

**DECISION RECORD**

**Environmental Assessment (EA), WY-070-EA14-216, Applications for Permit to Drill (APDs)  
Sheridan Production Co., LLC, SLPU Add 2 POD  
SLPU FED 32-08H; SLPU FED 44-08H; SLPU FED 42-28H; SLPU FED 44-19H  
Bureau of Land Management, Buffalo Field Office, Wyoming**

**DECISION.** The BLM approves the applications for permit to drill (APDs) from Sheridan Production Co., LLC (Sheridan) to drill 2 horizontal oil and gas wells and 2 injector wells and construct the access road and infrastructure as described in the Environmental Assessment (EA), WY-070-EA14-216, all incorporated here by reference.

**Compliance.** This decision complies with:

- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701); DOI Order 3310.
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- National Historic Preservation Act of 1966 (16 USC 470).
- Endangered Species Act of 1974 (16 USC 1531).
- Buffalo & Powder River Basin Final Environmental Impact Statement (FEISs), 1985, 2003 (2011).
- Buffalo Resource Management Plan (RMP) 1985, Amendments 2001, 2003, 2011.

**Consultation.** This decision considered:

- BLM Washington Office Instruction Memorandum No. 2009-078, Processing Oil and Gas Application for Permit to Drill for Directional Drilling into Federal Mineral Estate from Multiple-Well Pads on Non-Federal Surface and Mineral Locations, 2009.
- Wyoming BLM State Director Review, SDR No. WY-2011-010, EOG Resources, Inc. v. Pinedale Field Office, 2011.

**A summary of the details of the approval follows.** The EA analysis for the 2 oil and gas wells and 2 injector wells includes the project description, and site-specific mitigation measures which are incorporated by reference in this EA from earlier analysis. The proposed wells are 37 miles southwest of Gillette, Wyoming. Sheridan Production’s proposed 4 APDs will produce oil and gas from the Parkman Formation of the Powder River Basin (PRB).

**Approvals:** BLM approves 4 APDs and associated infrastructure (SH – surface hole):

#	Well Name	Well #	Type	Qtr/Lot	Sec	Twp	Rng	SH Lease #
1.	SLPU FED	32-08H	Oil	SWNE	8	45N	74W	Fee
2.	SLPU FED	44-08H	Oil	SESE	8	45N	74W	WYW133606
3.	SLPU FED	42-28H	Injector	SENE	28	45N	74W	WYW131217
4.	SLPU FED	44-19H	Injector	SESE	19	46N	74W	WYW172673

**Limitations.** See conditions of approval (COAs) and recommended mitigation measures (RMMs).

**THE FINDING OF NO SIGNIFICANT IMPACT (FONSI).** The analysis in EA, WY-070-EA14-216 found no significant impact to the human environment and BLM incorporates by reference here that FONSI. Thus an EIS is not required.

**Summary of New Information.** BLM posted the APDs for 30 days and received no public comments. Since BLM received the APDs it has not received new policies appropriate to this proposal.

**DECISION RATIONALE.** The approval of this project is because:

1. Mitigation measures and COAs analyzed in the EA analysis, in environmental impact statements, or environmental analysis which are incorporated by reference, will reduce environmental impacts while meeting the BLM's need.
2. The approved project conditioned by its design features and COAs, will not result in any undue or unnecessary environmental degradation. 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/ROD and current BLM and Wyoming GSG conservation strategies. There are no conflicts anticipated or demonstrated with current uses in the area. This decision approving these APDs complies with the Energy Policy Act of 2005, Section 390, 43 CFR 1610.5, 40 CFR 1508.4, and 43 CFR 46.215.
3. 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.
4. Approval of this project conforms to the terms and the conditions of the 1985 Buffalo RMP (BLM 1985) and subsequent update (BLM 2001) and amendments (BLM 2003, 2011). This project complies with the breadth and constraints of the Energy Policy Act of 2005, and subsequent policy.
5. The selected alternative will help meet the nation's energy need, revenues, and stimulate local economies by maintaining workforces.
6. The operator, in their APDs, shall:
  - Comply with all applicable federal, state, and local laws and regulations.
  - Offer water well agreements to the owners of record for permitted water wells within 0.5 mile of a federal producing well in the APDs (PRB FEIS ROD, p. 7).
7. The project is clearly lacking in wilderness characteristics as it lacks federal surface.
8. This decision does not foreclose the lessee or operator to propose a new or supplementary plan for developing the federal oil and gas leases in this project area, including submission of additional APDs to drain minerals in accord with lease rights and law. This decision does not foreclose the lessee or operator to propose using external pumping units via a sundry application process.
9. Sheridan certified it has a surface access agreement with the landowners or it posted a bond.
10. Sheridan provided the BLM a true and complete copy of a document in which the owner of the surface authorizes the operator to drill a federal well from non-federal lands, and in which the surface owner or representative guarantees the Department of the Interior, including BLM, access to the non-federal lands to perform all necessary surveys and inspections. (See clarification in BLM Instruction Memorandum No. 2009-078, p. 2, para 6). This applies only to APD: SLPU FED 32-08H.
11. This approval is subject to adherence with all of the operating plans, design features, and mitigation measures contained in the surface use plan of operations and drilling plan information in the individual APD.

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

Field Manager:                     /s/ Duane W. Spencer                    

Date:                     6/25/14

**FINDING OF NO SIGNIFICANT IMPACT**  
**Environmental Assessment WY-070-EA14-216, Applications for Permit to Drill (APDs)**  
**Sheridan Production Co., LLC, SLPU Add 2 POD**  
**SLPU FED 32-08H, SLPU FED 44-08H, SLPU FED 42-28H, SLPU FED 44-19H**  
**Bureau of Land Management, Buffalo Field Office, Wyoming**

**FINDING OF NO SIGNIFICANT IMPACT (FONSI).** Based on the information in the EA, WY-070-EA14-216, which BLM incorporates here by reference; I find that: (1) the implementation of Alternative B (approving 4 applications for permit to drill (APDs) 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, 2011 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 (as defined above) 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 is clearly lacking in wilderness characteristics as it lacks 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:                     6/25/14

**ENVIRONMENTAL ASSESSMENT (EA), WY-070-EA14-216**  
**Sheridan Production Co., LLC, SLP U Add 2 POD**  
**SLPU FED 32-08H; SLP U FED 44-08H; SLP U FED 42-28H; SLP U FED 44-19H**  
**Applications for Permit to Drill (APDs)**  
**Bureau of Land Management, Buffalo Field Office, Wyoming**

**1. INTRODUCTION**

BLM provides an EA for Sheridan Production Co., LLC (Sheridan), SLP U Add 2 POD, which includes oil and gas well applications for permit to drill (APDs) for the following wells (SH: surface hole):

#	Well Name	Well #	Type	Qtr/Lot	Sec	Twp	Rng	SH Lease #
1.	SLPU FED	32-08H	Oil	SWNE	8	45N	74W	Fee
2.	SLPU FED	44-08H	Oil	SESE	8	45N	74W	WYW133606
3.	SLPU FED	42-28H	Injector	SENE	28	45N	74W	WYW131217
4.	SLPU FED	44-19H	Injector	SESE	19	46N	74W	WYW172673

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, the Barlow Ranch Fed 074974-3NH EA, WY-070-EA12-173, and the PRB FEIS Record of Decision (ROD), pursuant to 40 CFR 1508.28 and 1502.21. 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/Bufallo.html](http://www.blm.gov/wy/st/en/field_offices/Bufallo.html). These APDs are pursuant to the Mineral Leasing Act for the purpose of exploring or developing oil or gas and do not satisfy the categorical exclusion directive of the Energy Policy Act of 2005, Section 390 because individual surface disturbances are greater than 5 acres. The SLP U Fed 32-08H is private surface over non-Federal minerals with the lateral bore drilled into Federal mineral estate. Therefore, BLM consults Instruction Memorandum No. 2009-078 entitled *Processing Oil and Gas Applications for Permit to Drill for Directional Drilling into Federal Mineral Estate from Multiple-Well Pads on Non-Federal Surface and Mineral Estate Locations* for processing the SLP U FED 32-08H APD.

Congress made a 4-part process for federal fluid mineral decisions under the long-term needs of multiple-use. First is the land use / resource management plan (RMP); here the PRB FEIS and ROD amendment to the BFO RMP. Second are the decisions of whether and, if so, under what conditions, to lease lands for fluid mineral development. Courts held leasing decisions are an almost irrevocable resource commitment. Third, (this phase) is deciding on the proposed APDs: the site-specific analysis, and mitigation. Fourth is the monitoring and reclamation of wells and their features. (Pendery 2010)

**1.1. Background**

Sheridan sent in notices of staking (NOSs) applications and initial onsite inspections were on February 27 and March 6, 2013. Sheridan submitted the SLP U Add 2 POD applications for permit to drill (APDs) on February 5, 2014. A Post Onsite Deficiency Letter was sent to Sheridan on February 27 and on May 20, 2014. The BLM received revisions on April 24 and June 19, 2014.

**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 (2003 Amendment) with allowing the exercise of the operator’s conditional lease rights to develop fluid minerals on federal leases. APD information is an integral part of this EA, which BLM incorporates here

by reference. 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**

The BLM posted the APDs for 30-days and received no public comments. Previously BFO conducted extensive external scoping for the PRB FEIS - discussed on p. 2-1 of the PRB FEIS and on p. 15 of the PRB ROD. This project is similar in scope to other fluid mineral development the BFO analyzed. External scoping is unlikely to identify new issues, as verified with recent fluid mineral EAs BLM recently externally scoped. External scoping of the horizontal drilling in Crazy Cat EA, WY-070-EA13-028, 2013, in the PRB area received 3 comments, revealing no new issues. External scoping in 2010 and 2011 for a proposed RMP amendment revealed no new issues outside of geographically-specific ones. The BLM interdisciplinary team (ID team) conducted internal scoping by reviewing the proposed development and project location to identify potentially affected resources and land uses. This EA addresses those site-specific impacts that were unknown at the time of the PRB FEIS analysis that would help in making a reasoned decision or may be related to a potentially significant effect. The following resources/land uses are not present in the project area and will not be further analyzed:

- |                        |   |
|------------------------|---|
| Floodplains            | Areas of Critical Environmental Concern |
| Wilderness Values      | Native American Religious Concerns      |
| Wild and Scenic Rivers | Prime or Unique Farmlands               |
| Environmental Justice  |   |

**2. PROPOSED PROJECT AND ALTERNATIVES**

**2.1. Alternative A – No Action**

The No Action Alternative would deny these APDs, requiring Sheridan to resubmit APDs that comply with statutes and the reasonable measures in the PRB RMP 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 – tiering to or incorporating by reference the analyses and developments approved by the subsequent NEPA analyses for adjacent and intermingled developments to the proposal area (Table 3.1).

**2.2. Alternative B - Proposed Action**

**Table 2.1 Well Name/#/Lease/Location:**

#	Well Name	Well #	QTR/Lot	Sec	TWP	RNG	SH Lease #
1	SLPU FED	32-08H	SWNE	8	45N	74W	Fee
2	SLPU FED	44-08H	SESE	8	45N	74W	WYW133606
3	SLPU FED	42-28H	SENE	28	45N	74W	WYW131217
4	SLPU FED	44-19H	SESE	19	46N	74W	WYW172673

**Overview:** Sheridan Production Co., LLC’s proposal is in Campbell County. The surface owners are Ronald Schlautmann, Innes Ranch LLC, Robert Geer Trust, and James A. Hall. Sheridan proposes drilling and developing 2 horizontal oil wells and 2 injector wells into federal mineral estate from four separate pad locations within the Savageton Lower Parkman Unit, which comprises 28,330 acres. The proposed wells are 37 miles southwest of Gillette, Wyoming. The primary objective is to drill to the Lower Parkman Formation at a range of 7,683 feet to 7,780 feet total vertical distance. Associated

infrastructure includes access roads to the well pads. Additional infrastructure may include above-ground power lines, currently there are existing overhead power in the vicinity. If above-ground power is not available before the wells begin production, temporary generators would be used to provide power to each pad. The Wyoming Oil and Gas Conservation Commission (WOGCC) earlier approved wells in the project area producing fee leases in addition to the federal leases being approved by the BLM. Sheridan, as well as other Operators, is currently developing plans for drilling and completion of these fee and federal wells. The SLPU Add 2 POD wells access and pad consists of 25.74 acres of disturbance for construction and drilling phases, reduced to 3.84 acres of disturbance at production phases (Interim Reclamation). Sheridan Production currently has 4 additional NOSs submitted as the SLPU Add 3 POD. Sheridan has yet to submit these as APDs, and they are therefore not analyzed in this document, but they, along with well support infrastructure, are reasonable foreseeable activity in the project area.

#### **Drilling, Construction and Production Design Features Include:**

- Sheridan anticipates completing drilling and construction in 2 years. Drilling and construction is year-round in the region. Weather may cause delays but delays rarely last multiple weeks. Timing limitations in the form of conditions of approval (COAs) and/or agreements with surface owners may impose longer temporal restrictions.
- A road network consisting of existing improved roads and proposed improved roads.
- Potential production facilities for SLPU Fed 32-08H and SLPU Fed 44-08H include a pumping unit, a 400 bbls steel water tank, a 400 bbls steel oil tank, a 6 feet x 20 feet heater-treater located on the well pad and placed on the cut portion of the location, a minimum of 20 feet from the toe of the back cut, and a 4 foot x 8 foot meter house.
- Potential production facilities for SLPU Fed 42-28H and SLPU Fed 44-19H, which are injector wells, a 4 foot by 8 foot meter house. No power is required for injection wells.
- 150kW generators will supply temporary power to the pumping unit and lease control equipment. Gas produced from the well will be used and/or propane trucked to the location for the generator. Generators will be removed once power lines have been installed to individual well locations. Overhead power (3rd party) has not been proposed. There is existing overhead power in close proximity to individual well locations
- No oil pipelines are anticipated at this time and oil will be trucked off the location.
- Construction of 4 engineered drilling pads, access roads, and pipelines accounting for 25.74 acres of disturbance per well pad during the construction and drilling phases; reduced to 3.84 acres of disturbance during the production phase.
- Buried water pipelines as depicted in Surface Use Plans.
- A wheel trencher used to construct the pipeline right-of-way. Initial disturbance will be 20 feet wide; after interim reclamation, disturbance width will be 10 feet wide.
- Design feature for “bird cone” placement on heater-treater to avoid bird/bat mortality.
- Sheridan certified that all affected landowners within ½ mile are being offered a water well agreement.

#### **Drilling and Completion Water Sources and Amounts**

The proposed project is to horizontally drill and develop 2 oil and gas wells and 2 injector wells from on 4 separate pads into the Lower Parkman Formation. The project would be subject to the COAs for drilling of an oil/gas well in the BFO jurisdiction. Water for drilling and completion will come from the city of Gillette, Wyoming, and brought to site by truck using existing and proposed access roads to haul water to each location. Approximately 10,000 bbls of water will be used for drilling and completion at each site and stored in tanks. There is no hydraulic fracturing (HF) proposed for these wells. Drilling operations would utilize a fresh water based mud system to drill to approximately 8,250 feet. The operator would then switch to an oil invert mud system to drill the remainder of the hole. Drilling fluids utilized in the oil-based mud system would be contained in steel tanks of location, solidified, and disposed of in

accordance with BLM and Wyoming Oil and Gas Conservation Commission (WOGCC) rules and regulations.

For a detailed description of design features and construction practices associated with the proposal, refer to the surface use (SUP) and drilling plans included with the individual APDs. Also see the subject APDs for maps showing the proposed well location and associated facilities described above.

**Table 2.2. Disturbance Summary for SLPU Add 2 POD:**

Facility	Construction Disturbance (Short Term)	Interim Disturbance (Long Term)
Number of Well Pads	4	4
Engineered Pads with fill slopes, topsoil, spoils	4 (16.39 acres)	4 (1.43 acres)
Proposed Template Roads	0.80 miles ( 2.41 acres)	0.80 miles ( 2.41 acres)
Proposed Pipelines	6.94 acres	0
Overhead Power (none proposed)	Existing adjacent	Existing adjacent
<b>Total Acre Disturbance</b>	<b>25.74 Acres</b>	<b>3.84 Acres</b>

BLM’s jurisdiction for this proposal is split estate jurisdiction (non-federal surface over federal minerals) “public lands” Federal Land Policy Management Act (FLPMA), Sec. 103(e). Mitigation measures are in the SLPU Add 2 POD Surface Use Plans, WY-070-EA14-216 and BLM COAs and Recommended Mitigation Measures (RMMs) for Conventional Application for Permit to Drill. Drilling and producing mitigations are in Conditions of Approval for Conventional Application for Permit to Drill.

**Table 2.3 Lease Ownership at Surface Hole Location (SHL) /Bottom Hole Location (BHL)**

#	APD Well Name	SHL	BHL	Leases
1	SLPU FED 32-08H	Fee/Fee	FED	Fee, WYW142812
2	SLPU FED 44-08H	Fee/Fed	FEE	WYW133606, WYW144503
3	SLPU FED 42-28H	Fee/Fed	FED	WYW131217
4	SLPU FED 44-19H	Fee/Fed	FED	WYW172673, WYW128210, WYW 172683

All proposed wells have or cross federal minerals.

BLM incorporated and analyzed the implementation of committed mitigation measures in the SUPs and drilling plans, in addition to the COAs in the PRB FEIS ROD, as well as changes made at the onsite. Additionally, Sheridan, in their APDs, committed to:

1. Comply with the approved APD, applicable laws, regulations, orders, and notices to lessees.
2. Obtain necessary permits from agencies.
3. Offer water well agreements to the owners of record for permitted wells.
4. Incorporate several measures to alleviate resource impacts into their submitted surface use plan and drilling plan.
5. Certify it has a surface access agreement with the landowners or posted a 43 CFR 3814.1 bond.
6. For the SLPU Fed 32-08H APD, the operator has provided the BLM a true and complete copy of a document in which the owner of the surface or that owner’s representative authorizes the operator to drill a Federal well from the non-Federal lands, and in which the surface owner or representative guarantees the Department of the Interior (Department), including BLM, access to the non-Federal lands to perform all necessary surveys and inspections. Reduce well pads in size to accommodate production facilities. Areas no longer needed that are reclaimed will also be fenced after seeding to help establish a seed bed.
7. Any changes to the proposed layout and/or plan will be submitted via Sundry Notice to the BLM for approval prior to commencement of work.

Sheridan estimates that during the drilling phase of each individual well (about a 6 week period per well) the average daily truck traffic to and from the location is approximately 5-18 large trucks (water haulers, cement trucks, etc.) and 7-10 personal pickup trucks per day. Finally, during the production phase the average daily traffic will decrease to approximately 1 pickup truck per day.

**Reasonable and Foreseeable Activity**

Reasonably foreseeable activity, pending confirmation of productivity of this well, includes but is not limited to, production facilities and utilities (power, pipelines), additional wells, either on these pads or adjacent to this pads yet in the analysis area of these APDs to develop the Lower Parkman Formation. The following table includes foreseeable SLPU wells in the project area which Sheridan submitted as NOSs. Sheridan has yet to submit these as APDs, and they are therefore not analyzed here, but they, along with well support infrastructure, are reasonable foreseeable activity in the project area.

**Table 2.4. SLPU Federal Project Area Wells Cross-Reference by Well Status**

#	NOS Well Name & Number	Qtr	Sec	Twn	Rng	Surface Lease #	Status
1	SLPU Fed 23-04H	NESW	4	45	74	Fed	NOS
2	SLPU Fed23-13H	NESW	13	46	75		
3	SLPU Fed 11-13H	NWNW	13				
4	SLPU Fed 13-14H	NWSW	14				
5	SLPU Fed 21-24H	NENW	24				

**Description of Proposed Mitigation Measures:**

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

**2.3. Conformance with 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, and supporting FEISs, 1985, 2003.

**3. AFFECTED ENVIRONMENT**

This section briefly describes the physical and regulatory environment affected by the alternatives in Section 2. Aspects of the affected environment here focus on the major issues.

**Project Area Description**

The topography consists of moderately rough terrain with deep draws. The major vegetation/habitat type in the well site area is a mixed-grass prairie. The dominate species include Wyoming big sagebrush and big sagebrush mixed with various types of grasses. The elevations in the project area are 4,980 to 5,080 feet above sea level. Livestock grazing is the primary historic land use. Oil and gas development became the predominant land use in recent years. The proposed wells are in the Savageton Lower Parkman Unit, which includes 28,330 acres. BLM incorporates by reference the analyses in Table 3.1, for their similar habitats, waters, and drilling – as appropriate.

**Table 3.1. Adjacent or Overlapping NEPA Analyses Incorporated Here by Reference**

POD / Well Name	NEPA Analyses #	#/Type Well	Decision Date
SLPU Add 1 POD	WY-070-390CX1-13-145-149	5/Oil	6/18/2013
SLPU POD	WY-070-390CX1-12-22-225	6/Oil	11/14/2012
Barlow Ranch Fed 074974-3NH	WY-070-EA12-173	1/Oil	8/10/2012

POD / Well Name	NEPA Analyses #	#/Type Well	Decision Date
Gauge POD	WY 070-EA09-75	88/CBNG	9/11/2009
Innes Fed 14-30HS	WY-070-08-154	1/Oil	9/29/2009
McBeth Fed 31-18	WY-070-EA08-154	1/Oil	9/29/2009
House Creek Q POD	WY 070-EA08-187	21/CBNG	4/16/2008
House Creek O POD	WY 070-EA06-320	13/CBNG	9/21/2006
Innes Fed #14-24H	WY-070-EA06-196	1/Oil	4/07/2006
Rassback Trust 12-4H	WY-070-EA06-052	1/Oil	11/17/2005
McBeth Trust 12-19H	WY-070-EA06-052	1/Oil	11/17/2005
Savageton I POD	WY 070-EA04-342	22/CBNG	11/24/2004
Savageton II POD	WY 070-EA05-214	13/CBNG	7/15/2005
Savageton 3 POD	WY 070-EA06-192	3/CBNG	2/8/2008
Vineyard POD	WY 070-EA04-263	28/CBNG	7/3/2004
Bucko POD	WY 070-EA04-165	30/CBNG	7/16/2004
House Creek 1 (HC1)	WY 070-EA03-070	36/CBNG	8/29/2003

**Table 3.2. BLM Incorporates by Reference Here These Sections from Environmental Assessments**

SLPU Add 2 POD	Barlow Ranch Fed 074974-3NH, WY-070-EA12-173	PRB FEIS, WY-070-02-065
Soils & Vegetation: 3.2 & 4.2	Section 3.2, 3.3 & 4.4, 4.5	PRB FEIS: 3-78-107, 4-134-152, 4-153-164, 4-393-394, 4-406
Groundwater 3.3.1 & 4.3.1.1	Section 3.4.1 & 4.6.1	PRB FEIS: 3-1-30, 4-1-69, 4-392, 4-405
Surface Water 3.3.2 & 4.3.2.1	Section 3.4.2 & 4.6.2	PRB FEIS: 4-85-86, 4-117-124, 3-36-56, 4-69-122, 4-393, 4-405
Invasive Species: 3.5 & 4.4	Section 3.6 & 4.8	PRB FEIS: 3-103-108, 4-153-172

### 3.1. Air Quality

Refer to the PRB FEIS pp. 3-291 to 3-299, for a 2003-era description of the air quality conditions. 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 rising concern due to ozone in the oil and gas producing Upper Green River Basin that became 1 of the nation’s 40 “nonattainment” zones for ozone in 2012; in addition to PRB-area air quality alerts issued in 2011- 2014 for particulate matter (PM), attributed to coal dust. Four sites monitor the air quality in the PRB: Cloud Peak in the Bighorn 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, and particulate concentrations from 5 of those sites, monitors speciated aerosol (3 locations), and evapotranspiration rates (3 locations). These sites are at Sheridan, Taylor Reservoir, South Coal Reservoir, Buffalo, Juniper, and Newcastle. The northeast Wyoming visibility study is ongoing 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;

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

### 3.2. Soils, Ecological Sites and Vegetation

The implementation of this proposal will be similar to those analyzed in Table 3.1 above, which is adjacent, overlapping, or have similar characteristics to these wells. Soils, ecological sites, and vegetation found at the SLPU Add 2 POD locations are similar to those occurring in the Barlow Ranch Fed 074974-3NH EA, WY-070-EA12-173, Section 3.2, 3.3 (pp.7-10), see Tables 3.1 and 3.2, above, and is incorporated here by reference: The PRB FEIS identified soils, ecological sites, and vegetation common to the project area: (pp. 3-78-107, 4-134-152, 4-153-164, 4-393-394 and 4-406).

**Table 3.3. Dominant or Important Soils in SLPU Add 2 POD**

Well	Map Unit Symbol	Map Unit Name	Ecological Site
SLPU Fed 32-08H	121	Cushman-Cambria loams, 0-6% slope	Loamy 10-14 NP
SLPU Fed 44-08H	148	Forkwood-Ulm loams, 0-6% slopes	Loamy 10-14 NP
Access	214	Theedle-Kishona loams, 0-6% slopes	
SLPU Fed 42-28H	214	Theedle-Kishona loams, 0-6% slopes	Loamy 10-14 NP
Access	148	Forkwood-Ulm loams, 0-6% slopes	
SLPU Fed 44-19H	117	Cambria-Kishona loams, 6-15%	Loamy 10-14 NP

### 3.3. Water Resources

WDEQ regulates Wyoming's water quality with EPA oversight. The Wyoming State Engineer's Office (WSEO) regulates water rights and permits impoundments for the containment of the State's surface waters. The Wyoming Oil and Gas Conservation Commission (WOGCC) has authority for permitting and bonding off channel pits located over state and fee minerals. Fresh water used for drilling and completions will be supplied from the City of Gillette municipal system. About 5,000 bbls of water would be required for drilling and 5,000 bbls of water for completion per well, for a total of approximately 10,000 bbls of water required per well and stored in tanks onsite. Drilling of wells will be with oil based mud for the lateral section; there is no hydraulic fracturing (HF) proposed for these wells. Return fluids will be transported to an approved disposal facility per BLM and WOGCC regulations.

#### 3.3.1. Groundwater

The areas historical use of groundwater was for stock or domestic water. There are 174 oil and gas wells within 1 mile of the 4 wells proposed in the SLPU Add 2 POD. A search of the WSEO Ground Water Rights Database showed 4 registered stock and domestic water wells within 1 mile of the proposed wells with depths from 120 to 800 feet. Refer to the PRB FEIS for information on groundwater, pp. 3-1 to 3-36. The 2004 EPA study found it unlikely that HF CBNG wells would contaminate ground water. The EPA has an on-going study looking at more aspects of HF and has yet to issue findings. A 2011-2012 Geological Survey study found no groundwater effects from thousands of deep HF oil and gas wells. Another study found no direct link between HF and studied aquifers, Warner, 2012. The Fox Hills, the deepest penetrated fresh water zone in the PRB lies well above the target formation at 6,414 to 6,568 feet.

Groundwater will be similar to that analyzed in Table 3.1 above, which is adjacent, overlapping, or have similar characteristics to these wells. Groundwater characteristics are most similar to those occurring in the Barlow Ranch Fed 074974-3NH EA, WY-070-EA12-173, Section 3.4.1 & 4.6.1, (pp 10-11, 30-31),

and PRB FEIS WY-070-02-065, (pp. 3-1 to 3-36), see Tables 3.1 and 3.2 above, and are incorporated here by reference:

### **3.3.2. Surface Water**

The implementation of this proposal will be similar to those analyzed in Table 3.1 above, which is adjacent, overlapping, or have similar characteristics to these wells. The SLPU Add 2 POD well locations are in the PRB geographic area (Wyoming Geographic Landforms Map) containing broken ridgelines, moderately incised arroyos along ephemeral dendritic drainages, which drain into the Middle and South Prong of Wild Horse Creek. Surface waters in the area similar to those occurring in the Barlow Ranch Fed 074974-3NH EA, WY-070-EA12-173, Section 3.4.2 & 4.6.2, (pp 10-11, 30-32), and PRB FEIS WY-070-02-065, (pp. 3-36 to 3-56), see Tables 3.1 and 3.2 above, and are incorporated here by reference: Sheridan identified no natural springs within a 1 mile radius of SLPU Add 2 POD APDs. See generally the PRB FEIS for a surface water quality discussion, pp. 3-48 to 3-49.

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

The SLPU Add 2 POD APD projects and development will not disturb wetlands.

### **3.5. Invasive Species**

The project proponent discovered the following state-listed noxious weeds and invasive/exotic plant infestations by a search of inventory maps and/or databases or during subsequent field investigation: Canada thistle, Scotch thistle. Cheatgrass or downy brome (*Bromus tectorum*) and to a lesser extent, Japanese brome (*B. japonicus*) are known to exist in the affected environment. These 2 species, cheatgrass and Japanese brome, are found in high densities and numerous locations in NE Wyoming.

### **3.6. Fish and Wildlife**

The affected environment is discussed in, and anticipated to be similar to that in the Sahara POD EA, WY-070-EA13-72, incorporated here by reference. BLM consulted databases compiled and managed by the BFO 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. Site specific information is described below for known species suspected to occur in the project area as depicted in Table W.1, Summary of Sensitive Species Habitat and Project Effects, and Table W.2, Summary of Threatened and Endangered Species Habitat and Project Effects, in the administrative record.

#### **3.6.1. Threatened, Endangered, Candidate, Special Status (Sensitive) Species**

The Buffalo BLM receives a species list periodically from the U.S. Fish and Wildlife Service (FWS) concerning threatened, endangered, proposed, and candidate species. BLM discusses species on that list that may receive impacts from the proposal, below.

##### **3.6.1.1. Greater Sage-Grouse (GSG)**

One unoccupied lek (Black Butte) is within 2 miles of the proposed SLPU Fed 44-19H. BLM analyzed and considered mitigation for 2 leks in the Sahara POD EA, WY-070-EA13-72 and this analysis is incorporated here by reference: Affected Environment (Section 3.7.4.1, p.18-19). In March, 2012, WY BLM provided additional information on the population viability analysis and its influence on cumulative effects from energy development - found in the affected environment, Section 3.7.12 of the Mufasa Fed 11-31H Well EA, WY-070-EA12-062, incorporated here by reference.

##### **3.6.1.2. Migratory Birds**

All of the proposed well pads are in productive migratory bird habitat for sage-brush obligate species. Nesting season for Brewer's sparrows (a BLM Special Status (Sensitive) Species (SSS)) typically occurs mid-May to mid-July. Some young fledge in late July. Sage thrashers (BLM sensitive species) may lay a second clutch of eggs as late as mid-July. Lark sparrows in northern latitudes lay eggs from early May to

mid-July (information on breeding habits available on the Birds of North America Online website: <http://bna.birds.cornell.edu/bna>).

**3.6.1.3. Raptors.**

The affected environment for raptors will be similar to those analyzed in Section 3.7.2.1, from the Sahara POD EA, WY-070-EA13-72, Section 3.6.2.2. One ferruginous hawk nest (BLM #1490) is within 0.5 mile from the proposed SLP U Fed 44-19H well and outside the biological buffer (a biologic buffer is a combination of distance and visual screening that provides nesting raptors with security such that they will not be flushed by routine activities).

**3.7. Cultural Resources**

Per 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 found in BFO area, refer to the *Draft Cultural Class I Regional Overview, Buffalo Field Office* (BLM, 2010). Class III (intensive) cultural resource inventories (BFO project no. 70130043, 70130045, 70130070, 70130072, 70130073) were performed to locate specific historic properties which the proposal may impact. The following resources are in or near the proposal area.

**Resources Near the Project Area and National Register of Historic Places (NRHP) Eligibility**

Site #	Site Type	NRHP	Site #	Site Type	NRHP
48CA4655	Prehistoric Lithic Scatter	Not Eligible	48CA4672	Prehistoric Lithic Scatter	Not Eligible
48CA4656	Prehistoric Lithic Scatter	Not Eligible	48CA4674	Historic Debris	Not Eligible
48CA4657	Prehistoric Lithic Scatter	Not Eligible	48CA4675	Historic Homestead	Not Eligible
48CA4667	Prehistoric Lithic Scatter	Not Eligible	48CA6214	Black and Yellow Road	Not Eligible
48CA4673	Historic Windmill & Prehistoric Lithic Scatter	Not Eligible			

**4. ENVIRONMENTAL EFFECTS**

For a discussion of Alternatives A and B environmental effects see Powder River Basin Oil and Gas Project Final Environmental Impact Statement, WY-070-02-065. This section describes the environmental effects of the proposed action, Alternative B. The effects analysis addresses the direct and indirect effects of implementing the proposed action, the cumulative effects of the proposed action combined with reasonably foreseeable federal and non-federal actions, identifies and analyzes mitigation measures (COAs), and discloses any residual effects remaining following mitigation. BLM uses the aggregated effects approach, see Sections 2, 3, Tables 3.1, and 3.2, above to also account for the cumulative effects of this proposal.

**4.1. Air Quality**

In the project area, air quality impacts would occur during construction (due to surface disturbance by earth-moving equipment, vehicle traffic fugitive dust, well testing, as well as drilling rig and vehicle engine exhaust) and production (including well production equipment, booster and pipeline compression engine exhaust). The amount of air pollutant emissions during construction would be controlled by watering disturbed soils, and by air pollutant emission limitations imposed by applicable air quality regulatory agencies. Air quality impacts modeled in the PRB FEIS and Cumulative Air Quality Effects, 2009 concluded that PRB projected fluid and solid development would not violate state, tribal, or federal air quality standards and this project is well within the projected development parameters.

**4.2. Soils, Ecological Sites and Vegetation**

Soils, ecological sites, and vegetation found at SLP U Add 2 POD wells are similar to those occurring in the Barlow Ranch Fed 074974-3NH EA, WY-070-EA12-173; see Tables 3.1 and 3.2, above, and are

incorporated here by reference: Description of Affected Environment; and Direct and Indirect, Cumulative, Residual Effects. Impacts anticipated occurring and mitigation considered will be similar to those analyzed in the following EAs which are adjacent or overlapping and are incorporated here by reference: Barlow Ranch Fed 074974-3NH EA, WY-070-EA12-173: Direct and Indirect Effects (pp. 22-26); Cumulative Effects (pp. 26-27); Residual Effects (pp. 28); the PRB FEIS identified impacts from development which are common to most disturbances, (pp. 4-134 to 150); and the PRB FEIS discusses most direct and indirect effects to ecological sites and vegetation, (pp. 4-153 to 4-164).

The Operator should follow the reclamation requirements in the BLM State Wide Reclamation Policy found at: <http://www.blm.gov/wy/st/en/programs/reclamation>. See mitigation section in the soils section above for a full description of the policy as it applies equally to ecological sites.

The BLM considers these residual effects from Alternative B with proposed wells in the SLPU Add 2 POD are likely within the parameters for acceptable surface disturbance and surface disturbance reclamation in PRB FEIS ROD and Onshore Oil and Gas Order Number 1.

### **4.3. Water Resources**

The historical use for groundwater in this area was for stock water. A search of the WSEO Ground Water Rights Database showed 4 registered stock water wells within 1 mile of the proposed wells in the project area with depths ranging from 120 to 800 feet. For additional information on groundwater, refer to the PRB FEIS, Affected Environment, pp. 3-1 to 3-36. 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. This will ensure that ground water will not be adversely impacted by well drilling and completion operations. Sheridan has stated in their drilling plans that all fresh water encountered during drilling operations will be recorded by depth and protected with casing and cement. The top of the Fox Hills Formation is estimated to be 6,414 to 6,568 feet total vertical distance (TVD). Centralizers will be placed on every joint throughout the Fox Hills Formation. The surface water sands will be protected by setting 9 5/8 inch casing and circulating back to surface below the Fox Hills Formation at 6,568 feet.

At the time of permitting, the volume of water that will be produced in association with these federal minerals is unknown. The operator will have to produce the wells for a time to be able to estimate the water production. In order to comply with the requirements of Onshore Oil and Gas Order #7, Disposal of Produced Water, the operator 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 quite 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.

#### **4.3.1. Groundwater**

Impacts anticipated occurring and mitigation considered will be similar to those analyzed in the following EAs which are adjacent or overlapping and are incorporated here by reference: Barlow Ranch Fed 074974-3NH EA, WY-070-EA12-173: Direct and Indirect Effects (p. 30); Cumulative Effects (p. 30); Residual Effects (p. 31), and the PRB FEIS: Direct and Indirect Effects (pp. 4-5, 4-54); Cumulative Effects (pp. 4-64, 65)

#### **4.3.2. Surface Water**

Impacts anticipated occurring and mitigation considered will be similar to those analyzed in the following EAs which are adjacent or overlapping and are incorporated here by reference: Barlow Ranch Fed 074974-3NH EA, WY-070-EA12-173: Direct and Indirect Effects (p. 31); Cumulative Effects (p. 31); Residual Effects (p. 31), and the PRB FEIS: Direct and Indirect Effects (pp. 4-74 to 4-86); Cumulative Effects (Volume 2, pp. 4-115-117, Table 4-13); Residual Effects (p. 4-118).

#### **4.4. Invasive Species**

##### **4.4.1. Direct and Indirect Effects**

The operator committed to the control of noxious weeds and species of concern using the following measures identified in their Integrated Pest Management Plan (IPMP): 1) control methods, including frequency, 2) preventive practices, and 3) education. Cheatgrass or downy brome (*Bromus tectorum*) and to a lesser extent, Japanese brome (*B. japonicus*) Canada thistle, musk thistle and leafy spurge exist in the affected environment. Cheatgrass and Japanese brome are found in such high densities and numerous locations in NE Wyoming that a control program is not presently feasible. The use of existing facilities along with the surface disturbance associated with construction of proposed access roads, pipelines, and related facilities would present opportunities for weed invasion and spread. The activities related to the performance of the proposal would create a favorable environment for the establishment and spread of noxious weeds/invasive plants. However, mitigation as required by BLM applied COAs will reduce potential impacts from noxious weeds and invasive plants.

##### **4.4.2. Cumulative Effects**

The activities related to the performance of the proposed project would create a favorable environment for the establishment and spread of noxious weeds/invasive plants.

##### **4.4.3. Mitigation Measures**

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

1. Control Methods include cultural, physical, chemical, and biological methods:  
Cultural methods include prompt reseeding and revegetation of areas of disturbed soils with certified weed free seed mix, minimizing soil disturbance, weed free mulch for erosion control and favored growth of grasses and alfalfa through good management. Physical methods include hand pulling, digging or root cutting if areas are small or infestations are new, prescribed burning in conjunction with herbicides may also be effective for Canada thistle. Chemical methods include the use of herbicides, done in accordance with the existing surface access agreement with the private surface owner. Biological methods include the use of stem and root boring beetle, four root mining beetles and a shoot tip gall midge have shown impressive results on leafy spurge.
2. Preventive practices: Certified weed-free seed mixtures will be used for re-seeding.
3. Education: Sheridan will provide periodic weed education and awareness programs for its employees and contractors through the county weed districts and federal agencies. Field employees and contractors will be notified of known noxious weeds or weeds of concern in the project area.

##### **4.4.4. Residual Effects**

Control efforts by the operator are limited to the surface disturbance associated the implementation of the project. Cheat grass and other invasive species that are present within non-physically disturbed areas of the project area are anticipated to continue to spread unless control efforts are expanded. Cheatgrass and to a lesser extent, Japanese brome (*B. japonicus*) would continue to be found in the project area.

## **4.5. Fish and Wildlife**

### **4.5.1. Wildlife**

Alternative B – the Proposal: The impacts associated with alternative B are discussed below. BLM reviewed the proposed APDs and determined that the proposals, combined with the COAs (and design features), are consistent with the programmatic biological opinion (ES-6-WY-02-F006), which is an update from the PRB FEIS, Appendix K. The affected environment for wildlife are discussed in, and anticipated to be similar to that analyzed in the EAs in Table 3.1. The environmental effects for wildlife are discussed in, and anticipated to be similar to the Sahara POD EA, WY-070-EA13-72, incorporated here by reference. Due to the minimal federal jurisdiction over the SLPU FED 44-08H well, BLM makes recommend mitigation measures (RMMs) to reduce impacts; however, direct and indirect impacts to wildlife may occur if the operator does not adopt the BLM RMMs.

### **4.5.2. Wildlife Threatened, Endangered, Proposed and Candidate Species**

#### **4.5.2.1. Greater Sage-Grouse (GSG)**

BLM analyzed and considered mitigation for 2 leks in the Sahara POD EA, WY-070-EA13-72 and this analysis is incorporated here by reference due to similar habitats: Direct and Indirect Effects (Section 4.6.4.1.1, p. 34-39); Cumulative Effects (Section 4.6.4.1.2, pp.49-50); Mitigation (Section 4.6.4.1.3, p. 37); Residual Effects (Section 4.6.4.1.4, p. 37). The proposed wells will cumulatively contribute to the potential for local GSG extirpation, yet this impact is acceptable because it occurs outside preliminary priority habitats (core, focus, and connectivity), is within the parameters of the PRB FEIS/ROD, and is consistent with the coordinated BLM and State of Wyoming GSG conservation strategies (BLM WY-2012-19 and WY Executive Order 2011-5, respectively).

#### **4.5.3. Special Status (Sensitive) Species (SSS)**

BLM anticipates no direct, indirect, residual, or cumulative effects to SSS (aside from some passerines discussed below). BLM requires no mitigation for SSS.

#### **4.5.4. Migratory Birds**

Direct and indirect effects to migratory birds from surface disturbing and disruptive activities associated with development of the proposed wells are similar to the wells analyzed in the consolidated CX3 for Bonita Federal Com. 11H-WY-070-390CX3-13-41, et al., incorporated here by reference. The BLM determined that the proposal complies with Instruction Memorandum No. WY-2013-005 Interim Management Guidance for Migratory Bird Conservation Policy on Wyoming Bureau of Land Management (BLM) Administered Public Lands Including the Federal Mineral Estate. BLM would apply a survey and timing limitation that pad construction (vegetation removal) occur outside of the breeding season for the greatest quantity of BLM sensitive passerines (May 1- July 31) where suitable nesting habitat for sagebrush obligates is present. This mitigating 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 be performed in areas where vegetation will be removed or destroyed. The cumulative and residual effects of the proposals may contribute to the long term declines of prairie passerines. BLM recommends taking measures to ensure excluding migratory birds from facilities posing a mortality risk, including, but not limited to, heater treaters, flare stacks, secondary containment, and standing water or chemicals where escape may be difficult or hydrocarbons or toxic substances are present.

#### **4.5.5. Raptors**

Impacts anticipated to occur toward the nesting pairs of raptors and mitigation will be similar to those analyzed in the Sahara POD EA, WY-070-EA13-72, incorporated here by reference: Direct and Indirect Effects (Section 4.6.2.1.1, p. 2830); Cumulative Effects (Section 4.6.2.1.2, pp.30); Mitigation (Section 4.6.2.1.3, p. 30); Residual Effects (Section 4.6.2.1.4, p. 30). To reduce the risk of decreased productivity

or nest failure, the BLM BFO would recommend a 0.5-mile radius timing limitation during the breeding season (February 1 – July 31) around active raptor nests for surface disturbing activities associated with construction of the proposed SLPU Fed 44-19H well pad and associated infrastructure.

#### **4.6. Cultural Resources**

##### **4.6.1. Direct and Indirect Effects**

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. Non eligible site 48CA4656, 48CA4657, 48CA4667 and 48CA6214 will be impacted by the proposal. No historic properties will be impacted by the proposal. Following the State Protocol Between the *Wyoming Bureau of Land Management State Director and The Wyoming State Historic Preservation Officer* 2006: VI(A)(1) the BLM notified the Wyoming State Historic Preservation Officer (SHPO) in June 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, follow the procedures described in Appendix L of the PRB FEIS and ROD. Further discovery procedures are in Standard COA (General)(A)(1).

##### **4.6.2. Cumulative Effects**

Construction and development of oil and gas resources impacts cultural resources through ground disturbance, unauthorized collection, and visual intrusion of the setting of historic properties. 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.

##### **4.6.3. Mitigation Measures**

If Operators observe any cultural values [sites, artifacts, human remains (Appendix L PRB FEIS and ROD)] during operation of this lease/permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. Standard COA (General)(A)(1) further explains discovery procedures.

##### **4.6.4. Residual Effects**

During the construction phase, there will be numerous crews working across the project area using heavy construction equipment without the presence of archaeological monitors. Due to the extent of work and the surface disturbance caused by large vehicles, it is possible that unidentified cultural resources can be

damaged by construction activities. The increased human presence associated with the construction phase can also lead to unauthorized collection of artifacts or vandalism of historic properties.

**Summary.** The absence of applying the recommended mitigation measures may cause some effects such as increased erosion, yet proposal effects will not have a significant impact on the human environment.

**5. CONSULTATION/COORDINATION:**

**BLM consulted or coordinated with the following on this project:**

DATE	NAME	TITLE	AGENCY
2/27 & 3/6/13	Debby Green	NRS	BLM
2/27 & 3/6/13	Scott Jawors	WL Biologist	BLM
2/27 & 3/6/13	Mike Brown	Permit Agent	H & B Petroleum Consultants
2/05/14-6/24/14	Kallasandra Moran	Regulatory Manager	JKC Engineering
2/05/14-6/24/14	William Boyd	Landman	Sheridan Production
2/27/13	Lex Geer	Surface Owner	
6/2014	Mary Hopkins	WY SHPO	WY SHPO

**List of Preparers (BFO unless otherwise noted)**

Position/Organization	Name	Position/Organization	Name
NRS/Team Lead	Debby Green	Archaeologist	Clint Crago
Supervisory NRS	Casey Freise	Wildlife Biologist	Scott Jawors
Petroleum Engineer	Mark Thomason	Geologist	Kerry Aggen
LIE	Karen Klaausen	NEPA Coordinator	John Kelley
Field Manager	Duane Spencer		

**6. References and Authorities**

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

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

Aldridge, C. L., and M. S. Boyce. 2007. Linking occurrence and fitness to persistence: a habitat-based approach for endangered greater sage-grouse. *Ecological Applications* 17:508-526.

Blickley, J. L., Blackwood, D. & Patricelli, G. L. 2012 Experimental Evidence for the Effects of Chronic Anthropogenic Noise on Abundance of Greater Sage-Grouse at Leks. *Conservation Biology* 26, 461-471.

Blickley, J. L., Blackwood, D. L., Hardy, E. L. & Patricelli, G. L. in prep. Temporal flexibility in greater sage-grouse (*Centrocercus urophasianus*) signaling behavior in response to chronic industrial noise playback.

Blickley, J. L. & Patricelli, G. L. 2010 Impacts of Anthropogenic Noise on Wildlife: Research Priorities for the Development of Standards and Mitigation. *Journal of International Wildlife Law and Policy* 13, 274-292.

Blickley, J. L. & Patricelli, G. L. 2012 Potential acoustic masking of greater sage-grouse display components by chronic industrial noise. *Ornithological Monographs* 74, 23-35.

Blickley, J. L., Word, K. R., Krakauer, A. H., Phillips, J. L., Sells, S. N., Wingfield, J. C. & Patricelli, G. L. In review. Experimental chronic noise exposure is related to elevated fecal corticosteroid metabolites in lekking male greater sage-grouse (*Centrocercus urophasianus*). *PLoS ONE*.

Bohne, J., T. Rinkes, and S. Kilpatrick. 2007. Sage-Grouse Habitat Management Guidelines for Wyoming. Wyoming Game and Fish Department. Cheyenne, Wyoming.

Braun, C.E., O.O. Oedekoven, and C.L. Aldridge. 2002. Oil and Gas Development in Western North America: Effects on Sagebrush Steppe Avifauna with Particular Emphasis on Sage Grouse. In: *Transactions of the 67th North American Wildlife and Natural Resources Conference*. pp337-349.

- Bureau of Land Management. 2004. Instruction Memorandum No. WY-2005-057: Statement of Policy Regarding Sage-Grouse Management Definitions, and Use of Protective Stipulations, and Conditions of Approval. Bureau of Land Management, Wyoming State Office. Cheyenne, WY.
- Bureau of Land Management. 1990. Instruction Memorandum No. WY-90-564: Resource Management Plan Action and Wyoming BLM Standard Mitigation Guidelines for Surface Disturbing Activities. Bureau of Land Management, Wyoming State Office. Cheyenne, WY.
- Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines for management of sage grouse populations and habitats. *Wildlife Society Bulletin* 28:967-985.
- Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.
- Cornish, Todd; Terry Creekmore; Walter Cook; and Elizabeth Williams. 2003. "West Nile Virus - Wildlife Mortality in Wyoming 2002-2003". In: *The Wildlife Society Wyoming Chapter Program and Abstracts for the Annual Meeting at the Inn in Lander, WY November 18-21, 2003*. Wildlife Society Wyoming Chapter. 17pp.
- Doherty, K.E., D.E. Naugle, B.L. Walker, J.M. Graham. 2008. Greater sage-grouse winter habitat selection and energy development. *Journal of Wildlife Management* 72:187-195.
- Garton, E.O., J.W. Connelly, C.A. Hagen, J.S. Horne, A. Moser, and M.A. Schroeder. 2011. Greater Sage-grouse Population Dynamics and Probability of Persistence. Pages 293-381 in *Greater sage-grouse: ecology and conservation of a landscape species and its habitats*, S. T. Knick, J. W. Connelly, C. E. Braun (editors). *Studies in Avian Biology*, Number 38, University of California Press, Berkeley, CA, USA.
- Holloran, M. J. 2005. Greater sage-grouse (*Centrocercus urophasianus*) population response to natural gas field development in western Wyoming. Dissertation, University of Wyoming, Laramie.
- Holloran, M. J., and S. H. Anderson. 2005. Spatial distribution of Greater Sage-Grouse nests in relatively contiguous sagebrush habitats. *Condor* 107:742-752.
- Holloran, M J.; B. J. Heath; A. G. Lyon; S. J. Slater; J. L. Kuppiers; and S. H. Anderson. 2005. Greater sage-grouse nesting habitat selection and success in Wyoming. *J. Wildl. Manage.* 69(2):638-649.
- Holloran, M. J., R. C. Kaiser, and W. A. Hubert. 2007. Population Response of yearling greater sage-grouse to the infrastructure of natural gas fields in southwestern Wyoming. Completion report. Wyoming Cooperative Fish and Wildlife Research Unit, Laramie, WY, USA. 34pp.
- Knick, S. T., and J. W. Connelly. 2011. *Greater Sage-grouse: Ecology and Conservation of a Landscape Species and Its Habitats*. University of California Press, Berkeley, California.
- Lyon, A.G. and S.H. Anderson. 2003. Potential Gas Development Impacts on Sage Grouse Nest Initiation and Movement. *Wildlife Society Bulletin* 31:486-91.
- Moynahan, B. J. and M. S. Lindberg. 2004. Nest Locations of Greater Sage-Grouse in Relation to Leks in North-Central Montana. Presented at Montana Sage-Grouse Workshop, Montana Chapter of The Wildlife Society, Billings.
- Naugle, D. E. K. E. Doherty, B. L. Walker, M. J. Holloran, and H. E. Copeland. 2011. Energy Development and Greater Sage-Grouse. Pp. 489-529 in *Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats*, S. T. Knick, J. W. Connelly, C. E. Braun (eds.) *Studies in Avian Biology*, Number 38, University of California Press, Berkeley.
- Naugle, D. E.; C. L. Aldridge; B. L. Walker; T. E. Cornish; B. J. Moynahan; M. J. Holloran; K. Brown; G. D. Johnson; E. T. Schmidtman; R. T. Mayer; C. Y. Kato; M. R. Matchett; T. J. Christiansen; W. E. Cook; T. Creekmore; R. D. Falise; E. T. Rinkes; and M. S. Boyce. 2004. West Nile virus: Pending Crisis of Greater Sage-grouse. *Ecology Letters*. 7:704-713.
- Naugle, David E.; Brett L. Walker; and Kevin E. Doherty. 2006. Sage Grouse Population Response to Coal-bed Natural Gas Development in the Powder River Basin: Interim Progress Report on Region-wide Lek Analyses. May 26, 2006. University of Montana. Missoula, MT. 10pp
- Northeast Wyoming Sage-grouse Working Group. 2006. *Northeast Wyoming Sage-Grouse Conservation Plan*.
- Patricelli, G. L., J. L. Blickley, and S. L. Hooper. 2012. The impacts of noise on greater sage-grouse: A discussion of current management strategies in Wyoming with recommendations for further research and interim protections. University of California, Davis, CA. 25pp.

- Rowland, M. M., M. Leu, , S. P. Finn, S. Hanser, L. H. Suring, J. M. Boyd, C. W. Meinke, S. T. Knick, and M. J. Wisdom. 2005. Assessment of threats to sagebrush habitats and associated species of concern in the Wyoming Basins. Version 1.1, June 2005, unpublished report on file at USGS Biological Resources Discipline, Snake River Field Station, 970 Lusk St., Boise, ID 83706.
- Stiver, S. J., A. D. Apa, J. R. Bohne, S. D. Bunnell, P. A. Deibert, S. C. Gardner, M. A. Hilliard, C. W. McCarthy, and M. A. Schroeder. 2006. Greater Sage-grouse comprehensive conservation strategy. WAFWA, Cheyenne, WY. 21 August 2009.
- Taylor, R. L., D. E. Naugle, L. S. Mills. 2012. Viability analyses for conservation of sage-grouse populations: Buffalo Field Office, Wyoming. Final Report. February 27, 2012. University of Montana, Missoula, MT.
- Walker, B.L., D. E. Naugle, and K.E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. *Journal of Wildlife Management* 71:2644-2654.
- Walker, B. L., and D. E. Naugle. 2011. West Nile virus ecology in sagebrush habitats and impacts on greater sage-grouse populations. Pages 127-142 in *Greater sage-grouse: ecology and conservation of a landscape species and its habitats*, S. T. Knick, J. W. Connelly, C. E. Braun (eds). *Studies in Avian Biology*, Number 38, University of California Press, Berkley.
- Walker, B. L., D. E. Naugle, K. E. Doherty, and T. E. Cornish. 2007. West Nile virus and greater sage-grouse; estimating infection rate in a wild bird population. *Avian Diseases* 51:691-696.
- Walker B, Naugle D, Rinkes T. 2003. The Response of Sage Grouse to Coal-bed Methane Development and West Nile virus in the Powder River Basin: Is There a Link ? Page 6 in: Program and Abstracts for the Annual Wildlife Society Meeting, Wyoming Chapter.
- Walker, B.L., D. E. Naugle, and K.E. Doherty. 2007. Greater sage-grouse population response to energy development and habitat loss. *Journal of Wildlife Management* 71:2644-2654.
- U.S. Department of the Interior 2011, Bureau of Land Management. BLM National Greater Sage-Grouse Land Use Planning Strategy. IM 2012-044. December 27, 2011. 2 Attachments.
- U.S. Department of the Interior, Fish and Wildlife Service (FWS). 2010. Endangered and Threatened Wildlife and Plants; 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered. 50 CFR Part 17.
- Wyoming Game and Fish Department (WGFD). 2004. Minimum Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats on BLM Lands. WGFD. Cheyenne, WY.
- WGFD. 2003. Wyoming Greater Sage-Grouse Conservation Plan. WGFD. Cheyenne, WY.
- WGFD. 2005. Northeast Wyoming Local Working Group Area: Annual Sage-Grouse Completion Report for 2005. Wyoming Game and Fish Department. Buffalo, WY. 42pp.
- WGFD. 2009. Minimum Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats on BLM Lands. WGFD. Cheyenne, WY.