EA NO-WY-070-11-049
DECISION RECORD
FOR
Cantil Federal Com 1, for Yates Petroleum Corporation

DECISION: Is to approve Alternative B as described in the attached Environmental Assessment (EA) and to authorize the following Application for Permit to Drill (APD) for Yates Petroleum Corporation:

	Well Name	Well #	Qtr/Qtr	Section	TWP	RNG	Lease #
1	Cantil Federal Com 1	1	SWNW	30	41N	76W	WYW160418

This approval is subject to adherence with operating plans and mitigation measures contained in the Surface Use Plan of Operations and Drilling Plans in the APD. This approval is also subject to operator compliance with all mitigation and monitoring requirements contained within the Powder River Oil and Gas Project Final Environmental Impact Statement and Resource Management Plan Amendment (PRB EIS) approved April 30, 2003 and adherence with the attached Conditions of Approval.

RATIONALE: The decision to authorize the proposed action will not result in any undue or unnecessary environmental degradation. The lessee has the right to develop their existing lease provided no significant adverse or irreversible impacts occur to critical resources. 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.

The proposed action is in conformance with the Powder River Oil and Gas Project EIS and Resource Management Plan Amendment (PRB FEIS) approved April 30, 2003 and the Approved Resource Management Plan for the Public Lands Administered by the Bureau of Land Management (BLM), Buffalo Field Office, April 2001.

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.

for Paul Buels
Field Manager

12/21/10
Date

EA NO-WY-070-11-049
FINDING OF NO SIGNIFICANT IMPACT
FOR
Yates Petroleum Corporation

FINDING OF NO SIGNIFICANT IMPACT: Based on the analysis of the potential environmental impacts of the proposed action in the attached environmental assessment, I have determined that NO significant impacts are expected and, therefore, an environmental impact statement is not required.

on Paul Bellis
Field Manager

12/21/10
Date

BUREAU OF LAND MANAGEMENT
BUFFALO FIELD OFFICE
ENVIRONMENTAL ASSESSMENT
CANTIL FEDERAL COM 1, Yates Petroleum Corporation, EA # WY-070-11-049

1. INTRODUCTION

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. This document is available for review at the BLM Buffalo Field Office (BFO). This project environmental assessment (EA) addresses site-specific resources and impacts that were not covered within the PRB FEIS.

A Notice of Staking (NOS) for this well was received on 5/6/2010. A field onsite inspection of the proposed well and access road was conducted on 9/28/2010, while still under a NOS. The APD was received on 11/8/2010.

1.1. PURPOSE AND NEED

The purpose and need of this EA is to determine how and under what conditions to allow the operator to exercise lease rights granted by the United States to develop the oil and gas resources on federal leaseholds as described in their proposed action.

Information contained in the APD is considered an integral part of this environmental assessment and is, therefore, incorporated by reference (CFR 1502.21).

Development of the Cantil Federal Com 1 well would return royalties to the federal Treasury as well as stimulate local economies.

The BLM recognizes the extraction of natural gas is essential to meeting the nation's future needs for energy. As a result, private exploration and development of federal gas 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.

This action responds to the goals and objectives outlined in the 1985 Buffalo Resource Management Plan (RMP), the 2001 Approved RMP for the Public Lands Administered by the BLM BFO and the 2003 PRB FEIS. This action helps move the Project Area toward desired conditions for mineral development with appropriate mitigation consistent with the goals, objectives and decisions outlined in these two documents.

1.2. Conformance with Applicable Land Use Plan and Other Environmental Assessments:

The proposed action conforms to the terms and the conditions of the 1985 Buffalo RMP, the 2001 Approved RMP, the 2003 PRB FEIS, and the PRB FEIS ROD as required by 43 CFR 1610.5. The BFO RMP is currently under revision.

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 limited. An oil and gas lease grants the lessee the "right and privilege to drill for, mine, extract, remove, and dispose of all oil and gas deposits" in the lease lands, "subject to the terms and conditions incorporated in the lease." The No Action Alternative is further described in the PRB FEIS, Volume 1, pages 2-54 through 2-62.

2.2. Alternative B Proposed Action

PROJECT NAME: Cantil Federal Com 1

WELL NAME/#/LEASE/LOCATION: Cantil Federal Com 1, WYW160418, SWNW, Sec. 30, T41N R76W.

OPERATOR/APPLICANT: Yates Petroleum Corporation

AFFECTED SURFACE OWNERS: Moore Land Company

COUNTY: Johnson

The proposed action is to drill and develop an oil/gas well. The action 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 action, 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 Standard Conditions of Approval (COAs) contained in the PRB FEIS Record of Decision Appendix A, are incorporated and analyzed in this alternative.

Additionally, the Operator, in their APD, has 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 has certified that a Surface Use Agreement has been reached with the Landowner(s).
4. The Operator has certified that a copy of the SUP has been provided to the relevant Landowner(s).

3. AFFECTED ENVIRONMENT

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

Elevations within the project area range from approximately 5,270' to 5,476' above sea level. Topography throughout the project area is primarily gently rolling, but also encompassed a prominent

ridge along the western portion of the project. Climate is semi-arid, averaging 12 inches of precipitation per year. Mean temperature averages 89 degrees in summer and 15 degrees in winter. The main uses of the area are ranching, oil development, hunting and wildlife use.

3.2. Vegetation & Soils

Species typical of short grass prairie comprise the project area flora. Specific species observed throughout the project area include: Western wheatgrass, squirrel tail, bluebunch wheatgrass, prairie junegrass, green needlegrass, needle & thread, blue grama, crested wheatgrass, cheatgrass, thistle species, mustard species and big sagebrush. Differences in dominant species within the project area vary with soil type, aspect and topography.

The soils vary from primarily sandy clay loams to sands throughout the project area. Soils differ with topographic location, slope and elevation. Topsoil depths to be salvaged for reclamation range from 2 to 4 inches on ridges to 12 inches in swales. Erosion potential varies from low to moderate depending on the soil type, vegetative cover and slope. Reclamation potential of soils also varies throughout the project area. The ecological site for this project is Loamy. Successful reclamation is expected with sound land management principles, adequate moisture and time.

Summary of Soils and Ecological Sites for the 10-14" PZ NP Loamy

General Soil Information:

This site occurs on gently undulating rolling land. Landform: Hill sides, alluvial fans, ridges & stream terraces

The soils of this site are deep to moderately deep (greater than 20" to bedrock), well drained & moderately permeable. Layers of the soil most influential to the plant community varies 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 main soil limitations include: low organic matter content and soil droughtiness. The low annual precipitation should be considered when planning a seeding.

For more detailed soil information, see the NRCS Soil Survey **WY 619**.

Dominate plant community for this project is:

Western Wheatgrass/Cheatgrass Plant Community

This plant community exists when the Mixed Sagebrush/Grass Plant Community or the Heavy Sagebrush Plant Community is subjected to fire or brush management followed by prescribed grazing. Rhizomatous wheatgrasses and annuals will eventually dominate the site.

Compared to the HCPC, cheatgrass has invaded with western wheatgrass and thickspike wheatgrass maintaining at a similar or slightly higher level. Virtually all other cool-season mid-grasses are severely decreased. Blue grama is the same or slightly less than found in the HCPC. Plant diversity can be low. This plant community is relatively stable with the rhizomatous wheatgrasses being somewhat resistant to overgrazing and the cheatgrass effectively competing against the establishment of perennial cool-season grasses.

An increase in bare ground reduces water infiltration and increases soil erosion. The watershed is usually functioning. The biotic integrity is reduced by the lack of diversity in the plant community.

3.2.1. Invasive Species

State-listed noxious weeds and invasive/exotic plant infestations were discovered by a search of inventory maps and/or databases from Johnson County Weed and Pest or during subsequent field investigation by the proposed project proponent.

Weeds of concern in the area are: Buffalo Bur, Scotch Thistle, Black Henbane, Leafy Spurge, Cockle Bur, Canada Thistle, Dalmation Toadflax, Salt Cedar and Wild Licorice.

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 wildlife database compiled and managed by the BLM Buffalo Field Office (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 (ICF). ICF performed surveys for mountain plover, sharp-tailed grouse, greater sage-grouse, raptor nests, roosting bald eagles, and prairie dog colonies in March 2010. One of these surveys were not conducted according to Powder River Basin Interagency Working Group (PRBIWG) accepted protocol, as they occurred outside of the appropriate survey window for roosting bald eagles. A habitat assessment was conducted for Ute ladies'-tresses orchid, but not formal surveys for individual plants. PRBIWG accepted protocol is available on the BFO internet website at the following URL:
http://www.blm.gov/wy/st/en/field_offices/Buffalo/wildlife.html.

A BLM biologist conducted field visits on 28 September 2010. During those visits, the biologist verified the wildlife survey information, evaluated impacts to wildlife resources, and compiled a list of recommended mitigation measures to reduce impacts to wildlife.

WGFD is the agency responsible for management of wildlife populations in the state of Wyoming. WGFD has 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 located in the project area primarily consist of grasslands and ponderosa pine areas, with limited sagebrush/grassland areas also occurring.

Topography in the project area is primarily gently rolling hills, with a prominent ridge (steep slopes) known as the Pine Ridge occurring to the west. Grassland areas are dominated by native grasses and perennial forbs, although cheatgrass was also present at the proposed well location. Grasses ranged in height from 10 to 18 inches, and were moderately dense. Small stands of sparse to moderately dense Wyoming big sagebrush occur to the northeast of the well location. Moderate to dense stands of sagebrush occur further north.

Mature trees occur in the project area. The Pine Ridge hosts a contiguous stand of mature ponderosa pine trees to the west of the project, extending both north and south. Many of the pines were affected by a 2006 wildfire, and are subsequently dead, but still standing. Scattered mature cottonwoods and junipers are also present. Cottonwoods primarily occurred to the east/southeast, within one mile of the proposed well location, along unnamed tributaries to the Dry Fork Powder River.

Perennial water does not occur in the project area. The area is drained by unnamed tributaries to the Dry Fork Powder River, an ephemeral drainage. Some standing water was observed by ICF during March surveys in NENE Section 25, T41N R77W (ICF 2010).

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 will 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 pg. 3-175. A black-footed ferret population requires at least 1,000 acres of prairie dog colonies, separated by no more than 1.5 km, for survival (USFWS 1989). No known prairie dog colonies occur near the proposed project area. Black-footed ferret habitat is not present within the project area.

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. During the onsite, the BLM biologist assessed the area and determined that the project area does not contain habitats suitable for supporting blowout penstemon.

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 pg. 3-175.

The PRB FEIS reported that only four orchid populations had been documented within Wyoming, but since the writing of that document, five additional sites were located in 2005 and one in 2006 (Heidel pers. comm.). The new locations were in the same drainages as the original populations, with two on the same tributary and within a few miles of an original location. Drainages with documented orchid populations include Wind Creek and Antelope Creek in northern Converse County, Bear Creek in

northern Laramie and southern Goshen Counties, Horse Creek in Laramie County, and Niobrara River in Niobrara County. A Wyoming Natural Diversity Database (WYNDD) model predicts undocumented populations may be present particularly within southern Campbell and northern Converse Counties. The nearest known population of Ute Ladies'-tresses orchid is located over 12.2 miles southeast of the proposed well location, along the tributary of Antelope Creek in Converse County.

A WYNDD model predicts undocumented populations may be present in the Buffalo Field Office administrative area, particularly within southern Campbell and northern Converse Counties – some of which are within the vicinity of the project area. The model predicted that sections along Dry Fork Powder River are likely to support ULT. These areas occur approximately 0.8 miles from the proposed location.

ICF conducted a ULT habitat assessment for the project area in March 2010. Perennial streams do not occur in the project area. Standing water was observed in NENE Section 25, T41N R77W during the assessment, however, ICF concluded that habitat in the project area had limited potential to support ULT based on environmental factors (ICF 2010).

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 pg. 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.

Absence of active prairie dog colonies and sparsely vegetated flat areas, in addition to rolling topography (slopes > 5%), likely preclude plover use in the area.

Mountain plover habitat is not present in the project area.

3.3.2.3. Candidate Species

3.3.2.3.1. Greater Sage-grouse

The affected environment for greater sage-grouse (sage-grouse) is discussed in the PRB FEIS (pg. 3-194 to 3-199). Additional information regarding the affected environment for sage-grouse is discussed here.

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 four miles of oil and gas developments. WGFD records indicate that no sage-grouse leks occur within four miles of the project area.

3.3.2.4. 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 and guidance comes 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; and the Department Manual 235.1.1A. BLM Wyoming sensitive species that will be impacted beyond the level analyzed within the PRB FEIS are described below.

3.3.2.4.1. Baird's Sparrow

The affected environment for Baird's sparrow is discussed in the PRB FEIS on pg. 3-188. In addition to being listed as a Wyoming BLM sensitive species, Baird's sparrows are listed by USFWS as a BCC for Region 17.

Baird's sparrows may utilize the grassland habitat present in the project area, and the species is suspected to occur.

3.3.2.4.2. Bald Eagle

The affected environment for bald eagles is described in the PRB FEIS on pg. 3-175. At the time the PRB FEIS was written, the bald eagle was listed as a threatened species under the ESA. Due to successful recovery efforts, it was removed from the ESA on 8 August 2007. The bald eagle remains under the protection of the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. In order to avoid violation of these laws and uphold the BLM's commitment to avoid any future listing of this species, the BLM shall continue to comply with all conservation measures and terms and conditions identified in the Powder River Basin Oil and Gas Project Biological Opinion (PRB Oil & Gas Project BO), #WY07F0075) (USFWS 2007) shall continue to be complied with.

In addition to being listed as a Wyoming BLM sensitive species, bald eagles are a WGFD SGCN with a NSS2 rating, due to populations being restricted in numbers and distribution, ongoing loss of habitat, and sensitivity 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 Region17.

Mature trees occurring within one mile of the project area provide suitable nesting and roosting habitat for bald eagles. No bald eagles were observed by ICF during the 2010 surveys or by the BLM biologist during onsite visits. ICF conducted a ground survey of the area on 28 March 2010, which is outside of the survey window (December 1 – February 28) outlined in the PRBIWG accepted protocol for bald eagle winter roosting activity, reducing the likelihood the survey accurately depicts roosting activity in the area. In addition, the report submitted to the BLM by ICF only makes mention of mature cottonwood trees

along Dry Fork Powder River as suitable roosting habitat, making it unclear whether the mature conifer stands were surveyed for roosting bald eagles (ICF 2010).

Not much is known about bald eagle use in the Pine Ridge area. Very little data has been collected for the area to date. One bald eagle roost has been recorded 6 miles southwest of the proposed project, although it has not been surveyed in approximately 30 years due to access issues (Personal Communication, Shane Gray, 23 November 2010).

3.3.2.4.3. Ferruginous Hawk

The affected environment for ferruginous hawk is discussed in the PRB FEIS on pg. 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.

The open grasslands mixed with sagebrush and rolling topography present in the project area provide nesting and foraging habitat for ferruginous hawks, and the species is suspected to occur.

3.3.2.4.4. Loggerhead Shrike

The affected environment for loggerhead shrike is discussed in the PRB FEIS on pg. 3-187. In addition to being listed as a Wyoming BLM sensitive species, loggerhead shrikes are listed by USFWS as a BCC for Region 17. The Wyoming Bird Conservation Plan rates them as a Level II species, indicating they are in need of monitoring.

The ponderosa pine and juniper woodlands, as well as grassland areas in the project area provide breeding and foraging habitat for loggerhead shrike, and the species is suspected to occur.

3.3.2.4.5. Long-billed Curlew

The affected environment for long-billed curlew is discussed in the PRB FEIS on pg. 3-184. In addition to being listed as a Wyoming BLM sensitive species, long-billed curlews are a WGFD SGCN, with a rating of NSS3, because populations are restricted in distribution, and habitat is vulnerable but not undergoing 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.
Grasslands present in the project area provide long-billed curlew habitat and the species is suspected to occur.

3.3.2.4.6. Swift Fox

The affected environment for swift fox is discussed in the PRB FEIS on pg. 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.

Two known fox dens occur approximately 13 miles northwest of the project area, within the Linch prairie dog complex. The Linch complex extends south to within 3.5 miles of the proposed well location. No active prairie dog colonies are present in the project area, however, grassland habitats in the project area may provide suitable habitat for the swift fox, and the species is suspected to occur.

3.3.3. Big Game

Big game species expected to be within the project area include pronghorn antelope, mule deer, and elk.

Both pronghorn and mule deer were observed by the BLM biologist during site visits. The WGFD has determined that the project area contains yearlong range for all three species. The affected environment for pronghorn is discussed in pp. 3-117 to 3-122 in the PRB FEIS, for mule deer in pp. 3-127 to 3-132, and elk on pp. 3-132 to 3-140.

Yearlong use is when a population of animals makes general use of suitable documented habitat sites within the range on a year-round basis. Animals may leave the area under severe conditions.

3.3.4. Migratory Birds

The affected environment for migratory birds is discussed in the PRB FEIS on pp. 3-150 to 3-153.

Migratory birds are those that migrate for the purpose of breeding and foraging at some point in the year. The BLM signed an MOU in 2010 with the USFWS to promote the conservation of migratory birds, as directed through Executive Order 13186 (Federal Register V. 66, No. 11). BLM must include migratory birds in every NEPA analysis of actions that have potential to affect migratory bird species of concern to fulfill obligations under the Migratory Bird Treaty Act.

Habitats occurring near the proposed well locations include rolling grasslands, with scattered mature ponderosa pine and juniper trees and limited shrubs. Many species that are of high management concern use these areas for their primary breeding habitats (Saab and Rich 1997). Nationally, grassland and shrubland birds have declined more consistently than any other ecological association of birds over the last 30 years (WGFD 2009).

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. Those species that are anticipated to occur in the project area are listed in Table 3.1.

Table 3.1 High priority bird species that are suspected to occur within the Cantil Federal Com #1 project area.

Level	Species	Wyoming BLM Sensitive
Level I	Baird's Sparrow	Yes
	Ferruginous hawk	Yes
	Long-billed curlew	Yes
	McCown's longspur	
	Short-eared owl	
	Upland sandpiper	
Level II	Bobolink	
	Chestnut-collared longspur	
	Dickcissel	
	Grasshopper sparrow	
	Lark bunting	
	Loggerhead shrike	Yes

3.3.4.1. Raptors

The affected environment for raptors is discussed in the PRB FEIS on pp. 3-141 to 3-148.

There are no raptor nests that have been documented within 0.5 miles of the project area. ICF conducted raptor nest surveys on 29 March and 28 May 2010. One Cooper's hawk was observed flying in NENE

Section 25 T41N R77W, while being harassed by American Kestrels during the May 28 survey (ICF 2010).

3.4. Cultural Resources

A Class III cultural resource inventory was performed for the Cantil Federal #1 project prior to on-the-ground project work (BFO project no. 70100049). 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. Clint Crago, BLM Archaeologist, reviewed the report for technical adequacy and compliance with Bureau of Land Management (BLM) standards, and determined it to be adequate.

3.5. 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, pages 3-291 through 3-299.

4. ENVIRONMENTAL CONSEQUENCES

Environmental consequences of Alternative B are described below.

4.1. Alternative B

4.1.1. Vegetation & Soils Direct and Indirect Effects

Surface disturbance of road and well pad will remove vegetation and displace soil long term. Once all constructions is complete, areas not needed for production will be reclaimed in the interim. After the life of the well, all disturbed areas will be reclaimed to an appropriate ecological site/state.
The ecological site for this project is Loamy.

Table 4.1 summarizes the proposed surface disturbance.

Table 4.1 - SUMMARY OF DISTURBANCE

Facility	No. or Mileage	Factor	Disturbance (acres)	Duration
Well Pad(s)	1	375'L x 375'W/43560 acre	3.2	Long Term
Improved Roads	720'	50' Corridor	1.84	Long Term

The designation of the duration of disturbance is defined in the PRB FEIS (pg 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".

The cumulative impacts of the proposed action, when considered with other existing and proposed development in the project area are not expected to be significant. The application of mitigative measures will ensure that the incremental impacts of this well, when considered with any existing development are insignificant. For more information on cumulative impacts, please refer to the PRB FEIS.

4.2. Alternative B

4.2.1. Vegetation & Soils

4.2.1.1. Direct and Indirect Effects

The impacts listed below, would increase the potential for 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 and access roads 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.

- 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.

- Alteration 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.

4.2.1.1.1. Cumulative Effects

The designation of the duration of disturbance is defined in the PRB FEIS (pg 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.

4.2.1.1.2. Mitigation Measures

The proponent planned their project to maximize the fluid mineral drainage while avoiding areas with soil limitation where possible. 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 road 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.

4.2.1.1.3. Residual Effects

Due to surface disturbance and the topography of the project area, erosion may increase. Rilling and gullying of cut and fill slopes on access/utility corridors and well pad, will take place. Impacts from livestock and wildlife to stabilized cut and fill slopes maylimit soils becoming stable and getting vegetation established.

Residual Effects were also identified in the PRB FEIS at page 4-408 such as the loss of vegetative cover Despite expedient reclamation, for several years until reclamation is successfully established. Refer to Table 4.1 for a summary of disturbance.

The designation of the duration of disturbance is defined in the PRB FEIS (pg 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”.

4.2.1.1.4. Invasive Species

4.2.1.1.4.1. Direct and Indirect Effects

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

4.2.1.1.4.2. Cumulative Effects

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.

4.2.1.1.4.3. Mitigation Measures

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

1. Control Methods include physical, biological, and chemical methods:
   Physical methods may include mowing , 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.

2. 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.

3. Education:
   The company will provide periodic weed education and awareness programs for its employees and contractors through the county weed districts and federal agencies. Field employees and contractors will be notified of known noxious weeds or weeds of concern in the project area.

4.2.1.1.4.4. Residual Effects

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

4.2.2. Invasive Species

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

1. Control Methods, including frequency: Weeds will be controlled primarily by chemical. Treatments will follow recommendations from county weed and pest and follow all state and federal regulation.
2. Preventive practices: Surface disturbance will be minimized. Contractors will be encouraged to clean equipment between job locations disturbance will be seeded as soon as possible and weed free seed and mulch will be used.

3. Education: Personnel will be trained on weed identification and prevention. Weed infestations will be reported and treated.

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 such high densities and numerous locations throughout NE Wyoming that a control program is not considered feasible at this time.

The use of existing facilities along with the surface disturbance associated with construction of proposed access roads, pipelines, and related facilities would present opportunities for weed invasion and spread. The activities related to the performance of the proposed project would create a favorable environment for the establishment and spread of noxious weeds/invasive plants such as salt cedar, Canada thistle and perennial pepperweed. However, mitigation as required by BLM applied COAs and the operators Weed Management Plan will reduce potential impacts from noxious weeds and invasive plants.

4.2.3. Wildlife

4.2.3.1. Threatened, Endangered, Proposed and Candidate Species

4.2.3.1.1. Threatened and Endangered Species

Table 4.2 Summary of Threatened and Endangered Species Habitat and Project Effects

Common Name (scientific name)	Habitat	Project Effects	Rationale
Endangered			
Black-footed ferret	Black-tailed prairie dog colonies or complexes > 1,000 acres.	NE	Habitat not present.
Blowout penstemon	Sparsely vegetated, shifting sand dunes	NE	Habitat not present
Threatened			
Ute ladies'-tresses orchid	Riparian areas with permanent water	NE	Potential habitat may occur in the surrounding areas, but no surface disturbance will occur in bottomlands or drainages.
Proposed			
Mountain Plover	Short-grass prairie with slopes < 5%	NE	Habitat not present.
Candidate			
Greater Sage-grouse	Basin-prairie shrub, mountain-foothill shrub	NI	Limited marginal habitat occurs in the surrounding area, however the absence of observations of sage-grouse and sign make it unlikely that grouse use the area frequently.

Project Effects
LAA – Likely to adversely affect
NE – No Effect
NLAA – May Affect, not likely to adversely affect individuals or habitat.
NLJ – Not likely to jeopardize the continued existence of the species
MIIH – May impact individuals and habitat
NP – Habitat not present and species unlikely to occur within the project area.
NI – No Impact

4.2.3.1.1.1. Black-Footed Ferret

4.2.3.1.1.1.1. Direct and Indirect Effects

Direct and indirect effects to black-footed ferret are discussed in the PRB FEIS. Habitat is not present in the project area and implementation of the proposed project will have "no effect" to black-footed ferret.

4.2.3.1.1.1.2. Cumulative Effects

The cumulative effects to black-footed ferrets are discussed in the PRB FEIS (pg. 4-251).

4.2.3.1.1.1.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.1.1.1.4. Residual Effects

No residual effects are anticipated.

4.2.3.1.1.2. Blowout penstemon

4.2.3.1.1.2.1. Direct and Indirect Effects

Suitable habitat is not present within the project area. Implementation of the proposed project will have "no effect" on blowout penstemon.

4.2.3.1.1.2.2. Cumulative Effects

The proposed project will have no effect on blowout penstemon.

4.2.3.1.1.2.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.1.1.2.4. Residual Effects

No residual effects are anticipated.

4.2.3.1.1.3. Ute Ladies'-Tresses Orchid

4.2.3.1.1.3.1. Direct and Indirect Effects

Suitable habitat may be present in areas surrounding the proposed project, however, surface disturbing activities will not be implemented in bottomlands or drainages where ULT may occur. Implementation of the proposed project will have "no effect" on the Ute ladies'-tresses orchid.

4.2.3.1.1.3.2. Cumulative Effects

Cumulative effects are discussed in the PRB FEIS on pg. 4-253.

4.2.3.1.1.3.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.1.1.3.4. Residual Effects

No residual effects are anticipated.

4.2.3.1.2. Proposed Species

4.2.3.1.2.1. Mountain Plover

4.2.3.1.2.1.1. Direct and Indirect Effects

Impacts to mountain plover are discussed in the PRB FEIS (pages 4-254 to 4-255). Suitable mountain plover habitat is not present in the project are and implementation of the proposed project will have "no effect" on mountain plover.

4.2.3.1.2.1.2. Cumulative Effects

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

4.2.3.1.2.1.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.1.2.1.4. Residual Effects

No residual effects are anticipated.

4.2.3.1.3. Candidate Species

4.2.3.1.3.1. Greater Sage-grouse

4.2.3.1.3.1.1. Direct and Indirect Effects

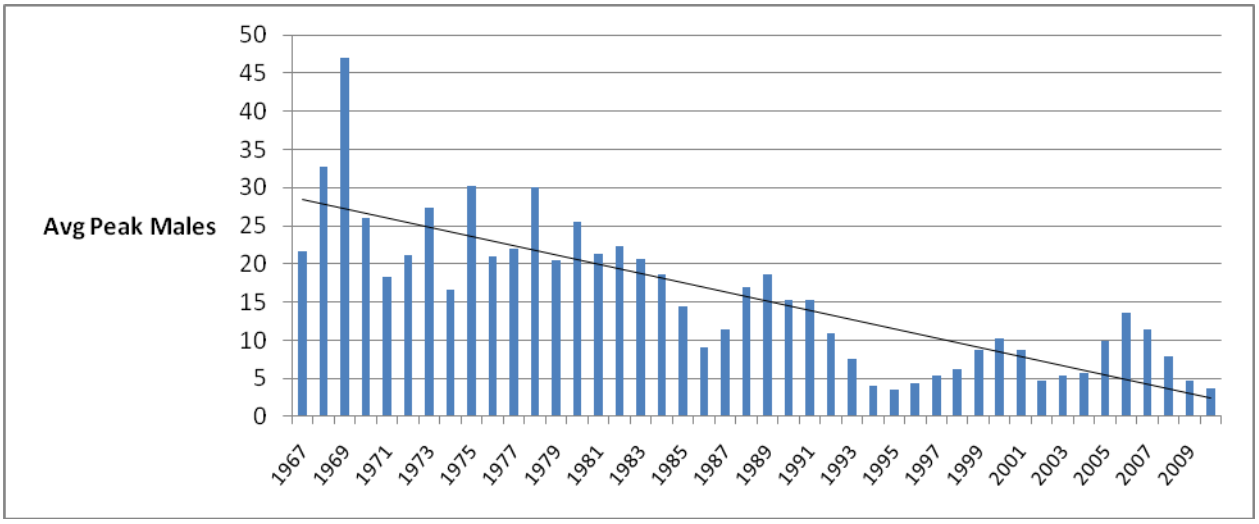
Impacts to sage-grouse associated with energy development are discussed in detail in the *12-Month Findings for Petitions to List the Greater Sage-Grouse (Centrocercus urophasianus) as Threatened or Endangered* (USFWS 2010). Impacts to sage-grouse are generally a result of loss and fragmentation of sagebrush habitats associated with roads and infrastructure. Research indicates that sage-grouse hens also avoid nesting in developed areas. Direct and indirect impacts to sage-grouse are discussed in more detail in the PRB FEIS on pg. 4-257 to 4-273.

The proposed well location and associated infrastructure are located in a homogenous grassland area. No direct loss of sagebrush will occur from implementation of this project. Surrounding sagebrush habitat has limited potential for use by sage-grouse and there are no known leks that occur within 4 miles of the project area. The nearest known leks are located approximately 8 miles to the northwest and northeast, Bushwhacker Creek III and Collins SW respectively. ICF did not locate any leks, sign, or individual birds during any surveys in the project area. For these reasons, implementation of the project will have "no impact" on greater sage-grouse.

4.2.3.1.3.1.2. Cumulative Effects

The sage-grouse population within northeast Wyoming has been exhibiting a steady long term downward trend, as measured by lek attendance (WGFD 2010). Figure 4.1 illustrates a ten-year 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 the *12-Month Findings for Petitions to List the Greater Sage-Grouse (Centrocercus urophasianus) as Threatened or Endangered* (USFWS 2010).

Figure 4.1 This chart shows average males per lek for all leks within 4 miles of the Buffalo field office.



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)."

4.2.3.1.3.1.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.1.3.1.4. Residual Effects

No residual effects are anticipated.

4.2.3.2. Sensitive Species

The PRB FEIS discusses impacts to sensitive species on pp. 4-257 to 4-265.

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."

4.2.3.2.1. Baird's Sparrow

4.2.3.2.1.1. Direct and Indirect Effects

Approximately 6.89 acres of surface will be disturbed during the development of this project. This will occur in grassland habitat that serves as habitat to Baird's sparrows. Nesting and foraging habitat may be impacted by dust, noise, and human activities causing the species to avoid the area. If construction occurs during the breeding season, eggs or nestlings could be destroyed. Direct and indirect effects to Baird's sparrows are discussed in more detail in Section 4.2.3.4.1 (Migratory Birds).

4.2.3.2.1.2. Cumulative Effects

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

4.2.3.2.1.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.2.1.4. Residual Effects

No residual effects are anticipated.

4.2.3.2.2. Bald Eagle

4.2.3.2.2.1. Direct and Indirect Effects

Impacts to bald eagles are discussed in the PRB FEIS on pg. 4-251 to 4-253.

Human activities, traffic, and construction may displace winter roosting, nesting, or foraging eagles that use habitats along the Pine Ridge or riparian corridors of Dry Fork Powder River within one mile of the project. A seasonal timing limitation on surface disturbing activities will help to mitigate some of these impacts.

4.2.3.2.2.2. Cumulative Effects

The cumulative effects for bald eagles associated with Alternative B are described in the PRB FEIS (pp. 4-251 to 4-253).

4.2.3.2.2.3. Mitigation Measures

Because of the limited amount of data available for the area regarding bald eagle use, potentially ineffective winter roosting surveys being provided to the BLM, and suitable roosting habitat occurring within one mile of the proposed well location, a timing limitation on surface disturbing activities will be implemented to protect wintering bald eagles.

4.2.3.2.2.4. Residual Effects

A timing limitation on surface disturbing activities does nothing to mitigate impacts associated with maintenance activities after construction of the project has been completed. Bald eagles may be negatively affected by increased traffic and human disturbance that occurs throughout the year, and may avoid the area.

4.2.3.2.3. Ferruginous Hawk

4.2.3.2.3.1. Direct and Indirect Effects

Approximately 6.89 acres of surface will be disturbed during the development of this project. This will occur in grassland habitat that serves as habitat to ferruginous hawks. Nesting and foraging habitat may be impacted by dust, noise, and human activities causing the species to avoid the area.

4.2.3.2.3.2. Cumulative Effects

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

4.2.3.2.3.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.2.3.4. Residual Effects

No residual effects are anticipated.

4.2.3.2.4. Loggerhead Shrike

4.2.3.2.4.1. Direct and Indirect Effects

Approximately 6.89 acres of surface will be disturbed during the development of this project. This will occur in grassland habitat that serves as habitat to loggerhead shrikes. Nesting and foraging habitat may be impacted by dust, noise, and human activities causing the species to avoid the area. If construction occurs during the breeding season, eggs or nestlings could be destroyed. Direct and indirect effects to loggerhead shrikes are discussed in more detail in Section 4.2.3.4.1 (Migratory Birds).

4.2.3.2.4.2. Cumulative Effects

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

4.2.3.2.4.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.2.4.4. Residual Effects

No residual effects are anticipated.

4.2.3.2.5. Long-billed Curlew

4.2.3.2.5.1. Direct and Indirect Effects

Approximately 6.89 acres of surface will be disturbed during the development of this project. This will occur in grassland habitat that serves as habitat to long-billed curlews. Nesting and foraging habitat may be impacted by dust, noise, and human activities causing the species to avoid the area. Direct and indirect effects to long-billed curlew are discussed in more detail in Section 4.2.3.4.1 (Migratory Birds).

4.2.3.2.5.2. Cumulative Effects

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

4.2.3.2.5.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.2.5.4. Residual Effects

No residual effects are anticipated.

4.2.3.2.6. Swift Fox

4.2.3.2.6.1. Direct and Indirect Effects

Impacts to swift fox are discussed in the PRB FEIS on pg. 4-265.

Grassland habitat suitable for swift fox may be impacted by human activities, traffic, and construction, causing the species to avoid the area.

4.2.3.2.6.2. Cumulative Effects

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

4.2.3.2.6.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.2.6.4. Residual Effects

No residual effects are anticipated.

4.2.3.3. Big Game

4.2.3.3.1. Direct and Indirect Effects

Impacts to big game animals from CBM and oil development is discussed further in the PRB FEIS on pp.4-181 to 4-215. Approximately 6.89 acres of surface will be disturbed during the development of this project. This will result in a loss of grassland habitat for pronghorn, mule deer, and elk.

In addition to the direct habitat loss, big game would likely be displaced from the project area during drilling and construction. A study in central Wyoming reported that mineral drilling activities displaced mule deer by more than 0.5 miles (Hiatt and Baker 1981). The WGFD indicates a well density of eight wells per section creates a high level of impact for big game and that avoidance zones around mineral facilities overlap creating contiguous avoidance areas (WGFD 2004). A multi-year study on the Pinedale Anticline suggests not only do mule deer avoid mineral activities, but after three years of drilling activity the deer have not become accustomed to the disturbance (Madson 2005).

Big game animals are expected to return to the project area following construction; however, populations will likely be lower than prior to project implementation as the human activities associated with operation and maintenance continue to displace big game. Mule deer are more sensitive to operation and maintenance activities than pronghorn, and, as the Pinedale Anticline study suggests, mule deer do not readily habituate. A study in North Dakota stated "Although the population (mule deer) had over seven years to habituate to oil and gas activities, avoidance of roads and facilities was determined to be long term and chronic" (Lustig 2003). Deer have even been documented to avoid dirt roads that were used only by 4-wheel drive vehicles, trail bikes, and hikers (Jalkotzy et al. 1997).

Reclamation activities that occur within big game habitats during the spring will likely displace does and

fawns due to the human presence in the area. This may cause reduced survival rate of does and fawns that must expend increased energies to avoid such activities.

4.2.3.3.2. Cumulative Effects

The cumulative effects associated with Alternative B are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, refer to the PRB FEIS, pg. 4-181 to 4-215.

4.2.3.3.3. Mitigation Measures

No mitigation measures are proposed with Alternative B.

4.2.3.3.4. Residual Impacts

No residual effects are anticipated.

4.2.3.4. Migratory Birds

4.2.3.4.1. 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. The PRB FEIS states on page 4-231, "Surface disturbance associated with construction, operation, and abandonment of facilities, including roads, has the potential to result in direct mortality of migratory birds." Reclamation and other activities that occur in the spring may be detrimental to migratory bird survival. Prompt re-vegetation of short-term disturbance areas should reduce habitat loss impacts. 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.

4.2.3.4.2. 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, pg. 4-235. No additional mitigation measures are required.

4.2.3.4.3. Mitigation Measures

The BLM contacted Yates and requested operator committed measures to address this potential for "take" as defined by the MBTA. The operator was not willing to commit to conducting a survey for nesting migratory birds (excluding raptors) prior to construction during the breeding season, or to completing construction of the project outside of the time period April 15 – July 15, both recommendations made by USFWS specifically for this project (Brad Rogers, Personal Communication, October 13, 2010).

4.2.3.4.4. Residual Effects

Migratory bird species within the Powder River Basin 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 are also protected. Where these timing limitations are not applied and migratory bird species are nesting, migratory birds remain vulnerable. If construction occurs during the breeding season, eggs or nestlings could be destroyed.

4.2.3.5. Raptors

4.2.3.5.1. Direct and Indirect Effects

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 and can result in egg or chick mortality. Prolonged disturbance can also lead to the abandonment of the nest by the adults. Routine human activities near these nests can also draw increased predator activity to the area and resulting in increased 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 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.

Suitable nesting habitat for several species of raptors is present within 0.5 miles of the proposed project location. Surveys for nesting raptors will be required to determine the presence of any undocumented nests. If a previously undocumented nest is located, a seasonal timing limitation on surface disturbing activities will be implemented.

Additional direct and indirect impacts to raptors, from oil and gas development, are analyzed in the PRB FEIS (pp. 4-216 to 4-221).

4.2.3.5.2. 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, pg. 4-221.

4.2.3.5.3. Mitigation Measures

To reduce the risk of decreased productivity or nest failure, the BLM BFO requires a timing limitation during the breeding season for all surface disturbing activities within 0.5 miles of active raptor nest. This mitigation will be implemented in the event that a previously undocumented nest is located during project construction and completion.

4.2.3.5.4. Residual Impacts

Even with a timing limitation, raptors may abandon nests due to alteration in foraging habitats associated with development or because of sensitivity to well or infrastructure placement.

4.2.4. Cultural Resources

There are no cultural resources within the area of potential effect (APE) of 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 11/24/2010 that no historic properties exist within the APE.

4.2.4.1. 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 in the proposed project areas 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, that 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.

4.2.4.2. Mitigation Measures

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).

4.2.4.3. 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.

4.2.5. Air Quality

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

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 following Conditions-of-Approval, would ensure that no adverse environmental impacts would result from approval of the proposed action:

Conditions of Approval

Programmatic and Site specific mitigation measures, Alternative B

Programmatic mitigation measures identified in the PRB FEIS ROD

Programmatic mitigation measures are those, determined through analysis, which may be appropriate to apply at the time of APD approval if site specific conditions warrant. These mitigation measures can be applied by BLM, as determined necessary at the site-specific NEPA APD stage, as COAs and will be in addition to stipulations applied at the time of lease issuance and any standard COA.

Wildlife

Threatened, Endangered, or Sensitive Species

Bald Eagle

1. In the event that a bald eagle (dead or injured) is located during construction or operation, the USFWS' Wyoming Field Office (307-772-2374) and the USFWS' Law Enforcement Office (307-261-6365) will be notified within 24 hours.

Air Quality

1. 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 materials, non-saline dust suppressants, and water) could be used as necessary on unpaved collector, local and resource roads that present a fugitive dust problem. The use of chemical dust suppressants on BLM surface will require prior approval from the BLM authorized officer.

Site specific mitigation measures
Surface Use

1. Due to the sloping terrain and to minimize erosion potential, the access road shall be constructed before the drilling of the well.

2. The operator will drill seed on the contour to less than 0.5 inch, followed by cultipaction to compact the seedbed and reduce 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. Reclamation and seeding activities are authorized at any time of the year, if conditions and COAS permit. On BLM surface or in lieu of a different specific mix desired by the surface owner, use the following:

10-14" Precipitation Zone
Loamy Ecological Site
Seed Mix

Species	% in Mix	Lbs PLS*
Western Wheatgrass (Pascopyrum smithii)/ *Thickspike Wheatgrass* (Elymus lanceolatus ssp. lanceolatus)	30	4.8
Bluebunch Wheatgrass (Pseudoroegneria spicata ssp. Spicata)	10	1.2
Green needlegrass (Nassella viridula)	25	3.0
Slender Wheatgrass (Elymus trachycaulus ssp. trachycaulus)	20	1.2
Prairie coneflower (Ratibida columnifera)	5	0.6
White or purple prairie clover (Dalea candidum, purpureum)	5	0.6

Species	% in Mix	Lbs PLS*
Rocky Mountain beeplant (Cleome serrulata) /or ***American vetch***(Vicia americana)	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.

3. Slopes too steep for machinery may be hand broadcast and raked with twice the specified amount of seed.

4. 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 project, is Carlsbad Canyon, Munsell Soil Color Number (2.5Y 6/2).

Wildlife

Raptors

The following conditions will alleviate impacts to raptors:

1. Surveys to document nest occupancy shall be conducted within 0.5 miles of the project by a biologist following 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. Surveys outside this window may not depict nesting activity. If a survey identifies active raptor nests, a timing buffer will be implemented. The timing buffer restricts surface disturbing activities within 0.5 miles of occupied raptor nests from February 1 to July 31.

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.

Bald Eagles

The following conditions will alleviate impacts to bald eagles:

1. No surface disturbance shall occur within one mile of bald eagle habitat (all mature trees), annually, from 1 November through 1 April, prior to a winter roost survey. This timing limitation will be in effect unless surveys determine the habitat to be unoccupied. ***Surveys to document activity shall be conducted by a biologist following BLM protocol***. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities.

5. CONSULTATION/COORDINATION

Contact	Title	Organization	Phone Number	Present at Onsite?
Jeb Tachick	Federal Reg. Agent	Yates Pet. Corp	(307) 682-4638	yes
Trent Knez	Drilling Foreman	Yates Pet. Corp	(307) 682-4638	yes
HeatherArambel	Land Agent	Yates Pet. Corp	(307) 682-4638	yes
Dan Sellers	Natural Resource Specialist	BLM	(307) 684-1132	yes
Bill Ostheimer	Wildlife Biologist	BLM	(307) 684-1132	yes
Darci Stafford	Wildlife Biologist	BLM	(307) 684-1132	yes
Brad Rogers	Wildlife Biologist	USFWS	(307) 684-1132	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.

7. 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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8. REVIEWER

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