

DECISION RECORD

**Environmental Assessment (EA), WY-070-EA14-274, Application for Permit to Drill (APD)
Ballard Petroleum Holdings, LLC, HJ Geer Federal 14-25PH
Bureau of Land Management, Buffalo Field Office, Wyoming**

DECISION. The BLM approves Ballard Petroleum Holdings, LLC (Ballard) HJ Geer Federal 14-25PH oil and gas well application for permit to drill (APD) described in Alternative B of the environmental assessment (EA), WY-070-EA14-274, incorporated here by reference. This approval includes the well’s support facilities.

Compliance. This decision complies with or supports:

- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701); DOI Order 3310.
- Mineral Leasing Act of 1920 (MLA) (30 U.S.C. 181); including the Onshore Oil and Gas Orders.
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- National Historic Preservation Act of 1966 (NHPA) (16 USC 470).
- Buffalo and Powder River Basin Final Environmental Impact Statements (FEISs), 1985, 2003, 2011.
- Buffalo Resource Management Plan (RMP) 1985 and Amendments.

Well Site. BLM approves 1 APD and support facilities (SHL-surface hole lease, BHL-bottom hole lease):

Name and #	Twp	Rng	Sec	Qtr	SHL	BHL
HJ Geer 14-25PH	48N	74W	25	SWSW	Fee	WYW138132

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-EA14-274 and the FONSI (all incorporated here by reference) found Ballard’s proposal for the HJ Geer Federal 14-25PH oil well will have no significant impacts on the human environment beyond those described in the PRB FEIS. There is no requirement for an EIS.

COMMENT OR NEW INFORMATION SUMMARY. BLM publically posted the APD for 30 days, received no comments, and then internally scoped them. BLM received no new policy clarifications after receiving the APD.

DECISION RATIONALE. BLM bases the decision authorizing the selected project on:

1. BLM and Ballard included mitigation measures to reduce environmental impacts while meeting the BLM’s need. For a complete description of all site-specific COAs, see the COAs (Appendix A). The PRB FEIS analyzed and predicted that the PRB oil and gas development would have significant impacts to the region’s Greater Sage-Grouse (GSG) population. The impact of this development cumulatively contributes to the potential for local GSG extirpation yet its effect is acceptable because it is outside priority habitats and is within the parameters of the PRB FEIS and ROD and current BLM and Wyoming GSG conservation strategies.
2. To reduce the likelihood of a “take” under the Migratory Bird Treaty Act, BLM sensitive species nesting habitat removal for those locations and infrastructure on federal surface or mineral estate will occur outside of the breeding season or be cleared by survey.
3. Ballard will conduct operations to minimize adverse effects to surface and subsurface resources, prevent unnecessary surface disturbance, and conform to currently available technology and practice.
4. The selected alternative will help meet the nation’s energy needs, and help stimulate local economies by maintaining workforce stability.

5. The operator committed to:
 - Comply with the approved APD, applicable laws, regulations, orders, and notices to lessees.
 - Obtain necessary permits from agencies.
 - That they had offered water well agreements to the owners of record for permitted wells within 0.5 miles of the proposed well.
 - Incorporate several measures to alleviate resource impacts into their submitted surface use plan and drilling plan.
6. The operator certified it has a surface access agreement.
7. The project is clearly lacking in wilderness characteristics as there is no federal surface.
8. These APDs are pursuant to the Mineral Leasing Act for developing oil or gas and do not satisfy the categorical exclusion directive of the Energy Policy Act of 2005, Section 390 because the site-specific analyses covering the project area required updating.

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. Parties 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: /s/ Duane W. Spencer

Date: 5/21/14

FINDING OF NO SIGNIFICANT IMPACT
Environmental Assessment (EA), WY-070-EA14-274, Application for Permit to Drill (APD)
Ballard Petroleum Holdings, LLC, HJ Geer Federal 14-25PH
Bureau of Land Management, Buffalo Field Office, Wyoming

FINDING OF NO SIGNIFICANT IMPACT (FONSI). Based on the information in the EA, WY-070-EA14-274, which BLM incorporates here by reference; I find that: (1) the implementation of Alternative B will not have significant environmental impacts beyond those addressed in the Buffalo Final Environmental Impact Statement (FEIS) 1985, and the Powder River Basin (PRB) FEIS, 2003, to which the EA tiers; (2) Alternative B conforms to the Buffalo Field Office (BFO) Resource Management Plan (RMP) (1985, 2001, 2003, 2011); 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 consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), with regard to the context and to the intensity of the impacts described in the EA, and Interior Department Order 3310.

CONTEXT. Mineral development is a common PRB land use, sourcing over 42% of the nation's coal. The PRB FEIS foreseeable development analyzed the development of 54,200 wells. The additional development analyzed in Alternative B is insignificant in 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 in the 1985 RMP, PRB FEIS, or other legislative or regulatory processes. BLM used relevant scientific literature and professional expertise 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 have minor controversy, are not highly uncertain, or do not involve unique or proven 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. The proposal may relate to the PRB Greater Sage-Grouse and its habitat decline having cumulative significant impacts; yet the small size of this project is within the parameters of the impacts in the PRB FEIS. 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 as there is no federal 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. Parties adversely affected by the State Director's finding may appeal that finding to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Field Manager: /s/ Duane W. Spencer

Date: 5/21/14

Environmental Assessment (EA), WY-070-EA14-274
Application for Permit to Drill (APD)
Ballard Petroleum Holdings, LLC, HJ Geer Federal 14-25PH Well
Bureau of Land Management, Buffalo Field Office, Wyoming

1. INTRODUCTION

Ballard Petroleum Holdings, LLC (Ballard) requests BLM’s approval for 1 application for permit to drill (APD) on 1 pad. BLM incorporates the APD here by reference; see the administrative record (AR). Ballard proposes to drill the horizontal oil and gas well and construct associated infrastructure at the locations in Table 1.1. The well will be drilled from a non-federal surface, federal minerals, then laterally draining fee minerals on lease numbers listed below – resulting in a fee, federal, fee jurisdiction – standard split jurisdiction. The Willis H. Geer and Jean R. Geer Family Trust is the surface owner at the proposed well. This proposal clearly lacks wilderness characteristics as it has no federal surface. Ballard proposes an initial disturbance including pad disturbance, cuts, fills, spoil piles, top soil piles, access roads, and buried utilities, of about 4.32 acres; disturbance summary is in Table 2.3a.

Table 1.1. Proposed Wells

Well Name & #	Qtr	Sec	Twp	Rng	Lease
HJ Geer Federal 14-25PH	SWSW	25	48N	74W	WYW138132

1.1. Background

BLM received the notice of staking (NOS) on January 2, 2013 and conducted the on-site on April 3, 2013. BLM received the APD on September 13, 2013.

1.2. Need for the Proposed Project

The BLM’s need for this project is to meet the management objectives of the Buffalo Resource Management Plan (RMP), 1985, 2001, 2003, and 2011 (to which this EA tiers). BLM must determine how and under what conditions to balance natural resource conservation with allowing Ballard to exercise lease rights to develop fluid minerals, as described in their APD’s associated plans. Conditional fluid mineral development supports the RMP, the Mineral Leasing Act of 1920, 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 agreeing with the Bureau’s multiple use mandate, environmental protection, and RMP.

1.4. Scoping and Issues

BLM posted the proposed APD for 30 days and will timely publish the EA, any finding, and decision on the BFO website. This project is similar in scope to other fluid mineral development the BFO analyzed. External scoping is unlikely to identify new issues, as verified with recent fluid mineral EAs that BLM externally scoped. External scoping of the horizontal drilling in Crazy Cat East EA, WY-070-EA13-028, 2013, in the PRB area received 3 comments, revealing no new issues. The BFO interdisciplinary team (ID team) conducted internal scoping by reviewing the proposal, its location, and a resource (issue) list (see, AR), to identify potentially significantly affected resources, land uses, resource issues, regulations, and site-specific circumstances not addressed in the analyses incorporated by reference. This EA will not discuss resources and land uses that are not present, unlikely to receive significant or material affects, or that the PRB FEIS or other analyses adequately addressed. The extensive development in the area was material to this scoping; see Section 3, below.

2. PROPOSED PROJECT AND ALTERNATIVES

2.1. Alternative A – No Action

The no action alternative would deny this APD requiring the operator to resubmit an APD that complied with statutes and the reasonable measures in the Powder River Basin Resource Management Plan (PRB RMP) Record of Decision (ROD) in order to lawfully exercise conditional lease rights. The PRB Final Environmental Impact Statement (FEIS) considered a no action alternative, pp. 2-54 to 2-62. The BLM keeps the no action alternative current using the aggregated effects analysis approach – incorporating by reference the analyses and developments approved by the subsequent NEPA analyses for overlapping and intermingled developments to the proposal area. See, Table 3.1.

2.2. Alternative B Proposed Action (Proposal)

Overview. Ballard requests BLM’s approval for 1 APD from 1 pad and supporting infrastructure; see Table 1.1. The well will be drilled from a non-federal surface over federal minerals, and then laterally draining fee minerals. The proposal is to explore for, and possibly develop oil and gas reserves in the Parkman Formation at depths found in the AR; see Table 2.1. The project area is 15 miles southeast of Gillette, Campbell County, Wyoming. Project elevation is 4,911 feet. The topography has gently sloped draws rising to mixed sagebrush and grassland uplands. Ephemeral tributaries of Caballo Creek, tributary to the Upper Belle Fourche River, drain the area. The area climate is semi-arid, averaging 10-14 inches annual precipitation, about 60% of which occurs between April and September.

Drilling, Construction & Production design features include:

Access

- Access is primarily via WY Highway 50.
- A road network will consist of existing improved all-weather roads and newly constructed crown and ditch template roads.
- Ballard proposes 1,000 feet of new access road. The running surface will be 16 feet with a disturbance width of about 24 feet. The access road will be a template crown and ditch road.
- All roads will be maintained to meet BLM standards during the entire life of the project area.
- During interim reclamation the ditches will be seeded with a BLM approved seed mix to prevent erosion and maintain topsoil viability.
- Multiple culverts will be installed on newly the constructed access road.

Well Location

- The pad will have 3:1 slopes and reduced as much as possible during interim reclamation.
- The well pad will be constructed with cuts/fills and topsoil/spoil piles surrounding the pad surface. Disturbance is outlined in Table 2.2a.
- The well will use a lined pit at the pad to hold the cuttings.
- Up to 20 x 400 bbl tanks for oil and water will be placed on location.
- No staging areas, man camps/housing facilities are anticipated to be used off-site. Working trailers and sleeping trailers will be placed on the well pad during the drilling and completion of the well.
- If the well becomes a producer, production facilities will be located at the well site and will include a pumping unit, storage tanks, buildings, oil-water separator (heater-treater). There will be no pits at these producing well locations.
- Dikes will be constructed completely around production facilities, i.e. production tanks, water tanks, and heater treater. The dikes will be constructed of corrugated steel, approximately 3 feet high, and hold capacity of the largest tank plus 10%. The load-out line will be outside of the dike area. A drip barrel or “Getty-Box” will be installed under the end of all load-out lines.

Drilling and Completion Operations

- Hydraulic fracturing (HF) operations are planned as a ‘plug and perf’ operation done in stages. All fresh water will be contained in approximately 20 x 400 bbl HF tanks. No additional well pad disturbance is anticipated for HF operations. Completion flowback water will be held in tanks on location and trucked to a disposal facility permitted by Wyoming Department of Environmental Quality (WDEQ). See the AR for water sources.
- During drilling and production phases the average daily truck traffic is estimated to be 6 trucks per day.
- Well completion will be conducted within approximately 6 days including mobilization of well completion fleet trucks carrying water and sand with peak truck traffic estimated to be 30 trucks per day.
- 14 - 16 stages of completion activities will require approximately 200,000# of sand each totaling 1,600 tons of sand.
- 14 - 16 stages of completion activities will require approximately 27,048 bbls of water.
- A detailed completion operations plan is outlined in the surface use plan (SUP).

Table 2.1. Anticipated Drilling and Completion Sequence and Timing (per well)

Drilling and Completion Step	Approximate Duration
Build Location (roads, pad, and other initial infrastructure)	30 days
Mob Rig	2-4 days ¹
Drilling (24/7)	30 days ²
Schedule/logistics	30 days
Completion (setup, completion, demobilization)	5-8 days

¹ Depending on distance and need to add supplemental drilling equipment, such as skidding plates.
² By comparison, approximately 2 days are required to drill a CBNG well. ICF 2012

Table 2.2a. Disturbance Summary HJ Geer Federal 14-25PH:

Activity	Length (feet)	Width (feet)	Acres of Disturbance	Interim Disturbance
HJ Geer Federal 14-25PH constructed pad with cuts/fills and topsoil/spoil disturbances.	425	350	3.77	2.82
Newly Constructed Access Roads	1,000	24	0.55	0.55
Above Ground Power Lines (preliminary estimate)	0	0	0	0
Total Disturbance for this location			4.32	3.37

Plan of Operations.

The proposal conforms to all Bureau standards and incorporates appropriate best management practices, required and designed mitigation measures determined to reduce the effects on the environment. BLM reviewed and approved a surface use plan of operations describing all proposed surface-disturbing activities pursuant to Section 17 of the Mineral Leasing Act, as amended. This analysis also incorporates and analyzes the implementation of committed mitigation measures in the SUP, drilling plan, and the standard conditions of approval (COAs) found in the PRB FEIS ROD, Appendix A.

Reasonably Foreseeable Activity.

The reasonably foreseeable activity (RFA) for this and adjacent areas includes oil/gas exploration on 640 acre spacing and possible 320 acre spacing for horizontal wells and 80 acre spacing for vertical wells. (This does not preclude the RFA spacing analysis in the PRB FEIS or applying to drill multiple wells from this pad further reducing the surface disturbance per well.) The RFA in this project analysis area consists of 113 proposed notices of staking (NOSs) and APDs. The project analysis area is the area within 5 miles of these proposed wells. Potential APD submittals or reasonably foreseeable activity included in

this analysis could consist of multiple wells on an existing pad or tie into existing supporting infrastructure; tank batteries, pipelines, power lines, and transportation networks.

2.3. Conformance to the Land use Plan and Other Environmental Assessments

This proposal does not diverge from the goals and objectives in the Buffalo Resource Management Plan (RMP), 1985, 2001, 2003, 2011, and generally conforms to the terms and conditions of that land use plan, its amendments, supporting FEISs, 1985, 2003 (2011), and laws including the Clean Air Act, 42 USC 7401-7671q (2006), the Clean Water Act, 33 USC 1251 et seq. (1972), etc.

3. AFFECTED ENVIRONMENT

This section briefly describes the physical and regulatory environment that may be significantly affected by the alternatives in Section 2, or where changes in circumstances or regulations occurred since the approval of analyses to which this EA incorporates by reference; see Table 3.1. The PRB FEIS considered a no action alternative (pp. 2-54 to 2-62) in evaluating a development of up to 54,200 fluid mineral wells. Nearly 60% of the deep oil and gas wells are hydraulically fractured; BLM and Goolsby 2012. The BLM uses the aggregated effects analysis approach - incorporating by reference the circumstances and developments approved via the subsequent NEPA analyses for overlapping and intermingled developments coincident to this proposal area to retain currency in the no action alternative. 615 F. 3d 1122 (9th Cir. 2010). There are about 119 oil and gas wells within 2 miles of this project area, Wyoming Oil and Gas Conservation Commission (WOGCC) 2014. The number of conventional wells in the Buffalo planning area is 1313, which includes 783 horizontal wells (federal, fee, and state) (as of April 2013). This represents 41% of the projected 3,200 in the 2003 PRB ROD. This agrees with the PRB FEIS which analyzed the reasonably foreseeable development rolling across the PRB of 51,000 CBNG and 3,200 natural gas and oil wells. BLM determined a minimum of 115 townships from the northern borders of Sheridan and Campbell Counties to the southern border of Campbell County are the PRB developed field for fluid minerals because of the existing federal and fee developments. These APD proposals are in the developed field. The State of Wyoming and BLM also approved approximately 2 wells within 5 miles of the project area that operators may develop in the near future. In addition, other operators are likely to continue seeking permits to develop unconnected leases in or in the affects analysis areas near the project area; decisions to approve or deny future proposals will occur following APD submittal. Development occurring on non-federal surface and non-federal mineral estate would continue.

Table 3.1. Overlapping NEPA Analyses Which BLM Incorporates by Reference either as similar drilling analyses or as substantially similar analyses in the semi-arid sage-brush, short grass prairie

#	POD / Well Name	NEPA Analysis #	# / Type Wells	Approved Mo/Yr/Update
1	Lone Tree POD	WY-070-03-140	12 CBNG	09/2003
2	Rooster POD	WY-070-04-021	20 CBNG	04/2004
3	North Peasantville II POD	WY-070-03-121	10 CBNG	07/2003
4	Beaver Creek	WY-070-09-065	27 CBNG	05/2009
5 ^a	Mufasa Fed 11-31H Well	WY-070-EA12-062	1 Oil	3/2012
6 ^b	APC Crazy Cat East	WY-070-EA13-028	24+/- Oil Pads	2/2013

See also: SDR WY-2013-005, particularly noting pp. 2-3, incorporating the entirety here by reference.

- While not overlapping, incorporate those sections describing and analyzing hydraulic fracturing, its supporting analysis, and the Greater Sage-grouse Section 3.7.12 and 4.8.2.
- While not overlapping, incorporate those sections describing and analyzing hydraulic fracturing and its supporting analysis to include but not limited to traffic, water, and air quality.

3.1. Air Quality

BLM incorporates by reference the updated air quality affected environment section from the nearby and upwind APC Crazy Cat East EA, WY-070-EA13-028, Section 3.1.

3.2. Soils, Ecological Sites, and Vegetation

BLM incorporates by reference the soils and vegetation sections in the North Pleasantville II POD EA, WY-070-EA03-121, pp. 8 and the Soils and Vegetation Section, pp. 6-7 from the Rooster POD EA, WY-070-EA04-021. Soils, ecological sites, and vegetation found in the areas of this HJ Geer Federal 14-25PH well are similar to those occurring in North Pleasantville POD EA, WY-070-EA03-121.

Table 3.2. Dominant Soils by Map Unit Symbol (MUS) in the Proposal Area

Well Location	MUS	Map Unit Name	Ecological Site
4874-14-25	183	Moorhead-Leiter clay loams, 0 to 6% slopes	Clayey

NOTE: area of analysis includes access (proposed, new disturbance) to well location

3.3. Water Resources

The Wyoming State Engineer's Office (WSEO) has authority for regulating water rights issues and permitting impoundments for the State's surface waters. The WOGCC has authority for permitting and bonding off channel pits located over state and fee minerals. The area's historical use for groundwater was for stock or domestic water. A search of the WSEO Ground Water Rights Database showed 5 registered stock and domestic water wells within 1 mile of the proposed well with depths ranging from 0 to 1160 feet. Adherence to the drilling COAs, the setting of casing at appropriate depths, following safe remedial procedures in the event of casing failure, and using proper cementing procedures should protect any fresh water aquifers above the target coal zone. The Fox Hills Formation at a depth of 5785', is the deepest penetrated fresh water zone in the PRB. It lies well above the target formation at 6700' bgs.

At the time of permitting, the volume of water that will be produced in association with these federal minerals is unknown. Ballard will have to produce a well for a time to be able to estimate the water production. In order to comply with the Onshore Oil and Gas Order #7, Disposal of Produced Water, Ballard will submit a Sundry to the BLM within 90 days of first production which includes a representative water analysis as well as the proposal for water management. Historically, the quality of water produced in association with conventional oil and gas has been such that surface discharge would not be possible without treatment. Initial water production is low in most cases. There are 3 common alternatives for water management: Re-injection, deep disposal or disposal into pits. All alternatives would protect groundwater resources when performed in compliance with state and federal regulations.

3.4. Invasive or Noxious Species

The area where this well is proposed has an infestation of buffaloburr and black henbane associated with continuing surface disturbance. Additionally, BLM incorporates by reference the invasive species subsections from Rooster POD EA, WY-070-EA04-021, p. 7. Field conditions remain materially similar to these analyses.

3.5. Wildlife

The PRB FEIS identified wildlife species occurring in the PRB, pp. 3-113 to 3-206. The BLM evaluated impacts to wildlife resources and recommended project modifications where wildlife issues arose. BLM wildlife biologists also consulted databases compiled and managed by BLM BFO wildlife staff, the PRB FEIS, WY Game and Fish Department (WGFD) datasets, and the Wyoming Natural Diversity Database (WYNDD) to evaluate the affected environment for wildlife species that may occur in the area. This section describes the affected environment for wildlife species known or likely to occur in the area that are likely to be impacted by the action. Rationale for species not discussed in detail below can be referenced in the administrative record.

3.5.1. Threatened, Endangered, Candidate, Special Status (Sensitive) Species (SSS)

The Buffalo BLM receives a species list periodically from the US Fish and Wildlife Service (FWS) concerning threatened, endangered, proposed, and candidate species. Species included on that list that would be impacted by the proposed project are discussed below.

3.5.1.1. Candidate Species – Greater Sage-Grouse (GSG)

The PRB FEIS has a detailed discussion on GSG ecology and habitat, pp. 3-194 to 3-199. Subsequently the FWS determined the GSG warrants federal listing as threatened across its range, but precluded listing due to other higher priority listing actions, 75 Fed. Reg. 13910 to 14014, Mar. 23, 2010; 75 Fed. Reg. 69222 to 69294, Nov. 10, 2010. GSG are a WY BLM special status (sensitive) species (SSS) and a WGFD species of greatest conservation need because of population decline and ongoing habitat loss. The 2012 population viability analysis for the Northeast Wyoming GSG found there remains a viable population of GSG in the PRB (Taylor et al. 2012). However, threats from energy development and West Nile virus (WNV) are impacting future viability (Taylor et al. 2012). The BLM IM WY-2012-019 establishes interim management policies for proposed activities on BLM-administered lands, including federal mineral estate, until RMP updates are complete. No WGFD identified occupied leks are within 4 miles of the proposal. The proposal area does provide isolated areas of suitable habitat and the species is expected to occur.

3.5.2. Big Game

The big game species occurring in the project area are mule deer and pronghorn. The WGFD identifies the proposal area to have yearlong seasonal habitats for mule deer and pronghorn, respectively. The PRB FEIS discussed the affected environment for pronghorn and mule deer on pp. 3-117 to 3-122, pp. 3-127 to 3-133, respectively. The big game species mentioned above are known to occur in the proposal area.

3.5.3. Raptors

The PRB FEIS discussed the affected environment for raptors, pp. 3-141 to 3-148. Most raptor species nest in a variety of habitats including (but not limited to): native and non-native grasslands, agricultural lands, live and dead trees, cliff faces, rock outcrops, and tree cavities. Suitable nesting habitat is present in the project area. Raptor species suspected to occur in the area include golden eagle, northern harrier, Swainson's hawk, American kestrel, short-eared owl, great horned owl, red-tailed hawk, western burrowing owl (SSS), ferruginous hawk (SSS), and rough-legged hawk (winter resident). No existing nests are within 0.5 miles from the proposal.

3.5.3.1. Migratory Birds

The PRB FEIS discussed the affected environment for migratory birds, pp. 3-150 to 3-153. A wide variety of migratory birds may occur in the proposal area at some point during the year. Migratory birds are birds that migrate for breeding and foraging at some point in the year. The BLM-Fish and Wildlife Service (FWS) Memorandum of Understanding (MOU) (2010) promotes the conservation of migratory birds, complying with 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 Migratory Bird Treaty Act (MBTA). The MBTA (and Bald and Golden Eagle Protection Act (BGEPA)) are strict liability statutes so require no intent to harm migratory birds through prosecuting a taking. Recent prosecutions or settlements in Wyoming, and the west, cost companies millions of dollars in fines and restitution (which was usually retrofitting power lines to discourage perching to minimize electrocution or shielding ponds holding toxic substances). BLM encourages voluntary design features and conservation measures supporting migratory bird conservation, in addition to appropriate restrictions.

Habitats in the proposal area include sage-brush steppe grasslands, mixed grass prairie, and one mature deciduous trees. 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 declined more consistently than any other ecological association of birds over the last 30 years (WGFD 2009). The FWS’s Birds of Conservation Concern (BCC 2008) report identifies species of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act. Species in this list that have the potential to occur in the project area are: Brewer’s sparrow, sage thrasher, loggerhead shrike, short-eared owl, and grasshopper sparrow. Of these, 3 species are identified on the BLM Wyoming Sensitive Species list.

The WGFD Wyoming Bird Conservation Plan (Nicholoff 2003) identified 3 groups of Wyoming’s high-priority bird species: 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 of high priority but are of local interest. Species likely occurring in the project area are in Table 3.5.

Table 3.6. Migratory Birds Occurring in the Proposal Area (Nicholoff 2003)

Level	Species	WY BLM Sensitive	Species	WY BLM Sensitive
Level I	Brewer’s sparrow	Yes	Ferruginous hawk	Yes
Level II	Lark bunting	No	Sage thrasher	Yes
	Loggerhead shrike	Yes	Vesper sparrow	No

3.6. Cultural

In accordance with Section 106 of the National Historic Preservation Act, BLM must consider impacts to historic properties (sites that are eligible for or listed on the National Register of Historic Places (NRHP)). For an overview of cultural resources that are found in PRB, refer to the *Draft Cultural Class I Regional Overview, Buffalo Field Office* (BLM, 2010). A Class III (intensive) cultural resource inventory (BFO project no. 70130077) was performed to locate specific historic properties which may be impacted by the proposal. No cultural resources are in the proposal area.

4. ENVIRONMENTAL EFFECTS

No Action Alternative. BLM analyzed the no action alternative as Alternative 3 in the PRB FEIS and it subsequently received augmentation of the effects analysis in this EA through the analysis of mineral projects, their approval, and construction; and through the analysis and approval of other projects. BLM incorporates by reference these analyses in this EA; see Table 3.1. This updated the no action alternative and cumulative effects. The project area has surface disturbance from existing roads, well pads, and oil and gas facilities. Under the no action alternative, on-going well field operations would continue as would the development of approved single and multi-well pads, consisting of horizontal wells with approved APDs and other approved APDs. The production and the drilling and completion of these new wells would result in noise and human presence that could affect resources in the project area; these effects could include the disruption of wildlife, the dispersal of noxious and invasive weed species, and dust effects from traffic on unpaved roads. Present fluid mineral development in the PRB is under half of that envisioned and analyzed in the PRB FEIS. There is only a remote potential for significant effects above those identified in the PRB FEIS to resource issues as a result of implementing the no action alternative.

Alternative B, Proposed Action (Proposal)

4.1. Air Quality

BLM incorporates by reference the air quality direct, indirect, cumulative, and residual effects from the analyses in Table 3.1, above as they are materially similar to those for these proposals. BLM incorporates by reference the analysis found in the August 2012 Lease Sale EA, WY-070-EA12-44, pp. 45-51 (air quality, greenhouse gas emissions, and visibility). Air quality impacts modeled in the PRB FEIS and Cumulative Air Quality Effects, 2009 concluded that PRB projected fluid and solid development would

not violate state, or federal air quality standards and this project is within the development parameters.

4.2. Soils, Ecological Sites, and Vegetation

Impacts anticipated occurring and mitigation considered with this proposal will be similar to those analyzed in the following EA which has similar characteristics to the HJ Geer federal well: North Pleasantville II POD EA WY-070-EA03-121, Affected Environment (pp. 7-8); and Direct and Indirect, Cumulative, Residual Effects (pp. 17-19) – all incorporated here by reference. These incorporated EA sections analyze the historical values and settings for soils, ecological sites, and vegetation. Although soil types for the HJ Geer Federal well are not exactly identical to the soils in the North Pleasantville II POD, effects and mitigation are similar.

4.3. Water Resources

Adherence to the drilling COAs, the setting of casing at appropriate depths, following safe remedial procedures in the event of casing failure, and using proper cementing procedures should protect fresh water aquifers above the drilling target zone. Compliance with the drilling and completion plans and Onshore Oil and Gas Orders Nos. 2 and 7 minimize an adverse impact on ground water. The volume of water produced by this federal mineral development is unknowable at the time of permitting. Ballard proposes the pads and access in flat locations and there are no major drainages adjacent or overlapped in the proposed surface disturbance areas. The short, proposed roads do not cross any drainages.

The operator will run surface casing to 2,200 feet, total vertical depth to protect shallow aquifers. The top of cement for the intermediate string will be calculated to 785 feet above the Fox Hills Formation. This will ensure that ground water will not be adversely impacted by well drilling and completion operations.

4.4. Invasive Species

BLM anticipates the proposal's direct, indirect, residual, and cumulative effects to invasive species proliferation will be materially similar to those found in the Rooster POD EA, WY-070-EA04-021, pp. 18-19, incorporated here by reference. Ballard's committed measures negate a need for mitigation.

4.5. Wildlife

4.5.1. Greater Sage-grouse

Effects to GSG from surface disturbing and disruptive activities associated with development of horizontal oil wells were analyzed in the Sahara POD EA, WY-070-EA13-72, 2013, Section 4.6.4.1, pp. 34-37, incorporated here by reference. Activities associated with development of this project are anticipated to be similar in nature, with the following additional site-specific information.

The proposal area contains suitable nesting, brood-rearing, and winter habitat. Construction of the wells and their associated infrastructure will cause fragmentation of sagebrush stands and result in the direct loss of approximately 4.3 acres (see Table 2.2a. Disturbance Summary) of GSG habitat. Noise and human disturbance associated with roads, construction, drilling, and completion will be disruptive to GSG. Implementation of the project will adversely impact nesting habitat, both through direct loss of suitable habitats and avoidance of the area by GSG due to fragmentation and anthropogenic activity.

4.5.1.1. Cumulative Effects

Cumulative effects to GSG from surface disturbing and disruptive activities associated with development of horizontal oil wells were analyzed in the Sahara POD EA, WY-070-EA13-72, 2013, Section 4.6.4.1.2, pp. 36-37, incorporated here by reference.

4.5.1.2. Mitigation Measures

Based on the summary of research describing the impacts of energy development on GSG, efforts to

reduce habitat loss and fragmentation are likely to be the most effective in ensuring long-term lek persistence. Ballard's design minimized surface disturbance and habitat fragmentation where feasible.

4.5.1.3. Residual Effects

Noise and human disturbance resulting from drilling, completions, maintenance, and production activities may impact GSG nesting in the area for the life of the project. Suitability of the project area for GSG will be further negatively affected due to habitat loss, fragmentation, and proximity of human activities associated with the proposal. The impact of the proposed development cumulatively contributes to the potential for local GSG extirpation. Alternative B is consistent with current BLM and Wyoming GSG conservation strategies and the anticipated effects are within the parameters of the PRB FEIS/ROD. Current research does not identify specific components of energy development that measurably decrease impacts to GSG or their habitats. Even in areas where a variety of mitigation measures were applied, negative population impacts were still measurable when well density exceeded 1 well per square mile. Management of energy development based on current core area configurations and associated lease stipulations, conditions of approval, and best management practices (BMPs), may not be sufficient to protect the population viability of PRB GSG.

4.5.2. Big Game

4.5.2.1. Direct and Indirect Effects

The PRB FEIS discusses impacts, including direct and indirect effects, cumulative effects, and residual effects to big game on pp. 4-181 to 4-215. Identified big game seasonal habitats would be directly disturbed with the construction of wells, and associated infrastructure. Long term disturbance would be direct habitat loss. Short-term disturbances also result in direct habitat loss; however, they should provide some habitat value as these areas are reclaimed and native vegetation becomes established. In addition to the direct habitat loss, 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 8 wells 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, Sawyer et al. 2006 and 2009).

4.5.2.2. Cumulative Effects

The cumulative effects associated with Alternative B are within the analysis parameters and impacts described in the PRB FEIS, p. 4-181 to 4-215.

4.5.2.3. Mitigation Measures

No mitigation is proposed with Alternative B.

4.5.2.4. Residual Effects

No residual impacts are anticipated.

4.5.3. Migratory Birds

4.5.3.1. Direct and Indirect Effects

The PRB FEIS discussed direct and indirect effects to migratory birds on pp. 4-231 to 4-235. BLM analyzed the effects to migratory birds from surface disturbing and disruptive activities associated with development of horizontal oil wells in the Sahara POD EA, WY-070-EA13-72, 2013, Section 4.6.2.2, pp. 31-33, and in the Bonita Federal Com 11H CX3, WY-070-390CX3-13-41, incorporated here by reference. Effects and mitigation associated with this project are similar in nature, with the following additional site-specific information. During the onsites, the BLM biologist identified suitable nesting habitat present for several BLM sensitive sagebrush obligates. Construction of all of the well pads within

the proposal and associated infrastructure will remove habitat and could kill BLM sensitive migratory birds, or destroy eggs, if the habitat is removed during the nesting season.

Heater treaters, and similar facilities with vertical open-topped stacks or pipes, can attract birds. Facilities without exclusionary devices pose a mortality risk. Once birds crawl into the stack, escape is difficult and the bird may become trapped (U.S. v. Apollo Energies Inc., 611 F.3d 679 (10th Cir. 2010); see also Colorado Oil and Gas Commission, Migratory Bird Policy, accessed February 13, 2012). To minimize these effects, the operator will equip all open-top pits, tanks, and pipes containing hydrocarbons with nets, screens, or other avian exclusion devices to prevent injury or death to migratory birds.

4.5.3.2. Cumulative Effects

The cumulative effects associated with alternative B are within the analysis parameters and impacts described in the PRB FEIS, p. 4-235.

4.5.3.3. Mitigation Measures

Construction of the proposal would (vegetation removal) occur outside of the breeding season (May 1-July 31) since suitable nesting habitat for sagebrush obligates is present. This restriction would apply to habitat removal, unless a pre-construction nest search (within approximately 10 days of construction planned May 1-July 31) is completed. If surveys will be conducted, the operator will coordinate with BLM biologists to determine protocol. The nest search will consist of in areas where vegetation will be removed or destroyed.

4.5.3.4. Residual Effects

Nests initiated after the first week in July may be destroyed by construction after August 1st. Migratory birds nesting adjacent to the well pad or road may be disturbed by construction and production activities. A timing limitation does nothing to mitigate loss and fragmentation of habitat. Suitability of the project area for migratory birds will be negatively affected due to habitat loss and fragmentation and proximity of human activities associated with oil and gas development.

4.5.4. Raptors

4.5.4.1. Direct and Indirect Effects

The PRB FEIS discussed direct and indirect effects to raptor, pp. 4-216 to 4-221. The effects to raptors from surface disturbing and disruptive activities associated with development of horizontal oil wells was analyzed in the Sahara POD EA, WY-070-EA13-72, 2013, Section 4.6.2.1, pp. 28-31, incorporated here by reference.

4.5.4.2. Cumulative Effects

The cumulative effects associated with Alternative B are within the analysis parameters and impacts described in the PRB FEIS, p. 4-221.

4.5.4.3. Mitigation Measures

No mitigation is proposed with Alternative B.

4.5.4.4. Residual Impacts

No residual impacts are anticipated.

4.6. Cultural Resources

BLM policy states that a decision maker's first choice should be avoidance of historic properties (BLM Manual 8140.06(C)). If historic properties cannot be avoided, mitigation measures must be applied to resolve the adverse effect. No historic properties will be impacted by the proposed project. Following the 2006 *State Protocol Between the Wyoming Bureau of Land Management State Director and The*

Wyoming State Historic Preservation Officer, Section VI(A)(1), the BLM notified the Wyoming State Historic Preservation Officer (SHPO) on May 9, 2014, that no historic properties exist in the area of potential effect (APE). If any cultural values (sites, features or artifacts) are observed during operation, they will be left intact and the Buffalo Field Manager notified. If human remains are noted, the procedures described in Appendix L of the PRB FEIS must be followed. Further discovery procedures are explained in Standard COA (General)(A)(1).

BLM used the aggregate effects method to update the cumulative effects for this EA; see Table 3.1.

5. List of Preparers: Persons and Agencies Consulted (BFO unless otherwise noted)

Position/Organization	Name	Position/Organization	Name
NRS/Team Lead	Mike Garrett	Archaeologist	Ardeth Hahn
Supr NRS	Casey Freise	Wildlife Biologist	Scott Jawors
Petroleum Engineer	Will Robbie	Geologist	Warren Garrett
LIE	Karen Klaahsen	Supr NRS	Kathy Brus
Assistant Field Manager	Clark Bennett	Assistant Field Manager	Chris Durham
NEPA Coordinator	John Kelley	Wyoming State Historic Preservation Officer	Mary Hopkins

6. REFERENCES and AUTHORITIES

BLM incorporates by reference here the references and authorities from the Baker Federal Com 8H EA, WY-070-EA14-224 for they are relevant to PRB surface, water, and drilling conditions also represented in the analysis for the HJ Geer Federal 14-25PH APD.