EA NO-WY-070-10-36
DECISION RECORD
FOR
Trend Exploration I, LLC
Trend Wells: 11-5, 21-5, 13-32

DECISION: Is to approve Alternative B as described in the attached Environmental Assessment (EA) and to authorize the following Applications for Permits to Drill (APD) for Trend Exploration I, LLC:

Well Name & Number	QTR	Sec.	T	R	Lease #
Federal 11-5	NWNW	5	55N	72W	WYW-142063
Federal 21-5	NENW	5	55N	72W	WYW-142063
Federal 13-32	NWSW	32	56N	72W	WYW-129512

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 Alternative B, as described in the attached Environmental Assessment (EA), is based on the following:

1. The Operator, in their APD, has 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, and relevant air quality permits.

2. The Operator has certified that a Surface Use Agreement has been reached with the Landowner.

3. Alternative B will not result in any undue or unnecessary environmental degradation.

4. It is in the public interest to approve these wells as this development will help meet the nation's future needs for energy reserves, and will help to stimulate local economies by maintaining stability for the workforce

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.

6. Alternative B is the environmentally-preferred Alternative.

7. Approval of this alternative is in conformance with the Final Powder River Basin Oil and Gas Project Environmental Impact Statement and Proposed Plan Amendment (PRB FEIS), 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 (RMP) for the Public Lands Administered by the Bureau of Land Management (BLM), Buffalo Field Office (BFO), 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 Beels
Field Manager

11/19/09
Date

EA NO-WY-070-10-36
FINDING OF NO SIGNIFICANT IMPACT
FOR
Trend Exploration I, LLC
Trend Wells: 11-5, 21-5, 13-32

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.

for Paul Beels
Field Manager

11/19/09
Date

BUREAU OF LAND MANAGEMENT
BUFFALO FIELD OFFICE
ENVIRONMENTAL ASSESSMENT
TREND EXPLORATION I, LLC.
EA # WY-070-10-36

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.

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).

The actions as described in the APDs are needed to further develop oil reserves in the United States. The APDs were submitted by private industry for development of oil on two valid federal oil and gas mineral leases issued to the applicant by the BLM.

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 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.

1.1. 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 precluded 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

OPERATOR/APPLICANT: Trend Exploration I, LLC

PROJECT NAME: Trend Wells: 11-5, 21-5, 13-32

The proposed action is to drill three conventional oil wells. The action would be subject to the attached Conditions-of-Approval, for drilling of an oil well on private surface/federal mineral lands within the Buffalo Field Office 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 Plan of Development (POD). The plan has been 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.

Well Locations:

Well Name & Number	QTR	Sec.	T	R	Total Depth
Federal 11-5	NWNW	5	55N	72W	9500 ft
Federal 21-5	NENW	5	55N	72W	9500 ft
Federal 13-32	NWSW	32	56N	72W	9500 ft

The proposed action involves:

Activity	Length (feet)	Width (feet)	Acres of Disturbance
Federal 11-5 Constructed Pad/Tank Battery	470	255	2.75
Cut/fills & Topsoil/spoil stockpiles	Varies	Varies	1.0
Trend Federal 11-5 Access Road	3696	35	3.0
Pipeline: 3" steel, corridored w/ access road	175	45	.20
Total Disturbance for Trend Federal 11-5			**7.0**

Note: if well is a producer, 0.7 miles of existing primitive road will be upgraded to a template design road and the location will be used for a tank battery facility. For specifics, refer to the Master Surface Use Plan (MSUP) in the Plan of Development (POD).

Activity	Length (feet)	Width (feet)	Acres of Disturbance
Federal 21-5 Constructed Pad	325	200	1.5
Cut/fills & Topsoil/spoil stockpiles	Varies	Varies	1.0
21-5 Federal Access Road	528	35	.42
Pipeline: 3", steel, corridored w/ access road	1970	45	2.0
Total Disturbance for 21-5 Federal			**5.0**

Activity	Length (feet)	Width (feet)	Acres of Disturbance
Federal 13-32 Constructed Pad	300	175	1.5
Cut/fills & Topsoil/spoil stockpiles	Varies	Varies	1.0
13-32 Federal Access Road (engineered)	800	40	.73
Pipeline: 6", steel	3455	50	4.0
Total Disturbance for 13-32 Federal			**7.23**

Note: ~1455 ft of pipeline will be corridored in a permitted Coalbed Natural Gas (CBNG) access/utility corridor (Suncor Energy: Deen Draw POD, EA: WY-070-06-24).

The proposed well locations require the construction of three engineered (cut & fill) well pads, one section of engineered road, and two primitive roads. The total surface disturbance associated with the construction of these locations, engineered road section, and primitive road will be approximately 19.2 acres. These figures include disturbance associated with the well pads, the spoil and topsoils storage areas, and the construction equipment and vehicle disturbance. 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.

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 owners may impose longer temporal restrictions on portions of this project.

AFFECTED SURFACE OWNERS:

Jayne Harris as Trustee of the Jayne Harris Revocable Trust
Bureau of Land Management

For contact information refer to the Master Surface Use Plan (MSUP) in the Plan of Development (POD).

COUNTY: Campbell

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

Implementation of committed mitigation measures contained in the SUP and Drilling Program, in addition to the Standard 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.
4. The Operator has certified that a copy of the SUP has been provided to the relevant Landowner.

Description of Mitigation Measures (applied as Conditions of Approval):
The operator is responsible for the COAs attached to this EA and will be issued an Incident of Non-Compliance if found to be in violation of any COA.

2.2.1. 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.

2.2.1.1. Wildlife

1. For any surface-disturbing activities proposed in sagebrush shrublands, the Companies will conduct

clearance surveys for sage grouse breeding activity during the sage grouse's breeding season before initiating the activities. The surveys must encompass all sagebrush shrublands within 0.5 mile of the proposed activities.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION & ALTERNATIVES:

A field inspection of the proposed well was conducted on 9/1/2009 and 10/21/09. The APDs were received on 9/28/09.

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 located approximately twenty five miles north of Gillette, Wyoming. Elevations within the project area range from 3750 to 4940 feet above sea level. The topography throughout the project area consists of ephemeral bottomlands rising to ponderosa and juniper breaks with moderate sloping ridges and draws. This area is also characterized by an abundance of scoria outcrops. The ephemeral drainage of White Tail Creek drains the area. The climate in the area is semi-arid, averaging 12-14 inches of precipitation annually, more that 60% of which occurs between May and September. 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 grazing and native hay production being other land uses within the general area.

If the any of the three proposed wells are producers, future oil and gas development could occur in the following areas: T.55N. , R.72W., Sec. 5-8 and T.56N. , R.72W., Sec. 31, 32.

3.2. Vegetation & Soils

Using the Natural Resource Conservation Service, (NRCS, USDA), Technical Guides for the Major Land Resource Area 58B Northern Rolling High Plains, in the 15-17" Northern Plains precipitation zone, the project area primarily consists of two ecological sites. The predominant ecological sites occurring within the proposed POD are found to be Loamy and Shallow Loamy.

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" 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 Mixed Sagebrush/Grass with a species composition of; Green needlegrass, Western wheatgrass, Needleandthread, Big bluestem, Big sagebrush and Blue grama.

Shallow Loamy Site description and Plant community.

This site occurs on steep slopes and ridge tops, but may occur on all slopes. Landform: Hill sides, ridges and escarpments.

The soils of this site are shallow (less than 20"to bedrock) well-drained soils formed in alluvium over residuum or residuum. These soils have moderate permeability and may occur on all slopes. The bedrock may be any kind which is virtually impenetrable to plant roots, except igneous. The surface soil will have one or more of the following textures: very fine sandy loam, loam, silt loam, sandy clay loam, silty clay loam, and clay loam. Thin ineffectual layers of other textures are disregarded. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick.

The plant community is defined as Mixed Sagebrush/Grass with a species composition of;
Bluebunch wheatgrass, Western wheatgrass, Blue grama, Green needlegrass, Little bluestem, Needleandthread, Big sagebrush.

Species observed throughout the project area included: Big Sagebrush, Prairie junegrass, threadleaf sedge, bluebunch wheatgrass, blue grama, little bluestem, green needlegrass, needleandthread, cheatgrass, western wheatgrass, prairie sandreed, buckwheat, crested wheat, curly cup gumweed, prickly pear cactus, yucca, skeletonweed, wild rose, and intermediate wheatgrass. In the southern area of the POD, ponderosa pine and junipers were observed. Differences in dominant species within the project area vary with soil type, aspect and topography.

3.2.1. Wetlands/Riparian

CBNG discharge to White Tail Creek has been taking place for a number of years. Wetlands have developed in and around reservoirs that have been used for storage of this discharge water. Some of these wetlands, such as those found in and around Titanic reservoir, are fairly pronounced, with excellent populations of rushes and other wetland vegetation. The channels connecting reservoirs in this area also exhibit wetland development. Many of the surrounding drainages feeding White Tail Creek remain ephemeral. Cottonwood groves do not occur in these drainages until well downstream of the proposed development boundary.

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

3.3. Wildlife

The project area involves federal and private surface overlaying federal minerals. There are numerous existing and proposed fee mineral development projects within and surrounding the project area. Currently within the project area is a federal coalbed methane natural gas (CBNG) plan of development (POD), the Deen Draw, operated by Suncor Energy America Inc. West of the proposed project is the Harris Federal Pod (HFPOD) operated by Windsor.

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 was performed by ARCADIS U.S.,Inc (ARCADIS 2009) and raptor surveys were performed May 20, 2009. ARCADIS did not do formal surveys for grouse because the wildlife consultant was assigned to the project after standard survey period. In addition to habitat evaluation, ARCADIS

consolidated site specific information from the HFPOD, where ARCADIS performed surveys for bald eagle roosts and nests, other raptor nests, greater sage-grouse, sharp-tailed grouse, black-tailed prairie dog colonies, mountain plovers, and Ute ladies'-tresses orchid. All surveys were conducted according o the Powder River Basin Interagency Working Group's (PRBIWG) accepted protocol (available on the BLM website at:
www.blm.gov/style/medialib/blm/wy/field-offices/buffalo/wildlife.Par.34632.File.dat/WildlifesurveyProtocol.pdf.

A BLM Biologist conducted a field visit on October 21, 2009. During this time, the biologist reviewed the wildlife survey information for accuracy, evaluated impacts to wildlife resources, and provided project adjustment recommendations where wildlife issues arose.

Wildlife species common to the habitat types present are identified in the Final Environmental Impact Statement and Proposed Plan Amendment for the Powder River Basin Oil and Gas Project (PRB FEIS 3-114). Species that have been identified in the project area or that have been noted as being of special importance are described below.

3.3.1. Big Game

According to WGFD data, big game species expected to occur within the project area are mule deer and antelope. The affected environment for mule deer is discussed in the PRB FEIS on pp. 3-122.

The project area is geographically located within the following big game management areas: Powder River herd unit 319 for mule deer, and Gillette herd unit 351 for antelope. The project area contains both winter-yearlong range for mule deer, and winter range for antelope. Winter use is when a population or portion of a population of animals uses the documented suitable habitat sites within this range annually, in substantial numbers only during the winter period. Winter-yearlong use is when a population or a portion of a population of animals makes general use of the documented suitable habitat sites within this range on a year-round basis, but during the winter months there is a significant influx of additional animals into the area from other seasonal ranges.

According to the most recent data available on the WGFD website (Job Completion Report for 2007), the population of mule deer within hunt area 18 was 49,560 animals, which was below the WGFD objective of 52,000 animals. As of 5/31/2008, the population of antelope within hunt area 17 has reached a population size of 16,823 animals, which is 53% above the objective herd size of 8,916(Job Completion Report for 2007).

3.3.2. Migratory Birds

Migratory birds are those that migrate for the purpose of breeding and foraging at some point in the year. According to WO Instruction Memorandum No. 2008-050, BLM must include migratory birds in every NEPA analysis of actions that have the potential to affect migratory bird species of concern in order to fulfill its obligations under the Migratory Bird Treaty Act.

The WGFD Wyoming Bird Conservation Plan (Nicholoff 2003) identified three groups of high-priority bird species in Wyoming: Level I – those that clearly need conservation action, Level II – species where the focus should be on monitoring, rather than active conservation, and Level III – species that are not otherwise of high priority but are of local interest.

Shrub-steppe vegetation dominates the project area. Many species that are of high management concern use shrub-steppe areas for their primary breeding habitats (Saab and Rich 1997). Nationally, grassland and shrubland birds have declined more consistently in the last 30 years than any other ecological association of birds (WGFD 2009). Species that may occur in these vegetation types in northeast

Wyoming, according to the Wyoming Bird Conservation Plan, are listed in the following table and are grouped by Level as identified in the Plan.

Migratory bird species that occur in shrub-steppe habitats in northeast Wyoming (Nicholoff 2003)

Level	Species	Wyoming BLM Sensitive
Level I	Brewer's sparrow	Yes
	Ferruginous hawk	Yes
	Greater sage-grouse	Yes
	McCown's longspur	
	Sage sparrow	Yes
Level II	Lark bunting	
	Lark sparrow	
	Loggerhead shrike	Yes
	Sage thrasher	Yes
	Vesper sparrow	
Level III	Common poorwill	
	Say's phoebe	

The affected environment for migratory birds is discussed in the PRB FEIS (pp. 3-150 to 3-153). The discussion includes a list of habitat requirements and foraging patterns for the species listed above, with the exception of common poorwills and Say's phoebes, which are discussed here.

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

3.3.3. Raptors

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

Several small stands of ponderosa pine, steep vegetated draws, rock outcrops, and knolls are located within 0.5 miles of the project location, and provide suitable nest substrate for raptors. According to the BLM raptor database, species that have nested in this habitat across the Powder River Basin have included golden eagles, long-eared owls, merlins, Swainson's hawks, Cooper's hawks, American kestrels, owls, ferruginous hawks and red-tailed hawks.

One raptor nest site was identified by Arcadis (2009). See table below.

BLM ID#	SPECIES	UTM (NAD 83)	LEGAL LOCATION	SUBSTRATE	CONDITION	STATUS
4211	Red-tailed hawk	456260E 4959504N	SWSW Sec. 32 T56N, R72W	Boxelder tree, live	Fair	Inactive

3.3.4. Plains Sharp-tailed Grouse

Plains sharp-tailed grouse are discussed in this document because specific concerns for this species were identified during the scoping process for the PRB FEIS. The affected environment for plains sharp-tailed grouse is discussed in the PRB FEIS on pp. 3-148 to 3-150.

Habitat within the project area has limited potential to support sharp-tailed grouse. The mosaic of grasslands and sagebrush-grasslands that occurs along the grassy ridges and knolls present within one mile of the project area may provide marginal nesting habitat. A nearby wooded draw to the southeast of the project may provide adequate foraging habitat. The nearest known plains sharp-tailed grouse lek is approximately 6.6 miles to the east of the project area. While no sharp-tailed grouse leks were recorded during the 2007 breeding survey period, individual sharp-tailed grouse were observed on May 8 and May 11, 2007. See table below.

SURVEY DATE	SURVEY METHOD	UTM (NAD 83)	LEGAL LOCATION	# OF MALES	# OF FEMALES	NOTES
5/8/2007	Ground	456646E 4962008 N	SENW Sec. 29 T56N, R72W	9	0	1000hrs, Flushed grouse form hillside while doing other species surveys
5/11/2007	Ground	456753 E 4962602 N	NENW Sec. 29 T56N, R72W	8	0	0700hrs, found birds in flat area from 0.5 mi away. Grouse walked away after several minutes. Very little feathers or scat in area.

3.3.5. Threatened and Endangered and Sensitive Species

3.3.5.1. Threatened and Endangered

Within the BLM Buffalo Field Office there are three species that are Threatened or Endangered under the Endangered Species Act.

3.3.5.1.1. Black-footed ferret

The USFWS listed the black-footed ferret as Endangered on March 11, 1967. Active reintroduction efforts have reestablished populations in Mexico, Arizona, Colorado, Montana, South Dakota, Utah, and Wyoming. In 2004, the WGFD identified six prairie dog complexes (Arvada, Sheridan, Pleasantdale, Four Corners, Linch, Kaycee, and, Thunder Basin National Grasslands) partially or wholly within the BLM Buffalo Field Office administrative area as potential black-footed ferret reintroduction sites (Grenier et al. 2004).

This nocturnal predator is closely associated with prairie dogs, depending almost entirely upon them for its food. The ferret also uses old prairie dog burrows for dens. Current science indicates that a black-footed ferret population requires at least 1000 acres of black-tailed prairie dog colonies for survival (USFWS 1989).

The WGFD believes the combined effects of poisoning and Sylvatic plague on black-tailed prairie dogs have greatly reduced the likelihood of a black-footed ferret population persisting east of the Big Horn Mountains (Grenier 2003). The U.S. Fish and Wildlife Service has also concluded that black-tailed prairie dog colonies within Wyoming are unlikely to be inhabited by black-footed ferrets (Kelly 2004).

No black-tailed prairie dog colonies were identified during site visits by Arcadis and BLM within the project area. The project area is not located within the Kaycee complex, the nearest potential reintroduction area. Black-footed ferret habitat is not present within the Trend project area.

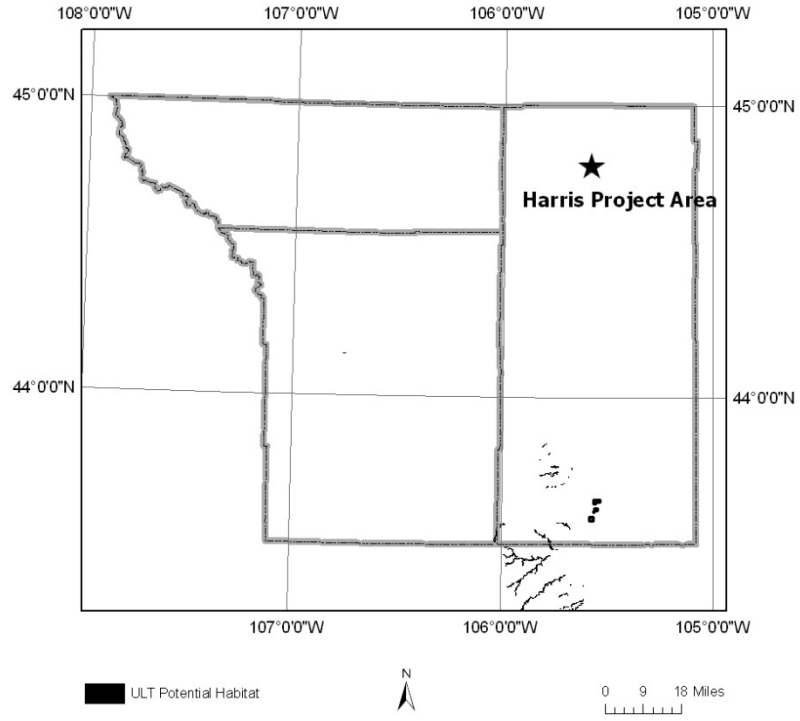
3.3.5.1.2. Ute Ladies'-Tresses Orchid

This orchid is listed as Threatened under the Endangered Species Act. It is extremely rare and occurs in moist, sub-irrigated or seasonally flooded soils at elevations between 1,780 and 6,800 feet above sea level. Habitat includes wet meadows, abandoned stream channels, valley bottoms, gravel bars, and near lakes or perennial streams that become inundated during large precipitation events. The Wyoming Natural Diversity Database model predicts undocumented populations may be present particularly within southern Campbell and northern Converse Counties.

Prior to 2005, only four orchid populations had been documented within Wyoming. 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 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. In Wyoming, *Spiranthes diluvialis* blooms from early August to early September, with fruits produced in mid August to September (Fertig 2000).

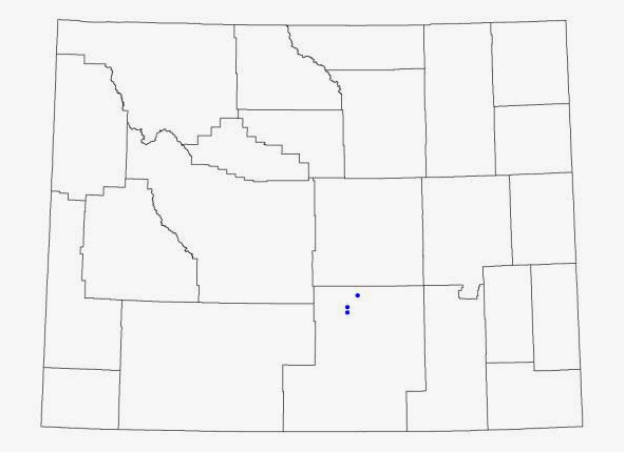
The BLM Wildlife biologist and Arcadis consultants did not observe any potential habitat near the project area, therefore a survey was not required. No features were found with the necessary hydrological capability to support Ute ladies' tresses orchid Suitable orchid habitat is not present within the Trend project area.

Figure 1. Predicted Distribution of Ute Ladies'-tresses in BFO Administrative Area



3.3.5.1.3. Blowout Penstemon

Blowout penstemon is a regional endemic species of the Sand Hills of west central Nebraska and the northeastern Great Divide Basin in 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. Associated vegetation includes blowout grass (Redfieldia flexuosa), thickspike wheatgrass (Elymus lanceolatus), lemon scurfpea (Psoralidium lanceolatum), Indian ricegrass (Achnatherum hymenoides) and western wheatgrass (Pascopyrum smithii). The flowering period for the plant is typically between April and July. The primary vegetation around the well location is sweet clover and sage brush, and no sand dunes, blowouts, or large sand deposits were identified within the well site. None of the associated vegetation species were identified within the project area.



Wyoming distribution of *Penstemon haydenii*

3.3.5.2. 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

Table 1 lists those species on the Wyoming BLM sensitive species list that, according to the PRB FEIS, may occur in the Powder River Basin Oil and Gas Project Area. The table also includes a brief description of the habitat requirements for each species and whether the species is expected to occur in the project area. The affected environment for greater sage-grouse, a species that is currently being considered for listing as threatened or endangered under the Endangered Species Act, is discussed in more detail in this section. 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.

3.3.5.2.1. Greater Sage-Grouse

The affected environment for greater sage-grouse (herein referred to as sage-grouse) is discussed in the PRB FEIS (pg. 3-194 to 3-199). In addition to being listed as a Wyoming BLM sensitive species, sage-grouse are listed as a WGFD Species of Greatest Conservation Need (SGCN), with a rating of Native Species Status 2 (NSS2 – indicates that populations are greatly restricted or declining – extirpation appears possible and habitat is restricted or vulnerable but no recent or ongoing significant loss; species may be sensitive to human disturbance. WGFD 2009) ,because populations are declining, and they are experiencing ongoing significant loss of habitat. 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 Bird of Conservation Concern for Region 17, which encompasses 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.

In recent years, several petitions have been submitted to USFWS to list sage-grouse as threatened or endangered under the ESA. On 12 January 2005, USFWS issued a decision that the listing of the greater sage-grouse was not warranted following a Status Review. The decision document supporting this outcome noted the need to continue or expand all conservation efforts to conserve sage-grouse. In 2007, the U.S. District Court remanded that decision, stating that USFWS's decision-making process was flawed and ordered USFWS to conduct a new Status Review (Winmill Decision Case No. CV-06-277-E-BLW, December 2007).

The BFO has taken several steps to consider the evolving information on impacts to sage-grouse which could result from development activities on federal lands. These steps can be found in the Carr Draw III East Remand EA #WY-070-09-078.

Suitable (as defined in Soehn et al. 2001) sage-grouse habitat is present in the project area. The project area consists of steep vegetated draws and continuous stand of moderately dense sagebrush, characterized by approximately 20-25% canopy cover, based on an ocular estimate at the onsite. The understory is dominated by a mix of perennial and annual grass. The well location, access roads, and utility corridors are located in within suitable sage grouse nesting and brood rearing habitat.

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. Two leks are within four miles of the project. See table below.

LEK NAME	LEGAL LOCATION	YEAR: PEAK MALES	DISTANCE FROM PROJECT AREA
41-Elk Creek Road	SESW Section 26 T56N, R73W	2008: 11 2007: 25 2006: 38	2.6 South-east
41-Elk Creek Road NE	SWSW Section 18 T56N, R73W	2008: 7 2007: 12	2.8 miles North

3.4. Cultural Resources

Class III cultural resource inventory was performed for the Trend 13-32, 11-5 and 21-5 wells prior to on-the-ground project work (BFO project no. 70090093). Arcadis conducted a block and linear 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*. Seth Lambert, BLM Archaeologist, reviewed the report for technical adequacy and compliance with Bureau of Land Management (BLM) standards, and determined it to be adequate. The following resources are located in or near the project area.

Site Number	Site Type	Eligibility
48CA77	Prehistoric	NE
48CA5964	Historic	NE

3.5. Recreation

The 1985 Buffalo Resource Management Plan states that "The Powder River Breaks are nationally known for big game hunting. Hunters come to the area from throughout the continental United States". Public lands in much of the Powder River Breaks region of the Buffalo Field Office consist of isolated tracts of land administered by the BLM that are too small to provide a quality recreation experience. Dispersed

recreation activities within the Buffalo Field Office include hunting, hiking, driving for pleasure, OHV use, sightseeing, camping, and wildlife viewing. Recreational use is expected to increase by approximately 5 percent every 5 years for most recreational activities (PRB FEIS).

One portion of the project area is cooperatively managed, by the BLM, Wyoming Game and Fish Department (WGFD), and Jayne Harris (adjacent landowner) as a walk-in hunting area. In 2004, a walk-in area agreement was signed keeping the walk-in area status active for the next 5 years. The agreement is expected to be renewed in 2010. Under the agreement, hunters may access the BLM and private lands inside the walk-in area without the use of motorized vehicles. Elk Creek Road is the only route open for motorized travel within the project area. The area of the proposed action is contained within the cooperative walk-in-area. A map has been included in the project file illustrating the walk-in-area boundaries.

The project area is in one of the larger areas of accessible public land in northern Campbell County, which is attractive to recreation users and provides for more adequate dispersed recreation and a quality recreational experience. It is encompassed within Antelope hunt area 17 and Deer hunt area 18.

3.6. Transportation

Elk Creek Road (County Road 33) bisects Section 32 in T56N R 72W. Access to Section 5 of T55N R 72 W is through private roads stemming from Collins Road (County Road 23). There is no other legal vehicle access within the project area. Several two-track roads are present within the Trend Exploration project area; the roads are utilized for livestock management and most are not accessible for public use.

The RMP states that "Using motorized vehicles requires no fee and no permit, but their use is restricted depending on whether the area has been designated closed, limited or open" (BLM, 1985). The Buffalo RMP designates travel in this area as a "Limited Area B: Use is limited to designated roads and vehicle routes within these areas. Until signs are posted, vehicle travel is limited to existing roads and vehicle routes" (BLM, 1985). The BLM recognizes a road as existing from the roads and trails inventoried from the 1985 RMP. Recent RMP maintenance now recognizes roads found on the 1989-1991 Surface Ownership Maps as existing roads. The roads in BLM lands within the project area have been signed and enforced to reflect the RMP decisions, keeping motorized traffic solely on Elk Creek Road and Collins Road.

3.7. 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. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention.

3.8. 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

4.1. Alternative B

4.1.1. Vegetation & Soils Direct and Indirect Effects

Impacts to vegetation and soils from surface disturbance will be reduced, by following the operator's plans and BLM applied mitigation. The three proposed well locations will require a constructed (cut & fill) well pad. Approximately 2.0 miles of new and existing two-track trails would be utilized to access well sites. If the wells are producers the roads will be upgraded to a resource road. The majority of proposed pipelines have been located in adjacent the access roads. This practice results in less surface disturbance and overall environmental impacts. Approximately 1455 feet of pipeline would not be constructed adjacent to a well access road. Expedient reclamation of disturbed land with stockpiled topsoil, proper seedbed preparation techniques, and appropriate seed mixes, along with utilization of erosion control measures (e.g., waterbars, water wings, culverts, rip-rap, gabions etc.) would ensure land productivity/stability is regained and maximized.

Proposed culverts are shown in the MSUP and the maps (see the POD). These structures would be constructed in accordance with sound engineering practices and BLM standards.

Tables 4.1 summarize the proposed surface disturbance.

Tables 4.1 - SUMMARY OF DISTURBANCE

Activity	Length (feet)	Width (feet)	Acres of Disturbance
Federal 11-5 Constructed Pad/Tank Battery	470	255	2.75
Cut/fills & Topsoil/spoil stockpiles	Varies	Varies	1.0
Trend Federal 11-5 Access Road	3696	35	3.0
Pipeline: 3" steel, corridored w/ access road	175	45	.20
Total Disturbance for Trend Federal 11-5			**7.0**

Activity	Length (feet)	Width (feet)	Acres of Disturbance
Federal 21-5 Constructed Pad	325	200	1.5
Cut/fills & Topsoil/spoil stockpiles	Varies	Varies	1.0
21-5 Federal Access Road	528	35	.42
Pipeline: 3", steel, corridored w/ access road	1970	45	2.0
Total Disturbance for 21-5 Federal			**5.0**

Activity	Length (feet)	Width (feet)	Acres of Disturbance
Federal 13-32 Constructed Pad	300	175	1.5
Cut/fills & Topsoil/spoil stockpiles	Varies	Varies	1.0
13-32 Federal Access Road (engineered)	800	40	.73
Pipeline: 6", steel,~1455 ft not corridored w/ access	3455	50	4.0
Total Disturbance for 13-32 Federal			**7.23**

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".

4.1.2. Wetland/Riparian

Watershed values, including natural drainages, would not be adversely impacted by the proposal with properly applied mitigation. Other water resources will not be adversely impacted by the proposal. Possible contamination effects of fresh water aquifers will be reduced through the use of tested casing, by setting casing at appropriate depths and by following safe repair procedures in the event of casing failure. Other downhole well operations are expected to cause minimal impacts using standard engineering practices.

The application of mitigative measures will help reduce the incremental impacts of this well, when considered with any other existing development. For more information on cumulative impacts, please refer to the PRB FEIS.

4.1.3. Invasive Species

The operator has committed to the control of noxious weeds and species of concern.

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 will reduce potential impacts from noxious weeds and invasive plants.

4.2. Alternative B

4.2.1. Big Game

Impacts to big game are discussed in the PRB FEIS on pp. 4-181 to 4-215. As discussed in that document, impacts to mule deer may occur through alterations in hunting and/or poaching, increased vehicle collisions, harassment and displacement, increased noise, increased dust, alterations in nutritional status and reproductive success, increased fragmentation, loss or degradation of habitats, reduction in habitat effectiveness, and declines in populations.

Oil and gas development is presently occurring over most of the area used by the antelope in unit 351 (Gillette herd). According to the WYGF (Job Completion Report for 2007), this development has resulted in the loss of some rangeland habitat to well sites, new roads, and pipelines. Surplus water from mineral extraction is frequently stored in newly created reservoirs or refurbished older ones. Although the surplus water from mineral development may benefit antelope, displacement during drilling and development, and associated loss of habitat, may have negative impacts to this herd. Additional concern

with mineral development is the loss of hunting opportunity. On public lands, mineral development further restricts access, as many public land leases have prohibited access via mineral related traffic on roads for hunting due to safety issues. As this trend continues with mineral development, problems of hunter access on both public and private lands are compounded.

4.2.2. Migratory Birds

Direct and indirect effects to migratory birds are discussed in the PRB FEIS (pp. 4-231 to 4-235).
More recent research suggests that impacts will occur. Ingelfinger (2004) identified that the density of some breeding bird species declined within 100 m of dirt roads within a natural gas field. In the study, the density of Brewer's sparrows declined by 36%, and the density of breeding sage sparrows declined by 57%. 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. Though no timing restrictions are typically applied specifically to protect migratory bird breeding or nesting, sage-grouse and raptor nesting timing limitations will also protect nesting migratory birds.

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.

4.2.3. Raptors

Direct and indirect effects to raptors are discussed in the PRB FEIS (pp. 4-216 to 4-221). Human activities in close proximity to active raptor nests may interfere with nest productivity. Romin and Muck (1999) indicate that activities within 0.5 miles of a nest are prone to cause adverse impacts to nesting raptors. If mineral activities occur during nesting, they could be sufficient to cause adult birds to remain away from the nest and their chicks for the duration of the activities. This absence can lead to overheating or chilling of eggs or chicks. Prolonged disturbance can also lead to the abandonment of the nest by the adults. Both actions can result in egg or chick mortality. In addition, routine human activities near these nests can draw increased predator activity to the area and increase nest predation.

To reduce the risk of decreased productivity or nest failure, the BLM BFO requires a 0.5 mile radius timing limitation during the breeding season around active raptor nests and recommends all infrastructure requiring human visitation be located in such a way as to provide an adequate biologic buffer for nesting raptors. A biologic buffer is a combination of distance and visual screening that provides nesting raptors with security such that they will not be flushed by routine activities.

4.2.4. Threatened and Endangered Species

Potential project effects on Threatened and Endangered Species were analyzed and a summary is provided in the following table. Threatened and Endangered Species potentially affected by the proposed project area are further discussed following the table.

Threatened and Endangered Species
Summary of Threatened and Endangered Species Habitat and Project Effects.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Endangered				
Black-footed ferret (*Mustela nigripes*)	Black-tailed prairie dog colonies or complexes > 1,000 acres.	NP	NE	Suitable habitat of insufficient size.
Threatened				
Ute ladies'-tresses orchid (*Spiranthes diluvialis*)	Riparian areas with permanent water	NP	NE	No suitable habitat present.
Blowout Penstemon *Penstemon haydenii*	Active sand dunes	NP	NE	No suitable habitat present

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

Project Effects
LAA Likely to adversely affect
NE No Effect.
NLAA May Affect, not likely to adversely effect individuals or habitat.

4.2.4.1. Black-Footed Ferret Direct and Indirect Effects

There is no black-tailed prairie dog colonies within or adjacent to the Trend project area, implementation of the proposed development will have "*no effect*" on the black-footed ferret.

4.2.4.2. Ute Ladies'-Tresses Orchid Direct and Indirect Effects

The Ute ladies'-tresses orchid is threatened by energy developments, noxious weeds, and water developments. Prolonged idle conditions in the absence of disturbance (flooding, grazing, mowing) may be a threat just as repeated mowing and grazing during flowering may lead to decline (Hazlett 1996, BOP 1997, Heidel 2007). Heavy equipment used in energy development construction could dig up plants. Invasive weeds transplanted by vehicle and foot traffic in habitat could outcompete this fragile species. Restricting work from areas of Ute ladies'-tresses orchid habitat reduces these impacts.

Suitable habitat is not present near the Trend project area. The project will have "*no effect*" on Ute Ladies,-Tresses orchid.

4.2.4.3. Blowout Penstemon Direct and Indirect Effects

The primary vegetation around the well locatiuon is sweet clover, pasture grasses and sage brush, no sand dunes, blowouts, or large sand deposits were identified within the Trend project area. None of the associated vegetation species were identified within the well site. The project will have "***no effect"*** on blowout penstemon**.**

4.2.1. Sensitive Species

Potential project effects on Sensitive Species were analyzed and a summary is provided in the following table. Sensitive Species potentially affected by the proposed project area are further discussed following the table. Impacts on the greater sage-grouse, a species that is currently being considered for listing as threatened or endangered under the Endangered Species Act, are discussed in more detail in this section.

Sensitive Species

Summary of Sensitive Species Habitat and Project Effects.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Amphibians				
Northern leopard frog (*Rana pipiens*)	Beaver ponds and cattail marshes from plains to montane zones.	NP	NI	Habitat not present.
Columbia spotted frog (*R*anus pretiosa)	Ponds, sloughs, small streams, and cattails in foothills and montane zones. Confined to headwaters of the S Tongue R drainage and tributaries.	NP	NI	The project area is outside the species' range, and the species is not expected to occur .
Fish				
Sturgeon chub (*Macrhybopsis gelida)*	Swift, rocky riffles throughout the Powder River.	NP	NI	Habitat not present.
Yellowstone cutthroat trout (*Oncoryhynchus clarki bouvieri*)	Cold-water rivers, creeks, beaver ponds, and large lakes in the Upper Tongue sub-watershed	NP	NI	The project area is outside the species' range, and the species is not expected to occur .
Birds				
Baird's sparrow (*Ammodramus bairdii*)	Shortgrass prairie and basin-prairie shrubland habitats; plowed and stubble fields; grazed pastures; dry lakebeds; and other sparse, bare, dry ground.	S	MIIH	Sagebrush cover will be affected.
Bald eagle (*Haliaeetus leucocephalus*)	Mature forest cover often within one mile of large water body with reliable prey source nearby.	NP	NI	Habitat not present.
Brewer's sparrow (*Spizella breweri*)	Sagebrush shrubland	S	MIIH	Sagebrush cover will be affected.
Ferruginous hawk (*Buteo regalis*)	Basin-prairie shrub, grasslands, rock outcrops	S	MIIH	Nesting habitat may be impacted and human activities will increase
Greater sage-grouse (*Centrocercus urophasianus*)	Basin-prairie shrub, mountain-foothill shrub	K	WIPV	Sagebrush cover will be affected.
Loggerhead shrike (*Lanius ludovicianus*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Sagebrush cover will be affected.

Common Name (scientific name)	**Habitat**	**Presence**	**Project Effects**	**Rationale**
Long-billed curlew (*Numenius americanus*)	Grasslands, plains, foothills, wet meadows	NP	NI	Suitable habitat not present.
Mountain plover (*Charadrius montanus*)	Short-grass prairie with slopes < 5%	NP	NI	Habitat not present.
Northern goshawk (*Accipiter gentilis*)	Conifer and deciduous forests	NP	NI	Dense forest habitat not present.
Peregrine falcon (*Falco peregrinus*)	Cliffs	NP	NI	No nesting habitat present.
Sage sparrow (*Amphispiza billneata*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Sagebrush cover will be affected.
Sage thrasher (*Oreoscoptes montanus*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Sagebrush cover will be affected.
Trumpeter swan (*Cygnus buccinator*)	Lakes, ponds, rivers	NP	NI	Habitat not present.
Western Burrowing owl (*Athene cunicularia*)	Grasslands, basin-prairie shrub	NP	NI	Habitat not present.
White-faced ibis (*Plegadis chihi*)	Marshes, wet meadows	NP	NI	Permanently wet meadows not present.
Yellow-billed cuckoo (*Coccyzus americanus*)	Open woodlands, streamside willow and alder groves	NP	NI	Streamside habitats not present.
Mammals				
Black-tailed prairie dog (*Cynomys ludovicianus*)	Prairie habitats with deep, firm soils and slopes less than 10 degrees.	NP	NI	No known colonies present.
Fringed myotis (*Myotis thysanodes*)	Conifer forests, woodland chaparral, caves and mines	S	MIIH	Construction may impact foraging areas and alter habitat conditions.
Long-eared myotis (*Myotis evotis*)	Conifer and deciduous forest, caves and mines	S	MIIH	Construction may impact foraging areas and alter habitat conditions.
Swift fox (*Vulpes velox*)	Grasslands	NP	NI	Habitat not present.
Townsend's big-eared bat (*Corynorhinus townsendii*)	Caves and mines.	S	MIIH	Construction may impact foraging areas and alter habitat conditions.
Plants				

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Porter's sagebrush (*Artemisia porteri*)	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes 5300-6500 ft.	NP	NI	Habitat not present.
William's wafer parsnip (*Cymopterus williamsii*)	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides, 6000-8300 ft.	NP	NI	Project area outside of species' range.

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

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

4.2.1.1. Plains Sharp-tailed Grouse

Sharp-tailed grouse may avoid habitats adjacent to the project area. The nearest known lek is not expected to be impacted.

4.2.1.2. Greater Sage-Grouse Direct and Indirect Effects

Implementation of the project will adversely impact nesting habitat, both through direct loss and avoidance of the area by sage-grouse.

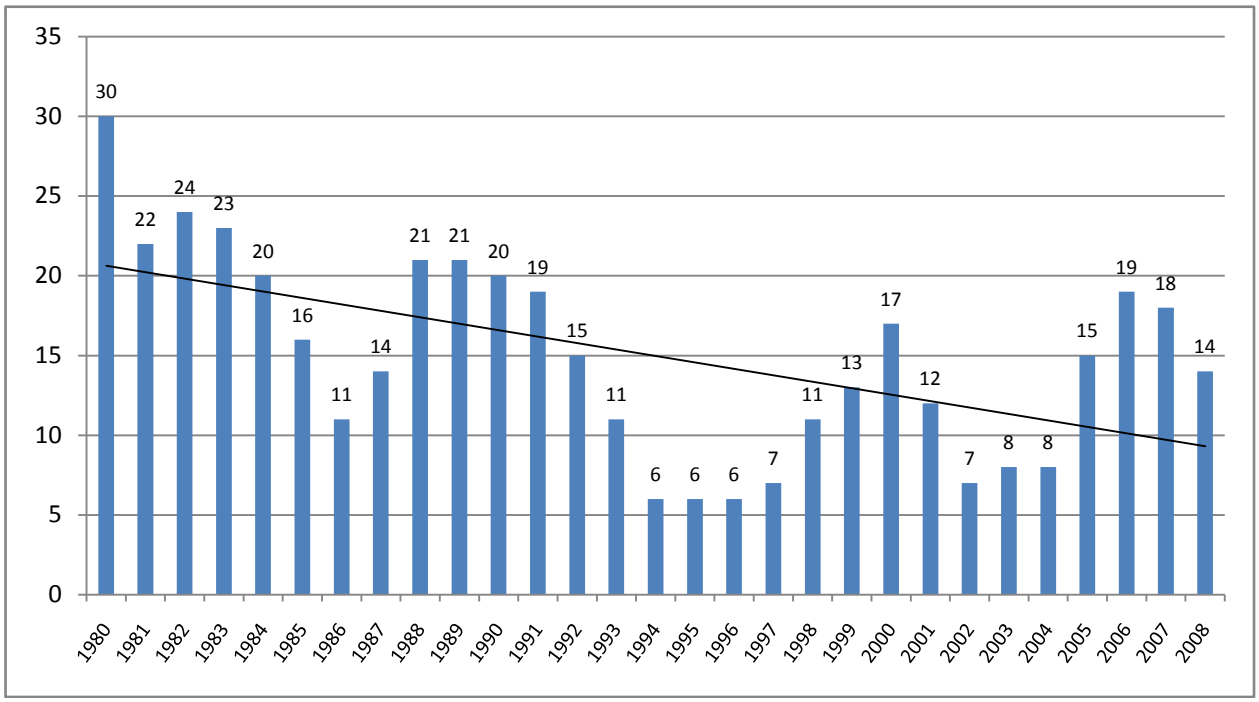
To protect nesting and brood rearing sage-grouse, BLM will implement a timing limitation (1 March to 15 June) on all surface-disturbing activities associated with the proposed project.

Direct and indirect impacts to sage-grouse are discussed in more detail in the PRB FEIS on pg. 4-257 to 4-273.

4.2.1.3. Greater Sage-grouse Cumulative Effects

The sage-grouse population within northeast Wyoming has been exhibiting a steady long term downward trend, as measured by lek attendance (WGFD 2008b). Figure 3 illustrates a ten-year cycle of periodic highs and lows. Each subsequent population peak is lower than the previous peak. The research described below suggests that these declines may be a result, in part, of CBNG development in this region of Wyoming and that the leks within the cumulative impact assessment area are experiencing similar declines.

Figure 1 Average number of male sage-grouse per active lek within the WGFD Sheridan region, 1980-2007



Research has shown that declines in lek attendance are correlated with oil and gas development. In a typical landscape in the Powder River Basin, energy development within two miles of leks is projected to reduce the average probability of lek persistence from 87% to 5% percent (Walker et al. 2007). Several studies have shown that well density can be used as a metric for evaluating impacts to sage-grouse, as

measured by declines in lek attendance (Braun et al. 2002, Holloran et al. 2005, and Walker et al. 2007). These studies indicated that oil or gas development exceeding approximately one well pad per square mile, resulted in calculable impacts on breeding populations, as measured by the number of male sage-grouse attending leks (State Wildlife Agencies' Ad Hoc Committee for Sage-Grouse and Oil and Gas Development 2008).

In its *Recommendations for Development of Oil and Gas Resources within Important Wildlife Habitats* (2009), WGFD categorized levels of oil and gas development into thresholds that correspond to moderate, high, and extreme impacts to habitat effectiveness for various species of wildlife, based on well pad densities and acreages of disturbance. All three levels of impact result in a loss of habitat function by directly eliminating habitat; disrupting wildlife access to, or use of habitat; or causing avoidance and stress to wildlife. Impacts to sage-grouse are categorized by number of well pad locations per square mile within two miles of a lek and within identified nesting/brood-rearing habitats greater than two miles from a lek. Moderate impacts occur when well density is between one and two 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 two and three 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 three well pad locations per square mile or when there are greater than 60 acres of disturbance per square mile. Extreme impacts mean those where the function of an important wildlife habitat is substantially impaired or lost

The proposed project is greater than two miles, though within four miles, from two sage-grouse leks. The 41-Elk Creek is already at the extreme level of impact, whereas the 41-Elk Creek NE lek is at a moderate impact level according to the WGFD recommendations. Implementation of the proposed project will not alter those categorizations.

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

The BFO Resource Management Plan (BLM 2001) and the PRB FEIS Record of Decision (BLM 2003) included a two-mile timing limitation on surface-disturbing activities around sage-grouse leks. The two-mile measure originated with the Western Association of Fish and Wildlife Agencies (WAFWA) (BLM 2004). Wyoming BLM adopted the two-mile recommendation in 1990 (BLM 1990).

The two-mile recommendation was based on early research which indicated between 59% and 87% of sage-grouse nests were located within two miles of a lek (BLM 2004). These studies were conducted within vast contiguous stands of sagebrush, such as those that occur in Idaho's Snake River plain.

Additional research across more of the sage-grouse's range have since indicated that nesting may occur much farther than two miles from the breeding lek (BLM 2004). Holloran and Anderson (2005), in their Upper Green River Basin study area, reported that only 45% of their sage-grouse hens nested within 1.9 miles of the capture lek. Moynahan and Lindberg (2004) found that only 36% of their sage-grouse hens nested within 1.9 miles of the capture lek. Habitat conditions, and, thus, sage-grouse biology, within the BFO are more similar to Moynahan's north-central Montana study area than the Upper Green River area.

Moynahan's study area occurred in mixed-grass prairie and sagebrush steppe, dominated by Wyoming big sagebrush (Moynahan et al. 2007). Recent research in the Powder River Basin suggests that impacts to leks from energy development are discernable out to a minimum of four miles, and that some leks within this radius have been extirpated as a direct result of energy development (Walker et al. 2007, Walker 2008, Naugle et al. *In press*). Based on these studies, the BLM has determined that a two-mile timing limitation is insufficient to reverse the population decline.

A timing limitation does nothing to mitigate loss and fragmentation of habitat and changes in disease mechanisms. Rather than limiting mitigation to only timing restrictions, more effective mitigation strategies may include, at a minimum, burying power lines (Connelly et al. 2000b); minimizing road and well pad construction, vehicle traffic, and industrial noise (Lyon and Anderson 2003, Holloran 2005); and managing produced water to prevent the spread of mosquitoes with the potential to vector West Nile Virus in sage grouse habitat (Walker et al 2007). Walker et al. (2007) recommend maintaining extensive stands of sagebrush habitat over large areas (at least one mile in size) around leks to ensure sage-grouse persistence. The size of such a no-development buffer would depend on the amount of suitable habitat around the lek and the population impact deemed acceptable. Connelly et al. (2000) recommended locating all energy-related facilities at least two miles from active leks.

Several guidance documents are available that recommend practices that would reduce impacts of development on greater sage-grouse. These include *Northeast Wyoming Sage-Grouse Conservation Plan* (Northeast Wyoming Sage-grouse Working Group 2006), *Sage-Grouse Habitat Management Guidelines for Wyoming* (Bohne et al. 2007), *Recommendations for Development of Oil and Gas Resources within Important Wildlife Habitats* (WGFD 2009), *Bureau of Land Management National Sage-Grouse Habitat Conservation Strategy* (USDI 2004), and *Greater Sage-Grouse Comprehensive Conservation Strategy* (Stiver et al. 2006).

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)." Based on the impacts described in the Powder River Basin Oil and Gas Project FEIS and the findings of more recent research, the proposed action may contribute to a decline in male attendance at the two leks that occur within four miles of the project area, and, potentially, extirpation of the local grouse population.

4.3. 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 10/29/09 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).

4.4. Recreation

A portion of the project area has been cooperatively managed as a mule deer and pronghorn walk-in hunting area for nearly a decade. The area is popular with the hunting public because of motorized use restrictions, the semi-primitive experience, and because it is one of the few large land blocks available for unguided hunters in northern Campbell County within the Powder River Basin. CBNG development is changing the rural undeveloped nature of the Basin to a rural industrial setting, decreasing the satisfaction levels of many hunters and other recreationists. Documents state that one permitted outfitter with the

BLM Buffalo Field Office returned his 2005 permit due to client dissatisfaction with hunting in natural gas fields. Other outfitters have also made similar comments and discussed returning their permits.

Drilling and construction activities are the most disruptive to big game and hunters. Construction noise and activity displaces big game and competes with the solitude and primitive experience many hunters seek. Development would result in direct habitat loss and habitat fragmentation for big game and potentially impact the hunting public. Mule deer and antelope are expected to return to the project area following drilling and construction, however in lower numbers than before; metering and maintenance activities will likely continue to displace big game, particularly mule deer. The hunting experience is expected to improve following construction, but the solitude and primitive experiences prior to development would not. Ongoing CBNG operations during the hunting season will impact hunting success and satisfaction, loss of the near-wilderness experience, goal interference, and displacing hunting activities. This may result in long term decreased hunting activity in the area.

There is one proposed well location on BLM surface and 2 proposed wells located on private surface inside the walk-in area. Conflicts between different recreation users and oil and gas activities may increase. With the increased roads and access, illegal off-road vehicle use and trespass are likely to increase. The oil and gas activity may also pose a danger to recreation users due to heavy machinery on the roads. Oil and gas activity, such as metering, maintenance, and other such procedures depending on the use of motorized travel, also conflict with the management under the walk-in area, compromising the walk-in area program.

Conflicts between different recreation users and oil and gas activities may increase. These conflicts may occur between OHV users and non-OHV users, recreationists and oil and gas activity, and trespassing conflicts due to the newly constructed roads allowing for a large increase of new public access into BLM and private lands. The oil and gas activity may increase safety concerns for recreation users due to use of heavy machinery on the roads.

4.5. Transportation

Elk Creek Road and Collins Road provides the only legal public access within the Trend Exploration project area. The proposed action includes an additional road to access wells and infrastructure. Additional roads may result in increased trespass onto private lands within the project area and non-public roads on BLM managed surface. Several landowners have commented that trespassing has increased with the additional roads constructed for CBNG development. Vandalism of wells and infrastructure may also increase with the additional roads.

The PRB FEIS states, “Impacts related to the construction of access roads used to extract CBNG include an increase in average daily traffic (ADT), increase in risk of traffic accidents from additional project-related vehicles as well as non-project-related vehicles, increased potential access to remote areas, an increased risk of vehicle collisions with livestock and wildlife, and visual intrusion of project-related vehicles and activities”.

In order to maintain the travel management objectives in the RMP and to reduce conflicts between the public relative to new roads in the project area, the company will sign the junction of a new road and an existing road.

4.6. Visual Resources

The 3 well locations are slightly visible from the county roads. 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.

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.

4.7. 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

A. Site Specific Conditions of Approval

Please contact Eric Holborn – Natural Resource Specialist, at (307) 684-1044, Bureau of Land Management, Buffalo, if there are any questions concerning COAs.

B. General

1. All proposed access roads and pads where engineered construction will occur will be slope staked prior to construction.

2. Before construction or drilling will occur a pre-construct meeting will be required, please contact Eric Holborn – Natural Resource Specialist, at (307) 684-1044 to schedule. The operator is responsible for having all contractors present (dirt contractors, drilling contractor, pipeline contractor, project oversight personnel, etc.) including the overall field operations superintendent, and for providing all contractors copies of the approved APD package, project map and BLM Conditions of Approval pertinent to the work that each will be doing.

Surface Use

1. 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 the project area is Covert Green, 18-0617 TPX.

2. The cut and fill slopes for the 13-32 well location and access will require erosion control methods (e.g., waddles, silt fences, water bars, etc.) to prevent surface run-off. All erosion control methods will be installed prior to drilling activity taking place.

3. The engineered access to the 13-32 location will be built to the submitted engineered parameters before drilling activity takes place.

4. The culvert locations will be staked prior to construction. The culvert invert grade and finished road grade will be clearly indicated on the stakes. Culverts will be installed on natural ground, or on a designed flow line of a ditch. The minimum cover over culverts will be 12" or one-half the diameter whichever is greater. Drainage laterals in the form of culverts or water bars shall be placed according to the following spacing:

Grade	Drainage Spacing
2-4%	310 ft
5-8%	260 ft
9-12%	200 ft

5. Provide 4" of aggregate where grades exceed 8% for stability and erosion prevention.

6. All rills, gullies, and other surface defects shall be ripped to the full depth of erosion across the entire width of the roadway prior to final grading and surfacing.

7. The operator is responsible for having the licensed professional engineer certify that the actual construction of the road meets the design criteria and is constructed to Bureau standards.

8. Reserve pit will be closed as soon as possible, but no later than 6 months from time of drilling/well completion, unless the BLM Authorized Officer gives an extension. Squeezing of pit fluids and cuttings is prohibited. Pits must be dry of fluids or they must be removed via vac-truck or other environmentally acceptable method prior to backfilling, re-contouring and replacement of topsoil. Mud and cuttings left in pit must be buried at least 3-feet below re-contoured grade. The operator will be responsible for re-contouring any subsidence areas that develop from closing a pit before it is sufficiently dry.

9. Adequate drainage control must be in place at all stages of construction and culverts installed as soon as feasible.

10. If a dry hole, all rehabilitation work, including seeding, will be initiated within 30 days after plugging operations are completed (pending seasonal conditions).

11. Interim Reclamation of disturbed areas will adhere to the following guidance (as per the Wyoming Policy on Reclamation (IM WY-90-231):

    A. The reclaimed area shall be stable and exhibit none of the following characteristics:
        i. Large rills or gullies.
        ii. Perceptible soil movement or head cutting in drainages.
        iii. Slope instability on, or adjacent to, the reclaimed area in question.
    B. The soil surface must be stable and have adequate surface roughness to reduce runoff and capture rainfall and snow melt. Additional short-term measures, such as the application of mulch, shall be used to reduce surface soil movement.
    C. Vegetation canopy cover (on unforested sites), production and species diversity (including shrubs) shall approximate the surrounding undisturbed area. The vegetation shall stabilize the site and support the planned post disturbance land use, provide for natural plant community succession and development, and be capable of renewing itself.
    This shall be demonstrated by:

i. Successful onsite establishment of species included in the planting mixture or other desirable species.
ii. Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production.

D. The reclaimed landscape shall have characteristics that approximate the visual quality of the adjacent area with regard to location, scale, shape, color and orientation of major landscape features and meet the needs of the planned post disturbance land use.

12. All topsoil removed during construction activities will be respread for interim reclamation success.

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

Species	% in Mix	Lbs PLS*
Thickspike Wheatgrass (Elymus lanceolatus ssp. lanceolatus)	50	4.2
Bluebunch wheatgrass (Pseudoroegneria spicata ssp. Spicata)	35	6
Prairie coneflower (Ratibida columnifera)	5	0.6
White or purple prairie clover (Dalea candidum, purpureum)	5	0.6
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. Slopes too steep for machinery may be hand broadcast and raked with twice the specified amount of seed. Complete fall seeding after September 15 and prior to prolonged ground frost. To be effective, complete spring seeding after the frost has left the ground and prior to May 15.

Wildlife

Sage Grouse:

1. No surface disturbing activities are permitted for the locations, access roads, and impoundments listed below between March 1-June 15. This condition will be implemented on an annual basis for the duration of surface disturbing activities. This timing limitation will affect the all three wells (11-5, 21-5, and the 13-32).

2. If a previously unknown lek is identified, additional areas may be included in the above referenced timing restriction (March 1-June 15). The required sage-grouse survey will be conducted by a biologist following the most current WGFD protocol. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activites.

Recreation:

1. No drilling or construction activities shall take place on BLM administered lands located on Section 32 T56N R72W during the mule deer and pronghorn hunting seasons, October 1 – October 31, to protect this long-standing and popular recreation activity. Metering and maintenance activities shall be minimized during this period. At the discretion of Authorized Officer, this condition of approval may be reviewed for site specific exceptions.

2. Travel within the Trend Exploration POD, on all new roads that would access Federal land, will be restricted to authorized company personnel. Signs reading "Road Closed Not For Public Access" will be installed. Contact the Outdoor Recreation Planner at BLM BFO for specific direction for how signing will be done and materials to be used. Gates may be required to be installed if necessary to prevent unauthorized travel. The signs and gates will be provided and maintained by the operator. Roads to be signed are denoted by an octagon on the attached map and described in the following table.

Standard Conditions of Approval

A. General

1. If any cultural values [sites, artifacts, human remains (Appendix L FEIS)] are observed during operation of this lease/permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. The authorized officer will conduct an evaluation of the cultural values to establish appropriate mitigation, salvage or treatment. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized BLM officer (AO). Within five working days the AO will inform the operator as to:
    - whether the materials appear eligible for the National Register of Historic Places;
    - the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
    - a time-frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction measures.

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

B. Construction

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

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

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

4. Construct the backslope no steeper than 1½:1, and construct the foreslope no steeper than 2:1, unless otherwise directed by the BLM Authorized Officer.

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

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

7. Reserve pit will be adequately fenced during and after drilling operations until reclaimed so as to effectively keep out wildlife and livestock. This requires that it be fenced on the three nonworking sides prior to drilling and on the remaining side immediately following rig release. Fencing will be constructed in accordance with BLM specifications. (Plastic snow fence is not acceptable fencing material for conventional wells.)

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

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

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

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

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

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

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

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

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

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

18. Operators are required to obtain a National Pollution Discharge Elimination System (NPDES) Storm Water Permit from the Wyoming DEQ for any projects that disturb five or more acres (changing to one acre in March 2005). This general construction storm water permit must be obtained from WDEQ prior to any surface disturbing activities and can be obtained by following directions on the WDEQ website at http://deq.state.wy.us. Further information can be obtained by contacting Barb Sahl at (307) 777-7570.

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

C. Operations/Maintenance

1. Confine all equipment and vehicles to the access roads, pads, and areas specified in the approved POD.

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

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

4. The operator will be responsible for prevention and control of noxious weeds and weeds of concern on all areas of surface disturbance associated with this project (well locations, roads,

water management facilities, etc.) Use of pesticides shall comply with the applicable Federal and State laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of Interior. Prior to the use of pesticides on public land, the holder shall obtain from the BLM authorized officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer to such use.

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

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

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

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

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

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

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

10. If this well is drilled during the fire season (June-October), the operator shall institute all necessary precautions to ensure that fire hazard is minimized, including but not limited to

mowing vegetation on the access route(s) and well location(s), keeping fire fighting equipment readily available when drilling, etc.

D. Dry Hole/Reclamation

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

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

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

4. Distribute the topsoil evenly over the entire location and other disturbed areas. Prepare the seedbed by disking to a depth of 4-to-6 inches following the contour.

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

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

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

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

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

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

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

E. Producing Well

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

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

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

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

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

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

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

8. Any spilled or leaked oil, produced water or treatment chemicals must be reported in accordance with NTL-2A and immediately cleaned up in accordance with BLM requirements. This includes clean-up and proper disposition of soils contaminated as a result of such spills/leaks.

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

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

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

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

13. Waterbars shall be installed on all reclaimed pipeline corridors per the guidelines in D #5.

5. 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.

6. REFERENCES AND AUTHORITIES:

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

Code of Federal Regulations (CFR)

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

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