DECISION RECORD
Devon Energy Production Company, L.P.
Valerie Plan of Development (POD), Environmental Assessment (EA) WY-070-EA12-68
Buffalo Field Office, Bureau of Land Management

DECISION. BLM approves the Devon Energy Production Company, L.P. (DEP) Valerie POD oil and gas well applications for permit to drill (APDs) as described in Alternative B of the EA WY-070- EA12-68. This approval includes the wells' associated infrastructure.

Compliance. This decision complies with:
- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701) and DOI Order 3310.
- Mineral Leasing Act of 1920 (MLA) (30 U.S.C. 181); to include On Shore Order No. 1.
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- Buffalo Resource Management Plan (RMP) 1985, Amendments 2001, 2003, 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.

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

Wells. BLM approves the following APDs and associated infrastructure:

	Well Name	Well #	Qtr/Qtr	Sec.	TWP	RNG	Lease #*	Status
1	Valerie Rocky Butte	1943-1PH	NENE	19	44N	73W	WYW144490	APD
2	Valerie Rocky Butte	1943-2PH	NWSW	20	44N	73W	WYW144490	APD
3	Valerie Rocky Butte	2043-1PH	NWSW	20	44N	73W	WYW144490	APD
4	Valerie Rocky Butte	2843-1PH	SESE	21	44N	73W	WYW134882	APD
5	Valerie Rocky Butte	2243-2PH	SESE	21	44N	73W	WYW0241798	APD
6	Valerie Rocky Butte	2743-1PH	NWSW	27	44N	73W	WYW0241794	APD
7	Valerie Rocky Butte	2843-2PH	NWSW	27	44N	73W	WYW120439	APD
8	Valerie Rocky Butte	2743-2PH	SESE	28	44N	73W	WYW0316906	APD
9	Valerie Rocky Butte	2943-1PH	SWNW	29	44N	73W	WYW120439	APD

*See EA, Table 2.6, incorporated here by reference, for all 12 federal leases.

Limitations. There are no denials or deferrals. See the conditions of approval (COAs).

THE FINDING OF NO SIGNIFICANT IMPACT (FONSI). Analysis of Alternative B of the EA, WY-070-EA12-68, and the FONSI found the proposed Valerie POD will have no significant impacts on the human environment beyond those described in the PRB FEIS, so there is no requirement for an EIS. This was also the case for House Creek Sandy POD, WY-070-11-144, to which this EA also tiers.

COMMENT OR NEW INFORMATION SUMMARY. BLM publically posted the proposed APDs for 30 days, received no comments, and then internally scoped them. BLM's experience in the PRB (outside of the Fortification Creek Planning Area) revealed little public input or new issue discovery other than those revealed after rigorous public scoping during development of the PRB Oil and Gas Project. This was also the case for the House Creek Sandy POD EA, WY070-11-144.

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

1. BLM and DEP included mitigation measures to reduce environmental impacts while meeting the project's need. See the COAs and EA for all site-specific COAs associated with this approval.

2. The selected alternative will not result in any undue or unnecessary environmental degradation.

3. The selected alternative will help meet the nation's energy needs and help stimulate local economies by maintaining workforce stability.

4. The Operator committed to:
   - Comply with the approved APDs, applicable laws, regulations, orders, and notices to lessees.
   - Obtain necessary permits from agencies.
   - Provide water well agreements the owners of record for permitted wells.
   - Provide water well analysis from a known reference point.
   - Incorporate measures to alleviate resource impacts in their surface use plan and drilling plan.

5. The Operator certified it has a surface access agreement.

6. BLM concludes the location to drain federal fluid mineral leases down-hole was determinative in the well pad and surface-hole locations.

7. The operator 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 BLM WO Instruction Memorandum No. 2009-078, p. 2, para 6).

8. The project is clearly lacking in wilderness characteristics as it has no federal surface.

9. BLM does not (and cannot) approve the 6 notices of staking (NOSs). BLM analyzed the NOSs to provide cumulative effects analysis for the reasonably foreseeable development and to provide analysis background in the event DEP converts a NOS to an APD. NOSs either used an APD's pad or shared proposed infrastructure. Nothing in the NOSs' analysis is predecisional.

10. The operator will request approval via sundry notice and amended drilling plan, at a minimum, if its needs prompt using hydraulic fracturing on these APDs so BLM may provide NEPA analysis.

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

Field Manager: _____ Date: 3/1/12

FINDING OF NO SIGNIFICANT IMPACT
Devon Energy Production Company, L.P.
Valerie Plan of Development (POD), Environmental Assessment (EA) WY-070-EA12-68
Buffalo Field Office, Bureau of Land Management

FINDING OF NO SIGNIFICANT IMPACT (FONSI). Based on the information in the EA WY-070-EA12-68, which is incorporated here by reference; I find that: (1) the implementation of Alternative B will not have significant environmental impacts beyond those addressed in the Buffalo Final Environmental Impact Statement (FEIS) 1985, the Powder River Basin (PRB) FEIS, 2003, and the House Creek Sandy POD EA, WY-070-11-144, to which this 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), for the context and to the intensity of the impacts described in the EA, and in consideration of Interior Department Order 3310.

CONTEXT. Mineral development is a common land use in the PRB - sourcing 42% of the nation's coal. The PRB FEIS reasonably foreseeable development analyzed the development of 54,200 fluid mineral wells. The development described in Alternative B is insignificant in the national 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 environmental effects. Design features and mitigation measures included in Alternative B will minimize adverse environmental effects. The preferred alternative does not pose a significant risk to public health and safety. The geographic area of project does not contain unique characteristics identified within the 1985 RMP, 2003 PRB FEIS, or other legislative or regulatory processes. 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 are not highly controversial, highly uncertain, or involve unique or unknown risks. The PRB FEIS predicted and analyzed oil development of the nature proposed with this project and similar projects. The selected alternative does not establish a precedent for future actions with significant effects.

There are no cultural or historical resources present that will be adversely affected by the selected alternative. The project is clearly lacking in wilderness characteristics as it has no federal surface. No species listed under the Endangered Species Act or their designated critical habitat will be adversely affected. The selected alternative will not have any anticipated effects that would threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment.

ADMINISTRATIVE REVIEW AND APPEAL. This finding is subject to administrative review according to 43 CFR 3165. Request for administrative review of this finding must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, no later than 20 business days after this FONSI is received or considered to have been received. Any party who is 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: _____ Date: 3/1/12

ENVIRONMENTAL ASSESSMENT (EA)
Devon Energy Production Company, L.P.
Valerie Plan of Development (POD), WY-070-EA12-68
Buffalo Field Office, Bureau of Land Management

1. INTRODUCTION

This EA analyzes 9 applications to drill (APDs) conventional, horizontal oil and natural gas wells and 6 notices of staking (NOSs) and supporting infrastructure proposed by Devon Energy Production Company, L.P. (DEP or operator) at their Valerie POD. BLM analyzes the NOSs to provide cumulative effects analysis on the reasonably foreseeable development and to establish a background analysis. This site-specific analysis tiers to and incorporates by reference 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 PRB FEIS Record of Decision (ROD), and House Creek Sandy POD EA, WY-070-11-144, pursuant to 40 CFR 1508.28 and 1502.21. One may review these documents at the BLM Buffalo Field Office (BFO) or on our website. These APDs support the Mineral Leasing Act for the purpose of exploring or developing oil or gas.

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 it is 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 POD or APD, or both: the site-specific analysis, and mitigation. Fourth is the monitoring and reclamation of wells and their features.

1.1. Background

DEP submitted the Valerie POD proposal on November 18, 2011 to the BFO to produce oil and natural gas from federally managed fluid mineral bearing formations of the PRB, covered by privately owned terrain with relatively steep slopes.

- November 22, 2010 – April 21 and 27, 2011: BLM received 16 NOSs, posted, assigned, and conducted onsite visits evaluating and modifying them to minimize environmental impacts. May 10, 2011: BLM sent NOSs Post Onsite resource concern letter for the Valerie POD proposal.
- November 18, 2011: DEP submitted the Valerie POD to the BFO with 9 APDs and 6 NOSs.
- January 20, 2012: BFO sent DEP legal instrument examiner (LIE) deficiencies and let DEP know that there are engineering (PE) deficiencies forthcoming.
- January 24, 25, 2012: BFO sent DEP PE, cultural, and NRS deficiencies and recommendations.
- February 14, 15, 2012: BFO received all deficiencies and sent DEP conditions of approval (COAs).
- February 21, 2012: BLM sent DEP BLM PE deficiencies that were not addressed by DEP with the February 14, 2012 submittal of revisions to the deficiencies.
- February 29, 2012: DEP addressed the BLM PE deficiencies.

1.2. Need for the Proposed Project

The need for this project is to determine how and under what conditions to support the nation's policies of long-term natural resource values with allowing the exercise of the operator's conditional lease rights to develop fluid minerals on federal leases as described in their proposed project. APD information is an integral part of this EA and is incorporated here by reference (40 CFR 1502.21). Conditional fluid mineral leasing supports national policies in 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. BLM Instruction Memorandum (IM) No. 2009-078 established policy for processing APDs for horizontal drilling into federal mineral estate from multiple well pads on non-federal locations. Drilling and producing the subject wells is a federal action. Construction, operation, and reclamation of infrastructure on non-federal land are not federal actions. Drilling and producing mitigation is in the Conditions of Approval (COAs) for Conventional Application for Permit to Drill.

It is the BLM's responsibility and obligation to analyze the full effects of the federal action, and identify mitigation measures, regardless of the BLM's authority to enforce the mitigation. The BLM needs to identify mitigation measures that would reduce or eliminate the effects of a non-federal action when it is a connected action to the BLM proposed action (see Table 2.6, below, and the BLM NEPA Handbook, Section 6.8.2.1.1, Connected Non-federal Actions). Identifying mitigation outside of the BLM's jurisdiction alerts other agencies and landowners that can implement the mitigation. The probability of the other agencies implementing the mitigation measures is likely to occur, although these agencies may vary specific parameters recommended by the BLM. Full effects of the action and recommended mitigation measures are found in the Valerie POD Surface Use Plan, WY-070-EA12-68 and BLM Recommended Conditions of Approval (COAs) for Conventional Application for Permit to Drill.

1.4. Scoping and Issues

The BFO external scoping included a 30 day posting of proposed APDs and the EA's timely publication on the BFO website. Previously BFO conducted extensive external scoping for the PRB FEIS - discussed on p. 2-1 of the PRB FEIS and on p. 15 of the PRB ROD. This project is similar in scope to other fluid mineral development analyzed by the BFO. External scoping would be unlikely to identify new issues, as verified by the few fluid mineral EAs that were recently externally scoped. Recent external scoping in 2010 and 2011 for a geographically-focused proposed RMP amendment revealed no new issues outside of the geographically-specific issues.

The BFO interdisciplinary team (ID team) conducted internal scoping by reviewing the proposed development and project location to identify potentially affected resources and land uses. This EA will not discuss resources and land uses that are either not present, not affected, or that the PRB FEIS adequately addressed. The ID team identified important issues for the affected resources to focus the analysis. This EA addresses the project and its site-specific impacts that were unknown and unavailable for review at the time of the PRB FEIS analysis to help the decision maker come to a reasoned decision. Project issues include:

- Air quality
- Invasive species
- Soils and vegetation: site stability, reclamation potential
- Wildlife: raptor and sage-grouse productivity, special status species
- Cultural: National Register eligible sites, potential for alluvial deposits

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

Geological resources	Recreation	Wilderness characteristics
Cave and karst resources	Heritage & visual resources	Livestock & grazing
Mineral resources: locatable, leasable-coal, salable	Paleontological resources	Areas of critical environmental concern
Fire, fuels management, and rehabilitation	Water resources	Socio-economic resources
Forest products	Rights of way & corridors	Environmental justice
Lands & realty	Transportation & access	Tribal treaty rights

2. PROPOSED PROJECT AND ALTERNATIVES

2.1. Alternative A - No Action

The PRB FEIS considered a No Action Alternative, pp. 2-54 to 2-62. This alternative must also consider and combine the PRB FEIS analysis with the subsequent analysis and / or development from the adjacent and intermingled PODs which include up to 705 wells: (562 coalbed natural gas (CBNG)), 87 oil, and 56 water injection wells (WIW)) in a 4-mile area of effects of this proposal. BFO incorporates by reference here the approved development in the EAs in Table 3.1 and the wells in Appendix A – to update and complete the No Action Alternative situation. BFO approved 350 conventional wells in the PRB, including 184 horizontal wells (as of January 2012). The Wyoming Oil and Gas Conservation Commission (WOGCC) permitted 103 wells in the PRB. The total is 453, representing 14% of the projected 3,200 oil wells in the 2003 PRB ROD. This agrees with the PRB FEIS which analyzed the reasonably foreseeable development rolling across the PRB of over 51,000 CBNG and 3,200 natural gas and oil wells. The no action alternative would consist of no new federal wells. This alternative would deny these APDs and /or POD requiring the operator to resubmit APDs or a POD that complies with statutes and the reasonable measures in the PRB RMP ROD in order to lawfully exercise conditional lease rights. This alternative could, through secretarial discretion suspend the senior leasehold, or could administratively cancel or withdraw the lease if improperly awarded, or seek to cancel the lease. It is not possible in the abstract to identify every interest and that is beyond the scope here.

2.2. Alternative B Proposed Action

Operator/Applicant: Devon Energy Production Company, L.P.
Project Name: Valerie POD

Table 2. Well Name/#/ Location/ Lease/Status:

	Well Name	Well #	Qtr/Qtr	Sec.	TWP	RNG	Lease #	Status
1	VALERIE ROCKY BUTTE	1943-1HP	NENE	19	44N	73W	WYW144490	APD
2	VALERIE ROCKY BUTTE	1943-2HP	NWSW	20	44N	73W	WYW144490	APD
3	VALERIE ROCKY BUTTE	2043-1PH	NWSW	20	44N	73W	WYW144490	APD
4	VALERIE ROCKY BUTTE	2843-1PH	SESE	21	44N	73W	WYW134882	APD
5	VALERIE ROCKY BUTTE	2243-2PH	SESE	21	44N	73W	WYW0241798	APD
6	VALERIE ROCKY BUTTE	2743-1HP	NWSW	27	44N	73W	WYW0241794	APD
7	VALERIE ROCKY BUTTE	2843-2PH	NWSW	27	44N	73W	WYW120439	APD
8	VALERIE ROCKY BUTTE	2743-2PH	SESE	28	44N	73W	WYW0316906	APD
9	VALERIE ROCKY BUTTE	2943-1PH	SWNW	29	44N	73W	WYW120439	APD
10	VALERIE ROCKY BUTTE	743-2PH	SWSW	7	44N	73W	WYW133595	NOS
11	VALERIE ROCKY BUTTE	1743-1PH	NENE	17	44N	73W	WYW0143820	NOS
12	VALERIE ROCKY BUTTE	1843-1PH	SWNW	18	44N	73W	WYW133595	NOS
13	VALERIE ROCKY BUTTE	1843-2PH	SWSW	18	44N	73W	WYW133595	NOS
14	VALERIE ROCKY BUTTE	1743-2PH	NENE	19	44N	73W	WYW144490	NOS
15	VALERIE ROCKY BUTTE	2043-2PH	SWSW	20	44N	73W	WYW140230	NOS

Affected Surface Owners: Gary Marquis, Little Buffalo Ranch, LLC. (The area is clearly lacking wilderness characteristics as it lacks any federal surface.)

COUNTY: Campbell

The proposal involves:

Table 2.1. Well Pad Disturbance During Construction and Interim/Production

Well Name	Location	Status	Surface Disturbance	Interim Disturbance
1943-2PH/2043-1PH	13-20-4473	APD	7.28 acres	4.40 acres
2243-2PH /2843-1PH	44-21-4473	APD	7.44	3.70
2743-1PH /2843-2PH	13-27-4473	APD	9.17	3.70
2743-2PH	44-28-4473	APD	6.85	3.30
2943-1PH	12/29/4473	APD	7.16	4.00
1743-2PH/1943-1PH	41-19-4473	APD/NOS*	7.55	4.40
743-2PH	14-7-4473	NOS	7.26	4.00
1743-1PH	41-17-4473	NOS	7.68	4.00
1843-1PH	12/18/4473	NOS	5.72	4.00
1843-2PH	14-18-4473	NOS	6.03	3.30
2043-2PH	14-20-4473	NOS	6.81	3.30
Totals			**78.95 acres**	**42.10 acres**

APD/NOS* This area is included with the APD Total Disturbance. A NOS well is also located on this location.

Table 2.2. Well Pad Area Totals

Well PAD Area Totals	Surface Disturbance (Acres)	Interim Disturbance (Acres)
APD	45.45	23.50
NOS	33.5	18.60
Totals	**78.95**	**42.10**

Table 2.3. Corridor Disturbance During Construction and Interim/Production

Corridor Type	Submission Status	Length (ft)	Construction width (ft)	Final Width (ft)	Surface Disturbance (Acres)	Interim Disturbance (Acres)
Existing Improved	APD	28,834	70	18.00	46.34	11.91
Proposed Improved*	APD	22,255	70	18.00	35.76	9.20
Existing Improved	NOS	6,151	70	18.00	9.88	2.54
Proposed Improved	NOS	7,821	70	18.00	12.57	3.23
Totals		**65,061**			**104.55**	**26.88**

* 2448 feet of Proposed Improved Disturbance in the APD wells service the 41-19-4473 well that has a NOS well on the pad.

Table 2.4. Overhead Power Disturbance

Overhead Power	Submission Status	Length (ft)	Width (ft)	Surface Disturbance (Acres)
Existing Overhead Electric	APD	15,183	15	5.23
Proposed Overhead Electric*	APD	5,700	15	1.96
Existing Overhead Electric	NOS	1,289	15	0.44
Proposed Overhead Electric	NOS	4,777	15	1.64

* 1791 feet of Proposed Overhead Electric in the APD lengths service well location 41-19-4473 that has a NOS well on the pad.

Table 2.5. Power Drop Disturbance

Electric Drops	Number of Drops	Area	Surface Disturbance (Acres)
APD	6	75'x75'	0.77
NOS	5	75'x75'	0.65
Totals	11		1.42

Table 2.6. Lease Ownership at Surface Hole Location (SHL) /Bottom Hole Location (BHL)

	Well Name	SHL	BHL	Lateral	APD/NOS
1	Rocky Butte 2243-2PH	FEE	FEE	WYW0241798	APD
2	Rocky Butte 2843-1PH	FEE	FEE	WYW120439	APD
3	Rocky Butte 2743-1PH	FEE	FED	WYW0316906, WYW0241794	APD
4	Rocky Butte 2843-2PH	FEE	FEE	WYW120439	APD
5	Rocky Butte 2743-2PH	FEE	FED	WYW139622, WYW0316906	APD
6	Rocky Butte 2943-1PH	FEE	FED	WYW134882, WYW120439	APD
7	Rocky Butte 1943-1PH	FED	FEE	WYW144490	APD
8	Rocky Butte 1943-2PH	FED	FED	WYW140230, WYW133595	APD
9	Rocky Butte 2043-1PH	FED	FED	WYW140230, WYW144490, WYW107239	APD
10	Rocky Butte 743-2PH	FED	FED	WYW133595	NOS
11	Rocky Butte 1843-1PH	FED	FEE	WYW133595	NOS
12	Rocky Butte 1843-2PH	FED	FED	WYW133595, WYW143536	NOS
13	Rocky Butte 1743-1PH	FED	FED	WYW0143820, WYW142800, WYW133595	NOS
14	Rocky Butte 1743-2PH	FED	FEE	WYW144490	NOS
15	Rocky Butte 2043-1PH	FED	FED	WYW140230, WYW133595	NOS

All proposed wells have or cross federal minerals. The first 6, above, have one jurisdictional scheme barring BLM's application of mitigation on private surface. Proposed wells 7-15, have another jurisdictional scheme whereby BLM enforces mitigation on the "Federal Lands," 43. U.S.C. 1702(e), on private surface land. See, Section 1.3, above.

Drilling/ Construction and Production Facilities

The approximate size of disturbance required for the drilling pad including the topsoil and spoil piles ranges from 5.72 to 9.71 acres depending on the wells' location. The surface disturbances for all 11 pad locations total 78.95 acres during construction and will be 42.10 acres during interim/production. DEP plans confining surface disturbance related to drilling to the drill sites. If drilling results in establishing commercial production from the proposed wells, production facilities at each well will consist of the wellhead, pumping unit, oil tanks, water tanks, circulating pump, a flare, a vapor recovery unit (VRU), a treater, and possibly a gas separator. The oil and water tanks and the circulating pump will be set inside a containment berm. The VRU may or may not be within the containment berm.

Access Roads

DEP will build the access roads to meet the standards of the anticipated traffic flow and all-weather requirements. Road construction will include ditching, draining, graveling, and crowning of the roadbed. DEP proposes the access roads will use improved template with an 18 foot running surface and will comprise of a total of 104.55 acres of disturbance during construction including the existing infrastructure and will be 26.88 acres during interim/production.

The total acres of disturbance during construction and drilling of the project will consist of approximately 188.52 acres in total short term disturbance (construction disturbance) and 74.00 acres of disturbance in long term (interim disturbance).

If dust becomes an issue from truck traffic, water trucks may apply water to access roads during the late summer and fall months as dust abatement. DEP's water source for this is the City of Wright, or from the House Creek Unit Middle Plant make-up water well (SEO Permit #P119587W) drilled to the Fox Hills Formation from the SESE Sec 22, T44N, R73W, See Attachment E in the Valerie POD for a water analysis from the House Creek Middle Plant water well.

DEP estimates that during the drilling phase of each individual Valerie POD well (~ four-six week period per well) the average daily truck traffic to and from the location is approximately two large trucks (water haulers, cement trucks, ect.) and six personal pickup trucks per day. During the well completion process

(a three-four week period per well) the average daily traffic increases to four-six large trucks and six personal pickup trucks per day. Finally, during the production phase the average daily traffic will decrease to one-two pickup trucks per day.

Electrical Power
The proposal requires an approximate surface disturbance of about 5 acres for overhead power (OHP). DEP's Maps A and C, see administrative record (AR), show 11 proposed power drops. Each power drop will disturb about 0.12 acres, totaling about 1.4 acres. DEP's SUDS form's (Attachment A) (AR), reflects the disturbance associated with the power drops. A third party will install and deliver the proposed electric power. Valerie POD Maps A and C show the existing and proposed power drops. BLM will process any changes to the proposed OHP through a sundry notice submitted to BFO.

Drilling and Completion Water Sources and Amounts
The proposed project is to drill and develop oil/gas wells into the porous Parkman formation, which is more sandstone than shale, so DEP plans no hydraulic fracturing (see administrative record and WY-070-11-144). The project would be subject to the COAs for drilling of an oil/gas well on in the BFO jurisdiction. DEP proposes using fresh water for drilling and cementing obtained from outside the POD boundary and hauled to location by transport trucks using the existing and proposed roads shown in Maps A and C or piped from the existing House Creek Sussex Unit Central Water Injection Facility Unit. DEP plans obtaining fresh water from either the City of Wright, Wyoming or the House Creek Middle Plant Industrial Water Well (SEO Permit #P119587W) drilled to the Fox Hills Formation and located in the SESE, Sec 22, T44N, R73W. A water analysis from the House Creek Middle Plant Water Well is shown as DEP's SUDs Attachment E. The depth of the Fox Hills formation is about 6,200-6,375 feet within the proposed project boundary. DEP estimated 15,000 barrels of water (approximately 10-15 truckloads per day) are required for drilling each well. DEP requires no water for completion.

Existing Water Wells
There are 9 existing water wells in the 1 mile effects analysis area: 8 for livestock and 1 for both irrigation and livestock. These wells range from 50 to 700 feet deep. There are 56 water re-injection wells within the 4 mile-consideration of cumulative effects area for this proposal (WOGCC) as of January 4, 2012.

Other
DEP should complete drilling and construction activities within 2 years, the term of an APD. Drilling and construction occurs year-round in the PRB. Weather may cause delays lasting several days but rarely do delays last multiple weeks. Timing limitations in the form of COAs and/or agreements with surface owner may impose longer temporal restrictions on portions of this project.

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

BLM incorporated and analyzed the implementation of committed mitigation measures in the SUP and drilling plan, in addition to the COAs in the PRB FEIS Record of Decision (ROD). Additionally, the

Operator, in their APD, committed to:
1. Comply with the approved APDs, applicable laws, regulations, orders, and notices to lessees.
2. Obtain necessary permits from agencies.
3. Provide water well agreements the owners of record for permitted wells.
4. Provide water well analysis from a known reference point.
5. Certify he has a surface access agreement with the landowner.

The Operator certified that a copy of the SUP was provided to the landowner.

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, supporting FEISs, 1985, 2003, and Sandy House Creek POD EA, WY-070-11-144.

3. AFFECTED ENVIRONMENT

This section briefly describes the physical and regulatory environment affected by implementation of the alternatives in Section 2. Aspects of the affected environment here focus on the major issues. Find a screening of all resources and land uses potentially affected in administrative record. Resources unaffected, or not affected beyond the level analyzed in the PRB FEIS, are outside the scope of this EA.

3.1. Project Area Description

DEP's proposed House Creek Valerie POD project area is 40 miles south of Gillette, Campbell County, Wyoming. From the intersection of Wyoming Highways 387 and 59 in Wright go west 5.1 miles, turn right on an existing road, go north 6.2 miles, and turn left on an existing trail road. BFO incorporates by reference here the topographic characteristics, Section 3.1, from WY-070-11-144. See the PRB FEIS for climatological information. There are 562 CBNG wells in the 4 mile-consideration of cumulative effects area for this proposal. Many of those wells are part of federal PODs. There are also 87 oil wells in the 4 mile-consideration of cumulative effects area for this proposal, (WOGCC) (as of January 4, 2012). See Table 3.1 and Appendix A, below.

Table 3.1. Some Adjacent/Overlapping NEPA on Development within 4 miles of the Valerie POD

	POD Name	Operator	Approval Date	# of Wells	EA #
1	Savageton 1	Lance	11/24/2004	22	WY-070-04-342
2	Vineyard	Yates	7/30/2004	28	WY-070-04-263
3	Antler	Yates	8/30/2004	50	WY-070-04-163
4	House Creek K	Devon	6/9/2004	20	WY-070-04-138
5	Rocky Butte	Yates	6/24/2004	28	WY-070-04-172
6	House Creek G	Devon	8/7/2003	21	WY-070-03-103
7	House Creek P	Prima	4/16/2003	3	WY-070-03-119
8	Riverbend	Yates	3/26/2002	25	WY-070-04-095
9	Bar 76	Lance	3/26/2002	21	WY-070-02-152
10	North Wright	Williams	8/5/2003	3	WY-070-03-253
11	Thrush	Yates	11/21/2002	22	WY-070-03-001
12	Sunrise II	Yates	5/27/2005	1	WY-070-05-249
13	Savageton II	Lance	7/15/2005	13	WY-070-05-214
14	Antler Addition	Yates	12/22/2005	2	WY-070-05-393
15	Savageton 3 & 4	Lance	8/25/2006	48	WY-070-06-192
16	House Creek POD O	Devon	9/29/2006	14	WY-070-06-320
17	Verde	Yates	9/30/2008	11	WY-070-08-177
18	House Creek Q	Devon	9/26/2008	21	WY-070-08-188
19	Durham Ranch	Phillips	5/24/2001	23	WY-070-01-141
20	House Creek Sandy	Devon	2/11/2011	5	WY-070-11-144

DEP planned this project with input from the landowner in order to minimize surface disturbance and limit the environmental impacts. DEP will reduce the overall surface disturbance by designing the well pads to facilitate multiple horizontal wells. In the event that two federal wells are on the same well pad, DEP committed to drill the wells in succession in order to minimize the amount of time that the reserve pit is open and to expedite reclamation of the location to the interim well pad size and shape.

3.2. Air Quality

Refer to the PRB FEIS pp. 3-291 to 3-299, for a 2003-era description of the air quality conditions. Refer to the Air Quality Sections, 3.6 and 3.7 in EAs WY-070-11-144 and WY-070-08-177, respectively, which BFO incorporates here by reference. Existing air quality in the PRB is in 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 exceeded EPA limits for 13 days in 2011 requiring 10 warnings to stay indoors; in addition to PRB-area air quality alerts issued in 2011 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.

3.3. Soils, Ecological Sites, and Vegetation

The PRB FEIS analyzed that an average conventional oil or gas pad would disturb about 5.5 acres (p. 4-316). Total surface disturbance for conventional wells would be about 8,800 acres (pp. 2-40 to 2-42).

3.3.1. Soils

Soils developed in alluvium and residuum derived mainly from the Wasatch Formation. Lithology consists of light to dark yellow and tan siltstone and sandstones with minor coal seams resulting in a wide variety of surface and subsurface textures. Soil depths vary from deep on lesser slopes to shallow and very shallow on steeper slopes. Differences in lithology produced topographic and geomorphic variations in the area. A resistant cap of clinker, terrace gravels, or sandstone often protects ridges and hilltops from erosion. Parent material chemistry may result in local concentration of salts.

Soils differ with topographic location, slope, and elevation. Topsoil depths to be salvaged for reclamation range from 0 to 4 inches on ridges to 8+ inches in bottomland. Erosion potential varies depending on the soil type, vegetative cover, and slope. Reclamation potential of soils also varies throughout the project area. The main soil limitations in the project area include: depth to bedrock, low organic matter content, and high erosion potential especially in areas of steep slopes. The main site limitations include the potential amount of soil disturbance in both time and scale, and the impact to exposed soil to the erosive elements and surface hydrology of the proposed disturbance locations.

BLM obtained detailed soils identification and data for the project area from the South Campbell County Survey Area, Wyoming Soil Survey Geographic (SSURGO) Database (WY605). NRCS performed the soil survey according to National Cooperative Soil Survey standards. The BLM uses county soil survey information to predict soil behavior, limitations, or suitability for a given activity or action. The agency's long term goal for soil resource management is to maintain, improve, or restore soil health and productivity, and to prevent or minimize soil erosion and compaction. Soil management objectives are to ensure that adequate soil protection is consistent with the resource capabilities. Many of the soils and landforms of this area present distinct challenges for development, and /or eventual site reclamation.
A tabulated summary of the impacted and important soil map units follows, along with their ecological site identified in the POD disturbance boundary.

Table 3.2. Dominant or Important Impacted Soils

Map Unit Symbol	Map Unit Name	Ecological Site
113	Bidman-Ulm loams, 0 to 6% slopes	Loamy (Ly) 10-14 NP
122	Cushman-Cambria loams, 6 to 15% slopes	Loamy (Ly) 10-14 NP
148	Forkwood-Ulm loams, 0 to 6% slopes	Loamy (Ly) 10-14 NP
157	Hiland-Bowbac fine sandy loams, 0 to 6% slopes	Sandy (Sy) 10-14 NP
158	Hiland-Bowbac fine sandy loams, 6 to 15% slopes	Sandy (Sy) 10-14 NP
172	Keyner fine sandy loam, 0 to 6% slopes	Loamy (Ly) 10-14 NP
221	Turnercrest-Keeline-Taluce fine sandy loams, 6 - 30% slopes	Sandy (Sy) 10-14 N
226	Ulm loam, 0 to 6% slopes	Loamy (Ly) 10-14 NP
229	Ulm-Renohill clay loams, 6 to 15% slopes	Clayey (CY) 10-14 NP

Source: NRCS 2010.

See the NRCS Soil Survey 605 – South Campbell County (SSURGO) data. The Ecological Site interpretation has additional site-specific soil information. Ecological site descriptions are soil and vegetation community descriptions compiled by the NRCS for the purpose of resource identification providing management and reclamation recommendations. See also, Section 3.2.2 of this EA. The proposal impacts soil map units, each of which contains 1 or 2 major soil components and additional soil or miscellaneous components of minor extent. The soil series is the most specific category of the national soil classification system, commonly used to designate soil map units. Soil series describe soils that have similar chemistry, physical properties, and perform similarly for land use purposes. The soils section of this EA addresses the site-specific impacts that were not analyzed in the PRB FEIS and identifies potentially significant effects of the proposed project to help the decision maker come to a reasoned decision. Project issues related to soils and vegetation are further refined to address: soils susceptible to erosion, and reclamation suitability.

Soils Susceptible to ErosionSoil scientists determined the project area soils are susceptible to erosion in varying degrees. A sandy ecological site with the map symbol 157 and map names Hiland and Bowbac. This sandy ecological site has sand ranging from 52-80% in the top few inches and clays ranging from 10-18%. This sandy ecological site was found on a ridge top with topsoil depths averaging 4-10 inches and is susceptible to wind and water erosion due to relatively small amounts of clay and little water holding capacity.

3.3.1.1. Reclamation Suitability

CBNG and oil development as well as traditional activities, including livestock grazing and wildlife use impact current soil conditions in the project area. Much of the area is covered with soils that are easily damaged by use or disturbance or are difficult to re-vegetate or otherwise reclaim. Soil impacts (e.g., roads, linear pipeline scars, and artificial wet areas) can be readily observed in the area. Reclamation potential of soils varies throughout the project area. The main soil limitations in the project area include: depth to bedrock, low organic matter content, and high erosion potential especially in areas of steep slopes and sandy textures. Topographic landscape position and the surrounding surface hydrology also potentially impact the proposed disturbance areas.

3.3.2. Vegetation and Ecological Sites

BLM staff and DEP's environmental consultants identified the dominant vegetation community types in the project area are mixed-grass prairie and sagebrush shrubland. Species typical of the mixed-grass prairie community type are western wheatgrass (*Pascopyrum smithii*), blue grama (*Bouteloua gracilis*), needle-and-thread (*Hesperostipa comata*), and Wyoming big sagebrush (*Artemisia tridentate* var. *wyomingensis*), while species typical of the sagebrush shrubland include Artemisia spp. (*Chrysothamnus*

spp.), western wheatgrass, prairie junegrass (*Koeleria macrantha*), and plains pricklypear (*Opuntia* spp.) In addition, bluebunch wheatgrass (*Pseudoroegneria spicata*), green needlegrass (*Nassella viridula*). Additional forb and shrub species observed included yucca (*Yucca glauca*), common yarrow (*Achillea millefolium*), penstemons (*penstemon* spp.), American vetch (*Vicia americana*), and milkvetch (*Astragalus* spp.). Non-native graminoids present included cheatgrass (*Bromus tectorum*), which is quite extensive in the project area. Cheatgrass is the dominant species present in some locations.

Ecological site descriptions provide site and vegetation information needed for resource identification, management, and reclamation recommendations. BLM specialists used NRCS published soil survey information, verified through onsite field reconnaissance, to determine the appropriate ecological sites for this POD area. Dominant or important ecological sites and plant communities identified in the area are Loamy (10-14NP), with minor components of shallow loamy (10-14NP), and Sandy (10-14NP). Refer to ecological site narrative sections below for vegetation species observed during onsite field visits.

Loamy Sites occur on gently undulating to rolling land on landforms which include hillsides, alluvial fans, ridges, and stream terrace, in the 10-14 inch precipitation zone. These soils are moderately deep to very deep (greater than 20 inches to bedrock), well drained soils that formed in alluvium and residuum derived from sandstone and shale. These soils have moderate permeability. The present plant community is a mixed sagebrush/grass. Wyoming big sagebrush is a significant component of this mixed sagebrush/grass plant community. Cool-season mid-grasses are the majority of the understory with the balance being short warm-season grasses, annual cool-season grass, and miscellaneous forbs. Dominant vegetation includes needle and thread, western wheatgrass, green needlegrass, blue grama, prairie junegrass and Sandberg bluegrass. Other grasses include Cusick's and prairie junegrass. Cheatgrass invaded the state. Other vegetative species identified include prickly pear and fringed sagewort.

Shallow Loamy and Clayey Sites are on slight ridges. The present plant community is the same listed in Loamy ecological site with the following exceptions: Sage brush us usually less dense and lower height structure on these shallow sites and shallow site will possibly include the changes in species composition and changes in density of the following grass species bluebunch wheatgrass, blue grama, Sandberg bluegrass, and prairie junegrass.

Sandy Sites occur on nearly level to steep slopes on landforms which include alluvial fans, hillsides, plateaus, ridges, and stream terraces in the 10-14 inch precipitation zone. The soils of this site are moderately deep to very deep (greater than 20 inches to bedrock), well drained soils that formed in eolian deposits or residuum derived from unspecified sandstone. These soils have moderate, moderately rapid, or rapid permeability. The main soil limitations include low available water holding capacity, and high wind erosion potential. The present plant community is the similar to the Loamy site listed above with the following exception: Wyoming big sagebrush not as dominant.

3.3.3. Vegetation - Wetlands/Riparian

Rolling hills divided by ephemeral drainages characterize the Valerie POD. The Belle Fourche River bisects the project and is the main drainage in the project area. Associated with the well locations is an extensive network of access roads, utility corridors, gas sales lines, overhead electric, central distribution points (CDPs), CBNG impoundments, and compressor locations.

Many of the dams existed for years. The now have excellent wetlands around their shores and downstream of their dams. About 4% of the project exhibits riparian areas according to the House Creek POD EA, WY-070-11-144, Wildlife Survey and Habitat Assessments, incorporated here by reference. The riparian area is due to the Belle Fourche River and CBNG impoundments. Cottonwoods are present in small groups and scattered along the Belle Fourche River. The Belle Fourche River has a flat flood plain; however the river channel itself has heavily eroded steep banks.

3.4. Invasive Species

BLM incorporates by reference Section 3.2.1, Invasive Species, from EA WY-070-11-144.

3.5. Wildlife (Fish and Wildlife)

The PRB FEIS identified wildlife species occurring in the PRB, pp. 3-113 to 3-206. The BLM wildlife biologist performed a habitat assessment in the project area on April 21 and 27, 2011. 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, Wyoming Game and Fish Department (WGFD) datasets, and the Wyoming Natural Diversity Database (WYNDD) to evaluate the affected environment for wildlife species that may occur in the project area. This section describes the affected environment and impacts to wildlife known or likely to occur in the area of the proposed project.

3.5.1. Threatened, Endangered, Proposed, and Candidate Species

3.5.1.1. Threatened and Endangered Species

Updates since EA WY-070-11-144 include: 1) the U.S. Fish and Wildlife Service (FWS) cleared the PRB for black footed ferret habitat and population; 2) the FWS withdrew listing the mountain plover as threatened; and 3) BLM incorporates by reference here, the blowout penstemon Section 3.3.2.1.2.

3.5.1.1.1. Ute Ladies'-Tresses Orchid

The Ute ladies'-tresses orchid (ULT) is a threatened species under the Endangered Species Act (ESA). BLM incorporates by reference here, the biological information from Section 3.3.5.1.2, ULT, in EA WY-070-08-177. Updated or excepted information follows. ICF International surveyed the project area for ULTs and reported that bottomland habitat in the project area has little potential to support ULTs, and that no ULT populations are known to exist in the area. (ICF International 2010). They report that the banks along the Belle Fourche River and Rocky Butte Gulch were steeply cut and transitioned to upland vegetation rendering the habitat largely unsuitable for ULTs. See the PRB FEIS, p. 3-175 for a discussion on the affected environment for the ULT.

3.5.1.2. Candidate Species

3.5.1.2.1. Greater Sage-Grouse

The U.S. Fish and Wildlife Service (FWS) determined that the greater sage-grouse (sage-grouse) warrants federal listing as threatened or endangered 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. Sage-grouse are a WY BLM SSS and a WGFD species of greatest conservation need, because populations are declining and they are experiencing ongoing habitat loss. The Wyoming Bird Conservation Plan rates them as a Level I species, indicating they are clearly in need of conservation action. Sage-grouse are also a BCC for FWS's Region 17. The PRB FEIS addressed the affected environment for sage-grouse, pp. 3-194 to 3-199.

In its *Recommendations for Development of Oil and Gas Resources within Important Wildlife Habitats* (2009), WGFD categorized impacts to sage-grouse by number of well pad locations per square mile within 2 miles of a lek and within identified nesting/brood-rearing habitats greater than 2 miles from a lek. Moderate impacts occur when well density is between 1 and 2 well pad locations per square mile or where there is less than 20 acres of disturbance per square mile. High impacts occur when well density is between 2 and 3 well pad locations per square mile or when there are between 20 and 60 acres of disturbance per square mile. Extreme impacts occur when well density exceeds 3 well pad locations per square mile or when there are greater than 60 acres of disturbance per square mile.

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 indicate that 2 sage-grouse leks occur within 4 miles of the project area. The NW Wright Lek is 3.5 miles to the east of the project area and is the only occupied lek within 4 miles of the project area. It was active in 2011 with 3 males being the peak count for the year. The Winland Lek is 1.8 miles to the southwest of the project area and is unoccupied.

Suitable sage-grouse habitat (as defined in Soehn, et al., 2001) is present in the disturbance area. BLM observed sage grouse sign during the onsite visit at the 2743-2HP location in T44N, R73W Section 29.

3.5.2. Special Status Species

BLM incorporates by reference here Sections 3.3.3, and 3.3.5.2, Sensitive Species, from EAs WY-070-11-144 and WY-070-08-177. See also, the table in Appendix A.

3.5.3. Big Game

BLM incorporates by reference Section 3.3.4, Big Game, from EA WY-070-11-144. Changes from that EA include: the mule deer population in the project area is currently considered to be below the WGFD objective, while the pronghorn population is above. BLM observed both mule deer and pronghorns, and their sign, during the onsite visits.

3.5.4. Migratory Birds

Migratory birds are those that migrate for the purpose of breeding and foraging at some point in the year. BLM must include migratory birds in every NEPA analysis of actions that have the potential to affect migratory bird species of concern in order to fulfill its obligations under the Migratory Bird Treaty Act (MBTA). The WGFD Wyoming Bird Conservation Plan (Nicholoff 2003) identified three groups of high-priority bird species in Wyoming: Level I – those that clearly need conservation action, Level II – species where the focus should be on monitoring, rather than active conservation, and Level III – species that are not otherwise of high priority but are of local interest.

Shrub-steppe vegetation dominates the project area. Many species that are of high management concern use shrub-steppe areas for their primary breeding habitats (Saab and Rich 1997). Nationally, grassland and shrubland birds declined more consistently in the last 30 years than any other ecological association of birds (WGFD 2009). Species occurring in these vegetation types in northeast Wyoming, according to the Wyoming Bird Conservation Plan, appear Table 3.3. grouped by level as identified in the plan.

Table 3.3. Migratory Bird Species in Shrub-steppe Habitat, NE Wyoming (Nicholoff 2003)

Level	Species	Wyoming BLM Sensitive
Level I	Brewer's sparrow	Yes
	Ferruginous hawk	Yes
	Greater sage-grouse	Yes
	McCown's longspur	No
	Sage sparrow	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

The PRB FEIS addressed the affected environment for migratory birds, pp. 3-150 to 3-153. The

discussion included habitat requirements and foraging patterns for the species listed above, with the exception of common poorwills and Say's phoebes, addressed below.

Common poorwills inhabit sparse, rocky sagebrush; open prairies; mountain-foothills shrublands; juniper woodlands; brushy, rocky canyons; and ponderosa pine woods. They prefer clearings, like grassy meadows, riparian zones, and forest edges for foraging. They lay eggs directly on gravelly ground, flat rock, or litter of woodland floor. Nests are often near logs, rocks, shrubs, or grass for some shade. They feed exclusively on insects. Say's phoebes inhabit arid, open country with sparse vegetation, including shrub-steppe, grasslands, shrublands, and juniper woodlands. They nest on cliff ledges, banks, bridges, eaves, and road culverts and often reuse nests in successive years. They eat mostly insects and berries.

The regulatory environment for the MBTA receives increasing emphasis in mineral developments in Wyoming and in the west since completion of the PRB FEIS. The MBTA (and Bald and Golden Eagle Protection Act (BGEPA)) are strict liability statutes requiring no intent to harm migratory birds through prosecuting a taking. Recent prosecutions or settlements in Wyoming and the region cost companies millions of dollars in fines and restitution (which was usually retrofitting powerlines minimize electrocution or shielding ponds holding toxic substances). BLM encourages voluntary design features and measures supporting migratory bird conservation, in addition to appropriate restrictions.

3.5.5. Raptors

The PRB FEIS discussed the affected environment for raptors, pp. 3-141 to 3-148. BLM incorporates by reference here Sections 3.3.3.2, Ferruginous Hawk, and 3.3.6, Raptors, from EA WY-070-11-144. The BLM raptor database documented 25 raptor nests in the Valerie project area. Two Swainson's hawk nests were active in 2011. Other raptors historically nesting in the project area are: ferruginous hawk, red-tailed hawk, and golden eagle. A table with the raptor nests in the project area is in Appendix A.

3.6. Cultural Resources

DEP performed a class III cultural resource inventory for the POD prior to on-the-ground project work (BFO project #70110033). DEP provided BLM with a class III cultural resource inventory following the Archeology and Historic Preservation, Secretary of the Interior's Standards and Guidelines (48CFR190) and the Wyoming State Historic Preservation Office (WSHPO) Format, Guidelines, and Standards for Class II and III Reports. Ardeth Hahn, BLM Archaeologist, found the report technically adequate and in compliance with BLM standards. Sites 48CA1570 (Sawyer's Expedition) and 48CA4975 (Crook's 1876 Scout) are eligible for the National Register. There is no evidence of either site in the project area. There are no known cultural resources in the project area.

4. ENVIRONMENTAL EFFECTS

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 effect 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 analyzed the No Action Alternative as Alternative 3 in the PRB FEIS, and it is incorporated by reference here, as are the NEPA analysis represented and inferred in Table 3.1. Information specific to resources for this alternative is in the PRB Final EIS on pages listed in Table 4.1.

Table 4.1. Location of Discussion of the No Action Alternative in the PRB FEIS

Resource		Type of Effect	Page(s) of PRB FEIS
Project Area Description	Geologic Features and Mineral Resources	Direct and Indirect Effects	4-164 and 4-134
		Cumulative Effects	4-164 and 4-134
Soils, Vegetation, and Ecological Sites	Soils	Direct and Indirect Effects	4-150
		Cumulative Effects	4-152
	Vegetation	Direct and Indirect Effects	4-163
		Cumulative Effects	4-164
	Wetlands/Riparian	Direct and Indirect Effects	4-178
		Cumulative Effects	4-178
Wildlife	Sensitive Species - Greater Sage-Grouse	Direct and Indirect Effects	4-271
		Cumulative Effects	4-271
	Aquatic Species	Direct and Indirect Effects	4-246
		Cumulative Effects	4-249
	Migratory Birds	Direct and Indirect Effects	4-234
		Cumulative Effects	4-235
	Waterfowl	Direct and Indirect Effects	4-230
		Cumulative Effects	4-230
	Big Game	Direct and Indirect Effects	4-186
		Cumulative Effects	4-211
	Raptors	Direct and Indirect Effects	4-224
		Cumulative Effects	4-225
Water	Ground Water	Direct and Indirect Effects	4-63
		Cumulative Effects	4-69
	Surface Water	Direct and Indirect Effects	4-77
		Cumulative Effects	4-69
Economics and Fluid Mineral Recovery		Direct and Indirect Effects	4-362
		Cumulative Effects	4-370
Cultural Resources		Direct and Indirect Effects	4-286
Air Quality		Direct and Indirect Effects	4-386
		Cumulative Effects	4-386
Visual Resources		Direct and Indirect Effects	4-313
		Cumulative Effects	4-314

4.1. Alternative B

Alternative B is the proposal for the Valerie POD with 9 APDs and 6 NOSs. DEP proposes drilling, completing, and equipping 15 horizontal oil wells to develop federal minerals in this House Creek Valerie POD on 12 federal leases. Map analysis and communication with DEP shows that in large part the proposed well pads and surface-hole locations predicate on the location of federal fluid mineral leases and those appropriate down-hole locations. DEP proposes producing from the Parkman Formation at an average depth of 7,300 feet, see EA WY-070-11-144. The Parkman Formation's porosity is great enough to preclude hydraulic fracturing as its more sandstone than shale. The oil flows through the formation without needing augmented fractures in the rock to free-up the oil. BLM will consider having DEP apply for a sundry notice approval if DEP determines it requires hydraulic fracturing for these proposed wells so BLM may conduct the NEPA analysis. Considering the precautions described in Section 2, the drilling plan (see the administrative record), best management practices, and the drilling history in the area (56 WIW, 562 CBNG, and 87 oil wells) the potential for hydrocarbon communication with fresh water aquifers (surface to 1,000 feet) is remote. This analysis presumes DEP and BLM follow and enforce the APDs' drilling plan and Onshore Oil and Gas Order Nos. 2 and 7.

4.2. Air Quality

BLM incorporates by reference here the direct, indirect, cumulative, residual effects and mitigation measures from Section 4.2.4 from EA WY-070-11-144 as there is no basis for changing that analysis.

4.3. Soils, Vegetation, and Ecological Sites

The PRB FEIS's analysis of 5.5 acres (p. 4-316) of surface disturbance, per pad, shows this project is within the parameters of the PRB FEIS where this reasonably foreseeable development of 15 wells averages less than 5.5 acres of surface disturbance per proposed well (79 acres of total pad disturbance for 15 proposed wells is about 5.3 acres per pad.). These surface disturbances will reduce about 53% during production, or to about 2.8 acres per pad. Even using the larger figure of total surface disturbance for pads and supporting structure is within the PRB FEIS parameters – though that method ignores the interim reclamation and smaller production disturbance. While the proposed pad sizes are at the larger margin analyzed in the PRB FEIS, two facts reduce concerns. First, some pads have 2 proposed wells so this drives down the total and proportional surface disturbance. Second, the total surface disturbance analyzed for all conventional (non-CBNG) drilling was 8,800 acres; and since agencies approved to-date only 14% of the projected 3,200 wells, the surface disturbance is within PRB FEIS parameters (pp. 2-40 to 2-42).

4.3.1. Soils

4.3.1.1. Direct and Indirect Effects

The impacts listed below, singly or in combination, would increase the potential for valuable soil loss due to increased water and wind erosion, invasive plant establishment, and increased sedimentation and salt loads to the watershed system.

Impacts anticipated to occur include soil rutting and mixing, compaction, increased erosion potential, and loss of soil productivity. The most notable impacts to soils would occur in association with the construction of well pads, and roads. Grading and leveling would be required to construct these facilities with the greatest level of effort required on more steeply sloping areas. During construction, the soil profiles would be mixed with a corresponding loss of soil structure. Mixing may result in removal, dilution, or relocation of organic matter and nutrients to depths where it would be unavailable for vegetative use. Less desirable inorganic compounds such as carbonates, salts, or weathered materials could be relocated and have a negative impact on revegetation.

Soils would be compacted as a result of the construction of well and associated facilities, with compaction maintained, at least in part, by continued vehicle and foot traffic as well as operational activities. Factors affecting compaction include soil texture, moisture, organic matter, clay content and type, pressure exerted, and the number of passes by vehicle traffic or machinery. Compaction leads to a loss of soil structure; decreased infiltration, permeability, and soil aeration; as well as increased runoff and erosion. Increased erosion can lead to a decrease in soil fertility and an increase in sedimentation. The duration and intensity of these impacts would vary according to the type of construction activity to be completed and the inherent characteristics of the soils to be impacted.

The potential for erosion would increase through the loss of vegetation cover and soil structure as compared to an undisturbed state. A Wyoming Pollutant Discharge Elimination System (WYPDES) Storm Water Pollution Prevention (SWPP) permit is required for construction activities, and would address runoff and erosion leading to sedimentation impacts. Culverts would be installed to control stormwater runoff associated with construction within the Valerie POD. Soil productivity would decrease, primarily as a result of profile mixing and compaction along with the loss in vegetative cover. A decrease in soil productivity also would occur in association with soil salvage and stockpiling activities as microbial action is curtailed, at least to some degree, in long-term stockpiles. These impacts would begin immediately as the soils are subjected to grading and construction activities and impacts would continue

for the term of operations. The impacts on soils would move to a steady state as construction activities were completed and well production/maintenance operations begin.

Loss in productivity is likely to occur on most soils if erosion continues unchecked. Because soil formation is a very slow process, most soils cannot renew their eroded surface while erosion continues. The development of a favorable rooting zone by the weathering of parent rock is much slower than development of the surface horizon. One estimate of this renewal rate is 0.5 ton per acre per year for unconsolidated parent materials and much less for consolidated materials. These very slow renewal rates support the philosophy that any soil erosion is too much. Loss of organic matter, resulting from erosion and tillage, is one of the primary causes for reduction in production yields. When organic matter decreases, soil aggregate stability, the soil's ability to hold moisture, and the cation exchange capacity decline. (Soil Quality-Agronomy Technical Note #7, USDA, Aug 1998.)

Rutting affects the surface hydrology of a site as well as the rooting environment. The process of rutting physically severs roots and reduces the aeration and infiltration of the soil, thereby degrading the rooting environment. Rutting may result in mixing of topsoil and subsoil, thereby reducing soil productivity. Rutting also disrupts natural surface water hydrology by diverting and concentrating water flows creating accelerated erosion. Soil mixing typically results in a decrease in soil fertility and a disruption of soil structure.

Additional effects to soils resulting from well pad, access roads, construction include:

- Loss of soil vegetation cover, biologic crusts, organic matter, and productivity; and
- Increased soil erosion and reduced soil health and productivity. Erosion rates are site-specific and are dependent on soil, climate, topography, and cover.

An important component of soils in Wyoming's semiarid rangelands, especially in the Wyoming big sagebrush cover type, are biological soil crusts, or cryptogamic soils that occupy ground area not covered with vascular plants. Biological soil crusts are important in maintaining soil stability, controlling erosion, fixing nitrogen, providing nutrients to vascular plants, increasing precipitation infiltration rates, and providing suitable seed beds (Belnap et al. 2001). They are adapted to growing in severe climates; however, they take many years to develop (20 to 100) and can be easily damaged or destroyed by surface disturbances associated with construction activities.

Applicant-committed measures and BLM COAs would be implemented to mitigate or reduce the impacts associated with construction and operation. In addition, Devon has committed to site-specific baseline predisturbance data and reclamation plans for areas of concern to reduce site impacts. The topsoil would be salvaged, stockpiled, and returned to graded surfaces as an integral part of the construction of all project elements, thereby reducing the impacts to soil productivity status. Interim reclamation consists of minimizing the footprint of disturbance by reclaiming all portions of construction disturbance no longer needed for production operations. Final reclamation would meet the guidelines outlined in the statewide reclamation policy, and would be evaluated by the BFO's standards. The MMRP details the revegetation, site stabilization, and reclamation actions Devon would take to reduce the impacts to the soil resource. These actions would notably reduce intensity of the impacts to soils as well as the estimated time it would take to return the disturbed soils to a stable and productive state.

4.3.1.2. Cumulative Effects

The PRB FEIS defined the designation of the duration of disturbance, pp. 4-1 and 4-151). Some soil disturbances would result in short term impacts with expedient interim reclamation and site stabilization, as committed to by the operator in their POD Surface Use Plan and as required by the BLM in COAs. Long-term impacts would result in relation to project roads and well pads necessary for operations and maintenance. Impacts would continue until successful final reclamation has been achieved.

4.3.1.3. Mitigation Measures

The site-specific reclamation plan, as well as COAs, mitigation measures, and Applicant Committed Measures discussed in this document will help to mitigate or reduce the impacts described above.

Applicant Committed Measures include:

- Stabilizing all disturbed locations (access roads, well pads, and pipelines) within 30 days of the completion of construction.
- The operator will close the pits as soon as possible, but no longer than 180 days from the time of the completion of the well, unless the BLM Authorized Officer approves an extension.

In addition, BLM will consider the following resource-specific COAs to the 15 wells:

1. Improved roads used in conjunction with accessing federal wells must be fully built (including all water control structures such as wingditches, culverts, relief ditches, low water crossings, surfacing, etc.) and functional to BLM standards as outlined in the BLM Manual 9113 prior to producing of the well.
2. The operator will follow the Wyoming Policy on Reclamation; See (http://www.blm.gov/style/medialib/blm/wy/programs/reclamation.Par.93230.File.dat/WyReclamationPolicy.pdf), for details.
3. Erosion control fabric used for reclamation of steep slopes will be photodegradable or biodegradable to limit the amount of debris/trash on and around location.
4. "Cat walking", or imprinting the soil with heavy equipment, will not be used for stabilization of steep slopes over 4:1. This practice compacts the soil accelerating runoff and erosion and loss of seed. Preferable methods of reclaiming and stabilizing steep slopes include:
   - Surface roughening/pocking or scarification perpendicular to the slope
   - Seed with appropriate seed mix
   - Apply straw mulch or bio/photodegradable erosion control fabric on highly erodible soils.
5. All erosion control products will be applied according to manufacturer's specifications to reduce product failures.
6. Before replacing topsoil on heavily disturbed surfaces, and on all other compacted surfaces compaction will be remediated by subsoiling, paraplowing, or ripping with a winged shank to the depth of compaction. Scarification will only be used on shallow soils.
7. To ensure proper water movement over the top of the erosion control fabric, the fabric will be 'keyed' into the slope by digging a small trench at the top of the slope. Lay the top end of the material into the trench to line it. To line it the edge is folded underneath itself and then it is secured using staples. The trench is then filled in to the previous soil level. Fabric should be overlapped on edges and stapled according to manufacturers' specifications.
8. If the project is approved, BLM approved fluids and drilling mud must be buried within the reserve pit. Subsoil must then be replaced in the reserve pit before topsoiling. Under no circumstances would any by-products from drilling or subsoil to be spread on top of topsoil.

4.3.1.4. Residual Effects

Residual effects would include a long-term loss of soil productivity associated with well pads and roads. Residual effects were identified in the PRB FEIS, page 4-408, such as the loss of vegetative cover, despite expedient reclamation, for several years until reclamation is successfully established.

4.3.2. Vegetation

4.3.2.1. Direct and Indirect Effects

The PRB FEIS discussed direct and indirect effects to vegetation, pp. 4-153 to 4-164. Direct effects to vegetation would occur from ground disturbance caused by construction of well pads, ancillary facilities, associated pipelines, and roads. Vegetated areas disturbed and reclaimed within 1 to 3 years of the initial

disturbance would suffer short-term effects. Long-term effects would occur where well pads, compressor stations, roads, water-handling facilities, or other semi-permanent facilities would result in loss of vegetation and where reclamation for the life of the project. Indirect effects, as described in the PRB FEIS, would include the spread and/or establishment of noxious weeds, the alteration in surface water flows affecting vegetation communities, alteration in ecosystem biodiversity, and changes in wildlife habitat. Expediently stabilizing the disturbance through interim reclamation, and the implementation of erosion control measures would mitigate these impacts.

BLM anticipates long-term impacts to sagebrush due to slow recovery rates and the duration between construction and re-disturbance during final reclamation. Complete restoration of sagebrush shrubland after disturbance can often take decades. Studies of Wyoming big sagebrush post fire recovery intervals indicated that post-fire regeneration of this species can take 50 to 120 years to regenerate naturally (Cooper et al. 2007; Baker 2006). Wyoming big sagebrush took approximately 17 years to re-establish after chemical removal in Wyoming (Johnson 1969) and sagebrush species can take 3 to 7 years to begin to spread in locations where seed drilling or transplant of seedlings occurred (Tirmenstein 1999).

4.3.2.2. Cumulative Effects

The PRB FEIS discussed cumulative effects to vegetation, pp. 4-164 and 4-172. Most surface disturbances would result in short-term impacts to grasses and forbs related to construction activities that would be reclaimed through interim reclamation and site stabilization, as committed to by the operator and as required by the BLM in COAs.

Final reclamation would disturb all sites disturbed by construction and operation activities, including those previously reclaimed during interim reclamation. Disturbance associated with final reclamation activities would alter the composition of species in reclaimed areas relative to undisturbed areas by replacing diverse native communities with communities consisting of a few favored reclamation species.

4.3.2.3. Mitigation Measures

Impacts to vegetation from surface disturbance will be reduced through the implementation of the mitigation measures found in the Valerie POD COAs; the Valerie Conventional POD, and its associated plans including the Integrated Weed and Pest Management Plan, the MSUP (specifically Section 10, Plans for Reclamation of the Surface); see the administrative record.

BLM will consider having DEP follow the Wyoming Policy on Reclamation (http://www.blm.gov/style/medialib/blm/wy/programs/reclamation.Par.93230.File.dat/WyReclamationPolicy.pdf), incorporated here by reference. Final reclamation measures will achieve this goal. BLM reclamation goals also include the short-term goal of quickly stabilizing disturbed areas to protect both disturbed and adjacent undisturbed areas from unnecessary degradation. Interim reclamation measures will achieve this short-term goal.

In addition to those COAs in Section 4.4.1.3, above for soils, BLM will consider the following resource and site-specific BLM COA:

BLM developed a seed mix to encompass the ecological sites identified in the project area based on the NRCS ecological site description, the reference plant community and desired species richness with the intent of maximizing revegetation potential.

4.3.3. Wetland/Riparian

4.3.3.1. Direct and Indirect Effects

The PRB FEIS discussed the cumulative effects, p. 4-151. The potential for sediment runoff from construction of well locations and access roads may be present. Some small ephemeral drainages will temporally change but will be returned to original contour and location shortly after completion of the

wells. This should not have an impact in flow as the small drainage will simply be re-routed temporally around the location.

4.3.3.2. Cumulative Effects

The PRB FEIS read that cumulative impacts to soils could occur due to sedimentation from water erosion that could change water quality and fluvial characteristics of streams and rivers in the sub-watersheds of the POD area.

4.3.3.3. Mitigation Measures

DEP committed, in their MSUP, to expedient reclamation. DEP committed to 30 day stabilization after initiation of construction. Also DEP proposed to use existing resource roads where possible; where DEP requires new roads it will apply BMP standards and surfaced them with gravel.

4.3.3.4. Residual Effects

There will be changes to wetland and riparian areas through alterations in volume, velocity, timing, and quality of the stream flow due to direct discharge. Turbidity and solids loading in the streams would probably increase due to erosion of project disturbed areas and sediment transport to the associated drainages. DEP will mitigate these impacts by expediently stabilizing the disturbance and reducing the amount of sediment reaching the streams.

4.4. Invasive Species

BLM incorporates by reference here the direct, indirect, cumulative, residual effects and mitigation measures from Section 4.1.1.1.5 from EA WY-070-11-144 as there is no basis for changing that analysis.

4.5. Wildlife (Fish and Wildlife)

The WGFD's *Recommendations for Development of Oil and Gas Resources within Important Wildlife Habitats* (2009), made no distinction between surface disturbance impacts per well type. BLM also believes there is no distinction and this lack of distinction in surface disturbance impacts attributable to well type also tracks to other surface-based resource issues such as soils, vegetation, invasive species, wetlands, cultural resources, etc. See, State Director Review WY-2010-023, Part 2, p. 3, fn. 7.

4.5.1. Wildlife Threatened, Endangered, Proposed and Candidate Species

4.5.1.1. Threatened and Endangered Species

4.5.1.1.1. Ute Ladies'-Tresses Orchid

The Valerie POD will have "*no effect"* on Ute Ladies' Tresses Orchid.

4.5.1.2. Candidate Species

4.5.1.2.1. Greater Sage-grouse

4.5.1.2.1.1. Direct and Indirect Effects

The 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered (USFWS 2010) discussed impacts to sage-grouse associated with energy development in detail, see Section 3.5.1.2.1. Impacts to sage-grouse are generally a result of loss and fragmentation of sagebrush habitats associated with roads and infrastructure. Research indicates that sage-grouse hens also avoid nesting in developed areas.

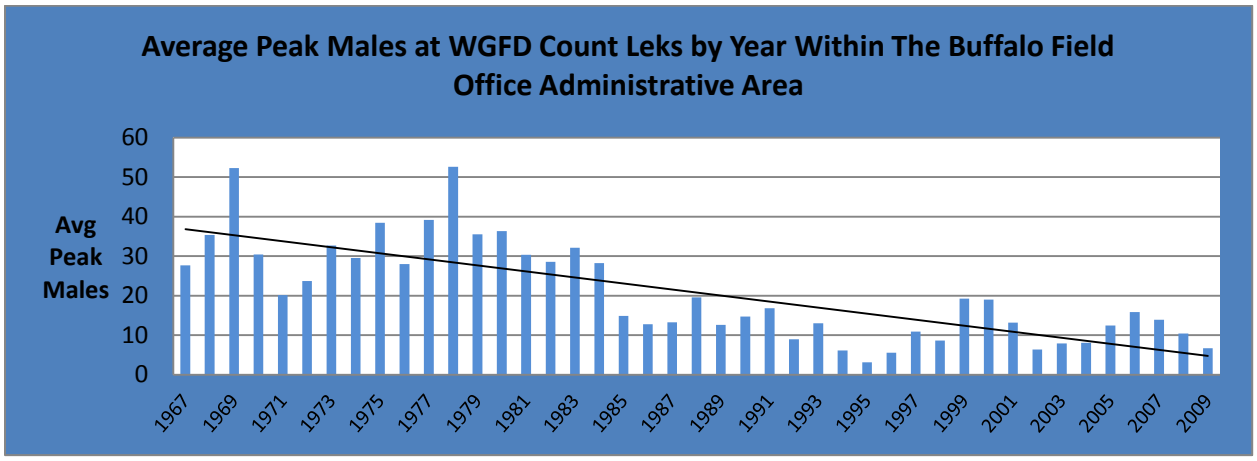
Surface disturbance is proposed to occur on 6 conventional oil well pads (9 wells), with about 45.4 acres of direct loss of sage-brush occurring from pad construction and 38.5 acres from infrastructure construction. If the reasonably foreseeable development of additional 6 wells occurred, it would disturb another 48.4 acres of habitat. Sage-grouse are using suitable habitat in the project area and implementation of the proposed project will impact sage-grouse habitat and individuals. The project is

approximately 14 miles from the nearest Governor's Core/Connectivity area and will not impact any core/connectivity areas.

4.5.1.2.1.2. Cumulative Effects

The sage-grouse population in northeast Wyoming is exhibiting a steady long term downward trend, as measured by lek attendance (WGFD 2010). The figure below illustrates a long-term cycle of periodic highs and lows. Each subsequent population peak is lower than the previous peak. Research suggests that these declines may be a result, in part, of oil and gas development, as discussed in detail in FWS (2010).

The PRB FEIS (BLM 2003) reads 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 (p. 4-270)." Based on the impacts described in the PRB FEIS and the findings of more recent research, the proposed action may contribute to extirpation of the local grouse population.



4.5.1.2.1.3. Mitigation Measures

BLM will consider placing seasonal timing restrictions on 2743-2HP since field observation indicated sage-grouse used the cover in the vicinity of the location.

4.5.1.2.1.4. Residual Effects

The timing restriction will provide a limited amount protection to sage-grouse using the 2743-HP area for nesting. Once the well is in place, the human presence and activity associated with the operation and maintenance of the well will likely preclude future sage- grouse use of the area.

4.5.1.3. Sensitive Species

BLM incorporates by reference here the direct, indirect, cumulative, residual effects and mitigation measures from Section 4.2.1.6 from EA WY-070-11-144 as there is no basis for changing that analysis.

4.5.1.4. Big Game

4.5.1.4.1. Direct and Indirect Effects

The 83.94 acres of mixed sagebrush/grassland removed to construct and operate the 6 well locations, (well, corridor disturbance, overhead power, and power drop disturbance), represents a direct loss of forage and cover for pronghorns and mule deer. If the other 6 wells on 5 locations are approved in the future, another 33.5 acres of habitat would be disturbed, (well, corridor disturbance, overhead power, and power drop disturbance). Human presence on big game ranges increases stress and movement which

makes big game species more susceptible to winter mortality and decreased productivity (Canfield et al. 1999, Geist 1978). Deer and pronghorns will have an increased risk of collisions with vehicle traffic associated with the project.

4.5.1.4.2. Cumulative Effects

The cumulative effects associated with Alternative B are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, refer to the PRB FEIS, pp. 4-181 to 4-215. The project will likely contribute to the downward trend in the mule deer population through denying it use of and fragmenting habitat.

4.5.1.4.3. Mitigation Measures

No mitigation is proposed with Alternative B.

4.5.1.4.4. Residual Effects

No residual impacts are anticipated, see the PRB FEIS, pp4-181 to 4-215.

4.5.1.5. Migratory Birds

4.5.1.5.1. Direct and Indirect Effects

The PRB FEIS discussed the direct and indirect effects to migratory bird, pp. 4-231 to 4-235. Recent research suggests other impacts will occur. Ingelfinger (2004) identified that the density of some breeding bird species declined within 100 m of dirt roads in a natural gas field. The density of Brewer's sparrows declined by 36%; and the density of breeding sage sparrows declined by 57%, in the study. Effects occurred along roads with light traffic volume (less than 12 vehicles per day). The increasing density of roads built in developing natural gas fields exacerbated the problem creating substantial areas of impact where indirect habitat losses through displacement were much greater than the direct physical habitat losses. Birds attracted to open pits associated with drilling activities that may have toxic materials or oil sheens contribute to direct mortality. Pits remaining open can be attractive to migratory birds and other wildlife. Another hazard that may cause direct mortality to wildlife is open chimneys or pipes such as those associated with heater/treaters by trapping birds within.

Migratory bird species in the PRB nest in the spring and early summer and are vulnerable to the same effects as sage-grouse and raptor species. Though no timing restrictions are typically applied specifically to protect migratory bird breeding or nesting, where sage-grouse or raptor nesting timing limitations are applied, nesting migratory birds receive protection. Where these timing limitations are absent and migratory bird species are nesting, migratory birds remain vulnerable.

4.5.1.5.2. 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.

4.5.1.5.3. Mitigation Measures

BLM will consider a COA requiring the operator to take measures to comply with the MBTA. The FWS recommends using closed containment systems as a first measure to reduce a mortality hazard. The Valerie POD will use reserve pits. Oil should be keep off pits to reduce the hazard to birds. Netting is a technique to exclude birds. Operators should cover chimneys on heater/treaters.

4.5.1.5.4. Residual Effects

In spite of mitigation measures to reduce the hazards of open pits to migratory birds, the potential exists for birds and other wildlife to be lost in any open pit left beyond the drilling operation.

4.5.1.6. Raptors

4.5.1.6.1. Direct and Indirect Effects

The PRB FEIS discussed direct and indirect effects to raptors, pp. 4-216 to 4-221. 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. In addition, routine human activities near these nests can draw increased predator activity to the area and increase nest predation.

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 and recommends all infrastructure requiring human visitation be located in such a way as 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 they will not be flushed by routine activities. The landowner did not allow surveys so BLM could not verify absence of raptor nests in potential habitats within 0.5 miles of the project area. BLM must invoke its resource conservation and multiple use mandates and the PRB ROD to assume nests are present and will consider a timing limitation on surface-disturbing activities.

4.5.1.6.2. Cumulative Effects

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

4.5.1.6.3. Mitigation Measures

Well 2943-2HP was removed from the project because of the lack of potential to provide a biological buffer from ferruginous hawk nests 2228, 2229, and 12594. Well 2943-1HP and 2743-2HP will have raptor nesting season timing restrictions. The other 4 wells pending approval and their infrastructure are outside of the 0.5 mile timing restriction buffers. BLM will evaluate the 6 NOSs if they come in as APDs, for timing limitations or application of other mitigation.

4.5.1.6.4. Residual Impacts

Timing restrictions protect nesting birds for the construction and drilling phase of the project. The well production, operation, and maintenance activity is necessary throughout the year. Nesting raptors may not tolerate the activity, may abandon the area, and result in a net loss of nesting habitat for the species.

4.6. Cultural Resources

The proposed project will not impact any historic properties. Following the Wyoming State Protocol Section VI(A)(1) the BLM electronically notified the Wyoming State Historic Preservation Officer (SHPO) on February 7, 2012 that no historic properties exist in the area of project effects. 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) explains further discovery procedures.

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. This results in fewer archaeological resources available for study of past human life-ways, changes in human behavior through time, and interpreting the past to the public. Additionally, these impacts may compromise the aspects of integrity that make a historic property eligible for the National Register of Historic Places. Recording and archiving basic information about archaeological sites and the potential for subsurface

cultural materials in the proposed project area serve to partially mitigate potential cumulative effects to cultural resources.

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

4.6.2. Mitigation Measures

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

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.

5. CONSULTATION/COORDINATION:

Persons with Whom the BLM Consulted

Contact	Title	Organization	Phone Number	Onsite Presence
Mary Hopkins	Wyoming State Historic Preservation Officer	WSHPO	307-777-6311	No
Brad Rogers	Wildlife Biologist	FWS	307-684-1046	Yes

The following personal attended the NOS onsite:

Date	Name	Title	Company
4/21 &27/2011	Andy Perez	NRS	BLM
4/21 &27/2011	Don Brewer	Wildlife Biologist	BLM
4/21 &27/2011	Brad Rogers	Wildlife Biologist	FWS
4/21/2011	Rick Taylor	Foreman	DEP
Date	**Name**	**Title**	**Company**
4/21 &27/2011	Rebecca Byram	Regulatory Specialist	DEP
4/21/2011	Gary Marquiss	Landowner	Little Buffalo Ranch. LLC
4/27/2011	Preston Farnsworth	Landman	DEP

Preparers and Reviewers

Name	Duty	Name	Duty
Andy Perez	Lead & Natural Resource Specialist	Casey Freise	Supervisory Natural Resource Specialist
Matthew Warren	Petroleum Engineer	Sharon Soule	Legal Instrument Examiner
Ardeth Hahn	Archaeologist	Donald Brewer	Wildlife Biologist
Kerry Aggen	Geologist	Shirley Green	Plans Coordinator
John Kelley	NEPA Coordinator	Chris Durham	Assistant Field Manager
Clark Bennett	Assistant Field Manager	Duane Spencer	Field Manager

6. REFERENCES AND AUTHORITIES:

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

Code of Federal Regulations (CFR)

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

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

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

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

Canfield, J. E., L. J. Lyon, J. M. Hillis, and M. J. Thompson. 1999. Ungulates. Chapter 6 in Effects of Recreation on Rocky Mountain Wildlife: A Review for Montana, coordinated by G. Joslin and H. Youmans. Committee on Effects of Recreation on Wildlife, Montana Chapter of The Wildlife Society.

Geist, V. 1978. Behavior. Big Game of North America; ecology and management. Stackpole Books, Harrisburg, Pennsylvania.

ICF International. 2010. House Creek Valerie Plan Of Development Wildlife Surveys And Habitat Assessments, prepared for: Devon Energy Production Company, L.P. ICF International, Gillette, WY. 12pp.

Ingelfinger F. 2001. The effects of natural gas development on sagebrush steppe passerines in Sublette County, Wyoming. M.Sc. thesis, University of Wyoming, Laramie, WY.

Nicholoff, S.H., compiler. 2003. Wyoming Bird Conservation Plan, Version 2.0. Wyoming Partners in Flight. Wyoming Game and Fish Department, Lander, Wy.

North Dakota Industrial Commission Oil and Gas Research Program. 2011. Investigation of Methodologies to Control Dust on County Roads in Western North Dakota. Grant Applicants: Dunn and Mckenzie County.

Romin, L. A., and J.A. Muck, A. May 1999. Utah Field Office Guidelines For Raptor Protection From Human And Land Use Disturbances. U.S. Fish and Wildlife Service, Salt Lake City, Utah.

Saab, V., and T. Rich. 1997. Large-scale conservation assessment for neotropical migratory landbirds in the Interior Columbia River Basin. USDA Forest Service General Technical Report PNW-GTR-399, Portland, Oregon, USA.

Soehn, G., V. Herren, P. Karbs, B. Parker, M. Read, T. Rinkes, D. Roberts, D. Saville, A. Warren, C. Wheeless, D. Whyde, and J. Wolf. 2001. A Framework to Assist in Making Greater Sage-grouse (Centrocercus urophasianus) Habitat Assessments for BLM-Administered Public Lands in Wyoming.

State Wildlife Agencies' Ad Hoc Committee for Sage-Grouse and Oil and Gas Development. 2008. Using the best available science to coordinate conservation actions that benefit greater sage-grouse across states affected by oil and gas development in Management Zones I-II (Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming). Unpublished report. Colorado Division of Wildlife, Denver; Montana Fish, Wildlife and Parks, Helena; North Dakota Game and Fish Department, Bismarck; Utah Division of Wildlife Resources, Salt Lake City; Wyoming Game and Fish Department, Cheyenne.

U.S. Department of the Interior, Fish and Wildlife Service (FWS). 2010. Endangered and threatened wildlife and plants; 12-month finding for petitions to list the greater sage-grouse (Centrocercus urophasianus) as threatened or endangered. Proposed Rules.

U.S. Department of the Interior, Geological Service. 2007. Organic Compounds in Produced Waters from Coalbed Natural Gas Wells in the Powder River Basin, Wyoming. Applied Geochemistry 22, 2240–2256.

U.S. Department of the Interior, Geological Service. 2010. Assessment of Potential Effects of Water Produced from Coalbed Methane Natural Gas Development on Macroinvertebrate and Algal Communities in the Powder River and Tongue River, Wyoming and Montana.

Wyoming Game and Fish Department (WGFD). 2009. Minimum Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats on BLM Lands. WGFD. Cheyenne, WY.

WGFD. 2010. 2010 Sheridan Region Lek Monitoring Results.

APPENDIX A. Supporting Tables

Table A.1. Existing Water Wells in the 1 Mile Effects Analysis Area

	TWP	RNG	Sec	QTR/QTR	Uses		TWP	RNG	Sec	QTR/QTR	Uses
1	44N	73W	35	NENW	Stock	6	44N	73W	16	NWSW	Stock
2	44N	73W	16	NWNW	Stock	7	44N	73W	15	SESW	Stock
3	44N	73W	20	SENW	Stock	8	44N	73W	14	NWSE	Stock
4	44N	73W	23	NESW	Stock	9	44N	73W	14	SWSE	Stock
5	44N	73W	23	NESW	Irrigation/Stock						

Table A.2. Existing Water Re-injection Wells (WIW) within the 4 mile Analysis Area

	TWP	RNG	Sec	Well #	Lease #	Qtr	Qtr	Status Updated 1/4/2012
1	43N	72N	5	120-1	WYW0325474	NE	NE	WIW
2	43N	72N	5	120-2	FEE	SW	NE	WIW
3	43N	72N	5	120-3		SW	NE	WIW
4	43N	72N	5	126-1	WYW0325474	SW	SW	WIW
5	43N	72N	6	117-1	WYW0325474	NE	NW	WIW
6	43N	72N	8	134-1	WYW0103411	SW	NE	WIW
7	43N	73N	8	42		SE	NW	WIW
8	44N	72N	29	98-1	WYW32826	SW	NE	WIW
9	44N	72N	32	105-1	FEE	NW	NE	WIW
10	44N	73N	4	48-2	WYW15573	NW	SW	WIW
11	44N	73N	4	44-1	FEE	SW	NW	WIW
12	44N	73N	5	42-3		SE	NW	WIW
13	44N	73N	5	47-2	WYW0325474	SW	SE	WIW
14	44N	73N	5	42-1	FEE	NE	NW	WIW
15	44N	73N	9	52-3	WYW0148107	NE	NW	WIW
16	44N	73N	9	52-1	WYW0148107	SW	NW	WIW
17	44N	73N	9	53-2	WYW0148107	NW	NE	WIW
18	44N	73N	9	56-1	WYW9383	NE	SW	WIW
19	44N	73N	10	58-1	WYW9383	SW	SW	WIW
20	44N	73N	14	68-1	WYW0241794A	SW	SW	WIW
21	44N	73N	15	66-1	WYW0323688	SW	SW	WIW
22	44N	73N	15	66-2	WYW0197388	NE	SW	WIW
23	44N	73N	15	66-3	WYW0197388	NE	SW	WIW
24	44N	73N	16	60-1	1319 A	NE	NW	WIW
25	44N	73N	16	64-1	ST 68-1319-A	NE	SW	WIW
26	44N	73N	16	61-1	STATE	NW	NE	WIW
27	44N	73N	16	61-2	ST 68-1319-A	NE	NE	WIW
28	44N	73N	21	70-2	WYW0143820	NE	NE	WIW
29	44N	73N	21	70-1	WYW0143820	NE	NE	WIW
30	44N	73N	22	75-2	FEE	NE	SW	WIW
31	44N	73N	22	72-1	FEE	SW	NE	WIW
32	44N	73N	22	72-2	WYW0241798	NE	NE	WIW
33	44N	73N	23	77-1	FEE	SW	SW	WIW
34	44N	73N	25	86-1	WYW0241794	SW	SW	WIW
35	44N	73N	26	84-1	WYW0323688	NE	SW	WIW
36	44N	73N	27	79-1	WYW0241794	NE	NE	WIW
37	44N	73N	35	88-1		NW	NE	WIW
38	44N	73N	36	109-1	68-1319	C	SE	WIW
39	45N	73N	19	15-2		NE	NE	WIW
40	45N	73N	19	18-3		NW	SW	WIW

	TWP	RNG	Sec	Well #	Lease #	Qtr	Qtr	Status Updated 1/4/2012
41	45N	73N	19	18-1	FEE	NE	SW	WIW
42	45N	73N	19	15-1	FEE	SW	NE	WIW
43	45N	73N	20	20-1	FEE	SW	SW	WIW
44	45N	73N	29	27-2	WYW0143820	NE	SW	WIW
45	45N	73N	29	27-1	WYW0143820	SW	SW	WIW
46	45N	73N	30	22-2	WYW0143820	NW	NE	WIW
47	45N	73N	30	22-1	WYW0143820	NE	NE	WIW
48	45N	73N	31	31-1	WYW7083	NE	NE	WIW
49	45N	73N	32	37-1	FEE	NE	SW	WIW
50	45N	73N	32	33-3		NE	NE	WIW
51	45N	73N	32	38-4	WYW0311386	SE	SE	WIW
52	45N	73N	32	33-2	FEE	SW	NE	WIW
53	45N	73N	32	33-1	FEE	SW	NE	WIW
54	45N	73N	33	39-2	WYW0202988B	NE	SW	WIW
55	45N	73N	33	39-1	WYW7083	SW	SW	WIW
56	45N	74N	24	13-1	WYW0325478B	NE	NE	WIW

Table A.3. Adjacent or Overlapping Producing Oil Well (POW) within 4 miles of Valerie POD

	TWN	RNG	Sec	Well #	Company	Lease #	Qtr	Qtr	Status as of 1/4/2012
1	43N	72N	5	127-1	DEP	WYW0325474	SW	SE	POW
2	43N	72N	5	119-1	DEP	WYW0325474	NE	NW	POW
3	43N	72N	5	127-2	DEP	WYW0325474	NE	SE	POW
4	43N	72N	6	118-1	DEP	WYW0325474	SW	NE	POW
5	43N	72N	8	133-1	DEP	WYW80321	NW	NW	POW
6	43N	73W	4	6	YPC	WYW120439	NW	NW	POW
7	43N	73W	5	9H	YPC	FEDERAL	SE	SW	POW
8	43N	73W	6	2	YPC	FEE	SE	SW	POW
9	43N	73W	6	5	YPC	FEE	SE	NW	POW
10	43N	73W	6	4	YPC	FEE	SW	NE	POW
11	43N	73W	6	3	YPC	FEE	SE	SE	POW
12	43N	73W	7	1-7	DNR	WYW4064	NE	SW	POW
13	43N	73W	7	1H	YPC	WYW4064	SE	NE	POW
14	43N	73W	9	1	YPC	FEE	NW	NW	POW
15	43N	73W	9	5	YPC	WYW133594	SW	SE	POW
16	43N	73W	13	1	YPC	WYW103274	SE	NE	POW
17	43N	73W	16	1	YPC	ST 93-484	SE	NW	POW
18	43N	73W	18	1	YPC	FEE	SW	NW	POW
19	43N	73W	19	1H	YPC		SE	SE	POW
20	43N	73W	20	1	YPC	WYW138127	NW	SE	POW
21	43N	73W	21	1-21	BBOC	PATENTED	SE	SE	POW
22	43N	73W	23	1-23	MOC	WYW5331	NE	SE	POW
23	44N	72N	20	95-1	DEP	WYW32825	NE	SW	POW
24	44N	72N	29	101-1	DEP	FEE	NW	SE	POW
25	44N	72N	31	110-1	DEP	WYW0195902	SW	SW	POW
26	44N	72N	32	105-2	DEP		SE	NE	POW
27	44N	72N	32	113-1	DEP	WYW32826	NW	SE	POW
28	44N	73W	4	48-1	DEP	WYW15574	SE	SW	POW
29	44N	73W	4	49-1	DEP	WYW15573	NW	SE	POW
30	44N	73W	4	44-2	DEP	WYW15574	NW	NW	POW
31	44N	73W	5	46-1	DEP		NE	SW	POW
32	44N	73W	5	43-2	DEP	WYW15574	SW	NE	POW
33	44N	73W	9	53-3	DEP	WYW0148107	NE	NE	POW

34	44N	73W	9	57-2	DEP	FEE	NE	SE	POW
35	44N	73W	9	52-2	DEP	WYW0148107	NW	NW	POW
36	44N	73W	9	56-2	DEP	WYW9383	SE	SW	POW
37	44N	73W	15	62-1	DEP	WYW0143820	SW	NW	POW
38	44N	73W	15	67-1	DEP	WYW0241797	SW	SE	POW
39	44N	73W	16	65-3	DEP	ST 68-1319-A	SW	SE	POW
40	44N	73W	16	65-2	DEP	ST 68-1319	NE	SE	POW
41	44N	73W	21	74-1	DEP	FEE	NE	SE	POW
42	44N	73W	22	76-2	DEP	FEE	SW	SE	POW
43	44N	73W	22	72-3	DEP		SE	NE	POW
44	44N	73W	22	76-1	DEP	FEE	NE	SE	POW
45	44N	73W	22	71-1	DEP	WYW0241798	NE	NW	POW
46	44N	73W	23	73-1	DEP	WYW0241797	NW	NW	POW
47	44N	73W	25	2543-1PH	DEP		SW	NW	POW
48	44N	73W	26	85-1	DEP	WYW0197388	NW	SE	POW
49	44N	73W	27	83-1	DEP	WYW0316906	NE	SE	POW
50	44N	73W	30	41-30	CHACO	FEE	NE	NE	POW
51	44N	73W	33	1	YPC	FEE	SW	SW	POW
52	44N	73W	36	89-1	DEP	68-1319	SW	NW	POW
53	44N	73W	36	3643-1PH	DEP	ST 68-1319	SW	NW	POW
54	44N	73W	36	3643-2PH	DEP	ST 68-1319	SW	SW	POW
55	44N	73W	36	89-2	DEP	68-1319	NE	NW	POW
56	44N	74W	3	12-3H	SPC	WYW144500	SW	NW	POW
57	44N	74W	3	14-3H	SPC	WYW144502	SW	SW	POW
58	44N	74W	10	12-10H	SPC	WYW144502	SW	NW	POW
59	44N	74W	10	14-10H	SPC		SW	SW	POW
60	44N	74W	26	3	YPC		SE	NE	POW
61	44N	74W	36	18	YPC	ST93-00348	SE	NW	POW
62	45N	73W	19	18-4	DEP		SE	SW	POW
63	45N	73W	19	19-3	DEP		SW	SE	POW
64	45N	73W	19	18-2	DEP	FEE	SE	SW	POW
65	45N	73W	19	14-2	DEP	FEE	SW	NW	POW
66	45N	73W	19	19-1	DEP	FEE	SE	SE	POW
67	45N	73W	29	28-2	DEP		SE	SE	POW
68	45N	73W	29	23-2	DEP	WYW0143820	NE	NW	POW
69	45N	73W	29	28-1	DEP	WYW0202988B	SW	SE	POW
70	45N	73W	29	23-1	DEP	WYW0143820	SW	NW	POW
71	45N	73W	30	26-3	DEP	WYW0143820	NW	SE	POW
72	45N	73W	30	26-2	DEP	WYW0143820	SW	SE	POW
73	45N	73W	30	26-1	DEP	WYW0143820	NE	SE	POW
74	45N	73W	31	36-1	DEP		NE	SE	POW
75	45N	73W	32	38-1	DEP	FEE	NW	SE	POW
76	45N	73W	32	32-1	DEP	FEE	NE	NW	POW
77	45N	73W	32	32-3	DEP	FEE	NE	NW	POW
78	45N	73W	32	32-2	DEP	FEE	SW	NW	POW
79	45N	73W	32	38-3	DEP	FEE	SW	SE	POW
80	45N	73W	32	38-2	DEP	FEE	NE	SE	POW
81	45N	74W	22	14-22H	SPC	WYW131217	SW	SW	POW
82	45N	74W	27	12-27H	SPC	WYW132242	SW	NW	POW
83	45N	74W	27	14-27H	SPC	WYW132242	SW	SW	POW
84	45N	74W	28	14-28H	SPC	WYW131217	SW	SW	POW
85	45N	74W	33	41-33H	SPC	WYW131217	NE	NE	POW
86	45N	74W	34	12-34H	SPC	WYW132242	SW	NW	POW
87	45N	74W	34	14-34H	SPC	WYW132242	SW	SW	POW

Companies

DEP: Devon Energy Production Company, LP
YPC: Yates Petroleum Company
DNR: DNR Oil & Gas, Inc.
BBOC: Black Bear Oil Corporation
MOC: Marlin Oil Company, LLC
CHACO: CHACO Energy Company
SPC: Sheridan Production Co LLC

Table A.4 Sensitive Species Worksheet

Common Name	Habitat	Habitat Present?	Individual Presence	Project Effects	Direct, Indirect, and/or Cumulative Impacts Anticipated Beyond the Level Analyzed within the PRB FEIS?
Amphibians					**4-258**
Northern leopard frog	Beaver ponds and cattail marshes from plains to montane zones.	No	NP	NI	No
Columbia spotted frog	Ponds, sloughs, small streams, and cattails in foothills and montane zones. Confined to headwaters of the S Tongue R drainage and tributaries.	No	NP	NI	No
Fish					**4-259 & 4-260**
Yellowstone cutthroat trout	Cold-water rivers, creeks, beaver ponds, and large lakes in the Upper Tongue sub-watershed	No	NP	NI	No
Birds					**4-260 to 4-264**
Baird's sparrow	Shortgrass prairie and basin-prairie shrubland habitats; plowed and stubble fields; grazed pastures; dry lakebeds; and other sparse, bare, dry ground.	No	NP	NI	No
Bald eagle	Mature forest cover often within one mile of large water body with reliable prey source nearby.	Yes	NS	NI	No 4-251 to 4-253 & BA
Brewer's sparrow	Sagebrush shrubland	Yes	S	MIIH	No
Ferruginous hawk	Basin-prairie shrub, grasslands, rock outcrops	Yes	K	MIIH	No

Table A.4 Sensitive Species Worksheet

Common Name	Habitat	Habitat Present?	Individual Presence	Project Effects	Direct, Indirect, and/or Cumulative Impacts Anticipated Beyond the Level Analyzed within the PRB FEIS?
Loggerhead shrike	Basin-prairie shrub, mountain-foothill shrub	Yes	S	MIIH	No
Long-billed curlew	Grasslands, plains, foothills, wet meadows	No	NP	NI	No
Mountain plover	Short-grass prairie with slopes < 5 percent	No	NP	NI	4-254, 4-255
Northern goshawk	Conifer and deciduous forests	No	NP	NI	No
Peregrine falcon	Cliffs	No	NP	NI	No
Sage sparrow	Basin-prairie shrub, mountain-foothill shrub	Yes	NS	NI	No
Sage thrasher	Basin-prairie shrub, mountain-foothill shrub	Yes	NS	NI	No
Trumpeter swan	Lakes, ponds, rivers	No	NP	NI	No
Western Burrowing owl	Grasslands, basin-prairie shrub	No	NP	NI	No
White-faced ibis	Marshes, wet meadows	No	NP	NI	No
Yellow-billed cuckoo	Open woodlands, streamside willow and alder groves	No	NP	NI	No
Mammals					**4-264 &4-265**
Black-tailed prairie dog	Prairie habitats with deep, firm soils and slopes less than 10 degrees.	No	NP	NI	4-255, 4-256;
Fringed myotis	Conifer forests, woodland chaparral, caves and mines	No	NP	NI	No
Long-eared myotis	Conifer and deciduous forest, caves and mines	No	NP	NI	No

Table A.4 Sensitive Species Worksheet

Common Name	Habitat	Habitat Present?	Individual Presence	Project Effects	Direct, Indirect, and/or Cumulative Impacts Anticipated Beyond the Level Analyzed within the PRB FEIS?
Spotted bat	Cliffs over perennial water.	No	NP	NI	No
Swift fox	Grasslands	Yes	S	MIIH	No
Townsend's big-eared bat	Caves and mines.	No	NP	NI	No
Plants					**4-258**
Limber pine	Mountains, associated with high elevation conifer species	No	NP	NI	No
Porter's sagebrush	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes 5,300-6,500 ft.	No	NP	NI	No
William's wafer parsnip	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides, 6,000-8,300 feet.	No	NP	NI	No

Presence
K Known, documented observation within project area.
S Habitat suitable and species suspected, to occur within the project area.
NS Habitat suitable but species is not suspected to occur within the project area.
NP Habitat not present and species unlikely to occur within the project area.
Effect Determinations

Sensitive Species
NI - No Impact.
MIIH - May Impact Individuals or Habitat, but will not likely contribute to a trend towards Federal listing or a loss of viability to the population or species.
WIPV - Will Impact Individuals or Habitat with a consequence that the action may contribute to a trend towards Federal listing or cause a loss of viability to the population or species.
BI - Beneficial Impact

Table A.5. Raptor Nests in the Valerie Project Area

BLM ID	UTMs	Legal	Substrate	Year	Condition	Status	Species
732	445071E 4845327N	S30 T44N R73W	CTL	2011	Substrate Gone	INAC	n/a
				2006	Nest Gone	INAC	n/a
				2003	Fair	INAC	n/a
778	447781E 4847269N	S20 T44N R73W	GHS	2011	Nest Gone	INAC	n/a
				2010	Nest Gone	INAC	n/a
				2006	Nest Gone	INAC	n/a
1667	447418E 4843755N	S32 T44N R73W	GHS	2011	Nest Gone	INAC	n/a
				2008	Remnants	INAC	n/a
				2007	Remnants	INAC	n/a
				2006	Remnants	INAC	n/a
				2005	Remnants	INAC	n/a
				2003	Remnants	INAC	n/a
1668	447555E 4843809N	S32 T44N R73W	GHS	2011	Nest Gone	INAC	n/a
				2008	Remnants	INAC	n/a
				2007	Remnants	INAC	n/a
				2006	Remnants	INAC	n/a
				2005	Remnants	INAC	n/a
				2003	Remnants	INAC	n/a
1678	449099E 4843864N	S33 T44N R73W	GHS	2011	Nest Gone	INAC	n/a
				2008	Remnants	INAC	n/a
				2007	Nest Gone	INAC	n/a
				2006	Nest Gone	INAC	n/a
				2005	Remnants	INAC	n/a
				2003	Remnants	INAC	n/a
1712	451584E	S26 T44N	GHS	2011	Poor	INAC	n/a
	4844969N	R73W		2010	Remnants	INAC	UNRA
				2003	Good	ACTI	FEHA
1714	451758E 4845815N	S26 T44N R73W	GHS	2011	Poor	INAC	n/a
				2010	Fair	INAC	n/a
				2007	Poor	INAC	n/a
				2003	Good	INAC	n/a

BLM ID	UTMs	Legal	Substrate	Year	Condition	Status	Species
1908	444888E 4848216N	S13 T44N R74W	CTL	2011	Fair	ACTI	SWHA
				2010	Good	ACTI	SWHA
				2009	Poor	INAC	n/a
				2008	Good	ACTI	RETA
				2007	Good	ACTI	SWHA
				2006	Good	ACTI	SWHA
				2005	Good	ACTI	RETA
				2004	Good	INAC	n/a
2005	451249E 4845473N	S27 T44N R73W	GHS	2011	Remnants	INAC	n/a
				2010	Remnants	INAC	n/a
				2007	Fair	INAC	n/a
				2005	Good	INAC	n/a
				2004	Good	INAC	n/a
2006	451562E 4844770N	S26 T44N R73W	GHS	2011	Poor	INAC	n/a
				2010	Poor	INAC	UNRA
				2007	Fair	INAC	n/a
				2005	Fair	INAC	n/a
				2004	Fair	INAC	n/a
2224	444862E 4845888N	S30 T44N R73W	CTL	2011	Good	ACTI	SWHA
				2010	Fair	INAC	UNRA
				2009	Fair	INAC	n/a
				2008	Good	ACTI	SWHA
				2007	Good	ACTI	SWHA
				2006	Good	ACTI	SWHA
				2005	Good	ACTI	SWHA
				2004	Good	ACTI	SWHA
2226	446115E 4844055N	S31 T44N R73W	CLF	2011	Remnants	INAC	n/a
				2008	Remnants	INAC	n/a
				2007	Unknown	INAC	n/a
				2006	Remnants	INAC	n/a
				2005	Remnants	INAC	n/a
				2004	Remnants	INAC	n/a

BLM ID	UTMs	Legal	Substrate	Year	Condition	Status	Species
2228	446677E 4844514N	S29 T44N R73W	CLF	2011	Poor	INAC	n/a
				2008	Remnants	INAC	n/a
				2007	Remnants	INAC	n/a
				2006	Poor	INAC	n/a
				2005	Good	ACTI	FEHA
				2004	Poor	INAC	n/a
2229	446689E 4844471N	S29 T44N R73W	CLF	2011	Remnants	INAC	n/a
				2008	Remnants	INAC	n/a
				2007	Poor	INAC	n/a
				2006	Poor	INAC	n/a
				2005	Poor	INAC	n/a
				2004	Poor	INAC	n/a
3365	451801E 4845602N	S26 T44N R73W	GHS	2011	Nest Gone	INAC	n/a
				2010	Nest Gone	INAC	n/a
				2005	Poor	INAC	n/a
				2004	Good	INAC	n/a
3419	447850E 4848335N	S17 T44N R73W	CKB	2011	Poor	INAC	n/a
				2010	Poor	INAC	n/a
				2008	Poor	INAC	n/a
				2007	Poor	INAC	n/a
				2006	Poor	INAC	n/a
				2005	Poor	INAC	n/a
3420	448002E 4848035N	S17 T44N R73W	GHS	2011	Poor	INAC	n/a
				2010	Fair	INAC	n/a
				2008	Poor	INAC	n/a
				2007	Poor	INAC	n/a
				2006	Good	INAC	n/a
				2005	Fair	INAC	n/a
3421	448091E 4847711N	S17 T44N R73W	CKB	2011	Poor	INAC	n/a
				2010	Poor	INAC	n/a
				2008	Fair	INAC	n/a
				2007	Good	INAC	n/a
				2006	Good	INAC	n/a
				2005	Fair	INAC	n/a

BLM ID	UTMs	Legal	Substrate	Year	Condition	Status	Species
3422	448305E 4847383N	S21 T44N R73W	CKB	2011	Fair	INAC	n/a
				2010	Poor	INAC	n/a
				2008	Fair	INAC	n/a
				2007	Fair	INAC	n/a
				2006	Fair	INAC	n/a
				2005	Fair	INAC	n/a
3423	445078E 4846895N	S19 T44N R73W	GHS	2011	Good	INAC	n/a
				2010	Poor	INAC	n/a
				2009	Good	ACTI	FEHA
				2008	Good	INAC	n/a
				2007	Good	ACTI	FEHA
				2006	Good	INAC	n/a
				2005	Fair	INAC	n/a
3424	448094E 4846749N	S20 T44N R73W	GHS	2011	Fair	INAC	n/a
				2010	Fair	INAC	n/a
				2008	Fair	INAC	n/a
				2007	Fair	INAC	n/a
				2006	Fair	INAC	n/a
				2005	Excellent	INAC	n/a
3425	447801E 4846611N	S20 T44N R73W	GHS	2011	Poor	INAC	n/a
				2010	Poor	INAC	n/a
				2008	Poor	INAC	n/a
				2007	Fair	INAC	n/a
				2006	Fair	INAC	n/a
				2005	Fair	INAC	n/a
4971	446483E 4849305N	S18 T44N R73W	CTL	2011	Nest Gone	INAC	n/a
				2007	Fair	INAC	n/a
12547	452041E 4844012N	S35 T44N R73W	GHS	2011	Remnants	INAC	n/a
				2010	Remnants	INAC	UNRA
12594	446692E 4844714N	S29 T44N R73W	GHS	2011	Good	INAC	n/a

Notes:
CKB = Creek Bank; CLF = Cliff; CTL = Cottonwood (live); GHS = Ground/Hillside; ACTI = Active; INAC = Inactive; UNK = Unknown. FEHA = Ferruginous Hawk; RETA = Red-tailed hawk; SWHA = Swainson's Hawk; UNRA = Unknown Raptor

APPENDIX B

BLM *RECOMMENDED* CONDITIONS OF APPROVAL FOR CONVENTIONAL APPLICATION FOR PERMIT TO DRILL

Devon is under no obligation to abide by the following recommended measures.
Valerie POD, supported by Environmental Assessment (EA), WY-070-EA12-68

Valerie POD

Operator: Devon Energy Production Company, L.P.

Field Office: Buffalo Field Office
Address: 1425 Fort Street
Buffalo, Wyoming 82834

Office Telephone Number: 307-684-1100

The spud date will be reported electronically, (see website location above) to the Authorized Officer 24 HOURS BEFORE SPUDDING, unless otherwise required in site specific conditions of approval.

Spud Notice Site:
http://www.wy.blm.gov/minerals/og/og_notices/spud_notice.php

List of Wells:

	Well Name	Well #	Qtr/Qtr	Sec.	TWP	RNG	Lease #	Status
1	Valerie Rocky Butte	2843-1HP	SESE	21	44N	73W	WYW134882	APD
2	Valerie Rocky Butte	2243-2HP	SESE	21	44N	73W	WYW0241798	APD
3	Valerie Rocky Butte	2743-1HP	NWSW	27	44N	73W	WYW0241794	APD
4	Valerie Rocky Butte	2843-2HP	NWSW	27	44N	73W	WYW120439	APD
5	Valerie Rocky Butte	2743-2HP	SESE	28	44N	73W	WYW0316906	APD
6	Valerie Rocky Butte	2943-1HP	SWNW	29	44N	73W	WYW120439	APD

SITE SPECIFIC

Surface:

1. Improved roads used in conjunction with accessing Valerie POD wells must be fully built (including all water control structures such as wingditches, culverts, relief ditches, low water crossings, surfacing, etc.) and functional to BLM standards as outlined in the BLM Manual 9113 prior to drilling of the well. This applies to the entire Valerie project area.

2. Erosion control fabric used for reclamation of steep slopes will be photodegradable or biodegradable to limit the amount of debris/trash on and around location.

3. All erosion control products will be applied according to manufacturer's specifications to reduce product failures.

4. Before replacing topsoil on heavily disturbed surfaces, and on all other compacted surfaces compaction will be remediated by subsoiling, paraplowing, or ripping with a winged shank to the depth of compaction. Scarification will only be used on shallow soils.

5. To ensure proper water movement over the top of the erosion control fabric, the fabric will be 'keyed' into the slope by digging a small trench at the top of the slope. Lay the top end of the material into the trench to line it. To line it the edge is folded underneath itself and then it is secured using staples. The trench is then filled in to the previous soil level. Fabric should be overlapped on edges and stapled according to manufacturers' specifications.

6. BLM approved fluids and drilling mud must be buried within the reserve pit. Subsoil must then be replaced in the reserve pit before topsoiling. Under no circumstances would any by-products from drilling or subsoil to be spread on top of topsoil.

Wildlife:

Sage-grouse

1. No surface disturbing activities are permitted between March 15-June 30. This condition will be implemented on an annual basis for the duration of surface disturbing activities. This timing limitation will affect well 2743-2HP and its infrastructure.
   a) If a previously unknown lek is identified during surveys (April 1-May 7), additional areas may be included in the above referenced timing restriction (March 15-June 30). The required sage-grouse survey will be conducted by a biologist following the most current WGFD protocol. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities.

Raptors

The following conditions will alleviate impacts to raptors:

1. No surface disturbing activity shall occur within 0.5 mile of all raptor nests depicted in the map below, from February 1 through July 31, annually, prior to a raptor nest occupancy survey. This COA will apply to well locations 2943-1HP and 2743-2HP.
   a. Surveys to document nest occupancy shall be conducted by a biologist, following the most current BLM protocol, between April 15 and June 30. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities. A 0.5 mile timing restriction will be applied if a nest is identified as active.
   b. Surveys for new raptor nests shall be conducted during the construction phase of the project and 5 years following completion of the project within the POD. Surveys shall occur throughout the entire POD and 0.5 mile outside of the POD boundary between April 15 and June 30, and prior to or during the first nest occupancy check. A seasonal timing restriction (February 1 through July 31) will be added to surface disturbing activities within 0.5 miles of any newly discovered nests.

2. If an undocumented raptor nest is located during project construction or operation, the Buffalo Field Office (307-684-1100) shall be notified within 24 hours.

Migratory Birds

1. The Operator will be responsible for assuring that any open pits that are hazardous to birds and other wildlife will be rendered not accessible to wildlife, and are in compliance with the Migratory Bird Treaty Act.

2. Heater/treaters chimneys will have covers to prevent access to birds.

STANDARD

General

1. If any cultural values [sites, artifacts, human remains (Appendix L FEIS and ROD)] are observed during operation of this lease/permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. The authorized officer will conduct an evaluation of the cultural values to establish appropriate mitigation, salvage or treatment. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized BLM officer (AO). Within five working days the AO will inform the operator as to:

    - whether the materials appear eligible for the National Register of Historic Places;
    - the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
    - a time-frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction measures.

2. If paleontological resources, either large or conspicuous, and/or a significant scientific value are discovered during construction, the find will be reported to the Authorized Officer immediately. Construction will be suspended within 250 feet of said find. An evaluation of the paleontological discovery will be made by a BLM approved professional paleontologist within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of any significant paleontological values. Operations within 250 feet of such a discovery will not be resumed until written authorization to proceed is issued by the Authorized Officer. The applicant will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operation.

3. Please contact Andy Perez, Natural Resource Specialist, at (307) 684-1166, Bureau of Land Management, Buffalo, if there are any questions concerning the following surface use COAs.

Construction

1. Construction and drilling activity will not be conducted using frozen or saturated soil material during periods when watershed damage or excessive rutting is likely to occur.

2. Remove all available topsoil (depths vary from 4 inches on ridges to 12+ inches in bottoms) from constructed well locations including areas of cut and fill, and stockpile at the site. Topsoil will also be salvaged for use in reclamation on all other areas of surface disturbance (roads, pipelines, etc.). Clearly segregate topsoil from excess spoil material. Any topsoil stockpiled for one year or longer will be signed and stabilized with annual ryegrass or other suitable cover crop.

3. The operator will not push soil material and overburden over side slopes or into drainages. All soil material disturbed will be placed in an area where it can be retrieved without creating additional undue surface disturbance and where it does not impede watershed and drainage flows.

4. Construct the backslope no steeper than ½:1, and construct the foreslope no steeper than 2:1, unless otherwise directed by the BLM Authorized Officer.

5. Maintain a minimum 20-foot undisturbed vegetative border between toe-of-fill of pad and/or pit areas and the edge of adjacent drainages, unless otherwise directed by the BLM Authorized Officer.

6. To minimize electrocution potential to birds of prey, all overhead electrical power lines will be constructed to standards identified by the Avian Power Line Interaction Committee (1996).

7. The reserve pit will be oriented to prevent collection of surface runoff. After the drilling rig is removed, the operator may need to construct a trench on the uphill side of the reserve pit to divert surface drainage around it. If constructed, the trench will be left intact until the pit is closed.

8. The reserve pit will be lined with an impermeable liner if permeable subsurface material is encountered. An impermeable liner is any liner having a permeability less than 10-7 cm/sec. The liner will be installed so that it will not leak and will be chemically compatible with all substances that may be put in the pit. Liners made of any man-made synthetic material will be of sufficient strength and thickness to withstand normal installation and pit use. In gravelly or rocky soils, a suitable bedding material such as sand will be used prior to installing the liner.

9. The reserve pit will be constructed so that at least half of its total volume is in solid cut material (below natural ground level).

10. Culverts will be placed on channel bottoms on firm, uniform beds, which have been shaped to accept them, and aligned parallel to the channel to minimize erosion. Backfill will be thoroughly compacted.

11. The minimum diameter for culverts will be 18 inches. However, all culverts will be appropriately sized in accordance with standards in BLM Manual 9113.

12. Construction and other project-related traffic will be restricted to approved routes. Cross-country vehicle travel will not be allowed.

13. Maximum design speed on all operator constructed and maintained roads will not exceed 25 miles per hour.

14. Pipeline construction shall not block nor change the natural course of any drainage. Pipelines shall cross perpendicular to drainages. Pipelines shall not be run parallel in drainage bottoms. Suspended pipelines shall provide adequate clearance for maximum runoff.

15. Pipeline trenches shall be compacted during backfilling. Pipeline trenches shall be routinely inspected and maintained to ensure proper settling, stabilization and reclamation.

16. During construction, emissions of particulate matter from well pad and road construction would be minimized by application of water or other non-saline dust suppressants with at least 50 percent control efficiency. Dust inhibitors (surfacing materials, non-saline dust suppressants, and water) will be used as necessary on unpaved roads that present a fugitive dust problem. The use of chemical dust suppressants on public surface will require prior approval from the BLM Authorized Officer.

17. Operators are required to obtain a National Pollution Discharge Elimination System (NPDES) Storm Water Permit from the Wyoming DEQ for any projects that disturb five or more acres (changing to one acre in March 2005). This general construction storm water permit must be obtained from WDEQ

prior to any surface disturbing activities and can be obtained by following directions on the WDEQ website at http://deq.state.wy.us. Further information can be obtained by contacting Barb Sahl at (307) 777-7570.

18. The operator shall submit a Sundry Notice (Form 3160-5) to BLM for approval prior to construction of any new surface disturbing activities that are not specifically addressed in the approved APD or POD Surface Use Plan.

Operations/Maintenance

1. Confine all equipment and vehicles to the access road(s), pad(s), and area(s) specified in the approved APD or POD.

2. All waste, other than human waste and drilling fluids, will be contained in a portable trash cage. This waste will be transported to a State approved waste disposal site immediately upon completion of drilling operations. No trash or empty barrels will be placed in the reserve pit or buried on location. All state and local laws and regulations pertaining to disposal of human and solid waste will be complied with.

3. Rat and mouse holes shall be filled and compacted from the bottom to the top immediately upon release of the drilling rig from the location.

4. The operator will be responsible for prevention and control of noxious weeds and weeds of concern on all areas of surface disturbance associated with this project (well locations, roads, water management facilities, etc.) Use of pesticides shall comply with the applicable Federal and State laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of Interior. Prior to the use of pesticides on public land, the holder shall obtain from the BLM authorized officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer to such use.

5. All permanent above-ground structures (e.g. , production equipment, tanks, etc.) not subject to safety requirements will be painted to blend with the natural color of the landscape. The paint used will be a color which simulates "Standard Environmental Colors." The color selected for this POD is covert green.

6. Sewage shall be placed in a self-contained, chemically treated porta-potty on location.

7. The operator and their contractors shall ensure that all use, production, storage, transport and disposal of hazardous and extremely hazardous materials associated with the drilling, completion and production of this well will be in accordance with all applicable existing or hereafter promulgated federal, state and local government rules, regulations and guidelines. All project-related activities involving hazardous materials will be conducted in a manner to minimize potential environmental impacts. In accordance with OSHA requirements, a file will be maintained onsite containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds and/or substances which are used in the course of construction, drilling, completion and production operations.

8. Produced fluids shall be put in test tanks on location during completion work. Produced water will be put in the reserve pit during completion work per Onshore Order #7.

9. The only fluids/waste materials which are authorized to go into the reserve pit are RCRA exempt exploration and production wastes. These include:
   - drilling muds & cuttings
   - rigwash
   - excess cement and certain completion & stimulation fluids defined by EPA as exempt

   It does not include drilling rig waste, such as:
   - spent hydraulic fluids
   - used engine oil
   - used oil filter
   - empty cement, drilling mud, or other product sacks
   - empty paint, pipe dope, chemical or other product containers
   - excess chemicals or chemical rinsate

   Any evidence of non-exempt wastes being put into the reserve pit may result in the BLM Authorized Officer requiring specific testing and closure requirements.

10. Operators are advised that prior to installation of any oil and gas well production equipment which has the potential to emit air contaminants, the owner or operator of the equipment must notify the Wyoming Department of Environmental Quality, Air Quality Division (phone 307-777-7391) to determine permit requirements. Examples of pertinent well production equipment include fuel-fired equipment (e.g., diesel generators), separators, storage tanks, engines and dehydrators.

DryHole/Reclamation

1. All disturbed lands associated with this project, including the pipelines, access roads, water management facilities, etc will be expediently reclaimed and reseeded in accordance with the surface use plan and any pertinent site-specific COAs.

2. Disturbed lands will be recontoured back to conform with existing undisturbed topography. No depressions will be left that trap water or form ponds.

3. The fluids and mud must be dry in the reserve pit before recontouring pit area. The operator will be responsible for recontouring of any subsidence areas that develop from closing a pit before it is completely dry. The plastic pit liner (if any) will be cut off below grade and properly disposed of at a state authorized landfill before beginning to recontour the site.

4. Before the location has been reshaped and prior to redistributing the topsoil, the operator will rip or scarify the drilling platform and access road on the contour, to a depth of at least 12 inches. The rippers are to be no farther than 24 inches apart.

5. Distribute the topsoil evenly over the entire location and other disturbed areas. Prepare the seedbed by disking following the contour.

6. Waterbars are to be constructed at least one (1) foot deep, on the contour with approximately two (2) feet of drop per 100 feet of waterbar to ensure drainage, and extended into established vegetation. All waterbars are to be constructed with the berm on the downhill side to prevent the soft material from silting in the trench. The initial waterbar should be constructed at the top of the backslope. Subsequent waterbars should follow the following general spacing guidelines:

Slope (percent)	Spacing Interval (feet)
≤ 2	200
2 – 4	100
4 – 5	75
≥ 5	50

7. The operator will drill seed on the contour to a depth of 0.5 inch, followed by cultipaction to compact the seedbed, preventing soil and seed losses. To maintain quality and purity, the current years tested, certified seed with a minimum germination rate of 80% and a minimum purity of 90% will be used. On BLM surface or in lieu of a different specific mix desired by the surface owner, use the following:

Sandy/Loamy/Clayey Ecological Site Seed Mix		
Species	**% in Mix**	**Lbs PLS***
Thickspike Wheatgrass (Elymus lanceolatus ssp. lanceolatus)	25	3.0
Prairie sandreed (Calamovilfa longifolia)	35	4.2
Indian ricegrass (Achnatherum hymenoides)	25	3.0
Prairie coneflower (Ratibida columnifera)	5	0.6
Green needlegrass (Nassella viridula)	5	0.6
Blue flax (Linum lewisii)	5	0.6
Totals	**100%**	**12 lbs/acre**

*PLS = pure live seed
*Northern Plains adapted species
*Double this rate if broadcast seeding

This is a recommended seed mix based on the native plant species listed in the NRCS Ecological Site descriptions, U.W. College of Ag., and seed market availability. A site-specific inventory will allow the resource specialist to suggest the most appropriate species, percent composition, and seeding rate for reclamation purposes.

8. BLM will not release the performance bond until the area has been successfully revegetated (evaluation will be made after the second complete growing season) and has met all other reclamation goals of the surface owner and surface management agency.

9. A Notice of Intent to Abandon and a Subsequent Report of Abandonment must be submitted for abandonment approval.

10. For performance bond release approval, a Final Abandonment Notice (with a surface owner release letter on split-estate) must be submitted prior to a final abandonment evaluation by BLM.

11. Soil fertility testing and the addition of soil amendments may be required to stabilize some disturbed lands.

12. Any mulch utilized for reclamation needs to be certified weed free.

Producing Well

1. Landscape those areas not required for production to the surrounding topography as soon as possible. The fluids and mud must be dry in the reserve pit before recontouring pit area. The operator will be responsible for recontouring and reseeding of any subsidence areas that develop from closing a pit before it is completely dry.

2. Reduce the backslope to 2:1 and the foreslope to 3:1, unless otherwise directed by the BLM Authorized Officer. Reduce slopes by pulling fill material up from foreslope into the toe of cut slopes.

3. Production facilities (including dikes) must be placed on the cut portion of the location and a minimum of 15 feet from the toe of the back cut unless otherwise approved by the BLM Authorized Officer.

4. A dike will be constructed completely around the production facilities (i.e. production tanks, water tanks, and heater-treater). The dikes for the production facilities must be constructed of impermeable soil, hold 110% of the capacity of the largest tank plus 1-foot of freeboard, and be independent of the back cut.

5. Any chemicals used in treating the wells (e.g., corrosion inhibitor, emulsion breaker, etc.) will be in a secure, fenced-in area with appropriate secondary containment structure (dikes, catchment pan, etc.).

6. The load out line coming from the oil/condensate tank(s) will have a suitable containment structure to capture and recycle any oil spillage that might occur.

7. Individual production facilities (tanks, treaters, etc.) will be adequately fenced off (if entire facility not already fenced off).

8. Any spilled or leaked oil, produced water or treatment chemicals must be reported in accordance with NTL-3A and immediately cleaned up in accordance with BLM requirements. This includes clean-up and proper disposition of soils contaminated as a result of such spills/leaks.

9. Distribute stockpiled topsoil evenly over those areas not required for production and reseed as recommended.

10. Upgrade and maintain access roads and drainage control (e.g., culverts, drainage dips, ditching, crowning, surfacing, etc.) as necessary and as directed by the BLM Authorized Officer to prevent soil erosion and accommodate safe, environmentally-sound access.

11. Prior to construction of production facilities not specifically addressed in the APD/POD, the operator shall submit a Sundry Notice to the BLM Authorized Officer for approval.

12. If not already required prior to constructing and drilling the well location, the operator shall

    immediately upgrade the entire access road to BLM standards (including topsoiling, crowning, ditching, drainage culverts, surfacing, etc.) to ensure safe, environmentally-sound, year-round access.

13. Waterbars shall be installed on all reclaimed pipeline corridors per the guidelines in A.4.2.4 #6.

APPENDIX C

CONDITIONS OF APPROVAL FOR CONVENTIONAL APPLICATION FOR PERMIT TO DRILL

Valerie POD, supported by Environmental Assessment (EA), WY-070-EA12-68

Valerie POD

Operator: Devon Energy Production Company, L.P.

Field Office: Buffalo Field Office
Address: 1425 Fort Street
Buffalo, Wyoming 82834

Office Telephone Number: 307-684-1100

The spud date will be reported electronically, (see website location above) to the Authorized Officer 24 HOURS BEFORE SPUDDING, unless otherwise required in site specific conditions of approval.

Spud Notice Site:
http://www.wy.blm.gov/minerals/og/og_notices/spud_notice.php

List of Wells:

	Well Name	Well #	Qtr/Qtr	Sec.	TWP	RNG	Lease #	Status
1	Valerie Rocky Butte	2843-1HP	SESE	21	44N	73W	WYW134882	APD
2	Valerie Rocky Butte	2243-2HP	SESE	21	44N	73W	WYW0241798	APD
3	Valerie Rocky Butte	2743-1HP	NWSW	27	44N	73W	WYW0241794	APD
4	Valerie Rocky Butte	2843-2HP	NWSW	27	44N	73W	WYW120439	APD
5	Valerie Rocky Butte	2743-2HP	SESE	28	44N	73W	WYW0316906	APD
6	Valerie Rocky Butte	2943-1HP	SWNW	29	44N	73W	WYW120439	APD

DRILLING AND PRODUCTION OPERATIONS

1. **Verbal notification shall be given to the Authorized Officer at least 24 hours before formation tests, BOP tests, running and cementing casing, and drilling over lease expiration dates.**

2. New hard-band drill pipe shall not be rotated inside any casing. Hard-band drill pipe shall be considered new until it has been run at least once.

3. All Blow Out Prevention Equipment tests shall include a 5 minute low pressure test between 250 psi and 500 psi with no drop in pressure with the only exception being the chokes. The chokes are only required to have the high pressure test held for a minimum length of time necessary to verify their functional integrity.

4. All operations must be conducted in accordance with all applicable laws and regulations: with the lease terms, Onshore Oil and Gas Orders, NTL's; and with other orders and instructions of the Authorized Officer, unless a variance has been granted in writing by the Authorized Officer.

5. The Operator shall install an identification sign consistent with the requirements of 43 CFR 3162.6 immediately upon or before the completion of the well pad construction operations.

6. All Blow Out Prevention Equipment rated 5M or greater shall be isolated from the casing and tested to stack working pressure. All Blow Out Prevention Equipment tests shall be performed by a suitable test pump, not the rig-mud pumps and recorded on a chart. The chart shall be submitted to the Buffalo Field Office.

7. Low test on Blow Out Prevention Equipment shall be performed and passed before moving onto the high test for each component.

8. If there are indications of inadequate primary cementing of the surface, intermediate, or production casing strings; such as but not limited to no returns to surface, cement channeling, fallback or mechanical failure of equipment, the operator will evaluate the adequacy of the cementing operations. This evaluation will consist of running a cement bond log (CBL) or an alternate method approved by the Authorized Officer (AO) no sooner than 12 hours and no later than 24 hours from the time the cement was first pumped.

9. If the evaluation indicates inadequate cementing, the operator shall contact a BLM Buffalo Field Office Petroleum Engineer for approval of remedial cementing work.

10. The adequacy of the remedial cementing operations shall be verified by a cement bond log (CBL) or an alternate method approved by the Authorized Officer (AO). All remedial work shall be completed and verified prior to drilling out the casing shoe or perforating the casing for purposes other than remedial cementing.

11. The cement mix water used must be of the same water quality used to develop the cement program.

12. All oil and gas operations shall be conducted in a manner to prevent the pollution of all freshwater resources. All fresh waters and waters of present or probable future value for domestic, municipal, commercial, stock or agricultural purposes will be confined to their respective strata and shall be adequately protected. Special precautions will be taken to guard against any loss of artesian water from the strata in which it occurs and the contamination of fresh water by objectionable water, oil, condensate, gas or other deleterious substance to such fresh water.

13. Any changes to the approved drilling plan and/or these conditions of approval shall be approved by the BLM-Buffalo Field Office Petroleum Engineer prior to being implemented.
    After hour's numbers:
    Petroleum Engineer: Matthew Warren Cell Telephone: 307-620-0103

APPENDIX D

CONDITIONS OF APPROVAL FOR CONVENTIONAL APPLICATION FOR PERMIT TO DRILL

Valerie POD, supported by Environmental Assessment (EA), WY-070-EA12-68

Operator: Devon Energy Production Company, L.P.

Field Office: Buffalo Field Office
Address: 1425 Fort Street
Buffalo, Wyoming 82834

Office Telephone Number: 307-684-1100

The spud date will be reported electronically, (see website location above) to the Authorized Officer 24 HOURS BEFORE SPUDDING, unless otherwise required in site specific conditions of approval.

Spud Notice Site:
http://www.wy.blm.gov/minerals/og/og_notices/spud_notice.php

List of Wells:

	Well Name	Well #	Qtr/Qtr	Sec.	TWP	RNG	Lease #	Status
1	Valerie Rocky Butte	1943-1HP	NENE	19	44N	73W	WYW144490	APD
2	Valerie Rocky Butte	1943-2HP	NWSW	20	44N	73W	WYW144490	APD
3	Valerie Rocky Butte	2043-1HP	NWSW	20	44N	73W	WYW144490	APD

SITE SPECIFIC

Surface:

1. Improved roads used in conjunction with accessing Valerie POD wells must be fully built (including all water control structures such as wingditches, culverts, relief ditches, low water crossings, surfacing, etc.) and functional to BLM standards as outlined in the BLM Manual 9113 prior to drilling of the well. This applies to the entire Valerie project area.

2. Erosion control fabric used for reclamation of steep slopes will be photodegradable or biodegradable to limit the amount of debris/trash on and around location.

3. All erosion control products will be applied according to manufacturer's specifications to reduce product failures.

4. Before replacing topsoil on heavily disturbed surfaces, and on all other compacted surfaces compaction will be remediated by subsoiling, paraplowing, or ripping with a winged shank to the depth of compaction. Scarification will only be used on shallow soils.

5. To ensure proper water movement over the top of the erosion control fabric, the fabric will be 'keyed' into the slope by digging a small trench at the top of the slope. Lay the top end of the material into the trench to line it. To line it the edge is folded underneath itself and then it is secured using staples. The trench is then filled in to the previous soil level. Fabric should be overlapped on edges and stapled according to manufacturers' specifications.

6. BLM approved fluids and drilling mud must be buried within the reserve pit. Subsoil must then be replaced in the reserve pit before topsoiling. Under no circumstances would any by-products from drilling or subsoil to be spread on top of topsoil.

Wildlife:

Sage-grouse

1. No surface disturbing activities are permitted between March 15-June 30. This condition will be implemented on an annual basis for the duration of surface disturbing activities. This timing limitation will affect well 2743-2HP and its infrastructure.
   a) If a previously unknown lek is identified during surveys (April 1-May 7), additional areas may be included in the above referenced timing restriction (March 15-June 30). The required sage-grouse survey will be conducted by a biologist following the most current WGFD protocol. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities.

Raptors

The following conditions will alleviate impacts to raptors:

1. No surface disturbing activity shall occur within 0.5 mile of all raptor nests depicted in the map below, from February 1 through July 31, annually, prior to a raptor nest occupancy survey. This COA will apply to well locations 2943-1HP and 2743-2HP.
   c. Surveys to document nest occupancy shall be conducted by a biologist, following the most current BLM protocol, between April 15 and June 30. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities. A 0.5 mile timing restriction will be applied if a nest is identified as active.
   d. Surveys for new raptor nests shall be conducted during the construction phase of the project and 5 years following completion of the project within the POD. Surveys shall occur throughout the entire POD and 0.5 mile outside of the POD boundary between April 15 and June 30, and prior to or during the first nest occupancy check. A seasonal timing restriction (February 1 through July 31) will be added to surface disturbing activities within 0.5 miles of any newly discovered nests.

2. If an undocumented raptor nest is located during project construction or operation, the Buffalo Field Office (307-684-1100) shall be notified within 24 hours.

Migratory Birds

1. The Operator will be responsible for assuring that any open pits that are hazardous to birds and other wildlife will be rendered not accessible to wildlife, and are in compliance with the Migratory Bird Treaty Act.

2. Heater/treaters chimneys will have covers to prevent access to birds.

STANDARD

General

1. If any cultural values [sites, artifacts, human remains (Appendix L FEIS)] are observed during operation of this lease/permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. The authorized officer will conduct an evaluation of the cultural values to establish

appropriate mitigation, salvage or treatment. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized BLM officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places;
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
- a time-frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction measures.

2. If paleontological resources, either large or conspicuous, and/or a significant scientific value are discovered during construction, the find will be reported to the Authorized Officer immediately. Construction will be suspended within 250 feet of said find. An evaluation of the paleontological discovery will be made by a BLM approved professional paleontologist within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of any significant paleontological values. Operations within 250 feet of such a discovery will not be resumed until written authorization to proceed is issued by the Authorized Officer. The applicant will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operation.

3. Please contact Andy Perez, Natural Resource Specialist, at (307) 684-1166, Bureau of Land Management, Buffalo, if there are any questions concerning the following surface use COAs.

DRILLING AND PRODUCTION OPERATIONS

1. **Verbal notification shall be given to the Authorized Officer at least 24 hours before formation tests, BOP tests, running and cementing casing, and drilling over lease expiration dates.**

2. New hard-band drill pipe shall not be rotated inside any casing. Hard-band drill pipe shall be considered new until it has been run at least once.

3. All Blow Out Prevention Equipment tests shall include a 5 minute low pressure test between 250 psi and 500 psi with no drop in pressure with the only exception being the chokes. The chokes are only required to have the high pressure test held for a minimum length of time necessary to verify their functional integrity.

4. All operations must be conducted in accordance with all applicable laws and regulations: with the lease terms, Onshore Oil and Gas Orders, NTL's; and with other orders and instructions of the Authorized Officer, unless a variance has been granted in writing by the Authorized Officer.

5. The Operator shall install an identification sign consistent with the requirements of 43 CFR 3162.6 immediately upon or before the completion of the well pad construction operations.

6. All Blow Out Prevention Equipment rated 5M or greater shall be isolated from the casing and tested to stack working pressure. All Blow Out Prevention Equipment tests shall be performed by a suitable test pump, not the rig-mud pumps and recorded on a chart. The chart shall be submitted to the Buffalo Field Office.

7. Low test on Blow Out Prevention Equipment shall be performed and passed before moving onto the high test for each component.

8. If there are indications of inadequate primary cementing of the surface, intermediate, or production casing strings; such as but not limited to no returns to surface, cement channeling, fallback or mechanical failure of equipment, the operator will evaluate the adequacy of the cementing operations. This evaluation will consist of running a cement bond log (CBL) or an alternate method approved by the Authorized Officer (AO) no sooner than 12 hours and no later than 24 hours from the time the cement was first pumped.

9. If the evaluation indicates inadequate cementing, the operator shall contact a BLM Buffalo Field Office Petroleum Engineer for approval of remedial cementing work.

10. The adequacy of the remedial cementing operations shall be verified by a cement bond log (CBL) or an alternate method approved by the Authorized Officer (AO). All remedial work shall be completed and verified prior to drilling out the casing shoe or perforating the casing for purposes other than remedial cementing.

11. The cement mix water used must be of the same water quality used to develop the cement program.

12. All oil and gas operations shall be conducted in a manner to prevent the pollution of all freshwater resources. All fresh waters and waters of present or probable future value for domestic, municipal, commercial, stock or agricultural purposes will be confined to their respective strata and shall be adequately protected. Special precautions will be taken to guard against any loss of artesian water from the strata in which it occurs and the contamination of fresh water by objectionable water, oil, condensate, gas or other deleterious substance to such fresh water.

13. Any changes to the approved drilling plan and/or these conditions of approval shall be approved by the BLM-Buffalo Field Office Petroleum Engineer prior to being implemented.
    After hour's numbers:
    Petroleum Engineer: Matthew Warren Cell Telephone: 307-620-0103

Construction

1. Construction and drilling activity will not be conducted using frozen or saturated soil material during periods when watershed damage or excessive rutting is likely to occur.

2. Remove all available topsoil (depths vary from 4 inches on ridges to 12+ inches in bottoms) from constructed well locations including areas of cut and fill, and stockpile at the site. Topsoil will also be salvaged for use in reclamation on all other areas of surface disturbance (roads, pipelines, etc.). Clearly segregate topsoil from excess spoil material. Any topsoil stockpiled for one year or longer will be signed and stabilized with annual ryegrass or other suitable cover crop.

3. The operator will not push soil material and overburden over side slopes or into drainages. All soil material disturbed will be placed in an area where it can be retrieved without creating additional undue surface disturbance and where it does not impede watershed and drainage flows.

4. Construct the backslope no steeper than ½:1, and construct the foreslope no steeper than 2:1, unless otherwise directed by the BLM Authorized Officer.

5. Maintain a minimum 20-foot undisturbed vegetative border between toe-of-fill of pad and/or pit areas and the edge of adjacent drainages, unless otherwise directed by the BLM Authorized Officer.

6. To minimize electrocution potential to birds of prey, all overhead electrical power lines will be constructed to standards identified by the Avian Power Line Interaction Committee (2006).

7. The reserve pit will be oriented to prevent collection of surface runoff. After the drilling rig is removed, the operator may need to construct a trench on the uphill side of the reserve pit to divert surface drainage around it. If constructed, the trench will be left intact until the pit is closed.

8. The reserve pit will be lined with an impermeable liner if permeable subsurface material is encountered. An impermeable liner is any liner having a permeability less than 10-7 cm/sec. The liner will be installed so that it will not leak and will be chemically compatible with all substances that may be put in the pit. Liners made of any man-made synthetic material will be of sufficient strength and thickness to withstand normal installation and pit use. In gravelly or rocky soils, a suitable bedding material such as sand will be used prior to installing the liner.

9. The reserve pit will be constructed so that at least half of its total volume is in solid cut material (below natural ground level).

10. Culverts will be placed on channel bottoms on firm, uniform beds, which have been shaped to accept them, and aligned parallel to the channel to minimize erosion. Backfill will be thoroughly compacted.

11. The minimum diameter for culverts will be 18 inches. However, all culverts will be appropriately sized in accordance with standards in BLM Manual 9113.

12. Construction and other project-related traffic will be restricted to approved routes. Cross-country vehicle travel will not be allowed.

13. Maximum design speed on all operator constructed and maintained roads will not exceed 25 miles per hour.

14. Pipeline construction shall not block nor change the natural course of any drainage. Pipelines shall cross perpendicular to drainages. Pipelines shall not be run parallel in drainage bottoms. Suspended pipelines shall provide adequate clearance for maximum runoff.

15. Pipeline trenches shall be compacted during backfilling. Pipeline trenches shall be routinely inspected and maintained to ensure proper settling, stabilization and reclamation.

16. During construction, emissions of particulate matter from well pad and road construction would be minimized by application of water or other non-saline dust suppressants with at least 50 percent control efficiency. Dust inhibitors (surfacing materials, non-saline dust suppressants, and water) will be used as necessary on unpaved roads that present a fugitive dust problem. The use of chemical dust suppressants on public surface will require prior approval from the BLM Authorized Officer.

17. Operators are required to obtain a National Pollution Discharge Elimination System (NPDES) Storm Water Permit from the Wyoming DEQ for any projects that disturb five or more acres (changing to one acre in March 2005). This general construction storm water permit must be obtained from WDEQ

prior to any surface disturbing activities and can be obtained by following directions on the WDEQ website at http://deq.state.wy.us. Further information can be obtained by contacting Barb Sahl at (307) 777-7570.

18. The operator shall submit a Sundry Notice (Form 3160-5) to BLM for approval prior to construction of any new surface disturbing activities that are not specifically addressed in the approved APD or POD Surface Use Plan.

Operations/Maintenance

1. Confine all equipment and vehicles to the access road(s), pad(s), and area(s) specified in the approved APD or POD.

2. All waste, other than human waste and drilling fluids, will be contained in a portable trash cage. This waste will be transported to a State approved waste disposal site immediately upon completion of drilling operations. No trash or empty barrels will be placed in the reserve pit or buried on location. All state and local laws and regulations pertaining to disposal of human and solid waste will be complied with.

3. Rat and mouse holes shall be filled and compacted from the bottom to the top immediately upon release of the drilling rig from the location.

4. The operator will be responsible for prevention and control of noxious weeds and weeds of concern on all areas of surface disturbance associated with this project (well locations, roads, water management facilities, etc.) Use of pesticides shall comply with the applicable Federal and State laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of Interior. Prior to the use of pesticides on public land, the holder shall obtain from the BLM authorized officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer to such use.

5. All permanent above-ground structures (e.g. , production equipment, tanks, etc.) not subject to safety requirements will be painted to blend with the natural color of the landscape. The paint used will be a color which simulates "Standard Environmental Colors." The color selected for this POD is covert green.

6. Sewage shall be placed in a self-contained, chemically treated porta-potty on location.

7. The operator and their contractors shall ensure that all use, production, storage, transport and disposal of hazardous and extremely hazardous materials associated with the drilling, completion and production of this well will be in accordance with all applicable existing or hereafter promulgated federal, state and local government rules, regulations and guidelines. All project-related activities involving hazardous materials will be conducted in a manner to minimize potential environmental impacts. In accordance with OSHA requirements, a file will be maintained onsite containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds and/or substances which are used in the course of construction, drilling, completion and production operations.

8. Produced fluids shall be put in test tanks on location during completion work. Produced water will be put in the reserve pit during completion work per Onshore Order #7.

9. The only fluids/waste materials which are authorized to go into the reserve pit are RCRA exempt exploration and production wastes. These include:
   - drilling muds & cuttings
   - rigwash
   - excess cement and certain completion & stimulation fluids defined by EPA as exempt

   It does not include drilling rig waste, such as:
   - spent hydraulic fluids
   - used engine oil
   - used oil filter
   - empty cement, drilling mud, or other product sacks
   - empty paint, pipe dope, chemical or other product containers
   - excess chemicals or chemical rinsate

   Any evidence of non-exempt wastes being put into the reserve pit may result in the BLM Authorized Officer requiring specific testing and closure requirements.

10. Operators are advised that prior to installation of any oil and gas well production equipment which has the potential to emit air contaminants, the owner or operator of the equipment must notify the Wyoming Department of Environmental Quality, Air Quality Division (phone 307-777-7391) to determine permit requirements. Examples of pertinent well production equipment include fuel-fired equipment (e.g., diesel generators), separators, storage tanks, engines and dehydrators.

DryHole/Reclamation

1. All disturbed lands associated with this project, including the pipelines, access roads, water management facilities, etc will be expediently reclaimed and reseeded in accordance with the surface use plan and any pertinent site-specific COAs.

2. Disturbed lands will be recontoured back to conform with existing undisturbed topography. No depressions will be left that trap water or form ponds.

3. The fluids and mud must be dry in the reserve pit before recontouring pit area. The operator will be responsible for recontouring of any subsidence areas that develop from closing a pit before it is completely dry. The plastic pit liner (if any) will be cut off below grade and properly disposed of at a state authorized landfill before beginning to recontour the site.

4. Before the location has been reshaped and prior to redistributing the topsoil, the operator will rip or scarify the drilling platform and access road on the contour, to a depth of at least 12 inches. The rippers are to be no farther than 24 inches apart.

5. Distribute the topsoil evenly over the entire location and other disturbed areas. Prepare the seedbed by disking following the contour.

6. Waterbars are to be constructed at least one (1) foot deep, on the contour with approximately two (2) feet of drop per 100 feet of waterbar to ensure drainage, and extended into established vegetation. All waterbars are to be constructed with the berm on the downhill side to prevent the soft material from silting in the trench. The initial waterbar should be constructed at the top of the backslope. Subsequent waterbars should follow the following general spacing guidelines:

Slope (percent)	Spacing Interval (feet)
≤ 2	200
2 – 4	100
4 – 5	75
≥ 5	50

7. The operator will drill seed on the contour to a depth of 0.5 inch, followed by cultipaction to compact the seedbed, preventing soil and seed losses. To maintain quality and purity, the current years tested, certified seed with a minimum germination rate of 80% and a minimum purity of 90% will be used. On BLM surface or in lieu of a different specific mix desired by the surface owner, use the following:

Sandy/Loamy/Clayey Ecological Site Seed Mix		
Species	**% in Mix**	**Lbs PLS***
Thickspike Wheatgrass (Elymus lanceolatus ssp. lanceolatus)	25	3.0
Prairie sandreed (Calamovilfa longifolia)	35	4.2
Indian ricegrass (Achnatherum hymenoides)	25	3.0
Prairie coneflower (Ratibida columnifera)	5	0.6
Green needlegrass (Nassella viridula)	5	0.6
Blue flax (Linum lewisii)	5	0.6
Totals	**100%**	**12 lbs/acre**

*PLS = pure live seed
*Northern Plains adapted species
*Double this rate if broadcast seeding

This is a recommended seed mix based on the native plant species listed in the NRCS Ecological Site descriptions, U.W. College of Ag., and seed market availability. A site-specific inventory will allow the resource specialist to suggest the most appropriate species, percent composition, and seeding rate for reclamation purposes.

8. BLM will not release the performance bond until the area has been successfully revegetated (evaluation will be made after the second complete growing season) and has met all other reclamation goals of the surface owner and surface management agency.

9. A Notice of Intent to Abandon and a Subsequent Report of Abandonment must be submitted for abandonment approval.

10. For performance bond release approval, a Final Abandonment Notice (with a surface owner release letter on split-estate) must be submitted prior to a final abandonment evaluation by BLM.

11. Soil fertility testing and the addition of soil amendments may be required to stabilize some disturbed lands.

12. Any mulch utilized for reclamation needs to be certified weed free.

Producing Well

1. Landscape those areas not required for production to the surrounding topography as soon as possible. The fluids and mud must be dry in the reserve pit before recontouring pit area. The operator will be responsible for recontouring and reseeding of any subsidence areas that develop from closing a pit before it is completely dry.

2. Reduce the backslope to 2:1 and the foreslope to 3:1, unless otherwise directed by the BLM Authorized Officer. Reduce slopes by pulling fill material up from foreslope into the toe of cut slopes.

3. Production facilities (including dikes) must be placed on the cut portion of the location and a minimum of 15 feet from the toe of the back cut unless otherwise approved by the BLM Authorized Officer.

4. A dike will be constructed completely around the production facilities (i.e. production tanks, water tanks, and heater-treater). The dikes for the production facilities must be constructed of impermeable soil, hold 110% of the capacity of the largest tank plus 1-foot of freeboard, and be independent of the back cut.

5. Any chemicals used in treating the wells (e.g., corrosion inhibitor, emulsion breaker, etc.) will be in a secure, fenced-in area with appropriate secondary containment structure (dikes, catchment pan, etc.).

6. The load out line coming from the oil/condensate tank(s) will have a suitable containment structure to capture and recycle any oil spillage that might occur.

7. Individual production facilities (tanks, treaters, etc.) will be adequately fenced off (if entire facility not already fenced off).

8. Any spilled or leaked oil, produced water or treatment chemicals must be reported in accordance with NTL-3A and immediately cleaned up in accordance with BLM requirements. This includes clean-up and proper disposition of soils contaminated as a result of such spills/leaks.

9. Distribute stockpiled topsoil evenly over those areas not required for production and reseed as recommended.

10. Upgrade and maintain access roads and drainage control (e.g., culverts, drainage dips, ditching, crowning, surfacing, etc.) as necessary and as directed by the BLM Authorized Officer to prevent soil erosion and accommodate safe, environmentally-sound access.

11. Prior to construction of production facilities not specifically addressed in the APD/POD, the operator shall submit a Sundry Notice to the BLM Authorized Officer for approval.

12. If not already required prior to constructing and drilling the well location, the operator shall immediately upgrade the entire access road to BLM standards (including topsoiling, crowning, ditching, drainage culverts, surfacing, etc.) to ensure safe, environmentally-sound, year-round access.

13. Waterbars shall be installed on all reclaimed pipeline corridors per the guidelines in A.4.2.4 #6.