

DECISION RECORD
for Devon Energy Production Company, L.P.
Devon House Creek Sandy POD
ENVIRONMENTAL ASSESSMENT - NO-WY-070-11-144
Bureau of Land Management, Buffalo Field Office

I approve the drilling of 5 oil wells and building their infrastructure, as highlighted below.

Compliance. This decision complies with:

- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701).
- Mineral Leasing Act of 1920 (30 U.S.C. 181) and as prescribed in 43 CFR Part 3160 to include On Shore Order No. 1.
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- Migratory Bird Treaty Act (16 USC 703).
- DOI Order 3310, Protecting Wilderness Characteristics on Lands Managed by the Bureau of Land Management, Dec 2010; BLM Manuals 6300-1 and 6300-2 (drafts).
- Powder River Basin Final Environmental Impact Statement (FEIS), and RMP Amendment.
- Buffalo Resource Management Plan 1985, Amendments 2001, 2003.

The Selected Alternative Features.

The BFO approves Alternative B as described in the referenced EA and authorizes the following applications for permit to drill (APD) for Devon Energy Production Company, L.P.

	Well Name	Well #	Qtr/Qtr	Section	TWP	RNG	Lease #
1	Rocky Butte 1543-1HP	1543-1HP	NWSW	15	44N	73W	WYW107250
2	Rocky Butte 1543-2HP	1543-2HP	SWSW	15	44N	73W	WYW0241797
3	Rocky Butte 2143-1HP	2143-1HP	SESE	16	44N	73W	WYW107239
4	Rocky Butte 2143-2HP	2143-2HP	NESE	21	44N	73W	WYW107239
5	Rocky Butte 2243-1HP	2243-1HP	NESE	21	44N	73W	WYW0241798

This approval is subject to adherence with operating plans and mitigation measures contained in the House Creek Sandy POD's Surface Use Plan of Operations. This approval is also conditioned on the design features as furnished to the Buffalo Field Office (BFO) and on the mitigation and monitoring requirements contained in the conditions of approval (COAs).

Limitations.

There are no deferrals or denials. There was no application for and no approval of the use of federal water in any surface impoundments. There was no application for additional utility corridors or storage.

THE FINDING OF NO SIGNIFICANT IMPACTS.

The FONSI supporting EA WY-070-EA11-144, considered the project design, analysis, and rationale and found no significant impact on the human environment aside from those revealed in the Powder River Basin FEIS and RMP Amendment. The FONSI found no significant impacts, thus there is no requirement for an EIS.

COMMENT OR NEW INFORMATION SUMMARY.

The BFO received DOI Order 3310, directing the review for wilderness characteristics, post December 22, 2010.

DECISION RATIONALE.

The decision authorizing the 5 APDs and associated infrastructure as described in Alternative B, and analyzed in EA WY-070-EA11-144, is also based on the following:

1. The additional wells and infrastructure will not result in significant environmental degradation.
2. This federal action is clearly lacking wilderness characteristics because it has surface areas with extensive coal bed natural gas development, roads, and overhead powerlines.
3. The selected alternative will contribute to meeting the nation's energy needs, and may stimulate local economies by maintaining workforce stability.
4. The Operator, in their APD applications, committed to:
 - Comply with all applicable Federal, State and Local laws and regulations.
 - Obtain the necessary permits from other agencies for the drilling, completion and production of these wells including water rights appropriations, the installation of water management facilities, water discharge permits, and relevant air quality permits.
 - Has a surface use agreement with the affected landowner.
5. Mitigation measures from the range of alternatives were selected to best meet the purpose and need, and will be applied by the BLM to alleviate environmental impacts. Alternative B is the environmentally-preferred Alternative and supports the goals of the RMP.
6. Approval of this alternative conforms with the (PRB FEIS) (January 2003), Record of Decision and Resource Management Plan Amendments for the Powder River Basin Oil and Gas Project (PRB FEIS ROD), (refer to Appendix E of PRB FEIS ROD page E-1), and the Approved Resource Management Plan and Amendments (1985), Buffalo Field Office (BFO), April 2001, and April 2003.

ADMINISTRATIVE REVIEW AND APPEAL: Under BLM regulations, this decision is subject to administrative review in accordance with 43 CFR 3165. Any 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: _____

[Signature]

Date: _____

2/11/11

FINDING OF NO SIGNIFICANT IMPACT
for Devon Energy Production Company, L.P.
Devon House Creek Sandy POD
ENVIRONMENTAL ASSESSMENT NO-WY-070-11-144
Bureau of Land Management, Buffalo Field Office

FINDING OF NO SIGNIFICANT IMPACT:

On the basis of the information contained in the environmental assessment (EA) (numbered above and incorporated here by reference), and all other information available to me, it is my determination that:

- (1) the decision to approve 5 applications to drill (APDs), associated infrastructure, and the plan of development (POD) infrastructure in the Devon Energy Production Company, L.P. (Devon or operator) Devon House Creek Sandy plan of development (POD) conventional oil wells, will not have significant environmental impacts beyond those already addressed in the Powder River Basin (PRB) FEIS (2003), to which the EA is tiered; and
- (2) the decision to approve the 5 APDs will have minor adverse impact to the environment as the area is in the midst of oil and gas development; and
- (3) the decision to authorize the 5 APDs is in conformance with the Buffalo Field Office Resource Management Plan (RMP) (1985, 2001, 2003), FEIS (1985, 2003), or other legislative or regulatory processes including DOI Order 3310, BLM Manuals 6300-1 and 6300-2; and
- (4) the decision to authorize the APD and ROW does not constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement is not necessary and will not be prepared.

This finding is based on my consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to the context and to the intensity of the impacts described in the EA, WY-070-EA11-144, which is incorporated here by reference.

CONTEXT:

Mineral development (coal, oil and gas, bentonite, and uranium) is a long-standing and common land use within the Powder River Basin. More than one third of the nation's coal production comes from the Powder River Basin. The PRB FEIS reasonably foreseeable development predicted and analyzed the development of 51,000 CBNG wells and 3,200 oil wells (PRB FEIS ROD p. 2). The additional development described in Alternative B is insignificant within the national, regional, and local context.

INTENSITY:

The implementation of Alternative B will result in beneficial effects in the forms of energy and revenue production however; there will also be adverse effects to the environment. Design features and mitigation measures were included within the proposal, Alternative B, to prevent significant adverse environmental effects. The BLM also added site specific and programmatic mitigation measures to reduce adverse environmental effects of this development.

The preferred alternative does not pose a significant risk to public health and safety. The geographic area of the APD and ROW does not contain unique characteristics identified within the 1985 RMP, 2003 PRB FEIS, or other legislative or regulatory processes, including DIO Order 3310 and supporting manuals.

Relevant scientific literature and professional expertise were used in preparing the EA. The scientific

community is reasonably consistent with their conclusions on environmental effects relative to oil and gas development. Research findings on the nature of the environmental effects are not highly controversial, highly uncertain, or involve unique or unknown risks.

Oil development of the nature proposed with this POD and similar PODs was predicted and analyzed in the PRB FEIS; 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 (EA sec 4.2.7). This federal project area is clearly lacking wilderness characteristics because it has surface areas with extensive oil and coal bed natural gas development. No species listed under the Endangered Species Act or their designated critical habitat will be adversely affected (EA, sec 4). The selected alternative will not have any anticipated effects that would threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Field Manager: *John A.* Date: 2/11/11

ENVIRONMENTAL ASSESSMENT WY-070-11-144
For Devon Energy Production Company, L.P.
Devon House Creek Sandy POD
Bureau of Land Management, Buffalo Field Office

1. INTRODUCTION

This environmental assessment (EA) analyzes 5 applications to drill (APDs) conventional oil wells and appurtenant infrastructure proposed by Devon Energy Production Company, L.P. (Devon or operator) at their Devon House Creek Sandy plan of development (POD).

Purpose and Need

The purpose and need of this project is to determine how and under what conditions to allow the operator to exercise conditional lease rights granted by the United States to develop the oil and gas resources on federal leaseholds as described in their proposed project in manners minimizing environmental impacts and furthering natural resource conservation.

Information contained in the APDs is an integral part of this EA and is, therefore, incorporated by reference (CFR 1502.21).

The actions as described in the APDs further develop oil reserves in the United States. The APDs were submitted by private industry for development of oil on 7 valid federal oil and gas mineral leases awarded to the applicant by the BLM. This project covers 7 leases since the wells are horizontal.

The BLM recognizes the extraction of oil is essential to meeting the nation's future needs for energy. As a result, private exploration and development of federal oil reserves are integral to the agencies' oil and gas leasing programs under the authority of the Mineral Leasing Act of 1920, as amended, and the Federal Land Policy Management Act (FLPMA) of 1976. The oil and gas leasing program managed by BLM encourages the development of domestic oil and gas reserves and reduction of the U.S. dependence on foreign sources of energy.

Conformance with Applicable Land Use Plan and Other Environmental Assessments:

This site-specific analysis tiers into and incorporates by reference the information and analysis contained in the *Final Environmental Impact Statement and Proposed Plan Amendment for the Powder River Basin Oil and Gas Project* (PRB FEIS), #WY-070-02-065 (approved April 30, 2003), and the PRB FEIS Record of Decision (ROD) pursuant to 40 CFR 1508.28 and 1502.21. These are available for review at the BLM Buffalo Field Office (BFO) or on our website. This project EA addresses site-specific resources and impacts that eluded analysis in the PRB FEIS. The proposed project conforms to the terms and the conditions of the 1985 Buffalo RMP, the 2001 Approved RMP, the 2003 PRB FEIS, the PRB FEIS ROD, and DOI Order 3310, as required by 43 CFR 1610.5.

2. ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1. Alternative A – No Action

This alternative would consist of no new federal wells. The Department of Interior's authority to implement a "no action" alternative that precludes development is conditioned by "just compensation." The No Action Alternative is further described in the PRB FEIS, Volume 1, pp. 2-54 to 2-62.

2.2. Alternative B Proposed Action

OPERATOR/APPLICANT: Devon Energy Production Company, L.P.

PROJECT NAME: Devon House Creek Sandy POD

The proposed action is to drill, complete, and equip five (5) horizontal oil wells with appurtenant infrastructure (roads, storage, etc.). The action would be subject to the attached conditions of approval (COAs), for drilling of an oil well on private surface/federal mineral lands within the BFO jurisdiction. For more detail on project area access, design features and construction practices of the proposed action, refer to the Master Surface Use Plan (MSUP) in the POD. The plan was written and reviewed to ensure that environmental impacts to both surface and subsurface resources are eliminated or minimized. Also see the individual APDs for a map showing the proposed access road, existing roads and well location and supporting infrastructure.

WELL NAME/#/LEASE/LOCATION:

	Well Name	Well #	Qtr/Qtr	Section	TWP	RNG	Lease #
1	Rocky Butte 1543-1HP	1543-1HP	NWSW	15	44N	73W	WYW107250
2	Rocky Butte 1543-2HP	1543-2HP	SWSW	15	44N	73W	WYW0241797
3	Rocky Butte 2143-1HP	2143-1HP	SESE	16	44N	73W	WYW107239
4	Rocky Butte 2143-2HP	2143-2HP	NESE	21	44N	73W	WYW107239
5	Rocky Butte 2243-1HP	2243-1HP	NESE	21	44N	73W	WYW0241798

The proposed action involves:

Well/Activity	Length (feet)	Width (feet)	Acres of Disturbance During Drilling	Acres of Disturbance During Production
Rocky Butte 2143-2HP/ 2243-1HP Constructed Pad/Tank Battery	~510 ft	~350 ft	7.5 acres	3.0 acres
Cut/fills & Topsoil/spoil stockpiles	Varies	Varies		
Rocky Butte 2143-2HP/ 2243-1HP Access Road	544 ft (0.1 mile)	70 ft During Construction	0.874 acres	0.27 acres
Total Disturbance for Rocky Butte 2143-2HP/ 2243-1HP	Refer to Map/SUDS	18 ft during Production	8.374 Acres	3.27 Acres

Well/Activity	Length (feet)	Width (feet)	Acres of Disturbance During Drilling	Acres of Disturbance During Production
Rocky Butte 1543-2HP/2143-1HP Constructed Pad/Tank Battery	~510 ft	~350 ft	7.5 acres	2.4 acres
Cut/fills & Topsoil/spoil stockpiles	Varies	Varies		
Rocky Butte 1543-2HP/2143-1HP Access Road	684 ft (0.1 mile)	70 ft During Construction	1.1 acres	0.34 acres
Total Disturbance for Rocky Butte 1543-2HP/2143-1HP	Refer to Map/SUDS	18 ft during Production	8.6 Acres	2.74 Acres

Well/Activity	Length (feet)	Width (feet)	Acres of Disturbance During Drilling	Acres of Disturbance During Production
Rocky Butte 1543-1HP / 1643-2HP State Well Constructed Pad/Tank Battery	~ 510 ft	~350 ft	7.3 acres	2.8 acres
Cut/fills & Topsoil/spoil stockpiles	Varies	Varies		
Rocky Butte 1543-1HP / 1643-2HP State Well Access Road	1425 ft (0.27 miles)	70 ft During Construction	2.29 acres	0.71 acres
Total Disturbance for Rocky Butte 1543-1HP / 1643-2HP State Well	Refer to Map/SUDS	18 ft during Production	9.59 Acres	3.51 Acres

The proposed well locations require the construction of 3 engineered (cut & fill) well pads. For further detail refer to the disturbance tables above for specifics regarding disturbance values per location.

The access roads will be constructed 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. The access roads will be improved template with an 18 ft running surface and will comprise of a total of 5.62 acres of disturbance during construction. The proposed action will require an approximate surface disturbance of 0.20 acres for over head power (OHP) and 0.39 acres for three (3) power drops. The total acres of disturbance during construction and drilling of the project will consist of approximately 27.15 acres in total short term disturbance (construction) and 10.20 acres of disturbance in long term (interim).

Drilling and construction activities are anticipated to be completed within two 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.

AFFECTED SURFACE OWNERS:

Gary Marquiss	Little Buffalo Ranch LLC.
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For contact information refer to the Master Surface Use Plan (MSUP) in the POD.

COUNTY: Campbell

The proposed project is to drill and develop an oil/gas well. The project would be subject to the attached Conditions-of-Approval, for drilling of an oil/gas well on (private surface/federal mineral lands) within the Buffalo Field Office jurisdiction.

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

Implementation of committed mitigation measures contained in the SUP and Drilling Plan, in addition to the COAs in the PRB FEIS Record of Decision Appendix A, are incorporated and analyzed in this alternative.

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

1. Comply with all applicable Federal, State and Local laws and regulations.
2. Obtain the necessary permits from other agencies for the drilling, completion and production of these wells including water rights appropriations, and relevant air quality permits.
3. The Operator certified that a Surface Use Agreement was reached with the Landowner(s).
4. The Operator certified that a copy of the SUP was provided to the relevant Landowner(s).

3. AFFECTED ENVIRONMENT

The Notice of Staking (NOS's) was received on 9/3/2010. A NOS field inspection of the proposed wells and infrastructure was conducted on 10/20/2010. The APDs were received on 11/24/2010. The BFO sent a post onsite deficiency letter on 12/15/2010. Devon responded to the deficiencies on 1/7/2011 by submitting additions and revisions for the POD. The proposed COAs were shared with the operator on 2/7/2011.

The following personal attended the NOS field inspection on 10/20/2010:

DATE	NAME	Agency	Title
October 20, 2010	Andy Perez	BLM	NRS
October 20, 2010	Donald Brewer	BLM	Wildlife Biologist
October 20, 2010	Rebecca Byram	Devon Energy Production Company, L.P.	Regulatory Specialist
October 20, 2010	Rick Taylor	Devon Energy Production Company, L.P.	Construction Foreman
October 20, 2010	Brain Carlson	Devon Energy Production Company, L.P.	Landman
October 20, 2010	Doug Wirth	Devon Energy Production Company, L.P.	Drilling
October 20, 2010	Blaine Hampton	Devon Energy Production Company, L.P.	Production Foreman
October 20, 2010	Gary Marquiss	Landowner	

This section describes the environment that would be affected by implementation of the Alternatives

described in Section 2. Aspects of the affected environment described in this section focus on the relevant major issues.

3.1. Topographic Characteristics

The project area is approximately 7 miles WNW of Wright, WY in Campbell County. Elevations range in the project area from approximately 5,077 feet to 5,395 feet. The area can be characterized by rolling hills divided by ephemeral drainages. The Belle Fourche River bisects the project and is the main drainage within the project area. The climate of the area is known for long cold winters and short hot summers, with an average temperature of 34.3 degrees Fahrenheit in January and 85.5 degrees Fahrenheit in July. The area receives an average of approximately 13.51 inches of precipitation a year. Coal Bed Natural Gas (CBNG) development exists throughout the project area, as well as existing conventional oil well development. The majority of the surface ownership within the area is private, with livestock operations comprised of both cattle and bison grazing. Sheep have historically been grazed within the project area, but have not been included in the grazing program for many years. In addition, wildlife is managed on the property for sporting purposes.

3.2. Vegetation & Soils

Using the Natural Resource Conservation Service, (NRCS, USDA) and the Sandy Plan of Development 2010 Pre-Disturbance Reclamation Assessment it is evident that the project area consists of primarily of one ecological site. The predominant ecological site that occurs within the proposed POD boundaries is Loamy (10-14NP).

Loamy Site description and Plant community

This site occurs on land that is nearly level, or up to 50% slopes. Landform: Hill slopes with associated alluvial fans & stream terraces. The soils of this site are deep to moderately deep (greater than 20 inches to bedrock), well-drained & moderately permeable. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick. These layers consist of the A horizon with very fine sandy loam, loam, or silt loam texture and may also include the upper few inches of the B horizon with sandy clay loam, silty clay loam or clay loam texture.

The plant community is defined as comprising of rhizomatous wheatgrasses, needleandthread, and a blue gramma plant community is considered to be the Historic Climax Plant Community (HCPC). This type of plant community evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. The major grasses include western wheat, needleandthread, and green needlegrass.

Species observed throughout the project area included: Big Sagebrush, prairie junegrass, wheatgrass, blue grama, sandberg blue grass, threadleaf sedge, green needlegrass, needleandthread, cheatgrass, western wheatgrass, prairie junegrass, phlox, sixweeks fescue, prairie sagewort, rush skeletonplant, prickly pear cactus, yucca, plains wallflower, hairy goldaster, slimflower scurfpea, scarlet globemallow, and intermediate wheatgrass.

3.2.1. Invasive Species

No state-listed noxious weeds and invasive/exotic plant infestations were discovered by a search of inventory maps and/or databases or during subsequent field investigation by the proposed project proponent.

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

3.3. Wildlife

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

A habitat assessment and wildlife inventory surveys were performed by ICF International performed surveys for mountain plover, sharp-tailed grouse, greater sage-grouse, raptor nests, and prairie dog colonies according to Powder River Basin Interagency Working Group (PRBIWG) accepted protocol in 2010. ICF International also evaluated habitat suitability for Ute ladies'-tresses orchid and blowout penstemon. PRBIWG accepted protocol is available on the Wyoming Energy Resource Information Clearinghouse website (www.weric.info).

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

In its Recommendations for Development of Oil and Gas Resources within Important Wildlife Habitats (WGFD 2009a), WGFD developed impact thresholds to evaluate impacts to wildlife from oil and gas development. For species or habitats discussed in this EA where impact thresholds have been developed, those thresholds will be disclosed and discussed both in relation to the current conditions (Affected Environment) and in relation to reasonable foreseeable development, including development associated with the proposed project (Impacts Analysis). Moderate impacts occur when impairment of habitat function becomes discernable. High impacts occur when impairment of habitat function increases. Extreme impacts occur where habitat function is substantially impaired. Mitigation for each level of impact is discussed in the guidelines. Thresholds for impacts are generally determined by well densities.

3.3.1. Habitat Types

Habitats within the project area are characterized as open grassland with sparse patches of Wyoming big sage within gently rolling upland terrain (ICF International 2010). There is quite a bit of existing disturbance from oil and gas development, with a high density of roads, pipelines, and overhead powerlines.

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

3.3.2.1. Threatened and Endangered Species

Threatened, Endangered, Candidate and Proposed species that may be impacted beyond the level analyzed within the PRB FEIS are described below.

3.3.2.1.1. Black-footed ferret

The black-footed ferret is listed as Endangered under the ESA. The affected environment for black-footed ferrets is discussed in the PRB FEIS on p. 3-175. Black-footed ferrets are known to require prairie dog colonies of at least 1,000 acres of prairie dog colonies, separated by no more than 1.5 km, for survival (USFWS 1989). The BLM database shows one prairie dog colony in the project area of approximately 300 acres list by WGFD in 2007. ICF International's survey of 2010 indicates that prairie dogs are not present within the project area. There is no suitable habitat for black-footed ferrets in the House Creek Sandy POD.

3.3.2.1.2. Blowout Penstemon

Blowout penstemon is listed as Endangered under the ESA. It is a regional endemic species with documented populations in the Sand Hills of west-central Nebraska and the northeastern Great Divide

Basin of Carbon County, Wyoming. Suitable blowout penstemon habitat consists of sparsely vegetated, early successional, shifting sand dunes and blowout depressions created by wind. In Wyoming, the habitat is typically found on sandy aprons or the lower half of steep sandy slopes deposited at the base of granitic or sedimentary mountains or ridges. Surveys by ICF in 2010 indicate that while soil types contain relatively high sand content, no dunes, blowouts or sand deposits were present. No sign of blowout penstemon or its habitat was found in the House Creek Sandy POD.

3.3.2.1.3. Ute Ladies'-Tresses Orchid

The Ute ladies'-tresses orchid (ULT) is listed as Threatened under the ESA. The affected environment for ULT is discussed in the PRB FEIS on p. 3-175.

3.3.2.2. Proposed Species

3.3.2.2.1. Mountain Plover

The affected environment for mountain plover is discussed in the PRB FEIS on pp. 3-177 to 3-178. At the time the PRB FEIS was written, the mountain plover was proposed for listing as a threatened species under the ESA. USFWS withdrew the proposal in 2003 but reinstated it again in 2010. USFWS will submit a final listing determination in 2011. Mountain plover is a WGFD Species of Greatest Conservation Need (SGCN), because population status and trends are unknown but are suspected to be stable, habitat is vulnerable without ongoing significant loss, and the species is sensitive to human disturbance. The Wyoming Bird Conservation Plan rates them as a species with highest conservation priority, indicating they are clearly in need of conservation action. They are also listed by USFWS as a Bird of Conservation Concern (BCC) for Region 17, which includes the project area. BCCs are those species that represent USFWS's highest conservation priorities, outside of those that are already listed under ESA. The goal of identifying BCCs is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation actions.

Much of the project area contains expanses of short, sparse grassland that could host mountain plovers. Plovers have been recorded approximately 2.4 miles from the project area, but no mountain plovers were documented during 2010 spring surveys (ICF International 2010).

3.3.2.3. Candidate Species

3.3.2.3.1. Greater Sage-grouse

In 2010, USFWS determined that the sage-grouse is warranted for federal listing across its range, but listing is precluded by other higher priority listing actions. In addition to being listed as a Wyoming BLM sensitive species, sage-grouse are listed as 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. They are also listed by USFWS as a BCC for Region 17.

The State Wildlife Agencies' Ad Hoc Committee for Consideration of Oil and Gas Development Effects to Nesting Habitat (2008) recommends that impacts be considered for leks within 4 miles of oil and gas developments. WGFD records indicate that 2 sage-grouse leks occur within 4 miles of the project area. These 2 lek sites are identified in the following table.

Table 3.1 Sage-grouse leks within 4 miles of the House Creek Sandy project area

Lek Name	Legal Location	Distance from Project Area (mi)	Occupied?
NW Wright	T44N, R72W S 18	2.9 miles east	Yes
Winland	T44N, R74W S 36	3.2 miles southwest	No

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. 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 NW Wright lek is the only 1 of the 2 leks that is occupied and it is categorized as extremely impacted. Although sagebrush cover is present, it is possible that sage-grouse may have been extirpated in the project area due to the extreme amount of development that is present.

3.3.3. Sensitive Species

Wyoming BLM has prepared a list of sensitive species on which management efforts should be focused towards maintaining habitats under a multiple use mandate. The goals of the policy are to:

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

The authority for the sensitive species policy is from the Endangered Species Act of 1973, as amended; Title II of the Sikes Act, as amended; the Federal Land Policy and Management Act (FLPMA) of 1976 the Department Manual 235.1.1A, BLM Manual 6840, and BLM WY guidance. BLM Wyoming sensitive species that may be affected beyond the level analyzed within the PRB FEIS are described below.

3.3.3.1. Brewer's Sparrow

The affected environment for Brewer's sparrow is discussed in the PRB FEIS on p. 3-200. In addition to being listed as a BLM Wyoming sensitive species, Brewer's sparrows are a WGFD SGCN, with a rating of NSS4 because populations are declining, habitat is vulnerable with no ongoing loss, and the species is not sensitive to human disturbance. The Wyoming Bird Conservation Plan rates them as a Level I species, indicating they are clearly in need of conservation action. They are also listed by USFWS as a BCC for Region 17.

Brewer's sparrows were commonly observed during ICF International's field surveys of the project area. The sagebrush habitat present in the project area is adequate to support a population of breeding Brewer's sparrows (ICF International 2010).

3.3.3.2. Ferruginous Hawk

The affected environment for ferruginous hawk is discussed in the PRB FEIS on p. 3-183. In addition to being listed as a Wyoming BLM sensitive species, ferruginous hawks are a WGFD SGCN, with a rating of NSS3 because the species is widely distributed, population status and trends are unknown but are suspected to be stable, they are experiencing ongoing loss of habitat, and they are sensitive to human disturbance. The Wyoming Bird Conservation Plan rates them as a Level I species, indicating they are clearly in need of conservation action. They are also listed by USFWS as a BCC for Region 17.

Eleven ferruginous hawk nests were documented in the House Creek Sandy project area (Table 3.2, below). The gentle rolling grass/sage habitat in the project area constitute suitable habitat for ferruginous hawks to nest and hunt for prey. Ferruginous hawks are known to be sensitive to disturbance during the breeding season (Olendorff 1973). BLM records show that none of the 11 nests were active when surveyed. It is possible that ferruginous hawks avoided the area because of the amount of disturbance from oil and gas development which occurred in the area.

Table 3.2 Ferruginous hawk nests in the House Creek Sandy project area

BLM ID	UTMs	Legal	Substrate	Year	Condition	Status
778	447781E 4847269N	S20 T44N R73W	GHS	2010	Nest Gone	INAC
				2006	Nest Gone	INAC
1714	451758E 4845815N	S26 T44N R73W	GHS	2010	Fair	INAC
				2007	Poor	INAC
				2003	Good	INAC
2005	451249E 4845473N	S27 T44N R73W	GHS	2010	Remnants	INAC
				2007	Fair	INAC
				2005	Good	INAC
				2004	Good	INAC
3365	451801E 4845602N	S26 T44N R73W	GHS	2010	Nest Gone	INAC
				2005	Poor	INAC
				2004	Good	INAC
3419	447850E 4848335N	S17 T44N R73W	CKB	2010	Poor	INAC
				2008	Poor	INAC
				2007	Poor	INAC
				2006	Poor	INAC
				2005	Poor	INAC
3420	448002E 4848035N	S17 T44N R73W	GHS	2010	Fair	INAC
				2008	Poor	INAC
				2007	Poor	INAC
				2006	Good	INAC
				2005	Fair	INAC
3421	448091E 4847711N	S17 T44N R73W	CKB	2010	Poor	INAC
				2008	Fair	INAC
				2007	Good	INAC
				2006	Good	INAC
				2005	Fair	INAC
3422	448305E 4847383N	S21 T44N R73W	CKB	2010	Poor	INAC
				2008	Fair	INAC
				2007	Fair	INAC
				2006	Fair	INAC
				2005	Fair	INAC

BLM ID	UTMs	Legal	Substrate	Year	Condition	Status
3424	448094E 4846749N	S20 T44N R73W	GHS	2010	Fair	INAC
				2008	Fair	INAC
				2007	Fair	INAC
				2006	Fair	INAC
				2005	Excellent	INAC
3425	447801E 4846611N	S20 T44N R73W	GHS	2010	Poor	INAC
				2008	Poor	INAC
				2007	Fair	INAC
				2006	Fair	INAC
				2005	Fair	INAC
12586	451692E 4847993N	S TN RW	GHS	2010	Fair	INAC
Notes:						
1. CKB = Creek bank; GHS = Ground/Hillside; INAC = Inactive						

3.3.3.3. Swift Fox

The affected environment for swift fox is discussed in the PRB FEIS on p. 3-189. In addition to being listed as a BLM WY sensitive species, swift fox is also listed as a WGFD SGCN, with a rating of NSS4, because population status and trends are unknown but are suspected to be stable, and habitat is vulnerable but is not undergoing substantial loss. Swift foxes prefer flat, shortgrass habitats which do occur within the project boundary. Swift fox may occur in the project area.

3.3.4. Big Game

The affected environment for pronghorn and mule deer is discussed in the PRB FEIS on pp. 3-117 to 3-122 and 3-127 to 3-132, respectively. House Creek Sandy POD is within mule deer yearlong and pronghorn winter/yearlong ranges respectively as mapped by WGFD. Yearlong use is when a population of animals makes general use of habitat within the range on a year-round basis. Winter-yearlong use occurs when animals make general use of habitat on a year-round basis; however, there is a significant influx of additional animals into the area from other seasonal ranges during the winter months. Populations of pronghorn and mule deer within their respective hunt areas are above WGFD objectives. The most current big game range maps are available from WGFD.

3.3.5. Migratory Birds

A wide variety of migratory birds may be found in the proposed project area at some point throughout the year. Migratory birds are those that migrate for the purpose of breeding and foraging at some point in the calendar year. Many species that are of high management concern use shrub-steppe and shortgrass prairie areas for their primary breeding habitats (Saab and Rich 1997). The affected environment for migratory birds is discussed in the PRB FEIS, pp. 3-150 to 3-153.

3.3.6. Raptors

The affected environment for raptors is discussed in the PRB FEIS, pp. 3-141 to 3-148. The only documented raptor nests in the project area are of ferruginous hawks which are discussed in the sensitive species section above. Other species probably use the area for hunting.

3.4. Cultural Resources

Class III cultural resource inventory was performed for the House Creek Sandy POD prior to on-the-ground project work (BFO project no. 70110003). ACR Consultants, Inc. conducted a block 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 Format, Guidelines, and Standards for Class II and III Reports*. G.L. "Buck" Damone III, BLM Archaeologist, reviewed the report for technical adequacy and compliance with BLM standards, and determined it to be adequate. No cultural resources are located in or near the project area.

3.5. Visual Resources

The entire project area is classified as Visual Resource Management Class IV under the 2001 Update of the Resource Management Plan. The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape.

3.6. Air Quality

Existing air quality throughout most of the Powder River Basin is in attainment with all ambient air quality standards. Although specific air quality monitoring is not conducted throughout most of the Powder River Basin, air quality conditions in rural areas are likely to be very good, as characterized by limited air pollution emission sources (few industrial facilities and residential emissions in the relatively small communities and isolated ranches) and good atmospheric dispersion conditions, resulting in relatively low air pollutant concentrations.

Existing air pollutant emission sources within the region include following:

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

For a complete description of the existing air quality conditions in the Powder River Basin, please refer to the PRB Final EIS Volume 1, Chapter 3, pp 3-291 to 3-299.

3.7. Wilderness

There is extensive existing human disturbance from oil and gas development with a high density of roads, pipelines, and overhead powerlines.

4. ENVIRONMENTAL EFFECTS

4.1. Alternative B

4.1.1. Vegetation & Soils

4.1.1.1. Soils

4.1.1.1.1. 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.

The effects to soils resulting from well pad, access roads and pipeline construction include:

- Mixing of horizons – occurs where construction on roads, pipelines or other activities take place. Mixing may result in removal or relocation of organic matter and nutrients to depths where it would be unavailable for vegetative use. Soils which are more susceptible to wind and water erosion may be moved to the surface. Soil structure may be destroyed, which may impact infiltration rates. Less desirable inorganic compounds such as carbonates, salts or weathered materials may be relocated and have a negative impact on revegetation. This drastically disturbed site may change the ecological integrity of the site and the recommended seed mix.
- Loss of soil vegetation cover, biologic crusts, organic matter and productivity.
- Soil erosion would also affect soil health and productivity. Erosion rates are site specific and are dependent on soil, climate, topography and cover.
- Soil compaction – the collapse of soil pores results in decreased infiltration and increased erosion potential. 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.
- Alterations of surface run off characteristics.
- 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 (BLM 2003). They are adapted to growing in severe climates; however, they take many years to develop (20 to 100) and can be easily disturbed or destroyed by surface disturbances associated with construction activities.

Direct effects (removal and/or compaction) to vegetation would occur from ground disturbance caused by drilling rig equipment and construction of a well pads, tank batteries, associated pipelines and roads. Short term effects would occur where vegetated areas are disturbed but later reclaimed within 1 to 3 years of the initial disturbance. Long-term effects would occur where well pads, compressor stations, roads, water-handling facilities or other semi-permanent facilities may result in loss of vegetation and affect reclamation success for the life of the project.

4.1.1.1.2. Cumulative Effects

The designation of the duration of disturbance is defined in the PRB FEIS, pp. 4-1 and 4-15. Most soil disturbances would be 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.

Geomorphic effects of roads and other surface disturbance range from chronic and long-term contributions of sediment into waters of the state to catastrophic effects associated with mass failures of road fill material during large storms. Roads can affect geomorphic processes primarily by: accelerating erosion from the road surface and prism itself through mass failures and surface erosion processes; directly affecting stream channel structure and geometry; altering surface flow paths, leading to diversion or extension of channels onto previously unchannelized portions of the landscape; and causing interactions among water, sediment, and debris at road-stream crossings.

These impacts, singly or in combination, could increase the potential for valuable soil loss due to increased water and wind erosion, invasive/noxious/poisonous plant spread, invasion and establishment, and increased sedimentation and salt loads to the watershed system.

4.1.1.1.3. Mitigation Measures

The proponent planned their project to maximize the fluid mineral drainage while avoiding areas with soil limitation where possible. The proponent also designed the infrastructure such that no engineered roads will be required. BLM made further recommendations during the onsite to avoid areas with low reclamation potential and poor site suitability. Disturbances approved within these areas require the

programmatic/standard COA's be complimented with a site specific performance based reclamation related COA. The following mitigation will be applied through a COA:

- Impacts to soils and vegetation from surface disturbance will be reduced by following the BLM applied mitigation. Access roads have been located such that no engineered roads are required. The operator has committed to minimizing disturbance widths for roads and pipeline corridors.
- The operator will follow the guidance provided in the Wyoming Policy on Reclamation (IM WY-90-231). The Wyoming Reclamation Policy applies to all surface disturbing activities. Authorizations for surface disturbing actions are based upon the assumptions that an area can and ultimately will be successfully reclaimed. BLM reclamation goals emphasize eventual ecosystem reconstruction, which means returning the land to a condition approximate to an approved "Reference Site" or NRCS Ecological Site Transition State. Final reclamation measures are used to 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 are used to achieve this short-term goal.
- Compaction would be remediated by plowing or ripping.

4.1.1.1.4. Residual Effects

Due to the presence of erosive soils and the topography of the project area erosion will occur. Rilling and gullyng of cut and fill slopes on, access/utility corridors, will take place. Impacts from livestock on stabilized cut and fill slopes will limit soils becoming stable and getting vegetation establish.

Residual effects were also identified in the PRB FEIS, p. 4-408, such as the loss of vegetative cover despite expedient reclamation, for several years until reclamation is successfully established. Refer to Table 2.2 for a summary of disturbance.

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

4.1.1.1.5. Invasive Species

4.1.1.1.5.1. Direct and Indirect Effects

The use of existing facilities along with the surface disturbance associated with construction of proposed well pads, access roads, pipelines and related facilities would present opportunities for weed invasion and spread.

4.1.1.1.5.2. Cumulative Effects

Drainages in the project area that are receiving produced CBNG water would likely continue to modify existing soil moisture and soil chemistry regimes in the areas of water release and storage. The impacts related to the existing oil and gas field would create a favorable environment for the establishment and spread of noxious weeds/invasive plants such as salt cedar, Canada thistle and perennial pepperweed.

4.1.1.1.5.3. Mitigation Measures

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

Control Methods include physical, biological, chemical methods, and education:

- Physical methods include mowing during the first season of establishment, prior to seed formation, and hand pulling of weeds (for small or new infestations).
- Biological methods include the use of domestic animals, or approved biological agents.

- Chemical methods include the use of herbicides, done in accordance with the existing Surface Use Agreement with the private surface owner.
- Education: The operator will provide periodic weed education and awareness programs for its employees and contractors through the county weed districts and federal agencies. Field employees and contractors will be notified of known noxious weeds or weeds of concern in the project area.

Preventive practices: Certified weed-free seed mixtures will be used for re-seeding, and vehicles and equipment will be washed before leaving areas of known noxious weed infestations.

4.1.1.1.5.4. Residual Effects

Control efforts by the operator are limited to the surface disturbance associated the implementation of the project. Cheat grass and other invasive species that are present within non-physically disturbed areas of the project area are anticipated to continue to spread unless control efforts are expanded. Cheatgrass and to a lesser extent, Japanese brome (*B. japonicus*) are found in such high densities and numerous locations throughout NE Wyoming that a control program is not considered feasible at this time; these annual bromes would continue to be found within the project area.

4.2. Wildlife (Alternative B – Environmentally Preferred)

4.2.1. Habitat Types

4.2.1.1. Direct and Indirect Effects

The House Creek Sandy oil and gas project will directly impact 21.3 acres sage/grassland habitat in three locations. Indirectly, disturbances from human presence and vehicular traffic may impact the effectiveness of habitat surrounding roads and wells once they are developed. Research for big-game and sage-grouse indicates that animals are disturbed to distances of 0.6 miles from roads or wells (Hiatt and Baker 1981, Holloran et al. 2007, Aldridge and Boyce 2007). Although not all wildlife species are effected the same by human disturbances, approximately 2,760 acres of habitat (0.6 miles around project elements) could be rendered less desirable to wildlife by the presence of House Creek Sandy project elements.

4.2.1.2. Cumulative Effects

Existing well density in the project area is 7.6 wells per square mile. Along with the roads and overhead powerlines to service the current well density, the project area may already be at a saturation level of disturbance to wildlife. The addition of the three well pads and 0.49 miles of new road may not be of consequence to wildlife which would use project area habitat.

4.2.1.3. Mitigation Measures

To minimize disturbance, equipment and vehicles will be confined to proposed and existing access roads. If wells do not “produce”, they will be reclaimed to replace native vegetation. Producing wells will receive interim reclamation which will replace vegetation in unused areas of the well pads.

4.2.1.4. Residual Effects

Reclamation will replace grass and forbs species but the loss of sagebrush cover will be long term.

4.2.1.5. Threatened, Endangered, Proposed and Candidate Species

4.2.1.5.1. Threatened and Endangered Species

4.2.1.5.1.1. Black-Footed Ferret

4.2.1.5.1.1.1. Direct and Indirect Effects

Suitable habitat is not present within the project area. Implementation of the House Creek Sandy project will have “no effect” on black-footed ferret.

4.2.1.5.1.1.2. Cumulative Effects

The cumulative effects to black-footed ferrets are discussed in the PRB FEIS, p. 4-251.

4.2.1.5.1.1.3. Mitigation Measures

Since no impacts to black-footed ferrets were identified, no mitigation is proposed.

4.2.1.5.1.1.4. Residual Effects

There are no residual impacts to black-footed ferrets.

4.2.1.5.1.2. Blowout penstemon

4.2.1.5.1.2.1. Direct and Indirect Effects

Suitable habitat is not present within the project area. Implementation of the proposed House Creek Sandy project will have “no effect” on blowout penstemon.

4.2.1.5.1.2.2. Cumulative Effects

The proposed project will have no effect on blowout penstemon.

4.2.1.5.1.2.3. Mitigation Measures

Since no impacts to blowout penstemon were identified, no mitigation is proposed.

4.2.1.5.1.2.4. Residual Effects

There are no residual impacts to blowout penstemon.

4.2.1.5.1.3. Ute Ladies’-Tresses Orchid

4.2.1.5.1.3.1. Direct and Indirect Effects

Suitable habitat is not present within the project area. Implementation of the proposed House Creek Sandy project will have “no effect” on Ute ladies’-tresses orchid.

4.2.1.5.1.3.2. Cumulative Effects

Cumulative effects are discussed in the PRB FEIS, p. 4-253.

4.2.1.5.1.3.3. Mitigation Measures

No impacts to Ute ladies’-tresses orchid have been identified so no mitigation is proposed.

4.2.1.5.1.3.4. Residual Effects

There are no residual impacts to Ute ladies’-tresses orchid.

4.2.1.5.2. Proposed Species

4.2.1.5.2.1. Mountain Plover

4.2.1.5.2.1.1. Direct and Indirect Effects

There will be no direct impacts to mountain plovers within House Creek Sandy POD. Habitat is not present at the well sites. There is a potential to indirectly impact individual birds outside of the POD as vehicle traffic associated with POD activity will increase in the general area, posing an increase risk of collisions with birds near roads. Information is not available to quantify this, or identify specific risk areas.

4.2.1.5.2.1.2. Cumulative Effects

The cumulative impacts to mountain plovers are discussed in the PRB FEIS.

4.2.1.5.2.1.3. Mitigation Measures

No mitigation specific to the project area is proposed.

4.2.1.5.2.1.4. Residual Effects

The potential for individual mountain plovers outside the project area to collide with project associated vehicles remains.

4.2.1.5.3. Candidate Species

4.2.1.5.3.1. Greater Sage-grouse

4.2.1.5.3.1.1. Direct and Indirect Effects

Impacts to sage-grouse associated with energy development are discussed in detail in the *12-Month Findings for Petitions to List the Greater Sage-Grouse (Centrocercus urophasianus) as Threatened or Endangered* (USFWS 2010). 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. The proposed project will impact approximately 21.3 acres of mixed sagebrush/grassland habitat. It is likely that the habitat is not currently occupied because of the high level of roads, wells, and overhead power currently present in the project area.

4.2.1.5.3.1.2. Cumulative Effects

Recent research suggests that the cumulative and synergistic effects of current and foreseeable CBNG development within the vicinity of the project area are likely to impact the local sage-grouse population, cause declines in lek attendance, and may result in local extirpation. The cumulative impact assessment area for this project encompasses the project area and the area that is encompassed by a four mile radius around sage-grouse leks that occur within four miles of the project boundary. Analysis of impacts up to four miles was recommended by the State Wildlife Agencies' Ad Hoc Committee for Consideration of Oil and Gas Development Effects to Nesting Habitat (2008).

The sage-grouse population within northeast Wyoming has been exhibiting a steady long term downward trend, as measured by lek attendance (WGFD 2008). Research suggests that these declines may be a result, in part, of CBNG development, as discussed in detail in USFWS (2010).

Excluding the House Creek Sandy project, there are approximately 197 proposed wells (Automated Fluid Minerals Support System [AFMSS] 12/7/2010) within the cumulative effects analysis area. With the addition of these 5 wells on three locations, well density would increase to 9.5 wells per square mile. With approval of Alternative B (3 proposed well locations) well density would increase to 9.6 wells per square mile, well above the one well per square mile recommendation by the State Wildlife Agencies' Ad Hoc Committee for Sage-Grouse and Oil and Gas Development. The approval of Alternative B will be an insignificant addition to existing impacts to sage-grouse in the assessment area.

The PRB FEIS (BLM 2003) states that "the synergistic effect of several impacts would likely result in a downward trend for the sage-grouse population, and may contribute to the array of cumulative effects that may lead to its federal listing. Local populations may be extirpated in areas of concentrated development, but viability across the Project Area (Powder River Basin) or the entire range of the species is not likely to be compromised (pg. 4-270)."

4.2.1.5.3.1.3. Mitigation Measures

No mitigation for sage-grouse is being applied to the House Creek Sandy project.

4.2.1.5.3.1.4. Residual Effects

No further impacts beyond those identified above are identified.

4.2.1.6. Sensitive Species

BLM will take necessary actions to meet the policies set forth in sensitive species policy (BLM Manual 6840). BLM Manual 6840.22A states that "The BLM should obtain and use the best available information

deemed necessary to evaluate the status of special status species in areas affected by land use plans or other proposed actions and to develop sound conservation practices. Implementation-level planning should consider all site-specific methods and procedures which are needed to bring the species and their habitats to the condition under which the provisions of the ESA are not necessary, current listings under special status species categories are no longer necessary, and future listings under special status species categories would not be necessary.” The PRB FEIS discusses impacts to sensitive species on pp. 4-257 to 4-273, and that analysis is incorporated here by reference.

4.2.1.6.1. Brewer’s Sparrow

4.2.1.6.1.1. Direct and Indirect Effects

The approximately 21.3 acres of mixed sagebrush/grassland habitat that will be impacted represents a reduction in cover for nesting and feeding Brewer’s sparrows. Impacts to Brewer’s sparrows are also covered in the migratory bird section.

4.2.1.6.1.2. Cumulative Effects

The PRB FEIS discusses impacts to sensitive species on pp. 4-257 to 4-273.

4.2.1.6.1.3. Mitigation Measures

No mitigation measures are being applied.

4.2.1.6.1.4. Residual Effects

No further impacts are identified.

4.2.1.6.2. Ferruginous Hawk

4.2.1.6.2.1. Direct and Indirect Effects

Impacts to ferruginous hawks are discussed in the PRB FEIS on p. 4-262. Ferruginous hawks are known sensitive to disturbance during the breeding season (Olendorff 1973, Gilmer and Stewart 1983, Schmutz 1984, White and Thurow 1985, Bechard et al. 1990). Ferruginous hawks have been shown to select nest sites that avoid human habitation or disturbance (Lokemoen and Duebbert 1976, Schmutz 1984). Once a nest site has been selected, ferruginous hawks have been shown to abandon nest sites that are subject to disturbance (Snow 1974, White and Thurow 1985). When abandonment does occur, it tends to happen prior to hatching, so incubation represents a critically important time for reduced disturbance (Snow 1974, White and Thurow 1985). Sensitivity to disturbance may be inversely related to prey availability (White and Thurow 1985). Nests in proximity to disturbance have been shown to produce fewer young (Olendorff 1973, Blair 1978, White and Thurow 1985). Ferruginous hawks tend not to return to breed in territories where breeding attempts in previous year failed as a result of disturbance (White and Thurow 1985).

All of the ferruginous hawk nests identified in the House Creek Sandy project are more than 1 mile from the proposed wells except for nest 3422 which is 0.95 miles from the closest proposed well. It is unlikely that the proposed project will impact nesting ferruginous hawks.

4.2.1.6.2.2. Cumulative Effects

None of the 11 ferruginous hawk nests associated with the project have a documented history of being active. It is likely that the high degree of development in the area (7.6 existing wells and their infrastructure) discouraged ferruginous hawks from nesting in the area. The development of the three well locations in the House Creek Sandy Project will not likely add additional impacts to nesting ferruginous hawks. The cumulative effects associated with Alternative B are within the analysis parameters and impacts described in the PRB FEIS on pp. 4-257 to 4-273.

4.2.1.6.2.3. Mitigation Measures

Since only 1 nest is within the U.S. Fish & Wildlife recommended protection buffer at a distance of 0.95 miles from the closest well, and it does not have a documented history of being active, no mitigation for ferruginous hawks is recommended.

4.2.1.6.2.4. Residual Effects

No residual impacts are expected.

4.2.1.6.3. Swift Fox

4.2.1.6.3.1. Direct and Indirect Effects

The PRB FEIS discusses impacts to sensitive species on pp. 4-257 to 4-273. Increased traffic from the project will increase the risk of swift fox mortality from vehicle collision.

4.2.1.6.3.2. Cumulative Effects

The PRB FEIS discusses impacts to sensitive species on pp. 4-257 to 4-273.

4.2.1.6.3.3. Mitigation Measures

No further mitigation measure applied.

4.2.1.6.3.4. Residual Effects

If the wells become "producers", vehicle traffic to maintain and operate the wells will continue. The vehicle collision hazard to swift fox will still be present.

4.2.1.7. Big Game

4.2.1.7.1. Direct and Indirect Effects

The 21.3 acres of mixed sagebrush/grassland that will be removed to construct and operate the three well locations represents a direct loss of forage and cover for pronghorns and mule deer. The quality of an additional 2,760 acres of habitat may be reduced due to increased human presence in the project area (see discussion in Habitat Types Direct and Indirect section). Human presence on big game ranges is known to increase stress and movement which makes big games 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.

4.2.1.7.2. 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.

4.2.1.7.3. Mitigation Measures

Once wells are plugged abandoned, the location will be revegetated with species that will partially replace the cover and forage that is lost. Wells that "produce" will be partially revegetated only.

4.2.1.7.4. Residual Impacts

Although grass and forbs will be seeded, sagebrush cover will take plus or minus 30 years to come back. The impacts from human disturbance and vehicle traffic identified in the Direct and Indirect Effects section will continue on for the life of the project.

4.2.1.8. Migratory Birds

4.2.1.8.1. Direct and Indirect Effects

Direct and indirect effects to migratory birds are discussed in the PRB FEIS, pp. 4-231 to 4-235.

Disturbance of habitat within the project area is likely to impact migratory birds. Native habitats will be lost directly with the construction of wells, roads, and pipelines. Reclamation and other activities that occur in the spring may be detrimental to migratory bird survival. Because Brewer's sparrows and their nesting habitat is known to exist at the project site, there is a potential for there to be a loss of nests or young birds during the breeding season. Activities will likely displace migratory birds farther than the immediate area of physical disturbance. Drilling and construction noise can be troublesome for songbirds by interfering with the males' ability to attract mates and defend territory, and the ability to recognize calls from conspecifics (BLM 2003).

Habitat fragmentation will result in more than just a quantitative loss in the total area of habitat available; the remaining habitat area will also be qualitatively altered (Temple and Wilcox 1986). Ingelfinger (2004) identified that the density of breeding Brewer's sparrows declined by 36% and breeding sage sparrows declined by 57% within 100 m of dirt roads within a natural gas field. Effects occurred along roads with light traffic volume (<12 vehicles per day). The increasing density of roads constructed in developing natural gas fields exacerbated the problem creating substantial areas of impact where indirect habitat losses through displacement were much greater than the direct physical habitat losses.

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

4.2.1.8.2. 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.

Mitigation Measures

No mitigation specific to migratory birds will be applied. Some of the lost vegetative cover will be replaced by reclamation efforts.

4.2.1.8.3. Residual Effects

There will be a long-term loss of shrub cover. Impacts described in the Direct and Indirect section have not been mitigated.

4.2.1.9. Raptors

4.2.1.9.1. Direct and Indirect Effects

Direct and indirect impacts to raptors, from oil and gas development, are analyzed in the PRB FEIS, pp. 4-216 to 4-221. There are no additional direct or indirect impacts to raptors expected from the House Creek Sandy project.

4.2.1.9.2. Cumulative Effects

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

4.2.1.9.3. Mitigation Measures

No mitigation specific to raptors will be applied to the House Creek Sandy project.

4.2.1.9.4. Residual Impacts

None identified.

4.2.2. Cultural Resources

No historic properties will be impacted by the proposed project. Following the Wyoming State Protocol Section VI(A)(1) the Bureau of Land Management electronically notified the Wyoming State Historic Preservation Officer (SHPO) on 12/10/10 that no historic properties exist within the APE. If any cultural values [sites, artifacts, human remains (Appendix L PRB FEIS)] are observed during operation of this lease/permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. Further discovery procedures are explained in the Standard COA (General)(A)(1).

4.2.3. Visual Resources

4.2.3.1. Direct and Indirect Effects

Disturbance associated with the construction of the well locations and associated infrastructure will result in minor visual impacts. There are no significant VRM concerns with the project. The project, as proposed, meets the Class IV objective.

4.2.3.2. Cumulative Effects

The cumulative effects associated with Alternative B are within the analysis parameters and impacts described in the PRB FEIS that addressed the effects for CBNG. For details on expected cumulative impacts, refer to the PRB FEIS, p. 4-302.

4.2.3.3. Mitigation Measures

The BLM in concurrence with operator moved one well such that the well and associated infrastructure are no longer key visual observation points. Additional mitigation measures include using color to camouflage the installations and blend the structures into the landscape background. The standard environmental color “Covert Green” has been chosen for all above-ground facilities.

4.2.3.4. Residual Effects

None identified.

4.2.4. Air Quality

4.2.4.1. Direct and Indirect Effects

In the project area, air quality impacts would occur during construction (due to surface disturbance by earth-moving equipment, vehicle traffic fugitive dust, well testing, as well as drilling rig and vehicle engine exhaust) and production (including non-CBM well production equipment, booster and pipeline compression engine exhaust). Air quality impacts modeled in the PRB FEIS concluded that projected oil & gas development would not violate any local, state, tribal or federal air quality standards.

4.2.4.2. Cumulative Effects

The cumulative effects associated with Alternatives B are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, refer to the PRB FEIS, p. 4-386.

4.2.4.3. Mitigation Measures

During construction, emissions of particulate matter from well pad and resource road construction will be minimized by application of water, or other dust suppressants, with at least 50 percent control efficiency. Roads and well locations constructed on soils susceptible to wind erosion could be appropriately surfaced or otherwise stabilized to reduce the amount of fugitive dust generated by traffic or other activities, and dust inhibitors (surfacing material, non-saline dust suppressants, and water) could be used as necessary on unpaved roads that present a fugitive dust problem.

4.2.4.4. Residual Effects

Some increase in air pollution would occur as a direct result of development; however these direct impacts are predicted to be below applicable thresholds (PRB FEIS, p.4-386).

4.2.5. Wilderness

This project area clearly is lacking in wilderness characteristics because of the extensive existing disturbance from oil and gas development, a high density of roads, pipelines, and overhead powerlines.

DESCRIPTION OF PROPOSED MITIGATION MEASURES:

Implementation of committed mitigation measures contained in the Surface Use Plan of Operations and Drilling Plans, in addition to the COAs, would ensure that no major adverse environmental impacts would result from approval of the proposed action.

5. CONSULTATION/COORDINATION:

Contact	Title	Organization	Present at Onsite?
Mary Hopkins	Wyoming State Historic preservation Officer	Wyoming State Historic preservation Office	No
Rebecca Byram	Devon Energy Production Company, L.P.	Regulatory Specialist	Yes
Rick Taylor	Devon Energy Production Company, L.P.	Construction Foreman	Yes
Gary Marquiss	Landowner	Little Buffalo Ranch LLC.	Yes

6. OTHER PERMITS REQUIRED

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

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.

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

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

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Lead Preparer: Andy Perez

APPENDIX

Threatened, Endangered, Proposed, and Candidate Species Worksheet

Common Name	Habitat	Presence? (NP, NS, S, K)	Direct Impacts Anticipated?	Intend to apply COA?	Direct, indirect, and/or cumulative impacts anticipated beyond the level analyzed within the PRB FEIS?
<i>Endangered</i>					
Black-footed ferret	Black-tailed prairie dog colonies or complexes > 1,000 acres.	NP	No	No	4-251, BA & BO No prairie dog colonies of sufficient size to support black-footed ferrets.
Blowout penstemon	Sparsely vegetated, shifting sand dunes	NP	No	No	Not in FEIS
<i>Threatened</i>					
Ute ladies'-tresses orchid	Areas with appropriate hydrology	NP	No	No	4-253, BA & BO
<i>Proposed</i>					
Mountain plover	Short-grass prairie with slopes < 5%	S	No	No	4-254, 4-255 & BA
<i>Candidate</i>					
Greater sage-grouse	Basin-prairie shrub, mountain-foothill shrub	S	No	No	4-257 to 4-273

Sensitive Species worksheet

Common Name	Habitat	Presence ? (NP, NS, S, K)	Direct Impacts Anticipated?	Intend to apply COA?	Direct, indirect, and/or cumulative impacts anticipated beyond the level analyzed within the PRB FEIS?
<i>Amphibians</i>					4-258
Northern leopard frog	Beaver ponds and cattail marshes from plains to montane zones.	NS	No	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.	NP	No	No	
<i>Fish</i>					4-259 & 4-260
Yellowstone cutthroat trout	Cold-water rivers, creeks, beaver ponds, and large lakes in the Upper Tongue sub-watershed	NP	No	No	
<i>Birds</i>					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.	NS	No	No	
Bald eagle	Mature forest cover often within one mile of large water body with reliable prey source nearby.	NS	No	No	4-251 to 4-253 & BA
Brewer's sparrow	Sagebrush shrubland	K	Yes	No	
Ferruginous hawk	Basin-prairie shrub, grasslands, rock outcrops	K	Yes	No	

Common Name	Habitat	Presence ? (NP, NS, S, K)	Direct Impacts Anticipated?	Intend to apply COA?	Direct, indirect, and/or cumulative impacts anticipated beyond the level analyzed within the PRB FEIS?
Loggerhead shrike	Basin-prairie shrub, mountain-foothill shrub	NS	No	No	
Long-billed curlew	Grasslands, plains, foothills, wet meadows	possible	No	No	
Northern goshawk	Conifer and deciduous forests	NP	No	No	
Peregrine falcon	Cliffs	NP	No	No	
Sage sparrow	Basin-prairie shrub, mountain-foothill shrub	NS	No	No	
Sage thrasher	Basin-prairie shrub, mountain-foothill shrub	NS	No	No	
Trumpeter swan	Lakes, ponds, rivers	NP	No	No	
Western Burrowing owl	Grasslands, basin-prairie shrub	NS	No	No	
White-faced ibis	Marshes, wet meadows	NP	No	No	
Yellow-billed cuckoo	Open woodlands, streamside willow and alder groves	NP	No	No	
<i>Mammals</i>					4-264 &4-265
Black-tailed prairie dog	Prairie habitats with deep, firm soils and slopes less than 10 degrees.	NS	No	No	4-255, 4-256
Fringed myotis	Conifer forests, woodland chaparral, caves and mines	NP	No	No	
Long-eared myotis	Conifer and deciduous forest, caves and mines	NP	No	No	
Spotted bat	Cliffs over perennial water.	NP	No	No	
Swift fox	Grasslands	possible	No	No	

Common Name	Habitat	Presence ? (NP, NS, S, K)	Direct Impacts Anticipated?	Intend to apply COA?	Direct, indirect, and/or cumulative impacts anticipated beyond the level analyzed within the PRB FEIS?
Townsend's big-eared bat	Caves and mines.	NP	No	No	
Plants					4-258
Limber pine	Mountains, associated with high elevation conifer species	NP	No	No	
Porter's sagebrush	Sparsely vegetated badlands of ashy or tuffaceous mudstone and clay slopes 5300-6500 ft.	NP	No	No	
William's wafer parsnip	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides, 6000-8300 ft.	NP	No	No	

Non-designated wildlife worksheet

Common Name / Group	Presence? (NP, NS, S, K)	Direct Impacts Anticipated?	Intend to apply COA?	Direct, indirect, and/or cumulative impacts anticipated beyond the level analyzed within the PRB FEIS?
Big Game	K	Yes	No	4-181 to 4-215
Aquatics	NS	No	No	4-235 to 4-249
Migratory Birds	K	Yes	No	4-231 to 4-235
Raptors	K	No	No	4-216 to 4-221
Plains Sharp-tailed Grouse	NP	No	No	4-221 to 4-226