

**DECISION RECORD**  
**Environmental Analysis (EA), WY-070-EA14-111**  
**Anadarko E&P Onshore, L.L.C., Simba Deep Federal Plan of Development (POD)**  
**Bureau of Land Management, Buffalo Field Office, Wyoming**

**DECISION:** The BLM approves the applications for permit to drill (APDs) from Anadarko E&P Onshore, L.L.C. (APC) the operator, to drill 6 horizontal oil and gas wells from 4 locations, surrounded by CBM developed PODs. APC proposes to drill the wells and construct associated infrastructure, at the locations noted below.

**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).
- Powder River Basin Oil and Gas Project Final Environmental Impact Statement (FEIS) (2003).
- Buffalo Resource Management Plan (RMP) (1985) Update and Amendments (2003, 2011).
- Greater Sage-Grouse Habitat Management Policy on Wyoming BLM Administered Public Lands (WY-IM-2012-019) and Greater Sage-Grouse Interim Management Policies and Procedures (WO-IM-2012-043).

BLM summarizes the details of the approval of Alternative B below. The EA includes the project description, including specific changes made at the onsite, and site-specific mitigation measures.

BLM approves the following APDs and support facilities:

#	Well Name/ Well #	Qtr	Sec	Twp	Rng	Surface Ownership	Surface Hole Lease
<b>Simba 4778-7-44 Well Pad</b>							
1	Simba Fed 4778-7-31SX-H	SESE	7	47N	78W	Fee	Federal
2	Simba Fed 4778-19-44SX-XH	SESE	7	47N	78W	Fee	Federal
<b>Simba 4778-27-11 Well Pad</b>							
3	Simba Fed 4778-34-14SX-XH	NWNW	27	47N	78W	Federal	Federal
<b>Simba 4778-8-21 Well Pad</b>							
4	Simba Fed 4778-5-11SX-H	NENW	8	47N	78W	Federal	Federal
5	Simba Fed 4778-8-14SX-H	NENW	8	47N	78W	Federal	Federal
<b>Simba 4778-6-24 Well Pad</b>							
6	Simba Fed 4778-6-11SX-H	NWNW	6	47N	78W	Fee	Federal

**List of Approved Right-of Ways.**

ROW Grant	ROW Action	Section.	TWP	RNG	Acreage
WYW-168474	½ of Well Pad	8	47N	78W	6.095 acres
WYW-168474A	Road	8	47N	78W	1.785 acres
WYW-168475	Well Pad	7	47N	78W	.370 acres
					Acres of Disturbance
					8.25 acres

**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 this EA, and its FONSI (incorporated here by reference) found the operator's proposal for this PODs Applications for Permit to Drill 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 APDs for 30 days, received no comments, and then internally scoped them. BLM received no new policy clarifications after receiving these APDs.

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

1. BLM and the operator included design features and mitigation measures (conditions of approval (COAs)) to reduce environmental impacts while meeting the BLM's need. For a complete description of all site-specific COAs, see the COAs.
  - a. The impact of this development cumulatively contributes to the potential for local extirpation of the Greater Sage Grouse (GSG) yet its effect is acceptable because it is outside priority habitats and is within the parameters of the PRB FEIS/ROD and current BLM (WO-IM-2012-043) and Wyoming (WY-IM-2012-019) GSG conservation strategies.
  - b. With application of Standard Operating Procedures (SOPs), applied mitigation, Required Design Features, and COAs identified for Greater Sage-Grouse under the impacts caused by surface-disturbing and disruptive activities would be minimized.
  - c. There are no conflicts anticipated or demonstrated with current uses in the area.
2. The Resource Management Plan (RMP) for the Buffalo Field Office is currently undergoing revision. The Draft RMP and Environmental Impact Statement was released in June 2013.
3. The operator will conduct operations to minimize adverse effects to surface and subsurface resources, prevent unnecessary surface disturbance, and conform with 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.
  - Offer water well agreements to the owners of record for permitted wells.
  - 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 lacks wilderness characteristics since it is surrounded by oil and gas development. A wilderness characteristics inventory was completed in 2013; no lands with wilderness characteristics were identified outside the Big Horn Mountains. The inventory is available at: <http://www.blm.gov/wy/st/en/programs/Planning/rmps/buffalo/docs.html>.
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.

**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:       May 27, 2015

**FINDING OF NO SIGNIFICANT IMPACT**  
**Anadarko E&P, Onshore, L.L.C., Simba Deep POD**  
**Environmental Assessment (EA), WY-070-EA14-111**  
**Bureau of Land Management, Buffalo Field Office, Wyoming**

**FINDING OF NO SIGNIFICANT IMPACT (FONSI).** Based on the information in the EA, WY-070-EA14-111, 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 Powder River Basin (PRB) Oil and Gas Project Final Environmental Impact Statement (FEIS) (2003) (2) Alternative B conforms to the Buffalo Field Office (BFO) Resource Management Plan (RMP) (1985, 2001) and amendments (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 oil and gas 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 reduce 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 as identified in the 1985 RMP, the 2003 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. There are no cultural or historical resources present that will be adversely affected by the selected alternative. 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.

Field Manager:                   /s/ Duane W. Spencer                  

Date:                   May 27, 2015

**Environmental Assessment (EA), WY-070-EA14-111**  
**Applications for Permit to Drill (APDs)**  
**Anadarko E&P Onshore, L.L.C., Simba Deep Federal Plan of Development (POD)**  
**Bureau of Land Management, Buffalo Field Office, Wyoming**

**1. INTRODUCTION**

Anadarko E&P Onshore, L.L.C. (APC) the operator, requests BLM’s approval for 6 applications for permit to drill (APDs) on 4 well pads, one to two wells per pad, at this time. More wells/pads are likely to be added in the future. APC proposes to drill the horizontal oil and gas wells and construct associated infrastructure at the locations in Table 1.1. In the future, APC may drill up to 5 wells on these well pads. These proposed wells are surrounded by Whiskey Draw Unit CBNG development. The wells will be drilled from federal and non-federal surface location into underlying federal minerals on lease numbers listed below – resulting in standard split federal jurisdiction. Bureau of Land Management, Iberlin Four Mile Ranch and Falxa Land Company are the surface owners at the proposed wells. This site-specific analysis tiers into and incorporates by reference the information and analysis 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, 2011 and the PRB FEIS Record of Decision (ROD) per 40 CFR 1508.28 and 1502.21 as well as the PODs in Table 3.1. One may review these documents at the BLM Buffalo Field Office (BFO) and on our website: [http://www.blm.gov/wy/st/en/field\\_offices/Buffalo.html](http://www.blm.gov/wy/st/en/field_offices/Buffalo.html).

**Table 1.1. Proposed Wells**

#	Well Name/ Well #	Qtr	Sec	Twp	Rng	Surface Ownership	Surface Hole Lease
<b>Simba 4778-7-44 Well Pad</b>							
1	Simba Fed 4778-7-31SX-H	SESE	7	47N	78W	Fee	Federal
2	Simba Fed 4778-19-44SX-XH	SESE	7	47N	78W	Fee	Federal
<b>Simba 4778-27-11 Well Pad</b>							
3	Simba Fed 4778-34-14SX-XH	NWNW	27	47N	78W	Federal	Federal
<b>Simba 4778-8-21 Well Pad</b>							
4	Simba Fed 4778-5-11SX-H	NENW	8	47N	78W	Federal	Federal
5	Simba Fed 4778-8-14SX-H	NENW	8	47N	78W	Federal	Federal
<b>Simba 4778-6-24 Well Pad</b>							
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**List of Approved Right-of Ways.**

ROW Grant	ROW Action	Section.	TWP	RNG	Acreage
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WYW-168474A	Road	8	47N	78W	1.785 acres
WYW-168475	Well Pad	7	47N	78W	.370 acres
					Acres of Disturbance
					8.25 acres

**1.1. Background**

The operator submitted the APDs for these proposed wells on December 14, 2012. Onsites for these wells were completed on August 23, 2013. Post Onsite Deficiency letter sent April 18, 2014. The APDs may not satisfy the categorical exclusion directive of the Energy Policy Act of 2005, because they are not in a developed field that is not supported by a NEPA document that is within than 5 years old.

### **1.2. Need for the Proposed Project**

BLM's need for this project is to determine whether, how, and under what conditions to support the Buffalo Resource Management Plan's (RMP) goals, objectives, and management actions with allowing the exercise of the operator's conditional lease rights to develop fluid minerals on federal leases. BLM incorporates by reference here, the APD information (40 CFR 1502.21). Conditional fluid mineral development supports the RMP and 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 APDs 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 these APDs requiring the operator to resubmit APDs that comply with statutes and the reasonable measures in the PRB RMP Record of Decision (ROD) in order to lawfully exercise conditional lease rights. The PRB 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 similar and/or overlapping and intermingled developments to the proposal area. See Table 3.1.

### **2.2. Alternative B Proposed Action (Proposal)**

**Overview.** APC requests BLM's approval for 6 APDs on 4 well pads and their supporting infrastructure; see Table 1.1. The wells will be drilled from federal and non-federal surface into underlying federal minerals. The proposals are to explore for, and possibly develop oil and gas reserves in the Sussex Formation at depths of approximately 8,700' to 9,300' total vertical depths.

The project area is 30 miles southeast of Buffalo, Johnson County, Wyoming. Project elevations average 4,500 feet. The topography has gently sloped draws (some with cottonwoods in them), rising to mixed sagebrush and grassland uplands. Ephemeral tributaries of Four Mile Creek drain the area. The area climate is semi-arid, averaging 10-14 inches annual precipitation.

#### **Drilling, Construction & Production design features include:**

##### **Access**

- A road network will consist of existing and improved all-weather roads and newly constructed all weather roads.
- 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 minimize erosion and maintain topsoil viability.
- Culverts will be installed on newly constructed access roads.

**Well Locations**

- The pads will be 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.
- The wells will use a semi-closed loop system. Lined pits at the pads will hold the cuttings.
- Up to 7 x 400 bbl tanks for oil and water will be placed on location for each well.
- 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, 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 & perf’ operation done in stages. All fresh water will be contained in either approximately 120-170 HF tanks or a large capacity storage tank (18,000-44,000 bbl) in conjunction with about 30 x 500 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.
- (120-170) 500-bbl HF tanks are spotted, taking 2 weeks to fill, prior to pumping the stimulation. All HF water, including excess, is present before starting.
- Flowback equipment and tanks are spotted 2-3 days before pumping. Sand silos are spotted and filled 2-3 days prior to pumping.
- Next pump trucks and chemical mixing equipment arrives and, when ready, operations continue for 36-48 hours or 3-5 days depending on the type of stimulation stage isolation (i.e. packers/sleeves or plug/perf respectively).
- Sand is continuously brought on site in semi-truck loads during pumping. It is necessary to have a safe turning radius available for these trucks. Pumping water may require heating in the winter months.
- A detailed completion operations plan is outlined in the surface use plan (SUP).
- Peak truck traffic to fill HF tanks for completion operations is estimated to be 1800 roundtrips per well.

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

<b>Drilling and Completion Step</b>	<b>Approximate Duration</b>
Build Location (roads, pad, and other initial infrastructure)	30 days
Mob Rig	2-4 days <sup>1</sup>
Drilling (24/7)	30 days <sup>2</sup>
Schedule/logistics	30 days
Completion (setup, completion, demobilization)	5-8 days
<sup>1</sup> Depending on distance and needed to add supplemental drilling equipment, such as skidding plates.	
<sup>2</sup> By comparison, approximately 2 days are required to drill a CBM well. ICF 2012	

**Table 2.2. Disturbance Summary Simba Deep Federal POD:**

Activity	Length (feet)/ (miles)	Width (feet)/ (miles)	Acres of Disturbance	Interim Disturbance
4 Constructed pads with cuts/fills and topsoil/spoil disturbances.	varies	varies	11 ac. to 13 ac. each- total= 46.31 ac.	9.12 ac. each-total= 36.48 ac.
Newly Constructed Access Roads	4303 ft.	60 ft.	5.93 ac.	3.75 ac.
Primitive, 2 Tack Roads	1920 ft.	15 ft.	0.66 ac.	-
Above Ground Power Lines (preliminary estimate)	5836ft.	30 ft.	4.02 ac.	-
<b>Total Disturbance for this location</b>			<b>56.92 ac.</b>	<b>40.23 ac.</b>

**Off Well Pad.**

If gas or water gathering pipelines are needed, the operator will submit a sundry notice to the BLM Authorized Officer for approval.

**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 acres or more spacing and possibly 320 acre spacing for horizontal wells and 40 to 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 the project analysis area is well within the RFA of the PRB FEIS total of 54,200 fluid mineral wells. Potential APD submittals or reasonably foreseeable activity included in this analysis could consist of more, multiple wells on existing or proposed pads and would, as much as possible, 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, and generally conforms to the terms and conditions of that land use plan, its amendments, supporting FEISs, 2001, 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. The number of producing oil and gas wells in the Buffalo planning area is 15,121, Wyoming Oil and Gas Conservation Commission (WOGCC) Dec. 2014. The total number of conventional wells in the Buffalo planning area is 2855, which includes 845 horizontal wells (federal, fee, and state as of December 2014). (See Table 2.3 for an approximation of the disturbance in the current situation.) This agrees with the PRB

FEIS which analyzed the reasonably foreseeable development 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 a developed field for fluid minerals because of the existing federal developments. These APD proposals are in the developed field. In addition, this and other operators are likely to continue seeking permits to develop additional 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. 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**

#	Operator	POD / Well Name	NEPA Analysis #	# / Type Wells	Approved Mo/Yr/Update
1	Lance	Simba Fed 20-44H Well	WY-070-EA12-61	1 Oil	3//2012
2	Anadarko	Mufasa Fed 11-31H Well	WY-070-EA12-062	1 Oil	3/2012
3	Anadarko	Crazy Cat East	WY-070-EA13-028	24+/- Oil Pads	2/2013
4	Anadarko	Whiskey Draw Unit CBNG	WY-070-04-201	66 CBNG	7/2004

### 3.1. Air Quality

The PRB FEIS, pp. 3-291 to 3-299, describes air quality conditions within the Powder River Basin prior to 2003. BLM incorporates by reference, Update of Task 3A Report for the Powder River Basin Coal Review Cumulative Air Quality Effects for 2020, BLM (AECOM), 2009, (Cumulative Air Quality Effects, 2009) as it captures the cumulative air quality effects of present and projected PRB fluid and solid mineral development. The Environmental Protection Agency (EPA) established ozone standards in 2008, finalizing them in 2011.

Existing air quality in the PRB is “unclassified/attainment” with all ambient air quality standards. It is also in an area that is in prevention of significant deterioration zone. PRB air quality is a concern due to air quality alerts issued in 2011 for particulate matter (PM), attributed to coal dust.

Four sites monitor air quality in the PRB: Cloud Peak in the Big Horn Mountains, Thunder Basin northeast of Gillette, Campbell County south of Gillette, and Gillette. In addition, the Wyoming Air Resource Monitoring System (WARMS) measures meteorological parameters from 6 sites, particulate concentrations from 5 sites, speciated aerosol from 3 sites, and evapotranspiration rates from 3 sites. The WARMS sites are at Sheridan, Fortification Creek, South Coal Reservoir, Buffalo, Juniper, and Newcastle. A northeast Wyoming visibility study is in progress conducted by the Wyoming Department of Environmental Quality (WDEQ). Sites adjacent to the Wyoming PRB-area are at Birney on the Tongue River 24 miles north of the Wyoming-Montana border, Broadus on the Powder River in Montana, and Devils Tower.

Existing air pollutant emission sources in the region include:

- Exhaust emissions (primarily CO and nitrogen oxides (NOx)) 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;
- Particulate matter (PM), dust generated by vehicle travel on unpaved roads, windblown dust from neighboring areas, road sanding during the winter months, and coal mines and trains;
- Transport of air pollutants from emission sources located outside the region;
- NOx, PM, and other emissions from diesel trains and,
- Sulphur dioxide (SO2) and NOx from power plants.

### **3.2. Soil, Ecological Sites, and Vegetation**

BLM incorporates by reference the soils, vegetation and ecological sites, in sections 3, in the Crazy Cat East EA, pages 21 to 25, the Simba Fed 20-44H EA pages 5 & 6, Mufasa Fed 11-31H EA pages 5 & 6 and Whiskey Draw Unit EA pages 15, 16 & 17 as listed in Table 3.1 above. Soils, ecological sites, and vegetation found in the areas of these PODs are similar with similar mitigation methods. Affected soils and ecological sites in the proposed Simba Deep POD include Loamy, Clayey and Shallow Clayey ecological sites, which include loamy to clay loam soils. Pad Simba 4778-7-44 (2 wells) is in a Loamy ecological site, Pad Simba 4778-27-11 (1 well) Shallow Loamy, Pad Simba 4778-8-21 (2 wells) is in a Loamy ecological site and Pad Simba 4778-6-24 (1 well) is in a Loamy ecological site.

### **3.3. Water Resources**

The Wyoming State Engineer's Office (WSEO) has authority for regulating water rights issues and permitting impoundments for the containment of the State's surface waters. The WOGCC has authority for permitting and bonding off channel pits located over state and fee minerals. BLM incorporates by reference the regulatory scheme, topography and waters description from the Crazy Cat East EA, the Simba Fed 20-44H EA and the Mufasa Fed 11-31H EA as listed in Table 3.1 above.

#### **3.3.1. Groundwater**

The area's historical use for groundwater was for stock or domestic water. A search of the WSEO Ground Water Rights Database showed 11 registered stock and domestic water wells within 1 mile of the proposed wells with depths ranging from 5 to 600 feet. The Fox Hills, the deepest penetrated fresh water zone in the PRB lies well above the target formation at 7200 feet s.

At the time of permitting, the volume of water that will be produced in association with these federal minerals is unknown. APC 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, APC 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 be protective of groundwater resources when performed in compliance with state and federal regulations.

#### **3.3.2. Surface Water**

The project area is in the Fourmile Creek and Red Draw drainages, which are tributaries of the Upper Powder River. Most of the area drainages are ephemeral (flowing only in response to a precipitation event or snow melt) to intermittent (flowing only at certain times of the year when it receives water from alluvial groundwater, springs, or other surface source – PRB FEIS, Glossary). The channels are primarily well vegetated grassy swales, without defined bed and bank. See the PRB FEIS for a surface water quality discussion, pp. 3-48 to 3-49.

### **3.4. Wetlands/Riparian**

This project is in the Fourmile Creek and Red Draw drainages which are tributaries of the Upper Powder River. The ephemeral drainages have gentle slopes with well vegetated bottoms. The proposed project is not expected to affect Fourmile Creek or Red Draw.

The National Wetland Inventory shows 2.4 acres of freshwater emergent wetlands within the POD boundary, however, none of them will be impacted by the proposed project.

### 3.5. Invasive or Noxious Species

BLM incorporates by reference the invasive species analysis in Section 3 page 28, from the Crazy Cat East EA, as listed in table 3.1. Field conditions remain materially similar to these analyses.

### 3.6. Fish and Wildlife

The PRB FEIS identified wildlife species occurring in the PRB, pp. 3-113 to 3-206. BLM performed a habitat assessment in the project area on August 22, 2013. The biologist 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, WGFD datasets, and the Wyoming Natural Diversity Database (WYNDD) to evaluate the affected environment for wildlife species that may occur in the project area. This section describes the affected environment for wildlife species known or likely to occur in the project area that are likely to be impacted by the action. Rationale for any specie or species not discussed in detail below can be referenced in administrative record.

#### 3.6.1. Threatened, Endangered, Candidate

The Buffalo BLM receives a species list periodically from the FWS concerning threatened, endangered, proposed, and candidate species. Species included on that list that would be impacted by the proposed project will be discussed below.

##### 3.6.1.1. 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 USFWS determined the Greater Sage-Grouse (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.

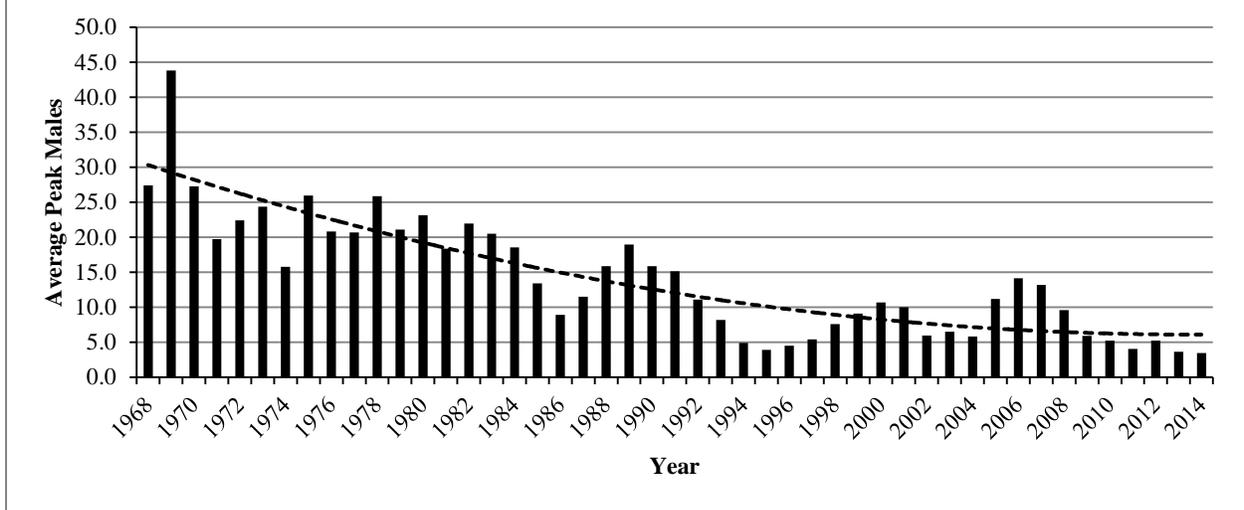
The State Wildlife Agencies' Ad Hoc Committee for Consideration of Oil and Gas Development Effects to Nesting Habitat (2008) recommends that impacts to leks occur within 4 miles of oil and gas developments. WGFD records show that 3 GSG leks occur within 4 miles of the proposed well pads. These leks are in Table 3.2, below. The analysis area is currently experiencing elevated levels of anthropogenic disturbances and habitat fragmentation from existing oil and gas developments, which is known to have contributed to local GSG population declines.

**Table 3.2. Occupied leks within 4 miles of proposed well pads.**

Lek Name	Status	Distance to Nearest Proposed Well Pad (miles)
Curtis Draw	Occupied	2.19
Four Mile Road	Occupied	3.31
Red Draw	Occupied	0.81

The GSG population in northeast Wyoming is exhibiting a steady long term downward trend, as measured by lek attendance (WGFD 2011b). Figure 3.1 illustrates a 10-year cycle of periodic highs and lows. Each subsequent population peak is lower than the previous peak. Research suggests that the declines since 2001 are a result, in part, of energy development (FWS 2010, Taylor et. al. 2012).

**Figure 3.1. Average Peak of Greater Sage-Grouse Males at WGFD Count Leks by Year in the PRB**



Source: WGFD 2014b

Wyoming Game and Fish Department (WGFD). 2014b. Lek Summary by Peak Males Year: 1948 – 2014. Unpublished data available from the Wyoming Game and Fish Department. Accessed December 2014.

Suitable GSG habitats are present throughout the proposed project area and the species is expected to occur.

**3.6.1.2. Big Game**

The big game species occurring in the project area are mule deer and pronghorn. The PRB FEIS discussed the affected environment for pronghorn, mule deer, white-tailed deer, and elk on pp. 3-117 to 3-122, pp. 3-127 to 3-132, respectively. Table 3.3 below indicates the delineated seasonal ranges for each species that occur in the project area.

**Table 3.3. Big Game Species, Seasonal Ranges within the proposed project area.**

– Species	– Seasonal Range in Project Area
– Mule Deer	– Yearlong, Winter Yearlong
– Pronghorn	– Yearlong

**3.6.1.3. Raptors**

The PRB FEIS discussed the affected environment for raptors, pp. 3-141 to 3-148. According to the BLM raptor database and Bighorn Environmental wildlife report (12/13/2013), there are 3 identified raptor nests sites of importance within 0.5 miles of the proposed well pads. These nests are in Table 3.4 below.

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 known or 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).

**Table 3.4. Nests Within 0.5 Miles of the Project Area.**

<u>BLM Nest ID</u>	<u>Species</u>	<u>Active last Three Years</u> <u>Yes/No</u>	<u>2013 Status</u>
12924	UNRA	No	Inactive
5136	RETA	Yes	Active
5894	RETA	No	Unknown

The proposed 4778-6-24 well pad is with 0.25 miles of nest 5316 (0.23mi.) and 5894 (0.20mi) as well as in line of sight and the proposed 4778-27-11 well pad is within 0.5 miles of nest 12924 (0.32mi) and is out of line of sight.

**3.6.1.4. Migratory Birds**

The PRB FEIS discussed the affected environment for migratory birds, pp. 3-150 to 3-153. The BLM also analyzed the affected environment for migratory birds in the Sahara POD EA, WY-070-EA13-72 and this analysis is incorporated here by reference (Section 3.7.2.2, p.16-17).

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 3.5. Migratory Birds Occurring in Shrub-steppe Habitat, NE Wyoming (Nicholoff 2003)**

<u>Level</u>	<u>Species</u>	<u>Wyoming BLM Sensitive</u>
Level I	Brewer’s sparrow	Yes
	Ferruginous hawk	Yes
Level II	Lark bunting	No
	Lark sparrow	No
	Loggerhead shrike	Yes
	Sage thrasher	Yes
	Vesper sparrow	No
Level III	Common poorwill	No
	Say’s phoebe	No

**3.7. 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 generally found within BFO the reader is referred to the Draft Cultural Class I Regional Overview, Buffalo Field Office (BLM, 2010). A Class III (intensive) cultural resource inventory (BFO project no. 70130019) was performed in order to locate specific historic properties which may be impacted by the proposed project. The following resources are located near the proposed project area.

**Cultural Resources Located Near the Project Area**

<u>Site Number</u>	<u>Site Type</u>	<u>NRHP Eligibility</u>
48JO2053	Prehistoric Campsite	Unevaluated

## **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 section 4. The Affected Environment, of the following EAs, which have similar characteristics to the Simba Deep POD/EA: Simba 20-44H pages 12, 13 & 14, Mufasa 11-31H pages 13 & 14, Crazy Cat East pages 40 to 44 and Whiskey Draw Unit pages 26 & 27. These incorporated EA sections analyze the historical values and settings for soils, ecological sites, and vegetation. Although soil types in the Simba Deep POD are not identical to the soils in the incorporated PODs, the 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. The operator will run surface casing to 1,800 feet, total vertical depth to protect shallow aquifers. Additionally, they will run centralized steel casing and insure that cement covers the zone from 100 feet above to 100 feet below the Fox Hills formation. 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. BLM incorporates by reference the surface water resources direct, indirect, cumulative, and residual effects from the Crazy Cat East EA, the Simba Fed 20-44H EA and the Mufasa Fed 11-31H EA as listed in Table 3.1 above. APC 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 and do not cross any drainages.

#### **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 Crazy Cat East EA, Section 4 pages 47 & 48, incorporated here by reference. APCs committed measures adequately mitigate these effects.

#### **4.5. Wildlife**

##### **4.5.1. Greater Sage-Grouse**

##### **4.5.1.1. Direct and Indirect Effects**

Implementation of the proposed project will impact GSG habitat and individuals. Impacts to GSG are generally a result of loss and fragmentation of sagebrush habitats associated with roads and infrastructure. Research indicates that GSG hens also avoid nesting in developed areas.

Impacts to GSG associated with energy development are discussed in detail in the 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered (USFWS 2010) and chapters 15-21 of Greater Sage-grouse Ecology and Conservation of a Landscape Species and its Habitats (Knick and Connelly 2011).

The proposed project area contains suitable nesting, brood-rearing, and winter habitat. Construction of the wells and the associated infrastructure will cause fragmentation of sagebrush stands and result in the direct loss of approximately 67.25 acres 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.

The Simba 4778-27-11 well pad is within 2 miles of the occupied Red Draw lek, and will directly impact nesting habitat as well as individuals through direct habitat loss and fragmentation.

##### **4.5.1.2. Cumulative Effects**

The PRB FEIS (BLM 2003) states that "the synergistic effect of several impacts would likely result in a downward trend for the sage-grouse population, and may contribute to the array of cumulative effects that may lead to its federal listing. Local populations may be extirpated in areas of concentrated development, but viability across the Project Area [PRB] or the entire range of the species is not likely to be compromised (pg. 4-270)." Based on the impacts described in the PRB FEIS and the findings of more recent research, the proposed action may contribute to a decline in male attendance at the identified leks that occur within four miles of the project area, and, potentially, extirpation of the local grouse population. Authorization of surface occupancy within 0.25 miles of a non-core habitat lek, or disruptive activities (such as completion activities) within 2 miles of an occupied lek during the breeding/nesting season, is inconsistent with the WY BLM and State of Wyoming GSG policies, and would set a precedent that these policies do not require compliance outside of GSG priority habitats.

Declines in lek attendance associated with oil and gas development may be a result of a suite of factors including avoidance (Holloran et al. 2005, Holloran et al. 2007, Aldridge and Boyce 2007, Walker et al. 2007, Doherty et al. 2008, WGFD 2009), loss and fragmentation of habitat (Connelly et al. 2000, Braun et al. 2002, Connelly et al. 2004, WGFD 2004, Rowland et al. 2005, WGFD 2005, Naugle et al. 2011), reductions in habitat quality (Braun et al. 2002, WGFD 2003, Connelly et al. 2004, Holloran et al. 2005) and changes in disease mechanisms (Naugle et al. 2004, WGFD 2004, Walker et al. 2007, Cornish pers. comm.).

The 2012 population viability analysis for the NE Wyoming GSG found there remains a viable population

of GSG in the PRB (Taylor et al. 2012). Threats from energy development and West Nile Virus (WNV) are impacting future viability (Taylor et al. 2012). The study indicated that effects from energy development, as measured by male lek attendance, are discernible out to a distance of 12.4 miles.

Studies document the additive impacts of energy development and WNV as a threat to GSG persistence in the PRB (Taylor et al. 2012, Garton et al. 2011). The cumulative and synergistic effects of CBNG development and WNV in the PRB area will continue to impact the local GSG population, causing further declines in lek attendance, and could result in local extirpation: “[f]indings reflect the status of a small remaining sage-grouse population that has already experienced an 82% decline within the expansive energy fields.” (Taylor et al. 2012).

Current well densities reduce the effectiveness of PRB core areas (Taylor et al. 2012). Continued energy development around the core areas will reduce PRB core areas remaining value. WNV outbreaks combined with energy development reduce sage-grouse populations and interact to exacerbate population declines. The effects of one WNV outbreak year could cut a population in half. Absent a WNV outbreak, or another stochastic event of similar magnitude, immediate extirpation is unlikely. Results suggest that if current oil and gas development rates continue, they may compromise future viability of NE Wyoming GSG, with an increased chance of extirpation with additional WNV outbreaks (Taylor et al. 2012).

A timing limitation does nothing to mitigate loss and fragmentation of habitat and changes in disease mechanisms. Rather than limiting mitigation to only timing restrictions, more effective mitigation strategies may include, at a minimum, burying power lines (Connelly et al. 2000b); minimizing road and well pad construction, vehicle traffic, and industrial noise (Lyon and Anderson 2003, Holloran 2005); and managing produced water to prevent the spread of mosquitoes with the potential to vector WNV in GSG habitat (Walker et al 2007).

#### **4.5.1.3. 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.

In order to reduce the likelihood that noise, construction, and human disturbance impact nesting GSG, BLM will implement a timing limitation on all surface-disturbing activities within 2 miles of occupied GSG leks during the construction phase. The proposed 4778-27-11 well pad would have a timing limitation applied. The intent of this timing restriction is to decrease the likelihood that GSG will avoid these areas and increase habitat quality by reducing noise and human activities during the breeding season.

#### **4.5.1.4. Residual Effects**

A timing limitation restricting surface disturbance does not mitigate habitat loss, fragmentation or changes in disease mechanisms. Noise and human disturbance resulting from hydraulic fracturing, maintenance and production activities are likely to impact GSG nesting in the area for the life of the project. Suitability of the project area for GSG will be negatively affected due to habitat loss, fragmentation, and proximity of human activities associated with oil and gas development.

Allowing disruptive activities (such as those associated with well completion) to occur during the breeding/nesting season (March 15 – June 30) is not in compliance with WY BLM policy or the State of Wyoming’s Greater Sage-Grouse conservation strategy (Executive Order (EO) 2011-5 Greater Sage-grouse Core Area Protection).

In order to be in compliance with EO 2011-5, “a 2 mile seasonal buffer should be applied to occupied leks.” The intent of EO 2011-5 management in non-core areas is to maintain populations and habitats where possible.

The PRB FEIS predicted that the PRB oil and gas development would have significant impacts to the GSG population. The impact of the proposed project development cumulatively contributes to the potential for local extirpation. Alternative B and the COAs applied are 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.

With application of Standard Operating Procedures (SOP’s), applied mitigation, Required Design Features and Conditions of Approval identified for Greater Sage-Grouse under the proposed action, impacts caused by surface-disturbing and disruptive activities would be minimized.

#### **4.5.2. Big Game**

##### **4.5.2.1. Direct and Indirect Effects**

The BLM analyzed the direct, indirect, and cumulative effects to big game in the PRB FEIS, pp. 4-181 to 4-211.

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 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).

Big game animals are expected to return to the project area following construction; however, populations would 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 7 years to habituate to oil and gas activities, avoidance of roads and facilities was determined to be long term and chronic” (Lustig 2003). Mule deer have been shown to avoid all types of well pads but tended to select areas farther from well pads associated with higher levels of traffic (Sawyer et al. 2009). 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).

Winter big game diets are sub-maintenance, meaning they lose weight and body condition as the winter progresses. Survival below the maintenance level requires behavior that emphasizes energy conservation. Canfield et al. (1999) pointed out that forced activity caused by human disturbance exacts an energetic disadvantage, while inactivity provides an energetic advantage for animals. Geist (1978) further defined effects of human disturbance in terms of increased metabolism, which could result in illness, decreased reproduction, and even death.

Energy development activities that occur within big game habitats during the spring will likely displace adult females and juveniles due to the human presence in the area. This may cause reduced survival rate of individuals that must expend increased energies to avoid such activities.

#### **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. For details on expected cumulative impacts, refer to 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. Direct mortality of a bird or destruction of an active nest due to construction activities could result in a “take” as defined (and prohibited) by the MBTA, a nondiscretionary statute, and in turn a violation of the law. See also, FLPMA, Sec. 302(b) and Raptors – Direct and Indirect Effects (4.6.2.1.1).

BLM analyzed effects and mitigation to migratory birds in the Sahara POD EA, WY-070-EA13-72 and this analysis is incorporated here by reference (Section 4.6.2.2.1, p.32-34).

#### **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. For details on expected cumulative impacts, refer to the PRB FEIS, p. 4-235.

#### **4.5.3.3. Mitigation**

BLM recommends no removal of occupied sagebrush obligate migratory bird habitat during the breeding season (May 1- July 31), unless a pre-construction nest survey (within approximately 10 days of construction planned May 1-July 31) is completed. If surveys will be conducted, the operator will follow “2012 Sage-brush BLM Sensitive Migratory Bird Nest Protocol” found at the following web address:  
[http://www.blm.gov/wy/st/en/field\\_offices/Buffalo/wildlife.html](http://www.blm.gov/wy/st/en/field_offices/Buffalo/wildlife.html).

### **4.5.4. Raptors**

#### **4.5.4.1. Direct and Indirect Effects**

The PRB FEIS discussed direct and indirect effects to raptors (pp. 4-216 to 4-221). This project would result in disturbance in proximity of nesting raptors, including direct and indirect habitat losses associated with declines in habitat effectiveness.

Human activities in close proximity to active raptor nests may interfere with nest productivity. Romin and Muck (1999) indicate that activities within 0.5 miles of a nest are prone to cause adverse impacts to

nesting raptors. If mineral activities occur during nesting, they could be sufficient to cause adult birds to remain away from the nest and their chicks for the duration of the activities. This absence can lead to overheating or chilling of eggs or chicks. Prolonged disturbance can also lead to the abandonment of the nest by the adults. Both actions can result in egg or chick mortality.

BLM recommends the location of all infrastructures requiring human visitation be designed to provide an adequate biologic buffer for nesting raptors. A biologic buffer is a combination of distance and visual screening that provides nesting raptors with security such that routine activities preclude flushing the raptors.

During the onsite visits, the BLM biologist and the operator worked to try and reduce impacts to raptors from placement of wells and infrastructure.

The proposed 4778-6-24 well pad is within 0.25 miles and in line of sight of two documented raptor nests. The species (red-tailed hawk) associated with the two nests may experience impacts from anthropogenic disturbances associated with proposed location, although the species is comparatively tolerant to disturbances in relation other raptors known to frequent the area.

#### **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. For details on expected cumulative impacts, refer to the PRB FEIS, p. 4-221.

#### **4.5.4.3. Mitigation Measures**

To reduce the risk of decreased productivity or nest failure, the BLM BFO requires a 0.5 mile radius timing limitation during the breeding season around active raptor nests. This timing limitation would be applied to the proposed 4778-8-21 well pad. In combination with sight specifics and associated species the mitigation should be adequate to protect nesting raptors.

#### **4.5.4.4. Residual Impacts**

Even with timing restrictions, raptors may abandon nests due to foraging habitat alteration associated with development or sensitivity to well or infrastructure placement. All raptors using nests in the vicinity of the project would likely be impacted to some extent by the human disturbance associated with operation and maintenance of the project. Routine human activities near these nests can draw increased predator activity to the area and increase nest predation. Declines in breeding populations of some species that are more sensitive to human activities may occur.

### **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 State Protocol Between the Wyoming Bureau of Land Management State Director and The Wyoming State Historic Preservation Officer, Section VI(A)(1), the Bureau of Land Management electronically notified the Wyoming State Historic Preservation Officer (SHPO) on 7/31/2014 that no historic properties exist within 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).

#### **4.6.1. 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. Destruction

of any archeological resource results in fewer opportunities to study of past human life-ways, to study changes in human behavior through time, or to interpret 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 may 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. Oil and gas development on split estate often includes construction of infrastructure that does not require permitting by BLM. Project applicants may integrate infrastructure associated with wells draining fee minerals with wells that require federal approval. BLM has no authority over fee actions, 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. Archeological inventories reveal the location of sensitive sites and although the BLM is obligated to protect site location data, information can potentially get into the wrong hands resulting in unauthorized artifact collection or vandalism. BLM authorizations that result in new access can inadvertently lead to impacts to sites from increased visitation by the public.

#### 4.6.2. Mitigation Measures

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).

#### 4.6.3. 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.

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

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

Position/Organization	Name	Position/Organization	Name
NRS/Team Lead	Dan Sellers	Archaeologist	Clint Crago
Supervisor NRS	Casey Freise	Wildlife Biologist	Chris Sheets
Petroleum Engineer	Matthew Warren	Geologist	Kerry Aggen
LIE	Karen Klaahsen	Supervisor NRS	Bill Ostheimer
Assistant Field Manager	Clark Bennett	Assistant Field Manager	Chris Durham
NEPA Coordinator	Tom Bills	Wyoming State Historic Preservation Officer	Mary Hopkins
Hydrologist	Brent Sobotka	Realty	Amber Haverlock
WY SHPO	Mary Hopkins		

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(BLM incorporates by reference here the references and authorities from the Porsche Wells EA, WY-070-EA14-84, pp. 29-33.)

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