve to partially mitigate potential cumulative effects to cultural resources.

Fee actions constructed in support of federal actions can result in impacts to historic properties. Construction of large plans of coalbed natural gas development on split estate often include associated infrastructure that is not permitted through BLM. Project applicants may connect wells draining fee minerals, or previously constructed pipelines on fee surface with a federal plan of development. BLM has no authority over such development which can impact historic properties. BLM has the authority to modify or deny approval of federal undertakings on private surface, but that authority is limited to the extent of the federal approval. Historic properties on private surface belong to the surface owner and they are not obligated to preserve or protect them. The BLM may go to great lengths to protect a site on private surface from a federal undertaking, but the same site can be legally impacted by the landowner at any time. The cumulative effect of numerous federal approvals can result in impacts to historic properties. Archeological inventories reveal the location of sites and although the BLM goes to great lengths to protect site location data, information can potentially get into the wrong hands. BLM authorizations that result in new access can inadvertently lead to impacts to sites from increased visitation by the public.

4.5.3. Mitigation Measures

If any cultural values [sites, artifacts, human remains (Appendix L PRB FEIS and ROD, pp. A-19 to A-20)] are observed during operation of this lease/permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. Further discovery procedures are explained in the Standard COA (General)(A)(1).

4.5.4. Residual Effects

During the construction phase, there will be numerous crews working across the project area using heavy construction equipment without the presence of archaeological monitors. Due to the extent of work and the surface disturbance caused by large vehicles, it is possible that unidentified cultural resources can be damaged by construction activities. The increased human presence associated with the construction phase can also lead to unauthorized collection of artifacts or vandalism of historic properties.

4.6. Description of Proposed Mitigation Measures:

The operator will incorporate site specific changes made at the onsite into the project as well as implementation of committed mitigation measures contained in the SUP and Drilling Plans, in addition to attached COAs.

5. CONSULTATION/COORDINATION:

Contact	Title	Organization	Present at onsite
Michael Perius	Operations Superintendant	Ballard Petroleum	Y
Gerry Geis	Surface Owner		Y
Brad Rogers	Wildlife Biologist	USFWS	Y
Mary Hopkins	Wyoming State Historic Preservation Officer	State Historic Preservation Office	N

6. OTHER PERMITS REQUIRED

A number of other permits are required from Wyoming State and other Federal agencies. These permits are identified in Table A-1 in the PRB FEIS Record of Decision.

7. REFERENCES AND AUTHORITIES:

The National Environmental Policy Act of 1969 (NEPA), as amended (Pub. L. 91-90, 42 U.S.C. 4321 et seq.).

Code of Federal Regulations (CFR)

- 40 CFR All Parts and Sections inclusive Protection of Environment Revised as of July 1, 2001.
- 43 CFR All Parts and Sections inclusive - Public Lands: Interior. Revised as of October 1, 2000.

U.S. Department of the Interior, Bureau of Land Management and Office of the Solicitor (editors). 2001. The Federal Land Policy and Management Act, as amended. Public Law 94-579.

Approved Resource Management Plan for Public Lands Administered by the Bureau of Land Management Buffalo Field Office. Prepared by the United States Department of the Interior, Bureau of Land Management, Buffalo Field Office, April 2001.

Powder River Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment. Prepared by the Department of the Interior, Bureau of Land Management, Wyoming State Office in Campbell, Converse, Johnson and Sheridan Counties, Wyoming. Approved April 30, 2003.

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- WGFD. 2009. Minimum Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats on BLM Lands. WGFD. Cheyenne, WY.

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