FINDING OF NO SIGNIFICANT IMPACT & DECISION RECORD
FOR
Williams Production RMT
Tex Draw
ENVIRONMENTAL ASSESSMENT –WY-070-08-125

DECISION: Is to approve Alternative C as described in the attached Environmental Assessment (EA) and authorize Williams Production RMT's Tex Draw Coal Bed Natural Gas (CBNG) POD comprised of the following 61 Applications for Permit to Drill (APDs):

	Well Name	Well #	QTR	Sec	TWP	RNG	Lease
1	TEX DRAW T CHAIR	14-5*	SWSW	5	43N	76W	WYW134912
2	TEX DRAW T CHAIR	21-5	NENW	5	43N	76W	WYW134912
3	TEX DRAW T CHAIR	23-5	NESW	5	43N	76W	WYW134912
4	TEX DRAW T CHAIR	32-5	SWNE	5	43N	76W	WYW134912
5	TEX DRAW T CHAIR	34-5	SWSE	5	43N	76W	WYW134912
6	TEX DRAW T CHAIR	41-5	NENE	5	43N	76W	WYW134912
7	TEX DRAW T CHAIR	43-5	NESE	5	43N	76W	WYW134912
8	TEX DRAW T CHAIR	14-6	SWSW	6	43N	76W	WYW142079
9	TEX DRAW T CHAIR	23-6	NESW	6	43N	76W	WYW142079
10	TEX DRAW T CHAIR	32-6	SWNE	6	43N	76W	WYW142079
11	TEX DRAW PAYNE	34-6	SWSE	6	43N	76W	WYW142079
12	TEX DRAW T CHAIR	41-6	NENE	6	43N	76W	WYW142079
13	TEX DRAW PAYNE	43-6	NESE	6	43N	76W	WYW142079
14	TEX DRAW T CHAIR	12-7	SWNW	7	43N	76W	WYW142080
15	TEX DRAW T CHAIR	14-7	SWSW	7	43N	76W	WYW142080
16	TEX DRAW T CHAIR	21-7	NENW	7	43N	76W	WYW142080
17	TEX DRAW T CHAIR	23-7	NESW	7	43N	76W	WYW142080
18	TEX DRAW PAYNE	32-7	SWNE	7	43N	76W	WYW142080
19	TEX DRAW PAYNE	41-7	NENE	7	43N	76W	WYW142080
20	TEX DRAW T CHAIR	12-8	SWNW	8	43N	76W	WYW142080
21	TEX DRAW T CHAIR	14-8	SWSW	8	43N	76W	WYW142080
22	TEX DRAW T CHAIR	21-8	NENW	8	43N	76W	WYW142080
23	TEX DRAW T CHAIR	32-8	SWNE	8	43N	76W	WYW142080
24	TEX DRAW T CHAIR	41-8	NENE	8	43N	76W	WYW142080
25	TEX DRAW T CHAIR	12-9	SWNW	9	43N	76W	WYW142080
26	TEX DRAW STATE	14-9	SWSW	9	43N	76W	WYW142080
27	TEX DRAW T CHAIR	21-9	NENW	9	43N	76W	WYW142080
28	TEX DRAW STATE	23-9	NESW	9	43N	76W	WYW142080
29	TEX DRAW T CHAIR	32-9	SWNE	9	43N	76W	WYW142080
30	TEX DRAW T CHAIR	34-9	SWSE	9	43N	76W	WYW142080
31	TEX DRAW T CHAIR	41-9	NENE	9	43N	76W	WYW142080
32	TEX DRAW T CHAIR	43-9	NESE	9	43N	76W	WYW142080
33	TEX DRAW T CHAIR	12-17	SWNW	17	43N	76W	WYW142080
34	TEX DRAW T CHAIR	14-17	SWSW	17	43N	76W	WYW142080
35	TEX DRAW T CHAIR	21-17	NENW	17	43N	76W	WYW142080
36	TEX DRAW T CHAIR	23-17	NESW	17	43N	76W	WYW142080
37	TEX DRAW T CHAIR	32-17	SWNE	17	43N	76W	WYW142080
38	TEX DRAW T CHAIR	34-17	SWSE	17	43N	76W	WYW142080
39	TEX DRAW T CHAIR	14-18	SWSW	18	43N	76W	WYW142080

	Well Name	Well #	QTR	Sec	TWP	RNG	Lease
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42	TEX DRAW T CHAIR	14-21	SWSW	21	43N	76W	WYW142081
43	TEX DRAW T CHAIR	23-21	NESW	21	43N	76W	WYW142081
44	TEX DRAW T CHAIR	32-21	SWNE	21	43N	76W	WYW142081
45	TEX DRAW T CHAIR	34-21	SWSE	21	43N	76W	WYW142081
46	TEX DRAW T CHAIR	43-21	NESE	21	43N	76W	WYW142081
47	TEX DRAW T CHAIR	14-22	SWSW	22	43N	76W	WYW142081
48	TEX DRAW STATE	31-22	NWNE	22	43N	76W	WYW142081
49	TEX DRAW STATE	32-22	SWNE	22	43N	76W	WYW142081
50	TEX DRAW T CHAIR	12-27	SWNW	27	43N	76W	WYW142081
51	TEX DRAW T CHAIR	14-27	SWSW	27	43N	76W	WYW142081
52	TEX DRAW T CHAIR	21-27	NESW	27	43N	76W	WYW142081
53	TEX DRAW T CHAIR	23-27	NESW	27	43N	76W	WYW142081
54	TEX DRAW T CHAIR	32-27	SWNE	27	43N	76W	WYW142081
55	TEX DRAW T CHAIR	34-27	SWSE	27	43N	76W	WYW142081
56	TEX DRAW T CHAIR	41-27	NENE	27	43N	76W	WYW142081
57	TEX DRAW T CHAIR	43-27	NESE	27	43N	76W	WYW142081
58	TEX DRAW T CHAIR	12-28	SWNW	28	43N	76W	WYW142835
59	TEX DRAW T CHAIR	21-28	NENW	28	43N	76W	WYW142835
60	TEX DRAW T CHAIR	32-28	SWNE	28	43N	76W	WYW142835
61	TEX DRAW T CHAIR	41-28	NENE	28	43N	76W	WYW142835

All water produced in the Tex POD will feed into existing impoundments associated with other Bullwhacker area Water Management Plans (WMPs) (Bullwhacker Creek, Bullwhaker II, Bullwhacker III, East Bullwhacker and West Bullwhacker) which share common conveyance and storage systems.

This approval is subject to adherence with all of the operating plans and mitigation measures contained in the Master Surface Use Plan of Operations, Drilling Plan, Water Management Plan, and information in individual APDs. This approval is also subject to operator compliance with all mitigation and monitoring requirements contained within the Powder River Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment (PRB FEIS) approved April 30, 2003.

RATIONALE: The decision to authorize Alternative C, as described in the attached Environmental Assessment (EA), is based on the following:

1. The Operator, in their POD, 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, the installation of water management facilities, water discharge permits, and relevant air quality permits.
    - Offer water well agreements to the owners of record for permitted water wells within ½ mile of a federal CBNG producing well in the POD.
    - Provide water analysis from a designated reference well in each coal zone.
2. The Operator has certified that a Surface Use Agreement has been reached with the Landowners.
3. Alternative C will not result in any undue or unnecessary environmental degradation.
4. It is in the public interest to approve these wells, as the leases are being drained of federal gas, resulting in a loss of revenue for the government.

5. Mitigation measures applied by the BLM will alleviate environmental impacts.
6. Alternative C is the environmentally-preferred Alternative.
7. The proposed action is in conformance with the PRB FEIS and the Approved Resource Management Plan for the Public Lands Administered by the Bureau of Land Management (BLM), Buffalo Field Office, April 2001.

FINDING OF NO SIGNIFICANT IMPACT: Based on the analysis of the potential environmental impacts, I have determined that NO significant impacts are expected from the implementation of Alternative C and, therefore, an environmental impact statement is not required.

ADMINISTRATIVE REVIEW AND APPEAL: Under BLM regulations, this decision is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, no later than 20 business days after this Decision Record is received or considered to have been received.

Any party who is adversely affected by the State Director's decision may appeal that decision to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Field Manager:_____ Date: _____

BUREAU OF LAND MANAGEMENT
BUFFALO FIELD OFFICE
ENVIRONMENTAL ASSESSMENT (EA)
FOR
Williams Production RMT
Tex Draw
PLAN OF DEVELOPMENT
WY-070-08-125

INTRODUCTION

This site-specific analysis tiers into and incorporates by reference the information and analysis contained in the Powder River Basin Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment (PRB FEIS), #WY-070-02-065 (approved April 30, 2003), pursuant to 40 CFR 1508.28 and 1502.21. This document is available for review at the Buffalo Field Office. This project EA addresses site-specific resources and impacts that were not covered within the PRB FEIS.

1. PURPOSE AND NEED

The purpose for the proposal is to produce coal bed natural gas (CBNG) on 5 federal oil and gas mineral leases issued to the applicant by the BLM.

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

The proposed action is in conformance with the terms and the conditions of the Approved Resource Management Plan for the Public Lands Administered by the Bureau of Land Management, Buffalo Field Office (BFO), April 2001 and the PRB FEIS, as required by 43 CFR 1610.5

2. ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1. Alternative A - No Action

A No Action Alternative was considered in the PRB FEIS, Volume 1, pages 2-54 through 2-62. This alternative would consist of no new federal wells. 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." Thus, under this alternative, the operator's proposal would be denied.

2.2. Alternative B Proposed Action

Proposed Action Title/Type: Williams Production RMT's Tex Draw Plan of Development (POD) for 61coal bed natural gas well APD`s and associated infrastructure.

Proposed Well Information: There are 61 wells proposed within this POD, the wells are vertical bores proposed on an 80 acre spacing pattern with 1 well per location. Each well will produce from 1 coal seam. Proposed well house dimensions are 4 ft wide x 4 ft length x 6 ft height. Well house color is Covert Green, selected to blend with the surrounding vegetation. Wells are located as follows:

	Well Name	Well #	QTR	Sec	TWP	RNG	Lease
1	TEX DRAW T CHAIR	14-5*	SWSW	5	43N	76W	WYW134912
2	TEX DRAW T CHAIR	21-5	NENW	5	43N	76W	WYW134912
3	TEX DRAW T CHAIR	23-5	NESW	5	43N	76W	WYW134912

	Well Name	Well #	QTR	Sec	TWP	RNG	Lease
4	TEX DRAW T CHAIR	32-5	SWNE	5	43N	76W	WYW134912
5	TEX DRAW T CHAIR	34-5	SWSE	5	43N	76W	WYW134912
6	TEX DRAW T CHAIR	41-5	NENE	5	43N	76W	WYW134912
7	TEX DRAW T CHAIR	43-5	NESE	5	43N	76W	WYW134912
8	TEX DRAW T CHAIR	14-6	SWSW	6	43N	76W	WYW142079
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12	TEX DRAW T CHAIR	41-6	NENE	6	43N	76W	WYW142079
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17	TEX DRAW T CHAIR	23-7	NESW	7	43N	76W	WYW142080
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22	TEX DRAW T CHAIR	21-8	NENW	8	43N	76W	WYW142080
23	TEX DRAW T CHAIR	32-8	SWNE	8	43N	76W	WYW142080
24	TEX DRAW T CHAIR	41-8	NENE	8	43N	76W	WYW142080
25	TEX DRAW T CHAIR	12-9	SWNW	9	43N	76W	WYW142080
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47	TEX DRAW T CHAIR	14-22	SWSW	22	43N	76W	WYW142081
48	TEX DRAW STATE	31-22	NWNE	22	43N	76W	WYW142081
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59	TEX DRAW T CHAIR	21-28	NENW	28	43N	76W	WYW142835
60	TEX DRAW T CHAIR	32-28	SWNE	28	43N	76W	WYW142835
61	TEX DRAW T CHAIR	41-28	NENE	28	43N	76W	WYW142835

County: Campbell

Applicant: Williams Production RMT

Surface Owners: T-Chair Land Company and Livestock

Project Description:
The proposed action involves the following:

- Drilling of 61 total federal CBM wells in Big George coal zones to depths of approximately 1400 feet.

- 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 POD, but rarely do these restrictions affect an entire POD.

- Gas from productive wells will be measured at header locations in the following sections: 7, 9, 18, 22 and 28 of T43N R76W. All other wells will be measured at the wellhead. Wellhead visits will be once a week and Headers are to be visited daily.

- A Water Management Plan (WMP) will use existing or previously approved infrastructure associated with other Bullwhacker area PODs. Water will be discharged at 3 existing discharge points to flow downstream to 2 existing reservoirs where it will be contained or pumped to other system reservoirs in the area for containment within the Upper Powder River. All water produced in the Tex POD will feed into existing impoundments associated with other Bullwhacker area WMPs (Bullwhacker Creek, Bullwhacker II (WY-070-04-333), Bullwhacker III (WY-07-05-198), East Bullwhacker (WY-070-07-06-137) and West Bullwhacker (WY-070-07-07-104) PODs.) which share common conveyance and storage systems.

- An unimproved and improved road network.

- An above ground power line network to be constructed by the public utility company. The proposed route has been reviewed by the contractor. If the proposed route is altered, then the new route will be proposed via sundry application and analyzed in a separate NEPA action. Power line construction has not been scheduled and will not be completed before the CBNG wells are producing. If the power line network is not completed before the wells are in production, then

temporary diesel generators shall be placed at all power drops.

A storage tank of 1000 gallon capacity shall be located with each diesel generator. Generators are projected to be in operation for 6-12 months. Fuel deliveries are anticipated to be 2 times per week. Noise level is expected to be approximately 75 decibels at 50 feet distance.

- A buried gas, water and power line network, and 2 central gathering/metering facilities.

For a detailed description of design features, construction practices and water management strategies associated with the proposed action, refer to the Master Surface Use Plan (MSUP), Drilling Plan and WMP in the POD and individual APDs. Also see the subject POD and/or APDs for maps showing the proposed well locations and associated facilities described above. More information on CBNG well drilling, production and standard practices is also available in the PRB FEIS, Volume 1, pages 2-9 through 2-40 (January 2003).

Implementation of committed mitigation measures contained in the MSUP, Drilling Program and WMP, in addition to the Standard COA contained in the PRB FEIS Record of Decision Appendix A, are incorporated and analyzed in this alternative.

Additionally, the Operator, in their POD, has committed to:

1. Comply with all applicable Federal, State and Local laws and regulations.
2. Obtain the necessary permits for the drilling, completion and production of these wells including water rights appropriations, the installation of water management facilities, water discharge permits, and relevant air quality permits.
3. Offer water well agreements to the owners of record for permitted water wells within ½ mile of a federal CBNG producing well in the POD
4. Provide water analysis from a designated reference well in each coal zone.

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

2.3. Alternative C – Environmentally Preferred

Alternative C represents a modification of Alternative B based on the operator and BLM working cooperatively to reduce environmental impacts. The description of Alternative C is the same as Alternative B with the addition of the project modifications identified by BLM and the operator following the initial project proposal (Alternative B). At the on-sites, all areas of proposed surface disturbance were inspected to insure that the project would meet BLM multiple use objectives to conserve natural resources while allowing for the extraction of Federal minerals. In some cases, access roads were re-routed, and well locations, pipelines, discharge points and other water management control structures were moved, modified, mitigated or dropped from further consideration to alleviate environmental impacts. Alternatives to the different aspects of the proposed action are always considered and applied as pre-approval changes, site specific mitigation and/or Conditions of Approval (COAs), if they will alleviate environmental effects of the operator's proposal. The specific changes identified for the Tex Draw POD are listed below under 2.3.1:

2.3.1. Changes as a result of the on-sites

1. 14-5 well: Engineered access was re-routed to avoid sandy soils. Access road will stay off of sandy ridgeline at landowner recommendation.

2. 23-5 well: Access was re-routed to reduce steepness in road.

3. 32-5 well: Access was re-routed according to landowner's request to stay higher on the ridgeline.

4. 34-5 well: Well was moved 439' W to get it out of a large drainage where it was originally staked. Well is now located on hillside above drainage. Access will run SW from the new well stake back to the main road.

5. 23-6 well: Corners of this pad can be pulled in 10' on the fill side.

6. 34-6 well: Pits were relocated downhill from the well stake, to allow for the rig to be on a more level location. This location was proposed as a slot, but at the onsite it was decided that a slot wasn't necessary. Instead, some dirt will be moved to level the location for the drill rig, but there will not be any cut and fill done to build an actual slot. Access road was moved to stay closer to the ridgeline, at landowner's request.

7. 43-6 well: Pad corners will be pulled in approximately 20'. Pad will be rounded.

8. 14-7 well: Culverts across drainage on well access road added to map.

9. 23-7 well: Moved well approximately 30' E to a better working location. New location is flatter.

10. 41-7 well: Pad corners on cut slopes will be pulled in approximately 20' at each corner. This will not reduce overall cut along this side of the pad, but will reduce disturbance. Pad corners on fill slope will also be pulled in approx 20'. Engineered road was re-routed to come into the draw and turn left instead of right, and follow a gentler slope out of the other side of the draw. This is the landowner's preferred route.

11. 14-8 well: Access will follow existing 2-track instead of as staked.

12. 21-8 well: There will be a spot upgrade done on the steep portion of the access road.

13. 32-8 well: Moved approx 50' SW to get it off of the pipeline.

14. 41-8 well: Access changed to come in straight from the top of the ridge to the well. Landowner request.

15. 12-9 well: Moved well approx. 30' SW to get it off of pipeline and main road.

16. 21-9 well: Moved well 30' E so that no pad would be needed.

17. 23-9 well: Moved well 75' NW to a better location, and access was moved west at landowner's request.

18. 41-9 well: Access will follow Anadarko's existing fee well access road on the other side of the fence from this well stake. A new gate will be put in the fence between the fee well and this one for access.

19. 21-17 well: Moved well approximately 40' SE. Originally staked location was too close to existing pipeline.

20. 14-17 well: Moved approximately 75' SE, away from pipelines.

21. 23-17 well: Access was moved approximately 200' W to follow existing 2-track.

22. 32-17 well: Access to well was moved to more convenient location to allow for better turning radius.

23. 32-17 well: Access road moved approximately 50' to come in off of point on ridgeline, at landowner's request.

24. 14-18 well: Moved well 100' N to get it out of line of sight of a raptor nest. Engineered section from the fence to the well was dropped; spot upgrade with culvert will be used instead.

25. 43-18 well: Moved access road 25-50' N to stay away from head cut.

26. 12-21 well: Moved well approximately 20' W to get it out of landowner's fenceline 2-track. Moved access road approximately 150' W so it leaves the main road at a high point that will have drainage on both sides.

27. 14-27 well: Access road not flagged according to map. Road should follow ridgeline and come in from the NE, instead of more direct route that was flagged for the onsite.

28. 21-27 well: Pad dropped at this location, due to relatively flat topography.

29. 32-27 well: Moved well approximately 50' S to reduce disturbance.

30. 41-27 well: Moved well approximately 300' E to a better location, to get rid of pad and engineered road. New location needs no pad, no engineered road.

31. 41-28 well: Moved well approximately 30' NW, to a location where a pad will not be required. Pad dropped at this location.

2.3.2. 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.

2.3.2.1. Groundwater

1. In order to address the potential impacts from infiltration on shallow ground water, the Wyoming DEQ has developed and revised a guidance document, "Compliance Monitoring and siting Requirements for Unlined Impoundments Containing Coalbed Methane Produced Water" (September, 2006) which can be accessed on their website. For all WYPDES permits the BLM will require that operators comply with the latest DEQ standards and monitoring guidance.

2.3.2.2. Surface Water

2. Channel Crossings:
   a) Minimize channel disturbance as much as possible by limiting pipeline and road crossings.
   b) Avoid running pipelines and access roads within floodplains or parallel to a stream channel.
   c) Channel crossings by road and pipelines will be constructed perpendicular to flow. Culverts will be installed at appropriate locations for streams and channels crossed by roads as specified in the BLM Manual 9112-Bridges and Major Culverts and Manual 9113-Roads. Streams will be crossed perpendicular to flow, where possible, and all stream crossing structures will be designed to carry the 25-year discharge event or other capacities as directed by the BLM.

d) Channel crossings by pipelines will be constructed so that the pipe is buried at least four feet below the channel bottom.

3. Low water crossings will be constructed at original streambed elevation in a manner that will prevent any blockage or restriction of the existing channel. Material removed will be stockpiled for use in reclamation of the crossings.

4. Concerns regarding the quality of the discharged CBNG water on downstream irrigation use may require operators to increase the amount of storage of CBNG water during the irrigation months and allow more surface discharge during the non-irrigation months.

2.3.2.3. Soils

1. The Companies, on a case by case basis depending upon water and soil characteristics, will test sediments deposited in impoundments before reclaiming the impoundments. Tests will include the standard suite of cations, ions, and nutrients that will be monitored in surface water testing and any trace metals found in the CBNG discharges at concentrations exceeding detectable limits.

2.3.2.4. Wetland/Riparian

1. Power line corridors will avoid wetlands, to the extent possible, in order to reduce the chance of waterfowl hitting the lines. Where avoidance can't occur, the minimum number of poles necessary to cross the area will be used.

2. Wetland areas will be disturbed only during dry conditions or when the ground is frozen during the winter.

3. No waste material will be deposited in riparian areas, flood plains, or in natural drainage ways.

4. Soil or other material stockpiles will be located outside the active floodplain.

5. Disturbed channels will be re-shaped to their approximate original configuration or stable geomorphological configuration and properly stabilized.

6. Reclamation of disturbed wetland/riparian areas will begin immediately after project activities are complete.

2.3.2.5. 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.
2. The Companies will locate facilities so that noise from the facilities at any nearby sage grouse or sharp-tailed grouse display grounds does not exceed 49 decibels (10 dBA above background noise) at the display ground.
3. All stock tanks shall include a ramp to enable trapped small birds and mammals to escape. See Idaho BLM Technical Bulletin 89-4 entitled Wildlife Watering and Escape Ramps on Livestock Water Developments: Suggestions and Recommendations.

2.3.2.6. Threatened, Endangered, or Sensitive Species

2.3.2.6.1. Bald Eagle

1. Special habitats for raptors, including wintering bald eagles, will be identified and considered during

the review of Sundry Notices.

2. Additional mitigation measures may be necessary if the site-specific project is determined by a BLM biologist to have adverse effects to bald eagles or their habitat.

2.3.2.6.2. Black-footed Ferret

1. Prairie dog colonies will be avoided wherever possible.

2.3.2.6.3. Mountain Plover

1. Project-related features that encourage or enhance the hunting efficiency of predators of mountain plover will not be constructed within ¼ mile of occupied mountain plover nesting habitat.

2. Work schedules and shift changes will be set to avoid the periods from 30 minutes before to 30 minutes after sunrise and sunset during June and July, when mountain plovers and other wildlife are most active.

3. Creation of hunting perches or nest sites for avian predators within 0.5 mile of identified nesting areas will be avoided by burying power lines, using the lowest possible structures for fences and other structures and by incorporating perch-inhibiting devices into their design.

4. When above ground markers are used on capped and abandoned wells they will identified with markers no taller than four feet with perch inhibiting devices on the top to avoid creation of raptor hunting perches within 0.5 mile of nesting areas.

5. Reclamation of areas of previously suitable mountain plover habitat will include the seeding of vegetation to produce suitable habitat for mountain plover.

2.3.2.7. Visual Resources

1. The Companies will mount lights at compressor stations and other facilities on a pole or building and direct them downward to illuminate key areas within the facility while minimizing the amount of light projected outside the facility.

2.3.2.8. Noise

1. Noise mufflers will be installed on the exhaust of compressor engines to reduce the exhaust noise.

2. Where noise impacts to existing sensitive receptors are an issue, noise levels will be required to be no greater than 55 decibels measured at a distance of one-quarter mile from the appropriate booster (field) compressor. When background noise exceeds 55dBA, noise levels will be no greater than 5dBA above background. This may require the installation of electrical compressor motors at these locations.

2.3.2.9. Air Quality

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

2.3.3. Site specific mitigation measures

All changes made at the onsite will be followed. They have all been incorporated into the operator's POD.

Surface Use

1. At the landowner's request, all roads in this POD will be constructed so that the top of the backslope is at least 5' from all fencelines.
2. 32-7 well: Pad is in a shallow depression, which drains less than 300' of area. Establish ditches or water bars to divert flow around work area, and stabilize downslope of work area.
3. 21-7 and 34-6 wells: Access roads to these wells have the potential to turn into deep, fine dust in summer. During construction, this will be monitored and at the first sign this is occurring, BLM will be notified to discuss options, such as surfacing, watering the road, etc.
4. 23-6 well: Fill material will be kept out of the draw.
5. 14-6 well: This road will require stabilization measures on fill slopes to prevent erosion.
6. 23-21 well: Access road in erosive soils will need stabilization measures to prevent any migration towards head cuts.
7. 12-28 well: Stake work area boundaries to stay out of sandy blowout areas.
8. 32-27 well: Stabilize pad corners to prevent erosion.
9. 43-27 well: Access road will be used for uranium development. As discussed at the onsite, if running surface is to be wider than 18' it will be at the request of the landowner, and BLM will be notified. Pipeline will be within existing disturbance.
10. The operator will install channel erosion protection measures at the pipeline crossing disturbance approximately ¼ mile downstream of discharge point 006.
11. The operator will repair the headcut mitigation at Headcut 02 downstream of discharge point 018 on Tex Draw.
12. 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 Tex Draw POD is Covert Green, 18-0617 TPX
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. This POD is on private surface and the landowner will indicate which seed mix is desired for reclamation.

Wildlife

Burrowing Owls

The following conditions will alleviate impacts to burrowing owls:

a. No surface disturbing activity shall occur within 0.25 miles of all identified prairie dog colonies from April 15 to August 31, annually, prior to a burrowing owl nest occupancy survey for the current breeding season. A 0.25 mile buffer will be applied to the nest if a burrowing owl nest is identified. This condition will be implemented on an annual basis for the duration of surface disturbing activities within the prairie dog town(s). This timing limitation will be in effect unless surveys determine the nest(s) to be inactive. This timing limitation will affect the following:

Township/Range	Section	Wells and Infrastructure
43/76	7	Wells: 12-7-4376 and 23-7-4376 The proposed Crown and Ditch / proposed corridor in the S1/2NW and N1/2SW of this section. The proposed POD building in the NESW of this section.

Township/Range	Section	Wells and Infrastructure
43/76	17	Wells: 12-17-4376, 14-17-4376, 21-17-4376, 23-17-4376, 32-17-4376, and 34-17-4376 All proposed access and/or pipeline corridors within the entire section except the NWNW of this section.
43/76	18	Wells: 14-18-4376 The proposed primitive road in the S1/4 of this section.
43/76	20	All proposed access and/or pipeline corridors within this entire section.
43/76	22	Wells: 31-22-4376 and 32-22-4376 All proposed access and/or pipeline corridors within the NE of this section.

Mountain Plover

1. The following conditions will alleviate impacts to mountain plovers:
    1) A mountain plover nesting survey is required in suitable habitat prior to commencement of surface disturbing activities in the all identified prairie dog colonies. No surface disturbing activities are permitted in the suitable habitat from March 15-July 31, unless a mountain plover nesting survey has been conducted during the current breeding season. This timing limitation will be in effect unless surveys determine no plovers are present. This timing limitation will affect the following:
    2)

Township/Range	Section	Wells and Infrastructure
43/76	7	Wells: 12-7-4376 and 23-7-4376 The proposed Crown and Ditch / proposed corridor in the S1/2NW and N1/2SW of this section. The proposed POD building in the NESW of this section.
43/76	17	Wells: 12-17-4376, 14-17-4376, 21-17-4376, 23-17-4376, 32-17-4376, and 34-17-4376 All proposed access and/or pipeline corridors within the entire section except the NWNW of this section.
43/76	18	Wells: 14-18-4376 The proposed primitive road in the S1/4 of this section.
43/76	20	All proposed access and/or pipeline corridors within this entire section.
43/76	22	Wells: 31-22-4376 and 32-22-4376 All proposed access and/or pipeline corridors within the NE of this section.

    3) Mountain plover nesting surveys shall be conducted by a biologist following the most current USFWS Mountain Plover Survey Guidelines (the survey period is May 1-June 15). All survey results must be submitted in writing to the BFO and approved prior to initiation of surface disturbing activities.
        a) If occupied mountain plover habitat is identified, then a seasonal disturbance-free buffer of ¼ mile shall be maintained between March 15 and July 31. If no mountain plover observations are identified, then surface disturbing activities may be permitted within suitable habitat until the following breeding season (March 15).
        b) No dogs will be permitted at work sites to reduce the potential for harassment of mountain plovers.

Raptors

2. The following conditions will alleviate impacts to raptors:

a. No surface disturbing activity shall occur within 0.5 mile of all identified raptor nests from February 1 through July 31, annually, prior to a raptor nest occupancy survey for the current breeding season. This timing limitation will affect the following:

Township/Range	Section	Wells and Infrastructure
43/76	5	Wells: 14-5-4376, 21-5-4376, 23-5-4376, 32-5-4376, 34-5-4376, 41-5-4376, and 43-5-4376. All proposed access and/or pipeline corridors within this entire section.
43/76	6	Wells: 14-6-4376, 23-6-4376, 32-6-4376, 41-6-4376, and 43-6-4376 All proposed access and/or pipeline corridors within this entire section except the SWSE of this section.
43/76	7	Wells: 12-7-4376, 12-7-4376, and 23-7-4376 All proposed access and/or pipeline corridors within the SWNW and SW of this section.
43/76	8	Wells: 12-8-4376, 14-8-4376, 21-8-4376, 32-8-4376, and 41-8-4376 All proposed access and/or pipeline corridors within the NW, SWSW, SESW and SENE of this section.
43/76	9	Wells: 21-9-4376, 23-9-4376, 32-9-4376, 34-9-4376, 41-9-4376, and 43-9-4376 All proposed access and/or pipeline corridors within the NE, SE, SENW, NENW, and NWNW of this section. The proposed POD building in the center of this section.
43/76	17	Wells: 12-17-4376, 14-17-4376, 21-17-4376, 23-17-4376, and 32-17-4376. All proposed access and/or pipeline corridors within the NE, NW, SE, NESW, NWSW, and SWSW of this section.
43/76	18	Wells: 14-18-4376 and 43-18-4376 All proposed access and/or pipeline corridors within the S1/2 of this section.
43/76	20	All proposed access and/or pipeline corridors within this entire section.
43/76	21	Wells: 12-21-4376, 14-21-4376, 23-21-4376, 32-21-4376, and 34-21-4376. All proposed access and/or pipeline corridors within the NE, NW, SE, NWSW, SWSW, and SESW of this section.
43/76	22	Wells: 31-22-4376 and 32-22-4376 All proposed access and/or pipeline corridors within this entire section.
43/76	27	Wells: 12-27-4376, 21-27-476, 23-27-4376, and 41-27-4376. All proposed access and/or pipeline corridors within the NW, NENE, SENE, and NWSW of this section and east of the 43-27-4376 well. The proposed POD building in the center of this section.
43/76	28	Wells: 12-28-4376, 21-28-4376, 32-28-4376, and 41-28-4376 All proposed access and/or pipeline corridors within this entire section.

1) Surveys to document nest occupancy shall be conducted by a biologist following BLM protocol, between April 15 and June 30. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities. Surveys outside this window may not depict nesting activity. If a survey identifies active raptor nests, a 0.5 mile timing buffer will be implemented. The timing buffer restricts surface disturbing activities within 0.5 mile of occupied raptor nests from February 1 to July 31.

2) Nest occupancy and productivity checks shall be completed for nests within a ½ mile of any surface disturbing activities (e.g., well drilling, pipeline installation, or road improvements) across the entire POD for as long as the POD is under construction. Once construction of the POD has ceased, nest occupancy and productivity checks shall continue for the first five years on all nests that are within a ½ mile of locations where any surface-disturbing activities took place. Productivity checks shall be completed only on those nests that were verified to be occupied during the initial occupancy check for the current year. The productivity checks shall be conducted no earlier than June 1 or later than June 30 and any evidence of nesting success or production shall be recorded. Survey results will be submitted to a Buffalo BLM biologist in writing no later than July 31 of each survey year.

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

c. Well metering, maintenance and other site visits within 0.5 miles of raptor nests should be minimized as much as possible during the breeding season (February 1 – July 31).

Sage Grouse

1. The following conditions will alleviate impacts to sage-grouse:
   a. No surface disturbing activities are permitted within 2 miles of sage grouse lek(s) between March 1 and June 15, prior to completion of a greater sage grouse lek survey. This condition will be implemented on an annual basis for the duration of surface disturbing activities. This timing limitation will affect the following:

Township/Range	Section	Wells and Infrastructure
43/76	9	Wells: 14-9-4376, 23-9-4376, 32-9-4376, 34-9-4376, 41-9-4376, and 43-9-4376 All proposed access and/or pipeline corridors within the NE, SE, NESW, and SWSW of this section. The proposed POD building in the center of this section.
43/76	21	Wells: 12-21-4376, 14-21-4376, 23-21-4376, 32-21-4376, 34-21-4376, and 43-21-4376. All proposed access and/or pipeline corridors within this entire section.
43/76	22	Wells: 14-22-4376, 31-22-4376, and 32-22-4376 All proposed access and/or pipeline corridors within this entire section.
43/76	27	Wells: 12-27-4376, 14-27-4376, 21-27-4376, 23-27-4376, 32-27-4376, 34-27-4376, 41-27-4376, and 43-27-4376 All proposed access and/or pipeline corridors within this entire section. The proposed POD building in the center of this section.
43/76	28	Wells: 12-28-4376, 21-28-4376, 32-28-4376, and 41-28-4376 All proposed access and/or pipeline corridors within this entire section.

1) If an active lek is identified during the survey, the 2 mile timing restriction (March 1-June 15) will be applied and surface disturbing activities will not be permitted until after the nesting season. If surveys indicate that the identified lek is inactive during the current breeding season, surface disturbing activities may be permitted within the 2 mile buffer until the following breeding season (March 1). The required sage grouse survey will be conducted by a biologist following the most current WGFD protocol. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities.
   a) Well metering, maintenance and other site visits within 2.0 miles of documented sage grouse lek sites should be minimized as much as possible during the breeding season (March 1– June 15).

Sharp-tailed Grouse

The following conditions will minimize impacts to sharp-tailed grouse:

a. A survey is required for sharp-tailed grouse between April 1 and May 7, annually, within the project area for the life of the project and results shall be submitted to a BLM biologist.
b. If an active lek is identified during the survey, the 0.64 mile timing restriction (March 1-June 15) will be applied and surface disturbing activities will not be permitted until after the nesting season. The required sharp-tailed grouse survey will be conducted by a biologist following WGFD protocol. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities.
c. If surveys indicate that the identified lek is inactive during the current breeding season, surface disturbing activities may be permitted within the 0.5 mile buffer until the following breeding season (April 1).
d. Creation of raptor hunting perches will be avoided within 0.64 miles of documented sharp-tailed grouse lek sites. Perch inhibitors will be installed to deter avian predators from preying on grouse.

Swift Fox

1. The following conditions will alleviate impacts to swift fox:

a. a. No surface disturbing activities are permitted in suitable swift fox habitat (i.e. prairie dog colonies) from March 1 to August 31, annually, unless a survey for swift foxes has been conducted during the current breeding season. Survey period is April 15 to June 15. This condition will be implemented on an annual basis for the duration of surface disturbing activities. The surveys will be conducted in active and inactive prairie dog colonies throughout the entire project area. This timing limitation will affect the following:

Township/Range	Section	Wells and Infrastructure
43/76	7	Wells: 12-7-4376 and 23-7-4376 The proposed Crown and Ditch / proposed corridor in the S1/2NW and N1/2SW of this section. The proposed POD building in the NESW of this section.
43/76	17	Wells: 12-17-4376, 14-17-4376, 21-17-4376, 23-17-4376, 32-17-4376, and 34-17-4376 All proposed access and/or pipeline corridors within the entire section except the NWNW of this section.
43/76	18	Wells: 14-18-4376 The proposed primitive road in the S1/4 of this section.
43/76	20	All proposed access and/or pipeline corridors within this entire section.
43/76	22	Wells: 31-22-4376 and 32-22-4376 All proposed access and/or pipeline corridors within the NE of this section.

b. If a swift fox den is identified, then a seasonal disturbance-free buffer of ¼ mile shall be maintained between March1 to August 31. If no swift fox dens are identified, then surface disturbing activities may be permitted within suitable habitat until the following breeding season (March 1).

Water Resources

1. Williams will collect water quality samples and estimate flow rates each spring and fall from the natural spring in Section 17, T43NR76W while production is active in the wells surrounding the location. Results from the analysis of these samples will be used to track water quality and

quantity changes that may result from CBNG development.

Paleontological

Paleontological monitoring examination will be performed when:

1. Bedrock is first uncovered,
2. When the maximum bedrock exposure occurs and prior to any surface treatment or covering,
3. Any other key times that the monitor may deem important, such as during excavation of a particular rock layer or lens which suggests a higher concentration of fossil material.

Any monitoring effort should not only examine the excavated areas, but should also examine any spoil piles for fossil material. All paleontological monitoring will be carried out by a qualified paleontologist with a valid BLM permit. In the event any paleontological resources are discovered, Standard COA III.A.2 will apply.

2.4. Summary of Alternatives

A summary of the infrastructure currently existing within the POD area (Alternative A), the infrastructure originally proposed by the operator (Alternative B), and the infrastructure within the BLM/operator modified proposal (Alternative C) are presented in Table 2.5.

Table 2.5 Summary of the Alternatives

Facility	Alternative A (No Action) Existing Number or Miles	Alternative B (Original Proposal) Proposed Number or Miles	Alternative C (Environmental Alt.) Revised Number or Miles
Total CBNG Wells			
Total Locations	16	61	61
Nonconstructed Pads		50	53
Slotted Pads		1	0
Constructed Pads		10	8
Conventional Wells			
Gather/Metering Facilities	3	2	2
Compressors	0	0	0
Monitor Wells	0	0	0
Impoundments			
On-channel	2	2	2
Off-channel	0	0	0
Water Discharge Points	3	3	3
Treatment Facilities	0	0	0
Improved Roads			
No Corridor	3.55 miles	1.11 miles	1.11 miles
With Corridor	7.54 miles	6.66 miles	5.44 miles

Facility	Alternative A (No Action) Existing Number or Miles	Alternative B (Original Proposal) Proposed Number or Miles	Alternative C (Environmental Alt.) Revised Number or Miles
2-Track Roads No Corridor With Corridor	 0 1.16 miles	 0.97 miles 11.32 miles	 0.97 miles 10.62 miles
Buried Utilities No Corridor With Corridor	0 .012 miles	1.32 miles	3.28 miles
Overhead Powerlines	0.93 miles	1.76 miles	1.76 miles
Communication Sites	0		0
Staging/Storage Areas	0		
Other Disturbance			
Acres of Disturbance	114	182.8	171.7

3. DESCRIPTION OF AFFECTED ENVIRONMENT

Applications to drill were received on 09/18/2007. Field inspections of the proposed Tex Draw CBNG project were conducted on 4/08/2008, 4/09/2008, and 5/14/2008 by:

DATE	NAME	TITLE	AGENCY
4/8-9,5/14/08	Patrick Barker	Project Manager	Western Lands Services
4/8-9,5/14/08	Justin Clyde	Construction Supervisor	Williams
4/8-9,5/14/08	Charlie Bolerjack	Opeations Supervisor	Williams
4/8-9,5/14/08	Randee Jespersen	Landman	Williams
4/8,9,	Kraig Zimmerman	Production Engineer	Williams
4/8,9	Derrick Haakinson	Production Supervisor	Williams
4/8-9	Jerry Means	Consultant	Magna
4/8,9	Kevin Anderson	Operations	Western Land Services
4/8-9	Allen Aksamit	Wildlife Biologist	Western Land Services
4/8-9,5/14/08	Patricia Clark	Landowner	
4/8-9,5/14/08	Gene Mankin	Landowner	
4/8-9,5/14/08	Larry Gerard	Wildlife Biologist	BLM
4/8/08	Chris Williams	Hydrologist	BLM
4/8-9,5/14/08	Wendy Sutton	Archaeologist	BLM
4/8-9,5/14/08	Melanie Hunter	Natural Resource Specialist	BLM

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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. Certain critical environmental components require analysis under BLM policy. These items are presented below in Table 3.1.

Table 3.1 - Critical elements requiring mandatory evaluation are presented below.

Mandatory Item	Potentially Impacted	No Impact	Not Present On Site	BLM Evaluator
Threatened and Endangered Species	X			Larry Gerard Jennifer Morton
Floodplains		X		Melanie Hunter, Chris Williams
Wilderness Values			X	Melanie Hunter
ACECs			X	Melanie Hunter
Water Resources	X			Melanie Hunter, Chris Williams
Air Quality	X			Melanie Hunter
Cultural or Historical Values		X		Wendy Sutton
Prime or Unique Farmlands			X	Melanie Hunter
Wild & Scenic Rivers			X	Melanie Hunter
Wetland/Riparian	X			Melanie Hunter, Chris Williams
Native American Religious Concerns			X	Wendy Sutton
Hazardous Wastes or Solids		X		Melanie Hunter
Invasive, Nonnative Species	X			Melanie Hunter
Environmental Justice		X		Melanie Hunter

Topographic Characteristics of Project AreaThe Tex Draw POD is located north of HWY 387 on the T-Chair Ranch, with access approximately 5 miles west of the junction of HWY 50 and HWY 387. The topography consists of gentle rolling prairie dissected by gentle ephemeral swales and occasional steep erosive ephemeral drainages. Some existing fee and state CBNG development and conventional oil and gas facilities exist in the area.

3.1. Vegetation & Soils

Soils within the project area were identified from the *South Campbell County Survey Area, Wyoming (WY605).* The soil survey was performed by the Natural Resource Conservation Service according to National Cooperative Soil Survey standards. Pertinent information for analysis was obtained from the published soil survey and the National Soils Information System (NASIS) database for the area.

The soils are primarily loamy throughout the project area. There are a few small areas of sandy soils, mainly along ridgelines in the northern part of the project area. Topographic location, slope and elevation do not vary widely in this project area, and changes in soil types are fairly gradual. Topsoil depths to be salvaged for reclamation range from 0 to 4 inches on ridges to 8+ inches in bottomland. Erosion potential varies from moderate to severe depending on the soil type, vegetative cover and slope. Sites highly susceptible to erosion in this project area are found only in steep draws where no development is proposed. Reclamation potential of soils varies somewhat throughout the project area, but is predominantly fair.

Ecological Site Descriptions are used to provide soils and vegetation information needed for resource identification, management and reclamation recommendations. To determine the appropriate Ecological Sites for the area contained within this proposed action, BLM specialists analyzed data from onsite field reconnaissance and Natural Resources Conservation Service published soil survey soils information.

Loamy Sites:

This site occurs on gently undulating to rolling land on landforms which include hill sides, alluvial fans, ridges and stream terraces, in the 10-14 inch precipitation zone.

The soils of this site are moderately deep to deep (greater than 20" to bedrock), well drained soils that formed in alluvium and residuum derived from sandstone and shale. These soils have moderate permeability.

The Historic Climax Plant Community (HCPC - defined as the plant community that was best adapted to the unique combination of factors associated with this ecological site) for this site would be a Rhizomatous Wheatgrasses, Needleandthread, Blue Grama Plant Community. The potential vegetation is about 75% grasses or grass-like plants, 15% forbs, and 10% woody plants.

The present plant community is a *Mixed Sagebrush/Grass*. Compared to the HCPC, cheatgrass has invaded with western wheatgrass and thickspike wheatgrass maintaining at a similar or slightly higher level. Virtually all other cool-season mid-grasses are severely decreased. Blue grama is the same or slightly less than found in the HCPC. Plant diversity is low.

Wyoming big sagebrush is a significant component of this Mixed Sagebrush/Grass plant community. Cool-season grasses make up the majority of the understory with the balance made up of short warm-season grasses, annual cool-season grass, and miscellaneous forbs. Dominant grasses identified include: cheatgrass, western wheatgrass, blue grama.

Sandy Sites:

This site occurs on nearly level to 50 percent slopes on landforms which include alluvial fans, hillsides, plateaus, ridges and stream terraces in the 10-14”precipitation zone.

The soils of this site are moderately deep to very deep (greater than 20”to bedrock), well drained soils that formed in eolian deposits or residuum derived from unspecified sandstone. These soils have moderate, moderately rapid or rapid permeability. The main soil limitations include low available water holding capacity, and high wind erosion potential.

The Historic Climax Plant Community for this site would be a Needleandthread/Prairie sandreed Plant Community. Potential vegetation is about 75% grasses or grass-like plants, 15% forbs, and 10% woody plants. The state is a mix of warm and cool season midgrasses.

The present plant community is a *Needleandthread/threadleaf sedge/Fringed sagewort* plant community. Compared to the HCPC, prairie sandreed and Indian ricegrass have decreased. Threadleaf sedge, needleand thread and fringed sagewort have increased.

Dominant grasses identified include: Needleandthread, threadleaf sedge, cheatgrass, Indian ricegrass. Other vegetative species identified at onsite: Prickly pear, yucca.

3.1.1. Wetlands/Riparian

Narrow strips of wetland and riparian vegetation are found along existing perennialized stream segments and reservoirs, and around and downstream of the spring located at T43R76 S17. Occasional stands of cottonwoods tree are found along Cottonwood Creek and Tex Draw.

3.1.2. Invasive Species

No state-listed noxious weeds and/or weed species of concern infestations were discovered by a search of inventory maps or databases on the CBM Clearinghouse website (http://www.cbmclearinghouse.info/).

The CBM Clearinghouse database was created cooperatively by the University of Wyoming, BLM and county Weed and Pest offices. The operator or the BLM documented the following weed species during subsequent field investigations:

- Canadian Thistle
- Black Henbane
- Cheatgrass

The landowner on this project has also expressed concern about Russian knapweed invasions due to coal bed methane development.

The state-listed noxious weeds are listed in PRB FEIS Table 3-21 (p. 3-104) and the Weed Species of Concern are listed in Table 3-22 (p. 3-105).

3.2. Wildlife

Land cover within the project area consists of mosaic stands of dense to moderate sagebrush with herbaceous understory such as needle and thread, western wheatgrass, cheatgrass, and threadleaf sedge. Occasional juniper trees are located along incised draws, and concentrated stands of cottonwood trees are located along the Dry Fork Powder River and Seventeen Mile Creek. Current land uses within the project area include livestock grazing and CBNG development.

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

A habitat assessment and wildlife inventory surveys were performed by Wildlife Resources, LLC. Wildlife Resources performed surveys for Ute ladies'-tresses orchid, bald eagles, mountain plover, sharp-tailed grouse, greater sage-grouse, raptor nests, and prairie dog colonies according to Powder River Basin Interagency Working Group (PRBIWG) accepted protocol in 2007 and 2008. PRBIWG accepted protocol is available on the CBM Clearinghouse website (www.cbmclearinghouse.info).

A BLM biologist conducted field visits on April 8, 9, and 15, 2008. During this time, the biologist reviewed the wildlife survey information for accuracy, evaluated impacts to wildlife resources, and provided project modification recommendations where wildlife issues arose.

Wildlife species common to the habitat types present are identified in the PRB FEIS (pg. 3-114). Species that have been identified in the project area or that have been noted as being of special importance are described below.

3.2.1. Big Game

Big game species expected to be within the Tex Draw POD project area include pronghorn antelope and mule deer. The WGFD has determined that the project area contains Winter-Yearlong range for pronghorn antelope and mule deer.

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. During the winter months

there is a significant influx of additional animals into the area from other seasonal ranges. Big game range maps are available in the PRB FEIS (3-119-143), the project file, and from the WGFD.

3.2.1.1.1.

3.2.2. Aquatics

The project area is drained by Cottonwood Creek and Seventeen Mile Creek, ephemeral tributaries of the Dry Fork of the Powder River. Fish that have been identified in the Powder River watershed are listed in the PRB FEIS (3-156-159).

Amphibian and reptile species occur throughout the Basin, but there is little recorded baseline information available about them. Confluence Consulting, Inc. identified the following species present within the Clear Creek and Powder River watersheds: Woodhouse's toad, Northern leopard frog, gopher snake, and garter snake (2004).

3.2.3. Migratory Birds

A wide variety of migratory birds may be found in the proposed project area at some point throughout the year. Migratory birds are those that migrate for the purpose of breeding and foraging at some point in the calendar year. Many species that are of high management concern use shrub-steppe and shortgrass prairie areas for their primary breeding habitats (Saab and Rich 1997). Migratory bird species of management concern that may occur in the project area are listed in the PRB FEIS (3-151)

3.2.4. Raptors

Raptors species expected to occur in suitable habitats within the Powder River Basin include northern harrier, golden eagle, red-tailed hawk, Swainson's hawk, ferruginous hawk, American kestrel, prairie falcon, short-eared owl, great horned owl, bald eagle, rough-legged hawk, merlin, Cooper's hawk, northern goshawk, long-eared owl, and burrowing owl. Most raptor species nest in a variety of habitats including, but not limited to, native and non-native grasslands, agricultural lands, live and dead trees, cliff faces, rock outcrops, and tree cavities.

Ninety-eight raptor nest sites were identified by Wildlife Resources (Brown 2008) and BLM within 0.5 mile of the project area. Of these, 24 nests were active in 2008.

Table 3.2.4. Documented raptor nests within the Tex Draw Federal POD project area.

SPECIES	BLM ID #	T	R	SECT. QQ	UTME	UTMN	CONDITION / YEAR	STATUS / YEAR
GHOW	5460	43	76	14,SW/SW	422099	4838740	Poor / 08 Unknown / 07	Inactive / 08 Active / 07
UNK	4230	43	76	15, SE/SW	421022	4838258	Poor / 08 Unknown / 07 Poor / 06	Inactive / 08 Inactive / 07 Inactive / 06
RTHA	4114	43	76	10, NW/NE	421300	4841470	Good / 08 Unknown / 07 Poor / 06	Active / 08 Active / 07 Inactive / 06
GOEA	4231	43	76	14, SE/SW	422600	4838555	Poor / 08 Unknown / 07 Good / 06	Inactive / 08 Inactive / 07 Inactive / 06
RTHA	5464	43	76	16, NE/SE	420304	4838724	Good / 08	Active / 08
UNK	5466	43	76	4, SE/SW	419365	4841827	Fair / 08	Inactive / 08
FEHA	5470	43	76	4, NW/SW	419236	4842314	Poor / 08	Inactive / 08
RTHA	4226	43	76	26,NW/NW	422362	4836365	Good / 08 Good / 07	Active / 08 Active / 07

SPECIES	BLM ID #	T	R	SECT. QQ	UTME	UTMN	CONDITION / YEAR	STATUS / YEAR
							Good / 06	Active / 06
UNK	5423	43	76	32,NW/SW	417344	4833817	Fair / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
GHOW	5471	42	76	5, NW/NW	417203	4833122	Poor / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5472	42	76	5, NW/NW	417187	4833080	Poor / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
GHOW	5473	43	76	34, SE/NE	421563	4834240	Good / 08 Unknown / 07	Active / 08 Active / 07
RTHA	5474	43	76	26, SE/SW	422543	4835297	Good / 08	Active / 08
UNK	5475	43	76	34, SE/NE	421690	4834255	Poor / 08	Inactive / 08
RTHA	5476	43	76	26, NE/SW	422487	4835576	Good / 08	Active / 08
GHOW	5477	43	76	30,SW/NW	415680	4836155	Good / 08 Unknown / 07 Unknown / 06	Inactive / 08 Active / 07 Active / 06
GHOW	5478	43	76	7, NW/SW	415530	4840530	Poor / 08 Unknown / 07	Inactive / 08 Active / 07
RTHA	5480	43	76	29, NE/NE	418583	4836300	Good / 08 Unknown / 07	Active / 08 Active / 07
RTHA	5483	43	76	18,SW/SW	415825	4838310	Poor / 08	Inactive / 08
RTHA	5486	43	76	16, SE/NW	419491	4839078	Good / 08 Unknown / 07	Inactive / 08 Active / 07
RTHA	5487	43	76	19, NW/NE	416557	4837912	Good / 08 Unknown / 07 Unknown / 06	Inactive / 08 Active / 07 Active / 06
RTHA	4219	43	76	22, SE/SW	420995	4836835	Gone / 08 Unknown / 07 Good / 06	Inactive / 08 Active / 07 Active / 06
GHOW	5488	43	76	6, NW/SW	415875	4842396	Fair / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Active / 06
RTHA	5489	43	76	6, SE/NE	417026	4842705	Good / 08 Unknown / 07 Unknown / 06	Active / 08 Active / 07 Active / 06
RTHA	4221	43	76	5, NW/NE	418250	4842947	Gone / 08 Unknown / 07 Good / 06	Inactive / 08 Active / 07 Active / 07
LOOW	5491	43	76	16,SW/NW	418730	4839255	Good / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Active / 06
GHOW	4222	43	76	16, NE/SE	420333	4838802	Fair / 08 Unknown / 07 Fair / 06	Inactive / 08 Inactive / 07 Active / 06
RTHA	4223	43	76	16, NW/NE	419773	4839591	Good / 08	Inactive / 08

SPECIES	BLM ID #	T	R	SECT. QQ	UTME	UTMN	CONDITION / YEAR	STATUS / YEAR
							Unknown / 07 Good / 06	Inactive / 07 Active / 06
GHOW / RTHA	4224	43	76	10,NW/NW	420630	4841310	Good / 08 Unknown / 07 Good / 06	Active / 08 Inactive / 07 Active / 06
GHOW	4225	43	76	28, NE/NE	420330	4836410	Good / 08 Unknown / 07 Good / 06	Inactive / 08 Inactive / 07 Active / 06
RTHA	5493	43	76	28, NW/NE	419830	4836409	Good / 08 Unknown / 07 Unknown / 06	Inactive / 08 Active / 07 Active / 06
GOEA	4500	43	76	20, NE/NE	418591	4837803	Good / 08 Unknown / 07 Good / 06	Active / 08 Active / 07 Active / 06
RTHA	5495	43	76	21, NE/NW	419454	4837968	Good / 08 Unknown / 07	Inactive / 08 Inactive / 07
GOEA	5496	43	76	32,SW/SW	417076	4833816	Good / 08 Unknown / 07 Unknown / 06	Active / 08 Active / 07 Active / 07
UNK	5499	43	76	7, NW/SW	415505	4840463	Poor / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5500	43	76	7, NW/SW	415529	4840487	Gone / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5503	43	76	19,NW/NW	415820	4838240	Good / 08 Unknown / 07 Unknown / 06 Fair / 05	Inactive / 08 Inactive / 07 Inactive / 06 Inactive / 05
UNK	5504	43	76	30,SW/NW	415674	4836131	Gone / 08 Poor / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5505	43	77	25, NE/SE	415348	4835550	Gone / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5507	43	77	25, SE/SE	415354	4835530	Gone / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
GHOW	5513	43	76	30,SW/SW	415651	4835483	Fair / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5515	43	76	31, SW/NE	416667	4834446	Remnants / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	4497	43	76	17, SE/SE	418438	4838503	Gone / 08 Unknown / 07 Fair / 06	Inactive / 08 Inactive / 07 Inactive / 06

SPECIES	BLM ID #	T	R	SECT. QQ	UTME	UTMN	CONDITION / YEAR	STATUS / YEAR
UNK	4498	43	76	16, SE/SW	419268	4838365	Poor / 08 Unknown / 07 Fair / 06	Inactive / 08 Inactive / 07 Inactive / 06
RTHA	5526	44	77	36, SE/SE	415362	4843449	Good / 08 Unknown / 07 Unknown / 07	Inactive / 08 Inactive / 07 Inactive / 06
RTHA	5527	44	77	36, SE/SE	415450	4843505	Good / 08 Unknown / 07 Unknown / 06	Active / 08 Active / 07 Inactive / 06
GHOW	5528	43	76	6, NW/NE	416534	4842999	Good / 08 Unknown / 07 Unknown / 06	Active / 08 Inactive / 07 Inactive / 06
UNK	5529	43	76	6, NW/NE	416639	4843116	Gone / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5530	44	76	31, SW/SE	416731	4843275	Poor / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	4233	43	76	5, SE/SW	417641	4841935	Poor / 08 Unknown / 07 Poor / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	4234	43	76	8, NE/NW	417750	4841370	Poor / 08 Unknown / 07 Poor / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5531	43	76	17, NE/NW	417680	4839800	Gone / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
RTHA	5532	43	76	17,NW/NW	417390	4839590	Good / 08 Unknown / 07 Unknown / 06	Inactive / 08 Active / 07 Inactive / 06
RTHA	5533	43	76	17,NW/NW	417380	4839615	Good / 08 Unknown / 07 Unknown / 06	Active / 08 Inactive / 07 Inactive / 06
UNK	5534	43	76	16,SW/NW	418790	4839206	Fair / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5535	43	76	16,SW/NW	418720	4839265	Good / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	4235	43	76	16, SE/NW	419530	4839180	Good / 08 Unknown / 07 Fair / 06	Active / 08 Inactive / 07 Inactive / 06
UNK	4236	43	76	16, SW/NE	419575	4839390	Poor / 08 Unknown / 07 Poor / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	4237	43	76	16, NW/NE	419799	4839627	Good / 08 Unknown / 07 Fair / 06	Inactive / 08 Inactive / 07 Inactive / 06

SPECIES	BLM ID #	T	R	SECT. QQ	UTME	UTMN	CONDITION / YEAR	STATUS / YEAR
UNK	4238	43	76	9, NW/NE	419865	4841205	Poor / 08 Unknown / 07 Remnants / 06	Inactive / 08 Inactive / 07 Inactive / 06
GHOW	4239	43	76	10,NW/NW	420635	4841350	Poor / 08 Unknown / 07 Fair / 06	Inactive / 08 Active / 07 Inactive / 06
UNK	5536	43	76	28, NE/NE	420374	4836093	Unknown / 08 Poor / 07	Inactive / 08 Inactive / 07
GOEA	5537	43	76	17, SW/SE	418170	4838235	Unknown / 08 Gone / 07	Inactive / 08 Inactive / 07
GOEA	5494	43	76	20, NE/NE	418662	4837768	Poor / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5497	43	76	19, NE/NE	416260	4837600	Gone / 08 Unknown / 07	Inactive / 08 Inactive / 07
UNK	5498	43	76	9, NE/NE	420043	4841525	Good / 08 Unknown / 07	Active / 08 Inactive / 07
UNK	5501	43	76	9, NE/NE	420041	4841500	Poor / 08 Unknown / 07	Inactive / 08 Inactive / 07
UNK	5502	43	76	9, SW/SE	419913	4840200	Poor / 08	Inactive / 08
FEHA	5743	43	76	30, NE/NE	416876	4836232	Unknown / 08 Fair / 07	Inactive / 08 Inactive / 07
UNK	4503	43	76	29, NE/NE	418480	4836380	Poor / 08 Unknown / 07 Poor / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	4502	43	76	19, NW/SE	416604	4837147	Poor / 08 Unknown / 07 Fair / 06	Inactive / 08 Inactive / 07 Inactive / 06
RTHA	5506	43	76	22, NW/SE	421450	4837011	Good / 08	Active / 08
GHOW	5508	43	76	5, SE/NE	418628	4842808	Good / 08	Active / 08
RTHA	5509	43	76	5, NW/NE	418289	4843250	Good / 08	Active / 08
UNK	5510	44	77	36, SE/SE	415255	4843402	Good / 08	Inactive / 08
GHOW	5511	43	76	20, NE/SE	418271	4837232	Good / 08	Active / 08
GHOW	5512	43	76	7, NW/SW	415536	4840531	Good / 08 Unknown / 07 Unknown / 06	Active / 08 Inactive / 07 Active / 06
GHOW	5514	43	76	33, NE/NE	420000	4834400	Good / 08 Unknown / 07 Unknown / 06	Inactive / 08 Active / 07 Inactive / 06
UNK	5516	43	76	28, SW/SE	419553	4835038	Poor / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
RTHA	4501	43	77	24, NE/SE	415309	4837495	Good / 08 Unknown / 07 Good / 06	Active / 08 Active / 07 Active / 06
RTHA	4504	43	77	25, NE/NE	415296	4836310	Good / 08 Unknown / 07	Active / 08 Active / 07

SPECIES	BLM ID #	T	R	SECT. QQ	UTME	UTMN	CONDITION / YEAR	STATUS / YEAR
							Good / 06	Active / 06
GHOW	5517	43	77	25, NE/SE	415350	4835559	Good / 08 Unknown / 07 Unknown / 06	Inactive / 08 Active / 07 Active / 06
GHOW	4715	43	76	31, SW/NE	416617	4834457	Poor / 08 Good / 07 Unknown / 06	Inactive / 08 Active / 07 Active / 06
UNK	5519	43	77	12, NW/SE	414844	4840554	Poor / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5518	43	77	12, NW/SE	415072	4840725	Remnants / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5041	43	77	12, NW/SE	414776	4840505	Poor / 08 Fair / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5520	43	77	12, NE/SE	415261	4840588	Remnants / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
RTHA	2840	43	77	24, NE/SE	415278	4837243	Good / 08 Good / 07 Fair / 06 Good / 05 Good / 04	Inactive / 08 Active / 07 Inactive / 06 Active / 05 Inactive / 04
UNK	5521	43	77	24, SE/SE	415167	4837196	Poor / 08 Unknown / 07 Unknown / 06 Remnants / 05	Inactive / 08 Inactive / 07 Inactive / 06 Inactive / 05
UNK	5522	43	76	31, NE/NW	416106	4834823	Poor / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5523	43	76	31, SW/NE	416352	4834467	Gone / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
UNK	5524	43	76	31, SW/NE	416596	4834451	Poor / 08 Unknown / 07	Inactive / 08 Inactive / 07
RTHA	2839	43	77	24, SE/NE	415425	4837753	Poor / 08 Poor / 07 Poor / 06 Unknown / 05 Good / 04	Inactive / 08 Inactive / 07 Inactive / 06 Inactive / 05 Active / 04
RTHA	5525	42	77	24, SE/NW	414256	4827698	Good / 08	Active / 08
RTHA	4226	43	76	26, NE/NE	422362	4836365	Good / 08 Good / 07 Good / 06	Active / 08 Active / 07 Active / 06
UNK	5529	43	76	6, NW/NE	416639	4843116	Gone / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06

SPECIES	BLM ID #	T	R	SECT. QQ	UTME	UTMN	CONDITION / YEAR	STATUS / YEAR
UNK	5536	43	76	27, SW/NW	420374	4836093	Poor / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06
GOEA	5537	43	76	20, NW/NE	418170	4838235	Gone / 08 Unknown / 07 Unknown / 06	Inactive / 08 Inactive / 07 Inactive / 06

Species

GOEA = Golden Eagle LEOW = Long-eared Owl GHOW = Great Horned Owl
RTHA = Red-tailed Hawk UNK = Unknown

3.2.5. Threatened and Endangered and Sensitive Species

3.2.5.1. Threatened and Endangered Species

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

3.2.5.1.1. Black-footed ferret

The USFWS listed the black-footed ferret as Endangered on March 11, 1967. 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).

Active reintroduction efforts have reestablished populations in Mexico, Arizona, Colorado, Montana, South Dakota, Utah, and Wyoming. In 2004, the WGFD identified seven 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).

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 USFWS has also concluded that black-tailed prairie dog colonies within Wyoming are unlikely to be inhabited by black-footed ferrets (Kelly 2004).

Five black-tailed prairie dog colonies were identified during site visits by Wildlife Resources (Brown 2007) within the project area. An additional 201,628 acres of habitat exists within 1.5 kilometers of continuous connectivity between prairie dog towns. The project area is located within the Linch potential reintroduction area complex. Black-footed ferret habitat is present within the Tex Draw project area.

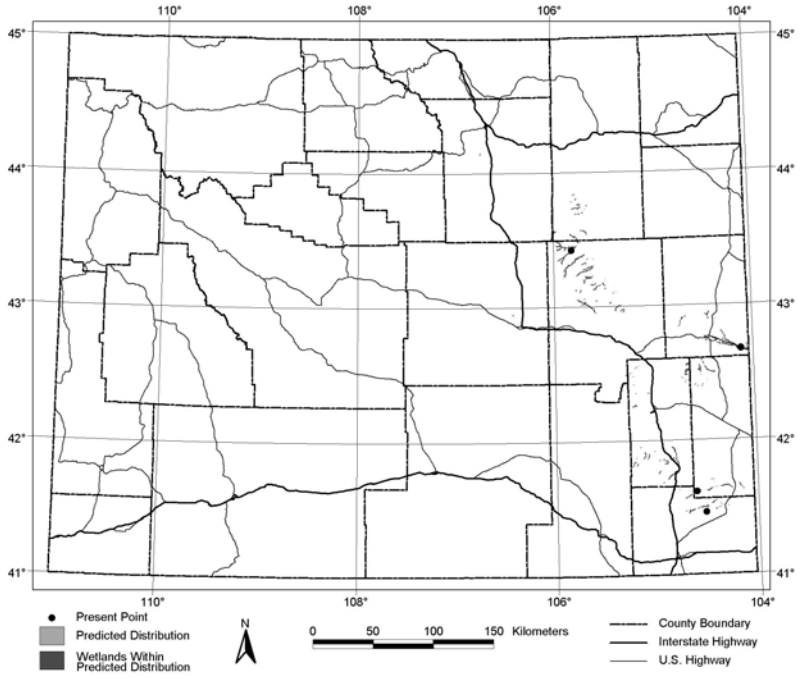
Table 3.3.5. Black-tailed prairie dog colonies within and surrounding the Tex Draw project area.

Legal Location	Approximate Size (acres)	Status
Within the project area		
Sec. 16,18, 20, T43N, R76W	380	Active
Sec.19, 30,T43N, R76W	248	Active
Sec. 20	20	Active
Sec.31	565	Active
Sec. 7	11	Active
Total	**1224**	

3.2.5.1.2. 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 perimeters of lakes or perennial streams that become inundated during large precipitation events. A Wyoming Natural Diversity Database model predicts undocumented populations may be present particularly within southern Campbell and northern Converse Counties.

Figure 3.1. Predicted Distribution of Ute ladies'-tresses in Wyoming



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, Ute ladies'-tresses orchid (*Spiranthes diluvialis*) blooms from early August to early September, with fruits produced in mid August to September (Fertig 2000).

Within this Tex Draw project area, Cottonwood Creek, Seventeen-mile Creek, and their tributaries are ephemeral tributaries of the Powder River. A spring occurs in a large tributary of Cottonwood Creek (NESE Section 17, T43N, R76W). No flowing water was present at any of the crossings. Locations are surrounded by rugged terrain and the vegetation consisted primarily of upland species. The spring did not exhibit characteristics of Ute ladies' tresses habitat such as surface hydrology, saturated soils, similar vegetation, and adequate terrain. There was no flowing water in the channel downstream from the spring where the proposed road is to be built, and the vegetation was too dense and overgrown on the banks of the spring. No intermittent band of vegetation between the cattails and sedges to upland vegetation was present (Cooper 2007). Suitable orchid habitat is not present within the Tex Draw project area.

3.2.5.2. Sensitive Species

The USDI Bureau of Land Management (BLM) Wyoming has prepared a list of sensitive species to focus species management efforts towards maintaining habitats under a multiple use mandate. Prairie dog colonies and sagebrush ecosystems are the most common habitat types within the Powder River Basin and contain habitat components required in the life cycle of several sensitive species. These are described below in general terms. Those species within the Powder River Basin that were once listed or candidates for listing under the Endangered Species Act of 1973 and remain BLM Wyoming sensitive species are described in more detail. The authority for this 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.

3.2.5.2.1. Prairie dog colony obligates

Prairie dog colonies create habitat for many species of wildlife (King 1955, Reading et al. 1989). Agnew (1986) found that bird species diversity and rodent abundance were higher on prairie dog towns than on mixed grass prairie sites. Several studies (Agnew 1986, Clark 1982, Campbell and Clark 1981 and Reading et al. 1989) suggest that species richness increases with colony size and regional colony density. Prairie dog colonies attract many insectivorous and carnivorous birds and mammals because of the concentration of prey species (Clark 1982, Agnew 1986, Agnew 1988).

In South Dakota, forty percent of the wildlife taxa (134 vertebrate species) are associated with prairie dog colonies (Agnew 1983, Apa 1985, McCracken et al. 1985, Agnew 1986, Uresk and Sharps 1986, Deisch et al. 1989). Of those species regularly associated with prairie dog colonies, six are on the Wyoming BLM sensitive species list: swift fox (*Vulpes velox*), mountain plover (*Charadrius montanus*), ferruginous hawk (*Buteo regalis*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), and long-billed curlew (*Numenius americanus*).

3.2.5.2.2. Sagebrush obligates

Sagebrush ecosystems support a variety of species. Sagebrush obligates are animals that cannot survive without sagebrush and its associated perennial grasses and forbs, or in other words, species requiring sagebrush for some part of their life cycle. Sagebrush obligates within the Powder River Basin listed as sensitive species by BLM Wyoming, include Brewer's sparrow, sage thrasher, sage sparrow, and greater sage-grouse. Sage sparrows, Brewer's sparrows, greater sage-grouse, and sage thrashers all require sagebrush for nesting, with nests typically located within or under the sagebrush canopy. Sage thrashers usually nest in tall dense clumps of sagebrush within areas having some bare ground for foraging. Sage sparrows prefer large continuous stands of sagebrush, and Brewer's sparrows are associated closely with sagebrush habitats having abundant scattered shrubs and short grass (Paige and Ritter 1999). Other sagebrush obligate species include sagebrush vole, pronghorn antelope, and sagebrush lizard. Greater sage-grouse will be discussed in more detail later in this document.

3.2.5.2.3. Bald eagle

On February 14, 1978, the bald eagle was listed as Endangered under the ESA. On August 8, 2007, the bald eagle was removed from the list. The bald eagle remains under the protection of the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. In order to avoid violation of these laws and uphold the BLM's commitment to avoid any future listing of this species, all conservation measures and terms and conditions identified in the Powder River Basin Oil and Gas Project Biological Opinion (WY07F0075) (USFWS 2007) shall continue to be complied with.

Bald eagle nesting habitat is generally found in areas that support large mature trees. Eagles typically build their nests in the crown of mature trees that are close to a reliable prey source. This species feeds primarily on fish, waterfowl, and carrion. In more arid environments, such as the Powder River Basin, prairie dogs, ground squirrels, and lagomorphs (hares and rabbits) can make up the primary prey base.

The diets of wintering bald eagles are often more varied. In addition to prairie dogs, ground squirrels, and lagomorphs, carcasses of domestic sheep and big game may provide a significant food source in some areas. Historically, sheep carcasses from large domestic sheep ranches provided a reliable winter food source within the Powder River Basin (Patterson and Anderson 1985). Today, few large sheep operations remain in the Powder River Basin. Wintering bald eagles may congregate in roosting areas generally made up of several large trees clumped together in stands of large ponderosa pine, along wooded riparian corridors, or in isolated groups. Bald eagles often share these roost sites with golden eagles as well.

In the Tex Draw project area, the areas along Dry Fork Creek, Cottonwood Creek and Seventeen Mile Creek are dominated by cottonwood forest. These areas and isolated cottonwood trees/stands in upland habitat serve as suitable roosting/nesting habitat within the POD boundary (Brown 2007). Domestic sheep, waterfowl, prairie dogs, and an aquatic food base exist within a 10 mile radius of the proposed project.

Table 3.4.6. Bald Eagle observations within 1 mile of Tex Draw Project

Date	UTM E	UTM N	Legal	Individuals
12/29/2005	415263	4837125	SE Sec 24, T43N, R76W	1
02/28/2007	419539	4838005	N Sec 21, T43N, R76W	1
12/13/2006	419507	4837970	N Sec 21, T43N, R76W	1
01/06/2007	419200	4838300	SE Sec 16, T43N, R76W	2
01/17/2007	416493	4838322	SW Sec 18, T43N, R76W	1

3.2.5.2.4.

3.2.5.2.5. Black-tailed prairie dog

The black-tailed prairie dog was added to the list of Candidate species for listing under the ESA on February 4, 2000 (USFWS 2000). On August 12, 2004, the USFWS removed the black-tailed prairie dog's Candidate status. BLM Wyoming considers prairie dogs as a sensitive species and continues to afford this species the protections described in the PRB FEIS.

The black-tailed prairie dog is a diurnal rodent inhabiting prairie and desert grasslands of the Great Plains. Due to human-caused factors, black-tailed prairie dog populations are now highly fragmented, and isolated (Miller 1994). Most colonies are small and subject to potential extirpation due to inbreeding, population fluctuations, and other problems, such as landowner poisoning and disease that affect long term population viability (Primack 1993, Meffe and Carroll 1994, Noss and Cooperrider 1994).

The black-tailed prairie dog is considered common in Wyoming, although its abundance fluctuates with activity levels of Sylvatic plague and the extent of control efforts by landowners. Comparisons with 1994 Digital Ortho Quads indicated that black-tailed prairie dog acreage remained stable from 1994 through 2001. However, aerial surveys conducted in 2003 to determine the status of known colonies indicated that a significant portion (approximately 47%) of the prairie dog acreage was impacted by Sylvatic plague and/or control efforts (Grenier 2004).

Five black-tailed prairie dog colonies, totaling approximately 1224 acres were identified during site visits by Wildlife Resources (Brown 2007) within the project area (See Table 5 of this EA).

3.2.5.2.6. Burrowing owl

The burrowing owl is a small, long-legged owl found throughout open landscapes of North and South America. Burrowing owls can be found in grasslands, rangelands, agricultural areas, deserts, or any dry open area with low vegetation where abandoned burrows dug by mammals such as ground squirrels (*Spermophilus spp*.), prairie dogs (*Cynomys spp.),* and badgers (*Taxidea taxus*) are available. Black-tailed prairie dog colonies provide the primary habitat for burrowing owls (Klute et al. 2003).

The western burrowing owl has declined significantly throughout its North American range. Current population estimates for the United States are not well known, but trend data suggest significant declines (McDonald et al. 2004). The last official population estimate placed them at less than 10,000 breeding pairs. The majority of the states within the owl's range have recognized that western burrowing owl populations are declining. It is listed as a sensitive species by the BLM throughout the west and by the USDAFS. Primary threats across the North American range of the burrowing owl are habitat loss and fragmentation primarily due to intensive agricultural and urban development, and habitat degradation due to declines in populations of colonial burrowing mammals (Klute et al. 2003).

Burrowing owl nesting habitat consists of open areas with mammal burrows. Individual burrowing owls have moderate to high site fidelity to breeding areas and even to particular nest burrows (Klute et al. 2003). Burrow and nest sites are reused at a higher rate if the bird has reproduced successfully during the previous year. Favored nest burrows are those in relatively sandy sites (possibly for ease of modification and drainage), areas with low vegetation around the burrows (to facilitate the owl's view and hunting success), holes at the bottom of vertical cuts with a slight downward slope from the entrance, and slightly elevated locations. In Wyoming, egg laying begins in mid-April. Incubation is assumed to begin at the mid-point of the laying period and lasts for 26 days (Olenick 1990). Young permanently leave the primary nest burrow around 44 days from hatch (Landry 1979). Juveniles will continue to hunt with and associate with parents until migration (early September through early November) (Haug 1985).

1224 acres of prairie dog towns exist within the Tex Draw POD. Surveys by Wildlife Resources did not document any burrowing owl nests within the project area.

3.2.5.2.7. Grouse

3.2.5.2.7.1. Greater sage-grouse

The greater sage-grouse is listed as a sensitive species by BLM (Wyoming). In recent years, several petitions have been submitted to the USFWS to list greater sage-grouse as Threatened or Endangered under the ESA. On January 12th, 2005, the 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 the USFWS' decision-making process was flawed and ordered the USFWS to conduct a new Status Review as a result of a lawsuit and questions surrounding the 2005 review (Winmill Decision Case No. CV-06-277-E-BLW, December 2007).

Greater sage-grouse are found in prairie, sagebrush shrublands, other shrublands, wet meadows, and agricultural areas; they depend upon substantial sagebrush stands for nesting and winter survival (BLM 2003). Suitable sage-grouse habitat is present throughout the project area. The sagebrush cover type varies from moderate to dense sagebrush/grassland. Approximately 65 percent of the project area meets seasonal habitat requirements and are large enough to meet the landscape scale requirements of the bird (BLM 2008). Three grouse were seen in Section 16, next to the main road, by the BLM biologist during the onsite visit. BLM records identified 16 sage grouse leks within 4 miles of the Tex Draw POD. The 4-mile distance is recommended by the State wildlife agencies' ad hoc committee for consideration of oil and gas development effects to nesting habitat (WGFD 2008). These 16 lek sites are identified below (Table 6).

Table 3.5.6. Sage-grouse leks surrounding the Tex Draw POD project area.

LEK NAME	LEGAL LOCATION	OCCUPANCY AND ACTIVITY STATUS IN (YEAR) - (PEAK MALES)	DISTANCE FROM PROJECT AREA (MILES)
Dry Willow	NENW Sec 34 T47N, R77W	Occupied 2005-23, 2006-70, 2007-46	2.5
Windmill North	SESE Sec 35 T44N, R76W	Occupied 2006-25, 2007-27	2.4
Windmill Northwest	NESW Sec 2 T43N, R76W	Occupied 2001-12, 2002-18, 2003-15, 2004-7, 2005-3, 2006-1, 2007-8	1.5
Beecher Draw	NESW Sec 2 T43N, R77W	Occupied 2006-11, 2007-4	1.9
Bushwacker Creek 1	NESE Sec 22 T43N, R77N	Occupied 2004-12, 2005-24, 2006-22, 2007-14	2.5
Windmill	SESE Sec 2 T43N, R76W	Occupied 1998-1, 1999 to 2000-0, 2001-6, 2002-0, 2003-3, 2004-2, 2005-12, 2006-3, 2007-4	2.1
Cottonwood Creek 2	SESE Sec 15 T43N, R76W	Occupied 2005-12, 2006-25, 2007-21	0.26
Cottonwood Creek 1	SENW Sec 33 T43N, R76W	Occupied 2005-15, 2006-29, 2007-40	0.8
Cottonwood Creek 3	SENW Sec 42 T42N, R76W	Occupied 2005-7, 2006-6, 2007-2	1.4
Bushwacker Creek IV	SWNW Sec 34 T43N, R77W	Occupied 2005-9, 2006-5, 2007-5	3.6
Cedar Canyon	SENE Sec 16 T42N, R76W	Occupied 2007-54	3.5
Pumpkin	NWNE Sec 29 T43N, R75W	Occupied 2004-5, 2005 to 2006-0, 2007-20	3.7
Collins North	SESE Sec 12 T42N, R76W	Occupied 2006-5, 2007-0	3.6
Beecher Draw North	NWNE T44N, R77W	Occupied 2007-7	1.9
Christensen Ranch 1	SWSW Sec 19 T44N, R76W	Occupied 1989-23, 1990-16, 1991-21, 1992-13, 1993-8, 1994-4, 1995-3, 1996-7, 1997-7, 1998-10, 1999-7, 2001-16, 2003-12, 2004-12, 2005-25,	2.2

LEK NAME	LEGAL LOCATION	OCCUPANCY AND ACTIVITY STATUS IN (YEAR) - (PEAK MALES)	DISTANCE FROM PROJECT AREA (MILES)
		2006-28, 2007-38	
Christensen Ranch 2	NENE Sec 24 T44N, R77W	Occupied 1991-3, 1992-6, 1993-10, 1994-3, 1995-1, 1996 to 2005-0, 2006-2, 2007-0	3.0

3.2.5.2.7.2. Sharp-tailed grouse

Sharp-tailed grouse inhabit short and mixed-grass prairie, sagebrush shrublands, woodland edges, and river canyons. In Wyoming, this species is found where grasslands are intermixed with shrublands, especially wooded draws, shrubby riparian area, and wet meadows.

The Tex Draw project area has the potential to support sharp-tailed grouse during most of the year. The mosaic of grasslands and sagebrush-grasslands could provide habitat from April through October. Cottonwoods and junipers could provide buds and berries, respectively, to sustain sharp-tailed grouse through the winter.

3.2.5.2.8. Mountain plover

The mountain plover was proposed for listing in 1999 (USFWS). In 2003, the USFWS withdrew a proposal to list the Mountain Plover as a Threatened species, stating that the population was larger than had been thought and was no longer declining. Mountain plovers, which are a BLM sensitive species, are typically associated with high, dry, short grass prairies (BLM 2003). Mountain plover nesting habitat is often associated with heavily grazed areas such as prairie dog colonies and livestock pastures.

Suitable mountain plover habitat is present within the project area. The Tex Draw project area encompasses both active and inactive prairie dog towns. Neither Wildlife Resources nor the BLM biologist observed mountain plovers during field visits.

3.2.5.2.9. Swift Fox

The swift fox is native to the grassland prairies of North America. The original range of the species was influenced primarily by the extent of the shortgrass prairie and midgrass prairie ecosystems. The swift fox range primarily follows the distribution of the black-tailed prairie dog. Swift fox populations have been reduced to about 40 percent of their former range. The swift fox was removed from the Federal list of candidate species in January 2001 due to the implementation of the Swift Fox Conservation Plan. It remains a BLM sensitive species and, as such, recommendations for mitigation contained within the Swift Fox Conservation Plan will be applied to the project in order to uphold the direction set forth in the BLM Manual 6840.

Swift foxes tend to have their dens on or within 0.8 kilometers of prairie dog colonies (Hillman and Sharps 1978). Breeding occurs from December to February depending on latitude (Kilgore 1969, Hines 1980, Covell 1992). Gestation is approximately 51 days (Kahn et al. 1997). Pups are reared in dens with den sites possibly being changed several times during the pup-rearing period (Kahn et al. 1997). Under certain circumstances, litters from different fox pairs might share the same natal dens. At four or five months, the young foxes are almost fully grown and difficult to distinguish from adults (Kahn et al. 1997). Though little is known about pup-dispersal, it begins during September and October (Kahn et al. 1997).

The major portions of the swift fox diet are prairie dogs (49%) and insects (27%) (Uresk and Sharps

1986). Suitable swift fox habitat exists throughout the project area with the prairie grasslands and prairie dog colonies (see Table 5).

3.3. West Nile Virus

West Nile virus (WNv) is a mosquito-borne disease that can cause encephalitis or brain infection. Mosquitoes spread this virus after they feed on infected birds and then bite people, other birds, and animals. WNv is not spread by person-to-person contact, and there is no evidence that people can get the virus by handling infected animals.

Since its discovery in 1999 in New York, WNv has become firmly established and spread across the United States. Birds are the natural vector host and serve not only to amplify the virus, but to spread it. Though less than 1% of mosquitoes are infected with WNv, they still are very effective in transmitting the virus to humans, horses, and wildlife. *Culex tarsalis* appears to be the most common mosquito to vector, WNv.

The human health issues related to WNv are well documented and continue to escalate. Historic data collected by the CDC and published by the USGS at www.westnilemaps.usgs.gov are summarized below. Reported data from the Powder River Basin (PRB) includes Campbell, Sheridan and Johnson counties.

Table 3.6 Historical West Nile Virus Information

Year	Total WY Human Cases	Human Cases PRB	Veterinary Cases PRB	Bird Cases PRB
2001	0	0	0	0
2002	2	0	15	3
2003	392	85	46	25
2004	10	3	3	5
2005	12	4	6	3
2006	65	0	2	2
2007*	155	22	Unk	1

*Wyoming Department of Health Records September 12, 2007.

Human cases of WNv in Wyoming occur primarily in the late summer or early fall. There is some evidence that the incidence of WNv tapers off over several years after a peak following initial outbreak (Litzel and Mooney, personal conversations). If this is the case, occurrences in Wyoming are likely to increase over the next few years, followed by a gradual decline in the number of reported cases.

Although most of the attention has been focused on human health issues, WNv has had an impact on vertebrate wildlife populations. At a recent conference at the Smithsonian Environmental Research Center, scientists disclosed WNv had been detected in 157 bird species, horses, 16 other mammals, and alligators (Marra et al 2003). In the eastern US, avian populations have incurred very high mortality, particularly crows, jays and related species. Raptor species also appear to be highly susceptible to WNv. During 2003, 36 raptors were documented to have died from WNv in Wyoming including golden eagle, red-tailed hawk, ferruginous hawk, American kestrel, Cooper's hawk, northern goshawk, great-horned owl, prairie falcon, and Swainson's hawk (Cornish et al. 2003). Actual mortality is likely to be greater. Population impacts of WNv on raptors are unknown at present. The Wyoming State Vet Lab determined 22 sage-grouse in one study project (90% of the study birds), succumbed to WNv in the PRB in 2003. While birds infected with WNv have many of the same symptoms as infected humans, they appear to be more sensitive to the virus (Rinkes 2003).

Mosquitoes can potentially breed in any standing water that lasts more than four days. In the Powder

River Basin, there is generally increased surface water availability associated with CBNG development. This increase in potential mosquito breeding habitat provides opportunities for mosquito populations to increase. Preliminary research conducted in the Powder River Basin indicates WNv mosquito vectors were notably more abundant on a developed CBNG site than two similar undeveloped sites (Walker et al. 2003). Reducing the population of mosquitoes, especially species that are apparently involved with bird-to-bird transmission of WNv, such as *Culex tarsalis*, can help to reduce or eliminate the presence of virus in a given geographical area (APHIS 2002). The most important step any property owner can take to control such mosquito populations is to remove all potential man-made sources of standing water in which mosquitoes might breed (APHIS 2002).

The most common pesticide treatment is to place larvicidal briquettes in small standing water pools along drainages or every 100 feet along the shoreline of reservoirs and ponds. It is generally accepted that it is not necessary to place the briquettes in the main water body because wave action prevents this environment from being optimum mosquito breeding habitat. Follow-up treatment of adult mosquitoes with malathion may be needed every 3 to 4 days to control adults following application of larvicide (Mooney, personal conversation). These treatment methods seem to be effective when focused on specific target areas, especially near communities, however they have not been applied over large areas nor have they been used to treat a wide range of potential mosquito breeding habitat such as that associated with CBNG development.

The WDEQ and the Wyoming Department of Health sent a letter to CBNG operators on June 30, 2004. The letter encouraged people employed in occupations that require extended periods of outdoor labor, be provided educational material by their employers about WNv to reduce the risk of WNv transmission. The letter encouraged companies to contact either local Weed and Pest Districts or the Wyoming Department of Health for surface water treatment options.

3.4. Water Resources

The project area is within the Upper Powder River drainage system, and most of the POD is within the Tex Draw and Cottonwood Creek watersheds. These two watersheds join the Dry Fork of the Powder River immediately southeast of the POD boundary.

3.4.1. Groundwater

WDEQ water quality parameters for groundwater classifications (Chapter 8 – Quality Standards for Wyoming Groundwater) define the following limits for TDS: 500 mg/l TDS for Drinking Water (Class I), 2000 mg/l for Agricultural Use (Class II) and 5000 mg/l for Livestock Use (Class III).

The ROD includes a Monitoring, Mitigation and Reporting Plan (MMRP). The objective of the plan is to monitor those elements of the analysis where there was limited information available during the preparation of the EIS. The MMRP called for the use of adaptive management where changes could be made based on monitoring data collected during implementation.

Specifically relative to groundwater, the plan identified the following (PRB FEIS ROD page E-4):

- The effects of infiltrated waters on the water quality of existing shallow groundwater aquifers are not well documented at this time;
- Potential impacts will be highly variable depending upon local geologic and hydrologic conditions;
- It may be necessary to conduct investigations at representative sites around the basin to quantify these impacts;
- Provide site specific guidance on the placement and design of CBM impoundments, and;

- Shallow groundwater wells would be installed and monitored where necessary.

A search of the Wyoming State Engineer Office (WSEO) Ground Water Rights Database for this area showed 29 registered stock and domestic water wells within ½ mile of a federal CBNG producing well in the POD with depths ranging from 0 to 493 feet. For additional information on water, please refer to the PRB FEIS (January 2003), Chapter 3, Affected Environment pages 3-1 through 3-36 (groundwater).

3.4.2.

3.4.3. Surface Water

The project area is within the Tex Draw and Cottonwood Creek watersheds which are tributary to the Upper Powder River watershed. Most of the drainages in the area are ephemeral, flowing only in response to precipitation or snow melt, or intermittent with seasonal flow. The channels are primarily well vegetated grassy swales, without defined bed and bank.

The PRB FEIS presents the historic mean Electrical Conductivity (EC, in μmhos/cm) and Sodium Adsorption Ratio (SAR) by watershed at selected United States Geological Survey (USGS) Gauging Stations in Table 3-11 (PRB FEIS page 3-49). These water quality parameters "illustrate the variability in ambient EC and SAR in streams within the Project Area. The representative stream water quality is used in the impact analysis presented in Chapter 4 as the baseline for evaluating potential impacts to water quality and existing uses from future discharges of CBNG produced water of varying chemical composition to surface drainages within the Project Area" (PRB FEIS page 3-48). For the Upper Powder River watershed, EC ranges from 1,797 at maximum monthly flow to 3,400 at Low monthly flow and SAR ranges from 4.76 at maximum monthly flow to 7.83 at low monthly flow. These values were determined at the USGS station located at Arvada, WY, Station ID 06317000 (PRB FEIS page 3-49).

The operator has identified a natural spring within this POD boundary at TN43, R76W, Sec 17. The estimated flow of the spring has been determined to be less than 1gpm during the onsite with a water quality that will be determined before or soon after POD approval.

For more information regarding surface water, please refer to the PRB FEIS Chapter 3 Affected Environment pages 3-36 through 3-56.

3.5. Cultural Resources

Class III cultural resource inventories were conducted for the Tex Draw project, following the Secretary of the Interior's Guidelines and Standards. A Class III inventory specifically for the project was conducted by Western Land Services (BLM project no. 70080027). The inventory covered approximately 7370 acres; this inventory recorded, rerecorded, or revisited 54 sites and 46 isolates. Two additional Class III inventories cover portions of the project (BLM # 6580177 and WYCRO# 99-1041). The following cultural resources are located in or near the APE (area of potential effect).

Table 3.7 Cultural Resources Inventory Results

Site Number	Site Type	National Register Eligibility
48CA1568	Prehistoric Site	Eligible
48CA1570	Historic Site	Eligible
48CA3143	Historic Site	Not Eligible
48CA3145	Historic Site	Not Eligible

Site Number	Site Type	National Register Eligibility
48CA5384	Prehistoric Site	Not Eligible
48CA5385	Historic & Prehistoric Site	Not Eligible
48CA5386	Historic & Prehistoric Site	Not Eligible
48CA5387	Historic & Prehistoric Site	Not Eligible
48CA5388	Historic Site	Not Eligible
48CA5389	Historic & Prehistoric Site	Not Eligible
48CA5390	Historic & Prehistoric Site	Not Eligible
48CA5391	Historic & Prehistoric Site	Eligible
48CA5392	Prehistoric Site	Not Eligible
48CA5393	Prehistoric Site	Not Eligible
48CA5394	Historic Site	Not Eligible
48CA5395	Prehistoric Site	Not Eligible
48CA5396	Prehistoric Site	Not Eligible
48CA5397	Prehistoric Site	Not Eligible
48CA5398	Historic Site	Not Eligible
48CA5399	Prehistoric Site	Not Eligible
48CA5400	Prehistoric Site	Not Eligible
48CA5401	Prehistoric Site	Not Eligible
48CA5402	Prehistoric Site	Not Eligible
48CA5403	Prehistoric Site	Not Eligible
48CA5404	Historic Site	Eligible
48CA5405	Prehistoric Site	Not Eligible
48CA5406	Prehistoric Site	Not Eligible
48CA5407	Historic Site	Not Eligible
48CA5408	Prehistoric Site	Not Eligible
48CA5409	Prehistoric Site	Not Eligible
48CA5410	Prehistoric Site	Not Eligible
48CA5411	Prehistoric Site	Not Eligible
48CA5412	Prehistoric Site	Not Eligible

Site Number	Site Type	National Register Eligibility
48CA6583	Historic Site	Not Eligible
48CA6907	Historic Site	Not Eligible
48JO2944	Prehistoric Site	Not Eligible
48JO2945	Historic & Prehistoric Site	Not Eligible
48JO2946	Prehistoric Site	Not Eligible
48JO2947	Prehistoric Site	Not Eligible
48JO2948	Prehistoric Site	Not Eligible
48JO2949	Historic Site	Not Eligible
48JO2950	Historic Site	Not Eligible
48JO2951	Historic Site	Not Eligible
48JO2952	Prehistoric Site	Not Eligible
48JO2953	Historic & Prehistoric Site	Not Eligible
48JO2954	Historic & Prehistoric Site	Eligible
48JO2955	Prehistoric Site	Not Eligible
48JO2956	Prehistoric Site	Not Eligible
48JO2957	Prehistoric Site	Not Eligible
48JO2958	Historic Site	Not Eligible
48JO2959	Prehistoric Site	Not Eligible
48JO2960	Prehistoric Site	Not Eligible
48JO4075	Historic Site	Not Eligible
48JO4076	Historic Site	Not Eligible
48IR1	Historic Isolate	Not Eligible
48IR2	Historic Isolate	Not Eligible
48IR3	Historic Isolate	Not Eligible
48IR4	Prehistoric Isolate	Not Eligible
48IR6	Prehistoric Isolate	Not Eligible
48IR7	Prehistoric Isolate	Not Eligible
48IR8	Prehistoric Isolate	Not Eligible
48IR9	Historic Isolate	Not Eligible

Site Number	Site Type	National Register Eligibility
48IR10	Prehistoric Isolate	Not Eligible
48IR11	Prehistoric Isolate	Not Eligible
48IR13	Prehistoric Isolate	Not Eligible
48IR14	Prehistoric Isolate	Not Eligible
48IR15	Prehistoric Isolate	Not Eligible
48IR16	Prehistoric Isolate	Not Eligible
48IR17	Prehistoric Isolate	Not Eligible
48IR18	Prehistoric Isolate	Not Eligible
48IR20	Prehistoric Isolate	Not Eligible
48IR21	Prehistoric Isolate	Not Eligible
48IR22	Historic Isolate	Not Eligible
48IR23	Prehistoric Isolate	Not Eligible
48IR24	Prehistoric Isolate	Not Eligible
48IR101	Prehistoric Isolate	Not Eligible
48IR102	Historic Isolate	Not Eligible
48IR103	Prehistoric Isolate	Not Eligible
48IR104	Prehistoric Isolate	Not Eligible
48IR105	Historic Isolate	Not Eligible
48IR106	Prehistoric Isolate	Not Eligible
48IR107	Prehistoric Isolate	Not Eligible
48IR108	Prehistoric Isolate	Not Eligible
48IR109	Prehistoric Isolate	Not Eligible
48IR110	Prehistoric Isolate	Not Eligible
48IR111	Prehistoric Isolate	Not Eligible
48IR112	Prehistoric Isolate	Not Eligible
48IR113	Prehistoric Isolate	Not Eligible
48IR114	Prehistoric Isolate	Not Eligible
48IR115	Prehistoric Isolate	Not Eligible
48IR116	Historic Isolate	Not Eligible

Site Number	Site Type	National Register Eligibility
48IR117	Prehistoric Isolate	Not Eligible
48IR118	Prehistoric Isolate	Not Eligible
48IR119	Prehistoric Isolate	Not Eligible
48IR120	Historic Isolate	Not Eligible
48IR121	Historic Isolate	Not Eligible
48IR122	Prehistoric Isolate	Not Eligible
48IR123	Prehistoric Isolate	Not Eligible
48IR302	Prehistoric Isolate	Not Eligible
48IR304	Prehistoric Isolate	Not Eligible

3.6. Paleontological Resources

Gustav Winterfeld (Erathem-Vanir Geological), a paleontologist with a permit to work on BLM lands in Wyoming, conducted field work and submitted a report on paleontological resources within the Tex Draw POD (May 2008). Multiple paleontological resources have been noted within the Powder River Wasatch Formation near the location of this POD. Fifty three localities are recorded in the adjacent township to the west (Culver 2008). Multiple invertebrate and plant fossils were identified within the POD by Wendy Sutton (BLM) and Gustav Winterfeld, including clam shells and petrified wood. Invertebrate and plant materials are generally not considered significant and protected under FLPMA (1976); however, significant paleontological resources (often vertebrate fossils and traces) are. Immediately east of the project area a *Coryphodon*, a large semi aquatic pantodont mammal, has been excavated. Survey of the project area resulted in the discovery of vertebrate fossil material (fish bones and scales of the gar-pike *Lepisosteus*, turtle shell fragments, crocodile scutes, mammal bone fragments and teeth). A single fossil mammal tooth of a miacid carnivore, *Vulpavus*, was also discovered. The Potential Fossil Yield Classification (PFYC) System used to manage paleontological resources by the BLM rates the Powder River Wasatch Formation as a condition 3 (unknown). Throughout many areas of the Powder River Basin the formation is buried; however, within the Tex Draw POD the formation is near the surface and/or exposed.

4. ENVIRONMENTAL CONSEQUENCES

The changes to the proposed action (Alternative B) resulted in development of Alternative C as the preferred alternative. The changes have reduced impacts to the environment which will result from this action. The environmental consequences of Alternative C are described below.

4.1. 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. Of the 61 proposed well locations, 53 can be drilled without a well pad being constructed and 8 will require a constructed (cut & fill) well pad. Surface disturbance associated with the drilling of the (53) wells without constructed pads would involve digging-out of rig wheel wells (for leveling drill rig on minor slopes), reserve pit construction (estimated approximate size of 25 x40 feet), and compaction (from vehicles driving/parking at the drill site). Estimated disturbance associated with these 53 wells would involve approximately 0.5 acre/well for 26.5 total acres. The other

8 wells requiring cut & fill pad construction would disturb approximately 0.9 acres/well pad for a total of 7.2 acres. The total estimated disturbance for all 61 wells would be 33.7 acres.

Approximately 6.55 miles of improved roads would be constructed to provide access to various well locations. Approximately 13.09 miles of new and existing two-track trails would be utilized to access well sites. The majority of proposed pipelines (gas and water) have been located in "disturbance corridors." Disturbance corridors involve the combining of 2 or more utility lines (water, gas, power) in a common trench, usually along access routes. This practice results in less surface disturbance and overall environmental impacts. Approximately 3.28 miles of pipeline would be constructed outside of corridors. 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 stream crossings, including culverts and fords (low water crossings) are shown on the MSUP and the WMP maps (see the POD). These structures would be constructed in accordance with sound, engineering practices and BLM standards.

Table 4.1 summarizes the proposed surface disturbance.

Table 4.1 - SUMMARY OF DISTURBANCE

Facility	Number or Miles	Factor	Acreage of Disturbance	Duration of Disturbance
Nonconstructed Pad	53	0.5/acre	26.5	Long Term
Constructed Pad	8	0.9/acre	7.2	
Gather/Metering Facilities	2	Site Specific	4.0	Long Term
Screw Compressors	2	Site Specific	2.0	Long Term
Monitor Wells	0	0.1/acre	0	Long Term
Impoundments	0 0		0.0	Long Term
On-channel	0	Site Specific	0.0	
Off-channel	0	Site Specific	0.0	
Water Discharge Points	0	Site Specific or 0.01 ac/WDP	0.0	
Channel Disturbance				
Headcut Mitigation*		Site Specific	0.0	
Channel Modification		Site Specific	0.0	
Improved Roads	6.55	80' Width	63.5 acres	Long Term
No Corridor				
With Corridor				
2-Track Roads	11.59			Long Term
No Corridor	0.97	40' Width	4.73	
With Corridor	10.62	40' Width	51.48	
Pipelines				Short Term
No Corridor	1.96	40' Width	9.54	
With Corridor				

Facility	Number or Miles	Factor	Acreage of Disturbance	Duration of Disturbance
Buried Power Cable No Corridor	Miles Buried 1.32	40' Width or Site Specific	6.42	Short Term
Overhead Powerlines	1.76	30' Width	52.8	Long Term
Additional Disturbance		Site Specific		

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".

4.1.1. Wetland/Riparian

Reaches in Tex Draw downstream of the existing outfalls and upstream of existing reservoirs, while already receiving CBNGCBM discharge, will receive discharge from the POD that will likely lengthen the period perennialization.perrenialization. Cottonwood trees along this reach may be impacted from saturated soils. These impacts were considered in the environmental analysis of other area PODs including Bullwhacker Creek, Bullwhaker II (WY-070-04-333), Bullwhacker III (WY-07-05-198), East Bullwhacker (WY-070-07-06-137) and West Bullwhacker (WY-070-07-07-104) PODs.

4.1.2. Invasive Species

Based on the investigations performed during the POD planning process, the operator has committed to the control of noxious weeds and species of concern using the following measures in an Integrated Pest Management Plan (IPMP) included in the proposal:

1. Control Methods include physical, biological, and chemical methods:
   Physical methods include mowing during the first season of establishment, prior to seed formation of weeds of concern, and hand pulling of weeds will be considered for small or new infestations. Biological methods include the possible use of domestic animals, or approved biological agents. Chemical methods include the use of herbicides, done in accordance with the existing Surface Use Agreement with the private surface owner.
2. Preventive practices:
   Certified weed-free seed mixtures will be used for re-seeding, and vehicles and equipment will require washing down before leaving areas of known noxious weed infestations.
3. Education:
   The company will provide periodic weed education and awareness programs for its employees and contractors through the county weed districts and federal agencies. Field employees and contractors will be notified of known noxious weeds or weeds of concern in the project area.

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.

The use of existing facilities along with the surface disturbance associated with construction of proposed access roads, pipelines, water management infrastructure, produced water discharge points 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 Canada thistle and perennial pepperweed. However, mitigation as required by BLM applied COAs will reduce potential impacts from noxious weeds and invasive plants.

4.1.3. Cumulative Effects

As referenced above, the PRB FEIS did disclose that cumulative impacts may occur to soils and vegetation. The cumulative effects on vegetation and soils are within the analysis parameters and impacts described in the PRB FEIS.

No additional mitigation measures are required.

4.2. Wildlife

4.2.1. Big Game Direct and Indirect Effects

Under the environmentally preferred alternative, Winter-Yearlong range for pronghorn antelope and mule deer would be directly disturbed with the construction of wells, reservoirs, pipelines and roads. Table 4.1 summarized the proposed activities; items identified as long term disturbance would result in direct habitat loss. Short-term disturbances also result in direct habitat loss; however, they should provide some habitat value as these areas are reclaimed and native vegetation becomes established.

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

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

Winter big game diets are sub-maintenance, meaning they lose weight and body condition as the winter progresses. Survival below the maintenance level requires behavior that emphasizes energy conservation. Canfield et al. (1999) pointed out that forced activity caused by human disturbance exacts an energetic disadvantage, while inactivity provides an energetic advantage for animals. Geist (1978) further defined effects of human disturbance in terms of increased metabolism, which could result in illness, decreased reproduction, and even death.

Reclamation activities that occur within big game habitats during the spring will likely displace does and fawns due to the human presence in the area. This may cause reduced survival rate of does and fawns that must expend increased energies to avoid such activities.

4.2.1.1. Big Game Cumulative effects

The cumulative effects associated with Alternative C are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, please refer to the referenced PRB FEIS, Volume 2, Chapter 4, page 4-211.

4.2.2. Aquatics Direct and Indirect Effects

Effluent produced from the Tex Draw project will be discharged at three outfalls. Two of the three outfalls will directly discharge into Tex Draw, which is an ephemeral tributary to the Dry Fork Powder

River. The effluent will then flow downstream into an on-channel reservoir (Johnson 24-12-4377) which was reviewed and approved by the BLM as part of the overall Bullwacker WMPs. From this one reservoir, Tex Draw produced effluent can then be incorporated into the overall Bullwacker water management infrastructure (WY0054411 and WY0051241) via pump station facilities. The third outfall will discharge into an on channel reservoir (Johnson 23-29-4376) located in an unnamed ephemeral tributary to the Dry Fork Powder River. If a reservoir were to discharge, it is unlikely that the produced water will reach a fish-bearing stream, and that downstream species would be affected.

The Wyoming Department of Environmental Quality (DEQ) regulates effluent discharge through the National Pollution Discharge Elimination System in compliance with the Federal Water Pollution Control Act and the Wyoming Environmental Quality Act. The Wyoming DEQ has established effluent limits for the protection of game and non-game, aquatic life other than fish, wildlife, and other water uses.

The cumulative effects associated with Alternative C are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, please refer to the referenced PRB FEIS, Volume 2, Chapter 4, page 4-247. No additional mitigation measures are required.

4.2.3. Migratory Birds Direct and Indirect Effects

Disturbance of the habitat types within the project area is likely to impact migratory birds. Native habitats are being lost directly with the construction of wells, roads, and pipelines. Prompt re-vegetation of short-term disturbance areas should reduce habitat loss impacts. Human activities likely displace migratory birds farther than the physical habitat disturbance. Drilling and construction noise can be troublesome for songbirds by interfering with the males' ability to attract mates and defend territory, and the ability to recognize calls from conspecifics (BLM 2003).

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

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

Overhead power lines may affect migratory birds in several ways. Power poles provide raptors with perch sites and may increase predation on migratory birds. Power lines placed in flight corridors may result in collision mortalities. Some species may avoid suitable habitat near power lines in an effort to avoid predation.

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. Additional direct and indirect effects to migratory birds are discussed in the PRB FEIS (4-231-235).

4.2.3.1. Migratory Birds Cumulative effects

The cumulative effects associated with Alternative C are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, please refer to the referenced PRB FEIS, Volume 2, Chapter 4, Page 4-235. No additional mitigation measures are required.

4.2.4. Raptors Direct and Indirect Effects

Human activities in close proximity to active raptor nests may interfere with nest productivity. Romin and Muck (1999) indicate that activities within 0.5 miles of a nest are prone to cause adverse impacts to nesting raptors. If mineral activities occur during nesting, they could be sufficient to cause adult birds to remain away from the nest and their chicks for the duration of the activities. This absence can lead to overheating or chilling of eggs or chicks. 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.

The presence of overhead power lines may impact foraging raptors. Raptors forage opportunistically throughout the Powder River Basin. Power poles provide attractive perch sites in areas where mature trees and other natural perches are lacking. From May 2003, through December 28, 2006, Service Law Enforcement salvage records for northeast Wyoming identified that 156 raptors, including 1 bald eagle, 93 golden eagles, 1 unidentified eagle, 27 hawks, 30 owls and 4 unidentified raptors were electrocuted on power poles within the Powder River Basin Oil and Gas Project area (USFWS 2006a). Of the 156 raptors electrocuted 31 were at power poles that are considered new construction (post 1996 construction standards). Additionally, two golden eagles and a Cooper's hawk were killed in apparent mid span collisions with powerlines (USFWS 2006a). Power lines not constructed to APLIC suggestions pose an electrocution hazard for eagles and other raptors perching on them; the Service has developed additional specifications improving upon the APLIC suggestions. Constructing power lines to the APLIC suggestions and Service standards minimizes but does not eliminate electrocution risk.

To reduce the risk of decreased productivity or nest failure, the BLM BFO requires a one-half mile radius timing limitation during the breeding season around active raptor nests and recommends all infrastructure requiring human visitation to be located greater than one-quarter mile from occupied raptor nests. Well # 41-18 was moved north, approximately 100ft, to locate it out of line-of-sight of a raptor nest.

Table 4.2.5. Infrastructure proposed within close proximity (0.5 mile) to documented raptor nests within the Tex Draw POD project area (Timing limitations will apply to this infrastructure).

BLM ID#	INFRASTRUCTURE	DISTANCE (MILES)
5509	Wells: 21-5-4376, 32-5-4376, 41-5-4376	0.41 (WSW), 0.45 (SSW), 0.22 (SE)
5508	Wells: 32-5-4376, 41-5-4376, 43-5-4376	0.40 (WSW), 0.17 (N), 0.33 (SSW)
5470	Well: 43-5-4376	0.43 (W)
5466	Well: 21-9-4376	0.27 (ESE)
5498	Wells: 21-9-4376, 32-9-4376, 41-9-4376	0.38 (WSW), 0.36 (SSW), 0.11 (SE)
4238	Wells: 21-9-4376, 23-9-4376, 32-9-4376, 41-9-4376, 43-9-4376 POD building	0.29 (NE), 0.46 (SW), 0.14 (SSW), 0.19 (SSE), 0.45 (SSE) 0.31 (SW)
4239	Well: 41-9-4376	0.32 (W)
3590	Well: 41-9-4376	0.32 (W)
5530	Wells: 32-6-4376, 41-6-4376	0.44 (SSW), 0.23 (SE)

BLM ID#	INFRASTRUCTURE	DISTANCE (MILES)
5528	Wells: 32-6-4376, 41-6-4376	0.26 (SSW), 0.33 (ENE)
5489	Wells: 32-6-4376, 41-6-4376, 43-6-4376, 21-5-4376	0.32 (WSW), 0.23 (N), 0.22 (S), 0.44 (ENE)
5488	Wells: 14-6-4376, 23-6-4376, 32-6-4376	0.38 (SSW), 0.20 (SE), 0.42 (ENE)
4233	Wells: 43-6-4376, 14-5-4376, 21-5-4376, 23-5-4376, 32-5-4376, 34-5-4376 Stock tank	0.47 (NW), 0.24 (WSW), 0.36 (S), 0.15 (NNE), 0.46 (NE), 0.21 (ESE) 0.27 (S)
4234	Wells: 14-5-4376, 23-5-4376, 34-5-4376, 12-8-4376, 21-8-4376, 32-8-4376 Stock tank	0.36 (NW), 0.49 (N), 0.36 (NNE), 0.41 (SW), 0.11 (W), 0.39 (SE) 0.10 (NW)
5512	Wells: 12-7-4376, 14-7-4376, 23-7-4376	0.32 (NNE), 023 (SSE), 0.41 (E)
5499	Wells: 12-7-4376, 14-7-4376, 23-7-4376	0.37 (NNE), 0.19 (SSE), 0.43 (E)
5520	Wells: 12-7-4376, 14-7-4376	0.38 (NE), 0.35 (SE)
5518	Well: 12-7-4376	0.43 (NE)
5501	Wells: 23-9-4376, 34-9-4376, 43-9-4376 POD building	0.40 (NW), 0.16 (WSW), 0.21 (NNE) 0.44 (NW)
4237	Well: 34-9-4376	0.33 (NNW)
4223	Well: 34-9-4376	0.36 (NNW)
4236	Well: 34-9-4376	0.48 (NNE)
5535	Well: 32-17-4376	0.43 (W)
5491	Well: 32-17-4376	0.43 (W)
5534	Well: 32-17-4376	0.29 (WNW)
5533	Wells: 14-8-4376, 12-17-4376, 21-17-4376, 23-17-4376, 32-17-4376	0.32 (N), 0.20 (S), 0.27 (E), 0.48 (SSE), 0.46 (SE)
5532	Wells: 14-8-4376, 12-17-4376, 21-17-4376, 23-17-4376, 32-17-4376	0.34 (N), 0.17 (S), 0.26 (E), 0.47 (SE), 0.44 (SE)
5483	Well: 14-18-4376	0.14 (N)
5503	Well: 14-18-4376	0.18 (N)
4499	Well: 43-18-4376	0.46 (N)
4500	Well: 12-21-4376	0.20 (SE)
5494	Well: 12-21-4376	0.16 (SE)
5495	Well: 23-21-4376, 32-21-4376	0.47 (SSW), 0.25 (SSE)
5511	Wells: 12-21-4376, 14-21-4376	0.40 (NE), 0.48 (SE)
4503	Wells: 14-21-4376, 12-28-4376, 21-28-4376	0.38 (NE), 0.36 (SE), 0.48 (E)
5480	Wells: 14-21-4376, 12-28-4376, 21-28-4376	0.37 (NE), 0.26 (SE), 0.42 (E)
5493	Wells: 21-28-4376, 34-21-4376, 32-28-4376, 41-28-4376, 14-22-4376	0.36 (W), 0.28 (NNW), 0.26 (SSW), 0.14 (ENE), 0.48 (NE)
4225	Wells: 34-21-4376, 32-28-4376, 14-22-4376, 12-27-4376, 21-27-4376	0.49 (NW), 0.46 (SW), 0.26 (NNE), 0.32 (SE), 0.31 (E)
5536	Wells: 32-28-4376, 41-28-4376, 14-22-4376, 12-27-4376, 21-27-4376, 23-27-4376 POD building	0.43 (W), 0.31 (NW), 0.45 (N), 0.17 (ESE), 0.34 (NE), 0.45 (SE) 0.46 (ESE)
4230	Wells: 31-22-4376, 32-22-4376	0.36 (ESE), 0.42 (SSE)
5506	Wells: 32-22-4376, 41-27-4376	0.39 (NNW), 0.41 (SSE)
4226	Well: 41-27-4376	0.39 (W)

Individual raptor pairs (see Table 4 for species) will likely abandon nests 4238, 4233, 4234, 5533, 5532,

5493, 4225 and 5536 as the proposed development surrounds them. Nests 4238, 4233, 4234, and 5536 have been inactive for at least two years and may already have been abandoned. In order to mitigate impacts to nesting raptors, a timing limitation will be applied to all surface disturbing activities within 0.5 mile of all raptor nests within the project area. Additional direct and indirect impacts to raptors, from oil and gas development, are analyzed in the PRB FEIS (4-216-221).

4.2.4.1. Raptors Cumulative effects

The cumulative effects associated with Alternative C are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, please refer to the referenced PRB FEIS, Volume 2, Chapter 4, page 4-221.

4.2.5. Threatened and Endangered and Sensitive Species

Potential project effects on Threatened and Endangered Species were analyzed and a summary is provided in Table 4.2.5.1. Threatened and Endangered Species potentially affected by the proposed project area are further discussed following the table.

4.2.5.1. Threatened and Endangered Species

Table 4.34.2 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.	NS	NLAA	Suitable habitat of sufficient size will be affected.
Threatened				
Ute ladies'-tresses orchid (*Spiranthes diluvialis*)	Riparian areas with permanent water	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 affect individuals or habitat.

4.2.5.1.1. Black-Footed Ferret Direct and Indirect Effects

Suitable habitat is of sufficient size to support a black-footed ferret population and the project area is in and adjacent to the Linch potential reintroduction complex. No surveys for ferrets were required or conducted. It is extremely unlikely that any black-footed ferret is present in the project area. However, if any are reintroduced, the proposed action will most likely make portions of the project area unsuitable for ferret inhabitance. Implementation of the proposed development ***"may affect, but is not likely to adversely affect"*** the black-footed ferret.

4.2.5.1.2. 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, etc.) may be a threat just as repeated mowing and grazing during flowering may lead to decline (Hazlett 1996, 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.

Two of the reservoirs are located within ephemeral drainages of Dry Fork Powder River. Proposed stock water tanks are located in upland habitats. One spring has been identified within the project area which transitions immediately from wetland to upland vegetation. Suitable habitat is not present within the Tex Draw project area.

Implementation of the proposed coal bed natural gas project will have "***no effect***" on the Ute ladies'-tresses orchid as suitable habitat is not present.

4.2.5.2. Sensitive Species Direct and Indirect Effects

BLM will take necessary actions to meet the policies set forth in sensitive species policy (BLM Manual 6840). BLM Manual 6840.22A states: "The BLM should obtain and use the best available information deemed necessary to evaluate the status of special status species in areas affected by land use plans or other proposed actions and to develop sound conservation practices. Implementation-level planning should consider all site-specific methods and procedures which are needed to bring the species and their habitats to the condition under which the provisions of the ESA are not necessary, current listings under special status species categories are no longer necessary, and future listings under special status species categories would not be necessary."

4.2.5.2.1. Prairie dog colony obligates

Wells, roads, pipelines and other infrastructure associated with energy development constructed within prairie dog colonies will directly remove habitat for prairie dog colony obligate species. Activities that disturb these species could lead to temporary or even long-term or permanent abandonment. Direct loss of species may also occur from vehicle traffic. Continued loss of prairie dog habitat and active prairie dog towns will result in the decline of numerous sensitive species in the short grass prairie ecosystem.

4.2.5.2.2. Sagebrush obligates

Shrubland and grassland birds are declining faster than any other group of species in North America (Knick et al. 2003). In Wyoming, existing oil and gas wells are located primarily in landscapes dominated by sagebrush, causing direct loss of this habitat. Associated road networks, pipelines, and powerline transmission corridors also influence vegetation dynamics by fragmenting habitats or by creating soil conditions facilitating the spread of invasive species (Braun 1998, Gelbard and Belnap 2003). Density of sagebrush-obligate birds within 100 m of roads constructed for natural gas development in Wyoming was 50% lower than at greater distances (Ingelfinger 2001). Increased numbers of corvids and raptors associated with powerlines (Steenhof et al. 1993, Knight and Kawashima 1993, Vander Haegen et al. 2002) increases the potential predation impact on sage-grouse and other sagebrush-breeding birds (Knick et al. 2003)

Fragmentation of shrubsteppe habitat is a major disruption that has consequences for sagebrush-obligate species (Braun et al. 1976; Rotenberry & Wiens 1980a). In fragmented habitats, suitable habitat area remains only as a remnants surrounded by unusable environments (Urban and Shugart 1984; Fahrig & Paloheimo 1988). Populations of sagebrush-obligate species decline because areas of suitable habitat decrease (Temple & Cary 1988), because of lower reproduction, and/or because of higher mortality in remaining habitats (Robinson 1992; Porneluzi et al. 1993). Fragmentation of shrubsteppe has the further

potential to affect the conservation of shrub-obligate species because of the permanence of disturbance (Knick and Rotenberry 1995). Several decades are required to reestablish ecologically functioning mature sagebrush communities. Due to this, sagebrush obligate species may not return until after habitat reestablishment.

Table 4.44.3 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, permanent water in plains and foothills	S	MIIH	Additional water will affect existing waterways.
Spotted frog (*Ranus pretiosa*)	Ponds, sloughs, small streams	NP	NI	Prairie not mountain habitat.
Birds				
Baird's sparrow (*Ammodramus bairdii*)	Grasslands, weedy fields	S	MIIH	Sagebrush cover will be affected.
Bald eagle (*Haliaeetus leucocephalus*)	Mature forest cover often within one mile of large water body.	S	MIIH	Project includes overhead power.
Brewer's sparrow (*Spizella breweri*)	Basin-prairie shrub	S	MIIH	Sagebrush cover will be affected.
Burrowing owl (*Athene cunicularia*)	Grasslands, basin-prairie shrub	S	MIIH	Prairie dog colonies present.
Ferruginous hawk (*Buteo regalis*)	Basin-prairie shrub, grasslands, rock outcrops	K	MIIH	Active nest present.
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.
Long-billed curlew (*Numenius americanus*)	Grasslands, plains, foothills, wet meadows	NP	NI	Habitat not present.
Mountain plover (*Charadrius montanus*)	Short-grass prairie with slopes < 5%	S	MIIH	Suitable habitat will be affected.
Northern goshawk (*Accipiter gentilis*)	Conifer and deciduous forests	NP	NI	No forest habitat present.
Peregrine falcon (*Falco peregrinus*)	cliffs	NP	NI	No nesting habitat present.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
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	NS	MIIH	Reservoirs may provide migratory habitat.
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
Fish				
Yellowstone cutthroat trout (*Oncoryhynchus clarki bouvieri*)	Mountain streams and rivers in Tongue River drainage	NP	NI	Outside species range.
Mammals				
Black-tailed prairie dog (*Cynomys ludovicianus*)	Prairie habitats with deep, firm soils and slopes less than 10 degrees.	K	MIIH	Prairie dog towns will be affected.
Fringed myotis (*Myotis thysanodes*)	Conifer forests, woodland chaparral, caves and mines	NP	NI	Habitat not present.
Long-eared myotis (*Myotis evotis*)	Conifer and deciduous forest, caves and mines	NP	NI	Habitat not present.
Spotted bat (*Euderma maculatum*)	Cliffs over perennial water.	NP	NI	Cliffs & perennial water not present.
Swift fox (*Vulpes velox*)	Grasslands	S	MIIH	Prairie dog towns will be affected.
Townsend's big-eared bat (*Corynorhinus townsendii*)	Caves and mines.	NP	NI	Habitat not present.

Common Name (scientific name)	Habitat	Presence	Project Effects	Rationale
Plants				
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	Habitat not 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
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

4.2.5.2.1. Bald Eagle Direct and Indirect Effects

Based on the raptor nesting and bald eagle winter roost surveys, it is unlikely bald eagles nest or communally roost within the Tex Draw project area. The proposed project should not affect bald eagle nesting or winter communal roosting. It is likely, though, that the increase in human activity and reduction in overall natural habitat will reduce eagle foraging use within the project area.

There are 0.93 miles of existing overhead distribution lines within the project area. The wire spacing is likely in compliance with the Avian Power Line Interaction Committee's (1996) suggested practices and with the Service's standards (USFWS 2002); however other features may not be in compliance. Williams is proposing an additional 1.76 miles of overhead three-phase distribution lines. There are currently 1.51 miles of improved roads within the project area, with 5.44 miles proposed.

The presence of overhead power lines may impact foraging bald eagles. Bald eagles forage opportunistically throughout the Powder River Basin particularly during the winter when migrant eagles join the small number of resident eagles. Power poles provide attractive perch sites in areas where mature trees and other natural perches are lacking. From May 2003, through December 28, 2006, USFWS Law Enforcement salvage records for northeast Wyoming identified that 156 raptors, including 1 bald eagle, 93 golden eagles, 1 unidentified eagle, 27 hawks, 30 owls and 4 unidentified raptors were electrocuted on power poles within the Powder River Basin Oil and Gas Project area (USFWS 2006a). Of the 156 raptors electrocuted, 31 were at power poles that are considered new construction (post 1996 construction standards). Additionally, two golden eagles and a Cooper's hawk were killed in apparent mid span collisions with powerlines (USFWS 2006a). Power lines not constructed to APLIC suggestions pose an electrocution hazard for eagles and other raptors perching on them; the USFWS has developed additional specifications improving upon the APLIC suggestions. Constructing power lines to the APLIC suggestions and USFWS standards minimizes but does not eliminate electrocution risk.

Typically two-tracks and improved project roads pose minimal collision risk. In one year of monitoring road-side carcasses the BLM Buffalo Field Office reported 439 carcasses - 226 along Interstates (51%), 193 along paved highways (44%), 19 along gravel county roads (4%), and 1 along an improved CBNG road (<1%) (Bills 2004). No road-killed eagles were reported. Eagles (bald and golden) were observed feeding on 16 of the reported road-side carcasses (<4%). The risk of big-game vehicle-related mortality along CBNG project roads is so insignificant or discountable that when combined with the lack of bald eagle mortalities associated with highway foraging leads to the conclusion that CBNG project roads do not affect bald eagles.

Produced water will be stored in two existing reservoirs which may attract eagles if reliable prey is present, most likely in the form of waterfowl. The effect of the reservoirs on eagles is unknown. The reservoirs could prove to be a benefit (e.g. increased food supply) or an adverse effect (e.g. contaminants, proximity of power lines and/or roads to water). Eagle use of reservoirs should be reported to determine the need for any future management.

4.2.5.2.2. Black-tailed prairie dog Direct and Indirect Effects

Proposed access roads, wells, over head power, and the construction of buried utilities will displace the black-tailed prairie dog. The land owner prefers not to take protective measures on her deeded land.

Individuals that survive the excavation process but whose burrows were destroyed will be displaced. As the prairie dog town grows in size, prairie dogs move from an area of high population density to an area of low population density. Male prairie dogs resort to either long-distance dispersal to new colonies (mostly as yearlings, rarely as adults) or short distance within the home colony. Female prairie dogs disperse over long distances to other colonies (as either yearlings or adults). Short-distance dispersal of females within the home colony almost never occurs (Hoogland 1995). Dispersal of prairie dogs occurs as single individuals. Both male and female prairie dogs prefer to move into an existing colony or one

that has been abandoned rather than start a completely new colony. Coterie (small family group within the colony) members resist attempted invasions by conspecifics including immigrants. Dispersing prairie dogs have increased stress levels, higher exposure to predators, and are unlikely to be accepted by other colonies if they even encounter one. Both males and females actively protect their coterie territories from invading males and females (Hoogland 1995).

4.2.5.2.3. Burrowing owl Direct and Indirect Effects

The dramatic reduction of prairie habitat in the United States has been linked to reduction of burrowing owl populations (Klute et al. 2003). Use of roads and pipeline corridors may increase owl vulnerability to vehicle collision. Overhead power lines provide perch sites for larger raptors that could potentially result in increased burrowing owl predation. CBNG infrastructure such as roads, pipeline corridors, and nearby metering facilities may provide shelter and den sites for ground predators such as skunks and foxes.

The USDAFS Thunder Basin National Grasslands in Campbell County, WY, whom cooperated with the BLM in the creation of the 2003 PRB EIS, recommends a 0.25 mile timing restriction buffer zone for burrowing owl nest locations during their nesting season (April 15 to August 31). Instruction Memorandum No. 2006-197, directs the field offices to "use the least restrictive stipulations that effectively accomplish the resource objectives or uses." Alteration of the general raptor nest timing limitation (Feb 1 to July 31) to a more specific burrowing owl nesting season timing limitation will effectively reduce the vulnerability of owls to collision while shortening the timing restriction period to four and one half months (See Chapter 3 for breeding, nesting, and migration chronology) from six and one half months and from 0.5 mile to 0.25 mile.

4.2.5.2.4. Grouse

4.2.5.2.4.1. Greater sage-grouse Direct and Indirect Effects

There are sixteen leks within four miles of the Tex Draw project area. The proposed action will adversely impact breeding, nesting, brood rearing, and late summer habitat. Proposed project elements that are anticipated to negatively impact grouse are approximately: 61 CBNG wells on 61 locations, 18.14 miles of new roads, 1.96 miles of new pipelines, 1.76 miles of new overhead power, and increased vehicle traffic on established roads. Using 0.6 miles as a distance for impacts (Holloran et al. 2007, Aldridge and Boyce 2007), effective sage-grouse habitat loss will be 7,528 acres from overhead power, 5,040 acres from new roads, and 12,440 acres from 61 well locations. These numbers are not additive since in many cases overlap exists across infrastructure buffers. A total of approximately 14,950 acres can be considered impacted by the Tex Draw project. No changes were made at the onsite pertaining to leks and/or sage-grouse habitat. One sage-grouse lek is within 0.25 mile of the project area. No project infrastructure was proposed within the 0.25 mile CSU of this lek. The operator did not include any proposal to minimize impacts to greater sage-grouse.

Based on the best available science, which is summarized below, the proposed action will most likely contribute to the abandonment of the leks within and surrounding the project area and to the extirpation of the local sage-grouse population.

4.2.5.2.4.2. Greater sage-grouse Cumulative Effects

In addition to the direct impacts to sage-grouse habitat that will be created by the federal wells and associated infrastructure the project area does contain existing fee and state fluid mineral development. The sage-grouse cumulative impact assessment area for this project encompasses a four mile radius from the Dry Willow, Windmill, Windmill North, Windmill Northwest, Beecher Draw, Beecher Draw North, Bushwacker Creek 1, Bushwacker Creek 4, Cedar Canyon, Pumpkin, Collins North, Cottonwood Creek 1, Cottonwood Creek 2, Cottonwood Creek 3, Christiansen Ranch 1, and Christiansen Ranch 2 sage-grouse leks. As of April 21, 2008, there were approximately 1071 existing wells and associated infrastructure within four miles of the 16 leks -- an area of 252 square miles. Existing well density is

approximately 4.3 wells per section. Due to this level of development there is a strong potential that the population(s) breeding at these leks may become extirpated without the proposed federal development.

There are 458 proposed wells (61 from this project) within four miles of the 16 leks. With the addition of the 397 proposed wells that are not associated with this proposed action, the well density within four miles of the 16 leks increases to 5.8 wells per section. With approval of alternative C (61 proposed well locations), the well density increases to 6.1 wells per section.

CBNG is a recent development, with the first well drilled in 1987 (Braun et al. 2002). In February 1998 there were a total of 420 producing wells primarily restricted to eastern Campbell County (BFO 1999). By May 2003, there were a total of 6,718 CBNG wells permitted within the BFO area (WGFD 2004). The PRB FEIS estimated 51,000 additional CBNG wells to be drilled over a ten year period beginning in 2003 (BFO 2003).

The Powder River Basin Oil and Gas Project FEIS (BLM 2003) concluded that "Activities associated with the proposed project would affect sage-grouse in several ways. These effects may include: (1) increased direct mortality (including legal hunting, poaching, and collision with power lines and vehicles); (2) the introduction of new perches for raptors and thus the potential change in rate of predation; (3) direct loss or degradation of habitats; (4) indirect disturbance resulting from human activity (including harassment, displacement, and noise); (5) habitat fragmentation (particularly through construction of roads); and (6) changes in population (pg. 4-257)." The FEIS goes on to state that "implementation of several mitigation measures would reduce the extent of each impact addressed by those measures. Despite these measures, 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)."

The Powder River Basin Oil and Gas Project Record of Decision (BLM 2003) included a Mitigation Monitoring and Reporting Plan (MMRP). The uncertainties as to where and at what level development was to proceed as well as the uncertainties associated with the assumptions that were used to predict impacts suggests that one-time determination of impacts that is included in the EIS may not occur as projected. The MMRP helps to continually assess the effects of the project and the adequacy of the mitigation. Such a plan/process provides a mechanism to continuously modify management practices in order to allow development while continuing to protect the environment (E-1)." In other words, development pace and patterns may not occur as predicted, and so the BLM may use the adaptive management process provided for in the BFO RMP.

Impacts from CBNG development are likely to be significant and additive to the long-term impacts afflicting the sage-grouse population (WGFD 2004). Greater sage-grouse habitat is being directly lost with the addition of well sites, roads, pipelines, powerlines, reservoirs and other infrastructure in the Powder River Basin (WGFD 2005, WGFD 2004). Sage-grouse avoidance of CBNG infrastructure results in even greater indirect habitat loss. In southwestern Wyoming, yearling female greater sage-grouse avoid nesting in areas within 0.6 miles of producing well pads (Holloran et al. 2007), and, in southern Alberta, brood-rearing females avoid areas within 0.6 miles of producing wells (Aldridge and Boyce 2007). Doherty et al. (2008) demonstrated that sage-grouse in the Powder River Basin avoided otherwise suitable wintering habitats once they have been developed for energy production, even after timing and lek buffer stipulations had been applied. The WGFD believes a well density of eight wells per section creates a high level of impact for sage-grouse and that sage-grouse avoidance zones around mineral facilities overlap creating contiguous avoidance areas (WGFD 2004). As interpreted by a coordinated effort with state fish and wildlife agencies from Montana, Colorado, Utah, South Dakota, North Dakota

and Wyoming, (State wildlife agencies' ad hoc committee for sage-grouse and oil and gas development 2008), research indicates that oil or gas development exceeding approximately 1 well pad per square mile with the associated infrastructure, results in calculable impacts on breeding populations, as measured by the number of male sage-grouse attending leks (Holloran 2005, Walker et al. 2007)

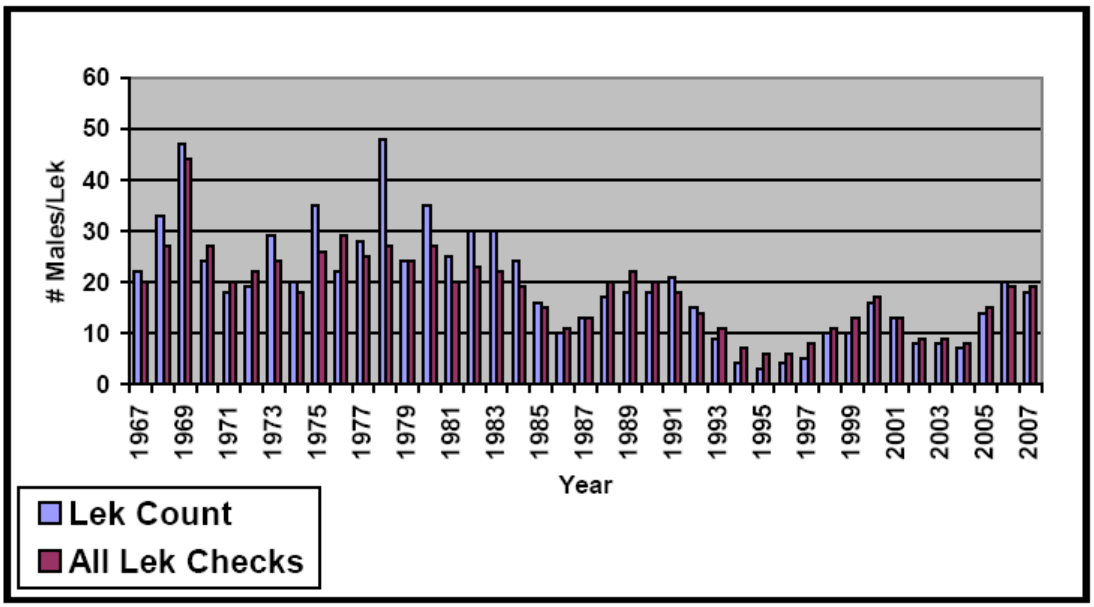
Noise can affect sage-grouse by preventing vocalizations that influence reproduction and other behaviors (WGFD 2003). In a study of greater sage-grouse population response to natural gas field development in western Wyoming, Holloran (2005) concluded that increased noise intensity, associated with active drilling rigs within 5 km (3.1 miles) of leks, negatively influenced male lek attendance. In 2002, Braun et al. documented approximately 200 CBNG facilities within one mile of sage-grouse leks. Sage-grouse numbers were found to be consistently lower for these leks than for leks without this disturbance. Direct habitat losses from the facilities themselves, roads and traffic, and the associated noise were found to be the likely reason for this finding.

Vegetation communities within the Powder River Basin are naturally fragmented, as they represent a transition between the intermountain basin sagebrush communities to the west and the prairie communities to the east. The Powder River Basin is also near the eastern edge of greater sage-grouse range. A sagebrush cover assessment within Wyoming basins estimated sagebrush coverage within the Powder River Basin to be 35% with an average patch size less than 300 acres (Rowland et al. 2005). The Powder River Basin patch size has decreased by more than 63% in the past forty years, from 820 acre patches and an overall coverage of 41% in 1964 (Rowland et al. 2005).

Another concern with CBNG development is that reservoirs created for water disposal provide habitat for mosquitoes associated with West Nile virus (WGFD 2004). West Nile virus represents a significant new stressor, which in 2003 reduced late summer survival of sage-grouse an average of 25% within four populations, including the Powder River Basin (Naugle et al. 2004). In northeastern Wyoming and southeastern Montana, West Nile virus-related mortality during the summer resulted in an average decline in annual female survival of 5% from 2003 to 2006 (Walker et al. 2007). Powder River Basin sage-grouse losses during 2004 and 2005 were not as severe. Summer 2003 was warm and dry, which was more conducive to West Nile virus replication and transmission than the cooler summers of 2004 and 2005 (Cornish pers. comm.).

The sage-grouse population within northeast Wyoming is exhibiting a steady long term downward trend (Figure 1) (WGFD 2005). The figure illustrates a ten-year cycle of periodic highs and lows. Each subsequent population peak is lower than the previous peak. Long-term harvest trends are similar to that of lek attendance (WGFD 2005).

Figure 4.1. Male sage-grouse lek attendance within northeastern Wyoming, 1967-2007.



The BFO Resource Management Plan (BLM 2001) and the Powder River Basin Oil and Gas Project Record of Decision (BLM 2003) include a two-mile timing limitation within sage-grouse nesting habitat. The two-mile measure originated with the Western Association of Fish and Wildlife Agencies (WAFWA) (BLM 2004). BLM Wyoming 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 prime, contiguous sage-grouse habitat such as Idaho's Snake River plain.

Additional studies across more of the sage-grouse's range indicate that many populations nest much farther than two miles from the breeding lek (BLM 2004). Holloran and Anderson (2005), in their Upper Green River Basin study area, reported only 45% of their sage-grouse hens nested within 3 km (1.86 mi) of the capture lek. Moynahan and Lindberg (2004) found only 36% of their grouse nesting within 3 km of the capture lek. Moynahan's study area was north-central Montana in an area of mixed-grass prairie and sagebrush steppe, with Wyoming big sagebrush (*Artemisia tridentata wyomingensis*) being the dominant shrub species (Moynahan et al. 2007). Habitat conditions and sage-grouse biology within the Buffalo Field Office are more similar to Moynahan's north-central Montana study area than the Upper Green River area.

Given the long-term population decline and that less than 50% of sage-grouse are expected to nest within the two-mile limitation area, a two-mile timing limitation, is insufficient to reverse the population decline. Moynahan and Lindberg (2004) like WAFWA (Connelly et al. 2000), recommend increasing the protective distance around sage-grouse leks. The BLM and University of Montana are currently researching nest location and other questions regarding the relationships between sage-grouse and coalbed natural gas development. Thus far, this research 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 (State wildlife agencies' ad hoc committee for sage-grouse and oil and gas development 2008). Even with a timing limitation on construction activities, sage-grouse may avoid nesting within CBNG fields because of the activities associated with operation and production. 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).

Walker et al, 2007 indicates the size of a no-development buffer sufficient to protect leks would depend on the amount of suitable habitat around the lek and the population impact deemed acceptable. Also, rather than limiting mitigation to only timing restrictions, research suggests more effective mitigation strategies include, at a minimum, burying power lines (Connelly et al. 2000 b); 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).

The multi-state recommendations presented to the WGFD for identification of core sage grouse areas acknowledges there may be times when development in important sage grouse breeding, summer, and winter habitats cannot be avoided. In those instances they recommend, "…infrastructure should be minimized and the area should be managed in a manner that effectively conserves sagebrush habitats (State wildlife agencies' ad hoc committee for sage-grouse and oil and gas development 2008).

4.2.5.2.4.3. Sharp-tailed grouse Direct and Indirect Effects

Effects similar to sage-grouse.

4.2.5.2.5. Mountain plover Direct and Indirect Effects

Suitable mountain plover habitat is present within the project area. The project may impact mountain plovers. Mineral development has mixed effects on mountain plovers. Disturbed ground, such as buried pipeline corridors and roads, may be attractive to plovers, while human activities within one-quarter mile may be disruptive. To reduce impacts to nesting mountain plovers, the BLM BFO requires a 0.25 mile timing limitation for potential nesting habitat prior to nest survey completion and a 0.25 mile timing limitation for all occupied nesting habitat for the entire nesting season.

Use of roads and pipe line corridors by mountain plovers may increase their vulnerability to vehicle collision. Limiting travel speed to 25mph provides drivers an opportunity to notice and avoid mountain plovers and allows mountain plovers sufficient time to escape from approaching vehicles. Even if a nesting plover flushes in time, the nest likely would still be destroyed. Overhead power lines provide perch sites for raptors that could result in increased mountain plover predation. CBNG infrastructure such as well houses, roads, pipeline corridors, and nearby metering facilities may provide shelter and den sites for ground predators such as skunks and foxes.

Mountain plovers have been forced to seek habitat with similar qualities that may be poor quality habitat when loss or alteration of their natural breeding habitat (predominately prairie dog colonies) occurs, such as heavily grazed land, burned fields, fallow agriculture lands, roads, oil and gas well pads and pipelines. These areas could become reproductive sinks. Adult mountain plovers may breed there, lay eggs and hatch chicks; however, the young may not reach fledging age due to the poor quality of the habitat. Recent analysis of the USWFS Breeding Bird Survey (BBS) data suggests that mountain plover populations have declined at an annual rate of 3.7 % over the last 30 years which represents a cumulative decline of 63% during the last 25 years (Knopf and Rupert 1995). An analysis of direct and indirect impacts to mountain plover due to oil and gas development is included in the PRB FEIS (4-254-255).

4.2.5.2.6. Swift Fox Direct and Indirect Effects

The construction of well pads, roads, pipelines and reservoirs causes direct swift fox habitat loss (i.e. loss of prairie dogs and prairie dog burrows). During construction of these facilities, there is the possibility that swift foxes may be killed as a direct result of the earth moving equipment. Constant noise and movement of equipment and the destruction of burrows puts considerable stress on the animals and is likely to cause an increase in swift fox mortalities. During the construction of these facilities individuals are exposed more frequently to predators and have less protective cover. Mineral related traffic on the adjacent roads may result in swift fox road mortalities.

The BLM BFO has no record of swift fox dens within the Powder River Basin associated with oil and gas Plans of Development prior to the development of the 2003 PRB EIS. The Thunder Basin National Grasslands in Campbell County, WY with which the BLM coordinated with in the creation of the 2003 PRB EIS, has applied a standard condition to oil and gas activities in association with swift fox dens. Therefore, in order to adequately protect the species, the BFO incorporated the following condition from the Thunder Basin National Grasslands Land Resource Management Plan into this project: "To reduce disturbances to swift fox during the breeding and whelping seasons, prohibit the following activities within 0.25 miles of their dens from March 1 to August 31: Construction (e.g. roads, water impoundments, oil and gas facilities), reclamation, gravel mining operations, drilling of water wells, and oil and gas drilling." This timing restriction, based on the best available science, will reduce direct impacts to swift foxes within the project area.

4.2.5.3. Sensitive Species Cumulative effects

The cumulative effects associated with Alternative C are within the analysis parameters and impacts described in the PRB FEIS. For details on expected cumulative impacts, please refer to the referenced PRB FEIS, Volume 2, Chapter 4, page 4-271.

4.3. West Nile Virus Direct and Indirect Effects

This project is likely to result in standing surface water which may potentially increase mosquito breeding habitat. BLM has consulted with applicable state agencies, County Weed and Pest and the State Health Department, per above mitigation in the PRB ROD page 18, regarding the disease and the need to treat. BLM has also consulted with the researchers that are studying the dynamics of WNv species and its effects in Wyoming.

There is no evidence that treatment, either through the use of larvicides or malithion, on a site specific or basin-wide scale will have any effect on the overall spread of the disease. The State agencies have not instituted state-wide treatment for mosquitoes due to WNv, nor are they requiring any mitigation specific to permitting for CBM operations.

Cumulatively, there are many sources of standing water, beyond CBM discharge, throughout the PRB that would add to the potential for mosquito habitat. Sources include; natural flows, livestock watering facilities, coal mining operations, and outdoor water use and features in and around communities.

BLM will keep monitoring this issue by continuing to consult with the State agencies and the researchers working in the area in order to stay abreast of the most current developments and any need to apply mitigation.

4.4. Water Resources

The operator has submitted a comprehensive WMP for this project. Water produced from the wells in this POD will be managed by the system of outfalls, piping, pumps and reservoirs that was previously built as part of several Bullwhacker area PODs (listed above) and other fee wells in the area. Water from this POD will be contained in the Bullwhacker area upstream of the Powder River main stem to be disposed in the water management system through infiltration, evaporation and evapotranspiration. The WMP is incorporated-by-reference into this EA pursuant to 40 CFR 1502.21. It incorporates sound water management practices, monitoring of downstream impacts within the Upper Powder River and the commitment to comply with Wyoming State water laws/regulations. It also addresses potential impacts to the environment and landowner concerns. Qualified hydrologists, in consultation with the BLM, developed the water management plan. Adherence with the plan, in addition to BLM applied mitigation (in the form of COAs), would reduce project area and downstream impacts from proposed water management strategies.

The WDEQ has assumed primacy from United States Environmental Protection Agency for maintaining the water quality in the waters of the state. The WSEO has authority for regulating water rights issues and permitting impoundments for the containment of surface waters of the state.

The maximum water production is predicted to be 6.4 gpm per well or 390.4 gpm (1.3 cfs or 630 acre-feet per year) for this POD. The PRB FEIS projected the total amount of water that was anticipated to be produced from CBNG development per year (Table 2-8 Projected Amount of Water Produced from CBM Wells Under Alternatives 1, 2A and 2B pg 2-26). For the Upper Powder River drainage, the projected volume produced within the watershed area was 166,096 acre-feet in 2007 (maximum production year). As such, the volume of water resulting from the production of these wells is 0.4% of the total volume projected for 2008. This volume of produced water is also within the predicted parameters of the PRB FEIS.

4.4.1. Groundwater

The PRB FEIS predicts an infiltration rate of 40% to groundwater aquifers and coal zones in the Upper Powder River drainage area (PRB FEIS pg 4-5). For this action, it may be assumed that a maximum of 156 gpm will infiltrate at or near the discharge points and impoundments (252 acre feet per year).

This water will saturate the near surface alluvium and deeper formations prior to mixing with the groundwater used for stock and domestic purposes. According to the PRB FEIS, "the increased volume of water recharging the underlying aquifers of the Wasatch and Fort Union Formations would be chemically similar to alluvial groundwater." (PRB FEIS pg 4-54). Therefore, the chemical nature and the volume of the discharged water may not degrade the groundwater quality.

The PRB FEIS predicts that one of the environmental consequences of coal bed natural gas production is possible impacts to the groundwater. "The effects of development of CBM on groundwater resources would be seen as a drop in the water level (drawdown) in nearby wells completed in the developed coal aquifers and underlying or overlying sand aquifers." (PRB FEIS page 4-1). In the process of dewatering the coal zone to increase natural gas recovery rates, this project may have some effect on the static water level of wells in the area. The permitted water wells produce from depths which range from 0 feet to 493 feet compared to 1,297 to 1,744 feet for the proposed production wells. As mitigation, the operator has committed to offer water well agreements to holders of properly permitted domestic and stock wells within the circle of influence (½ mile of a federal CBNG producing well) of the proposed wells.

Recovery of the coal bed aquifer was predicted in the PRB FEIS to "…resaturate and repressurize the areas that were partially depressurized during operations. The amount of groundwater storage within the coals and sands units above and below the coals is enormous. Almost 750 million acre-feet of recoverable groundwater are stored within the Wasatch Formation, Tongue River Member sands and coals (PRB FEIS Table 3-5). Redistribution is projected to result in a rapid initial recovery of water levels in the coal. The model projects that this initial recovery period would occur over 25 years." (PRB FEIS page 4-38).

Adherence to the drilling plan, the setting of casing at appropriate depths, following safe remedial procedures in the event of casing failure, and utilizing proper cementing procedures will protect any potential fresh water aquifers above the target coal zone. This will ensure that ground water will not be adversely impacted by well drilling and completion operations.

In order to determine the actual water quality of the producing formations in this POD and to verify the water analysis submitted for the pre-approval evaluation, the operator has committed to designate a reference well within the POD. The reference well will be sampled at the well head for analysis within

sixty days of initial production and a copy of the water analysis will be submitted to the BLM Authorizing Officer.

Shallow ground water monitoring is ongoing at impoundment sites across the basin. Due to the limited data available from these sites, the still uncertain overall fate or extent of change that is occurring due to infiltration at those sites, and the extensive variable site characteristics both surface and subsurface, it is not reliable at this time to infer that findings from these monitoring wells should be directly applied to other impoundment locations across the basin.

The BLM has installed shallow groundwater monitoring wells at five impoundment locations in the PRB to assess ground-water quality changes due to infiltration of CBNG produced water. Water quality data has been sampled from these wells on a regular basis. Preliminary data from three sites show increasing TDS level as water infiltrates while two sites are not.

Approximately 1650 new impoundment sites have been investigated with over 1850 borings as of December, 2007. Of those impoundments, 240 met the criteria to provide compliance monitoring data if constructed and used for CBNG water containment. Only 108 monitored impoundments are currently in use. As of the 4th quarter 2007, only 9 monitored impoundments exceed groundwater class of use limits (Fischer, 2008). The BLM requires that operators comply with the DEQ compliance monitoring guidance document prior to discharge of federally-produced water into newly constructed or upgraded impoundments.

4.4.1.1. Groundwater Cumulative Effects:

As stated in the PRB FEIS, "The aerial extent and magnitude of drawdown effects on coal zone aquifers and overlying and underlying sand units in the Wasatch Formation also would be limited by the discontinuous nature of the different coal zones within the Fort Union Formation and sandstone layers within the Wasatch Formation." (PRB FEIS page 4-64).

Development of CBNG through 2018 (and coal mining through 2033) would remove 4 million acre-feet of groundwater from the coal zone aquifer (PRB FEIS page 4-65). This volume of water "…cumulatively represents 0.5 percent of the recoverable groundwater stored in the Wasatch – Tongue River sands and coals (nearly 750 million acre-feet, from Table 3-5). All of the groundwater projected to be removed during reasonably foreseeable CBNG development and coal mining would represent less than 0.3 percent of the total recoverable groundwater in the Wasatch and Fort Union Formations within the PRB (nearly 1.4 billion acre-feet, from Table 3-5)." (PRB FEIS page 4-65). No additional mitigation is necessary.

4.4.2. Surface Water

The following table shows Wyoming proposed numeric limits for the watershed for SAR, and EC, the average value measured at selected USGS gauging stations at high and low monthly flows, and Wyoming groundwater quality standards for TDS and SAR for Class I to Class III water. It also shows pollutant limits for TDS, SAR and EC detailed in the WDEQ's WYPDES permit, and the levels found in the POD's representative water sample.

Table 4.54.4 Comparison of Regulated Water Quality Parameters to Predicted Water Quality

Predicted Values	**TDS, mg/l**	**SAR**	**EC,** μmhos/cm
Most Restrictive Proposed Limit - Powder		2.0	1,000
Least Restrictive Proposed Limit - Powder		10.0	3,200
Upper Powder River Watershed at Arvada, WY USGS #06317000 Gauging Station Historic Data Average at Maximum Flow		4.76	1,797

Predicted Values	**TDS, mg/l**	**SAR**	**EC,** μmhos/cm
Historic Data Average at Minimum Flow Little Powder River Watershed near Weston, WY, Station ID 06324970 Gauging Station		7.83	3,400
Historic Data Average at Maximum Flow		4.44	1,785
Historic Data Average at Minimum Flow		6.94	3,300
WDEQ Quality Standards for Wyoming Groundwater (Chapter 8)			
Drinking Water (Class I)	500		
Agricultural Use (Class II)	2,000	8	
Livestock Use (Class III)	5,000		
WDEQ Water Quality Requirement for WYPDES Permit # WY0051241			
At discharge point	5,000	na	7,500
Predicted Produced Water Quality			
Big George Coal	1,990	21.7	3,090

Based on the analysis performed in the PRB FEIS, the primary beneficial use of the surface water in the Powder River Basin is the irrigation of crops (PRB FEIS pg 4-69). The water quality projected for this POD is 1,990 mg/l TDS which is/ within the WDEQ criteria for agricultural use (2000 mg/l TDS). However direct land application is not included in this proposal. If at any future time the operator entertains the possibility of irrigation or land application with the water produced from these wells, the proposal must be submitted as a sundry notice for separate environmental analysis and approval by the BLM.

The quality for the water produced from the target coal zone from these wells is predicted to be similar to the sample water quality collected from a location near the POD. A maximum of 6.4 gallons per minute (gpm) is projected is to be produced from these 61 federal wells, for a total of 1.3 cfs and 390.4 gpm for the POD. See Table 4.5.

For more information, please refer to the WMP included in this POD.

There are 3 existing discharge points proposed for use in this project. They have been appropriately sited and utilize appropriate water erosion dissipation designs. Existing and proposed water management facilities were evaluated for compliance with best management practices during the onsite.

To manage the produced water no new impoundments will be constructed within the project area. Water produced by this project will be managed with infrastructure built for previous PODs and fee development. All water management facilities were evaluated for compliance with best management practices during the onsite.

The PRB FEIS assumes that 15% of the impounded water will re-surface as channel flow (PRB FEIS pg 4-74). Consequently, the volume of water produced from these wells may result in the addition of 0.2 cfs below the lowest reservoir. The operator has committed to monitor the condition of channels and address any problems resulting from discharge. Discharge from the impoundments will potentially allow for streambed enhancement through wetland-riparian species establishment. Phased reclamation plans for the existing impoundments will be submitted and approved on a site-specific, case-by-case basis as they are no longer needed for disposal of CBNG water, as required by BLM applied COAs.

Alternative (2A), the approved alternative in the Record of Decision for the PRB FEIS, states that the peak production of water discharged to the surface will occur in 2006 at a total contribution to the mainstem of the Upper Powder River of 68 cfs (PRB FEIS pg 4-86). The predicted maximum discharge rate from these 61federal wells is anticipated to be a total of 390.4 gpm or 1.3cfs to impoundments. Using an assumed conveyance loss of 20% (PRB FEIS pg 4-74) and full containment, the produced water re-surfacing in Dry Fork of the Powder River from this action (0.2 cfs) may add a maximum 0.16 cfs to Upper Powder River or Little Powder River flows, or about 0.2% of the predicted total CBNG produced water contribution to either drainage. For more information regarding the maximum predicted water impacts resulting from the discharge of produced water, see Table 4-6 (PRB-FEIS pg 4-85).

The BLM agrees with the operator that this is not expected to occur because:

- Some of these wells have already been drilled and are producing.
- New wells will be phased in over several years, and

A decline in well discharge generally occurs after several months of operation.
The proposed method for surface discharge provides passive treatment through the aeration supplied by the energy dissipation configuration at each discharge point outfall. Aeration adds dissolved oxygen to the produced water which can oxidize susceptible ions, which may then precipitate. This is particularly true for dissolved iron. Because iron is one of the key parameters for monitoring water quality, the precipitation of iron oxide near the discharge point will improve water quality at downstream locations.

The operator has obtained a Wyoming Pollutant Discharge Elimination System (WYPDES) permit for the discharge of water produced from this project from the WDEQ.

Permit effluent limits were set at (WYPDES Permit # WY0051241page 2):

pH	6.5 to 9.090
TDS	5000 mg/l max
Specific Conductance	7500 mg/l max
Sulfates	3000 mg/l max
Radium 226	1 pCi/l max
Dissolved iron	10001000 µg/l max
Dissolved manganese	629 µg/l max
Total Barium	1800 µg/l max
Total Arsenic	7 µg/l max
Chlorides	46 mg/l

The WYPDES permit also addresses existing downstream concerns, such as irrigation use, in the COA for the permit. The designated point of compliance identified for this permit is end of pipe.pipe

In order to determine the actual water quality of the producing formations in this POD and to verify the water analysis submitted for the pre-approval evaluation, the operator has committed to designate a reference well to each coal zone within the POD boundary. The reference well will be sampled at the wellhead for analysis within sixty days of initial production. A copy of the water analysis will be submitted to the BLM Authorized Officer.

As stated previously, the operator has committed to offer water well agreements to properly permitted domestic and stock water wells within the circle of influence of the proposed CBNG wells.

The development of coal bed natural gas and the production and discharge of water in the area surrounding the existing natural spring may affect the flow rate or water quality of the spring.

In-channel downstream impacts are addressed in the WMP for the Tex Draw POD prepared by Western

Gas Resources for Williams Production RMT Company.

4.4.2.1. Surface Water Cumulative Effects

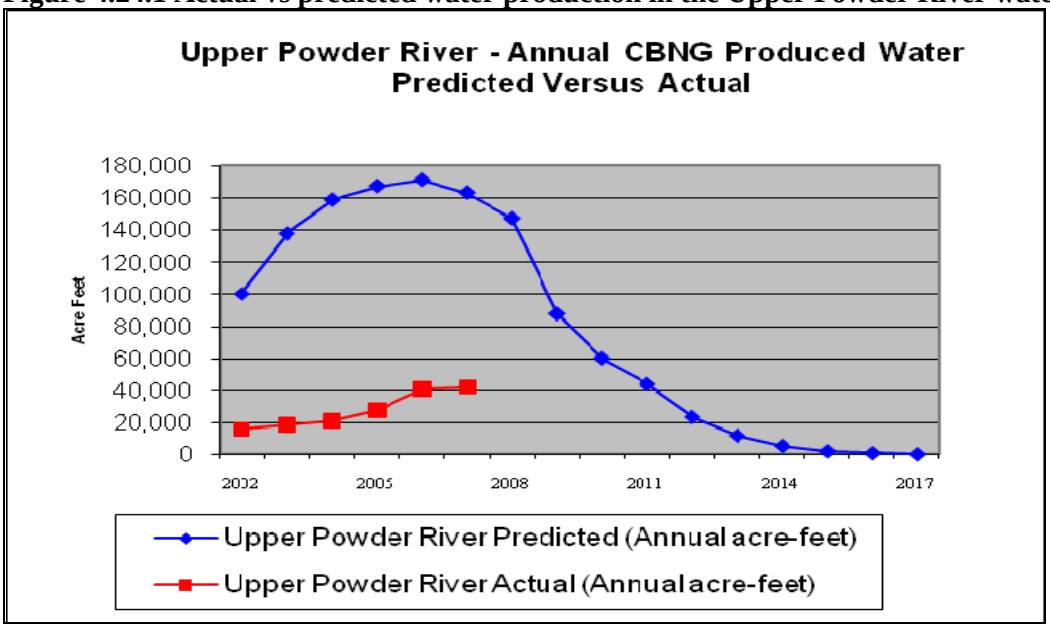
The analysis in this section includes cumulative data from Fee, State and Federal CBNG development in the Upper Powder River and Little Powder River watersheds. These data were obtained from the Wyoming Oil and Gas Conservation Commission (WOGCC).

As of December 2007, all producing CBNG wells in the Upper Powder River watershed have discharged a cumulative volume of 166,096 acre-ft of water compared to the predicted 900,040 acre-ft disclosed in the PRB FEIS (Table 2-8 page 2-26). These figures are presented graphically in Table 4.6 and Figure 4.1 below. This volume is 18.5% of the total predicted produced water analyzed in the PRB FEIS for the Upper Powder River watershed.

Table 4.6 Actual vs predicted water production in the Upper Powder River watershed *2007 Data Update 3-08-08*

Year	Upper Powder River Predicted (Annual acre-feet)	Upper Powder River Predicted (Cumulative acre-feet from 2002)	Upper Powder River Actual (Annual acre-feet)		Upper Powder River Actual (Cumulative acre-feet from 2002)	
			A-ft	% of Predicted	A-Ft	% of Predicted
2002	100,512	100,512	15,846	15.8	15,846	15.8
2003	137,942	238,454	18,578	13.5	34,424	14.4
2004	159,034	397,488	20,991	13.2	55,414	13.9
2005	167,608	565,096	27,640	16.5	83,054	14.7
2006	171,423	736,519	40,930	23.9	123,984	16.8
2007	163,521	900,040	42,112	25.8	166,096	18.5
2008	147,481	1,047,521				
2009	88,046	1,135,567				
2010	60,319	1,195,886				
2011	44,169	1,240,055				
2012	23,697	1,263,752				
2013	12,169	1,275,921				
2014	5,672	1,281,593				
2015	2,242	1,283,835				
2016	1,032	1,284,867				
2017	366	1,285,233				
Total	**1,285,233**		**166,096**			

Figure 4.24.1 Actual vs predicted water production in the Upper Powder River watershed



The PRB FEIS identified downstream irrigation water quality as the primary issue for CBNG produced water. Electrical Conductivity (EC) and SAR are the parameters of concern for suitability of irrigation water. The water quality analysis in the PRB FEIS was conducted using produced water quality data, where available, from existing wells within each of the ten primary watersheds in the Powder River Basin. These predictions of EC and SAR can only be reevaluated when additional water quality sampling is available.

The PRB FEIS states, "Cumulative effects to the suitability for irrigation of the Powder River would be minimized through the interim Memorandum of Cooperation (MOC) that the Montana and Wyoming DEQ's (Departments of Environmental Quality) have signed. This MOC was developed to ensure that designated uses downstream in Montana would be protected while CBM development in both states continued. However, this MOC has expired and has not been renewed. The EPA has approved the Montana Surface Water Standards for EC and SAR and as such the WDEQ is responsible for ensuring that the Montana standards are met at the state line under the Clean Water Act (CWA). Thus, through the implementation of in-stream monitoring and adaptive management, water quality standards and interstate agreements can be met." (PRB FEIS page 4-117)

As referenced above, the PRB FEIS did disclose that cumulative impacts may occur as a result of discharged produced CBNG water. The cumulative effects relative to this project are within the analysis parameters and impacts described in the PRB FEIS for the following reasons:

1. They are proportional to the actual amount of cumulatively produced water in the Upper Powder River drainage, which is approximately 18.5% of the total predicted in the PRB FEIS.
2. The WDEQ enforcement of the terms and conditions of the WYPDES permit that are designed to protect irrigation downstream.
3. The commitment by the operator to monitor the volume of water discharged into impoundments.

No additional mitigation measures are required.

Refer to the PRB FEIS, Volume 2, page 4-115 – 117 and table 4-13 for cumulative effects relative to the watershed and page 117 for cumulative effects common to all sub-watersheds.

4.5. Cultural Resources

BLM review, conducted by Wendy Sutton, has determined that seventeen (17) sites and thirteen (13) isolated resources will be impacted by the current project. The impacted sites (48CA3143, 48CA5385, 48CA5396, 48CA5397, 48CA5405, 48CA5407, 48CA5412, 48JO2944, 48JO2945, 48JO2950, 48JO2951, 48JO2953, 48JO2955, 48JO2956, 48JO2959, 48JO4075, and 48JO4076) and isolates (IR2, IR3, IR15, IR23, IR24, IR105, IR106, IR107, IR108, IR118, IR119, IR120, and IR122) have been recommended as not eligible to the National Register of Historic Places. As such, these resources are not considered historic properties; therefore, the impacts result in *no historic properties affected*. Following the Wyoming State Protocol, Section VI(A)(1) the Bureau of Land Management electronically notified the Wyoming State Historic Preservation Officer (SHPO) on 7/24/2008 that the proposed project would result in *no historic properties affected/no effect* (DBU_WY_2008_1680).

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)**.**

4.6. Paleontological Resources

The Wasatch Formation (PFYC classification 3, unknown) is near the surface and/or exposed within the Tex Draw POD. Management considerations in areas with a PFYC Classification 3 cover a broad range of options, including monitoring (BLM Instruction Memorandum No. 2008-009). After reviewing the Paleontological evaluation report, submitted by Gustav Winterfield, Erthhem-Vanir Geological (2008), Dale Hanson, BLM Regional Paleontologist, together with Wendy Sutton (Acting Paleontologist, BFO), determined that additional monitoring should be required during work within the Tex Draw POD to prevent, reduce and/or catalog paleontological impacts. This work is prescribed due to the potential for significant paleontological resources to be found during construction, as demonstrated by recorded resources within the general area (see Chapter 3).

5. CONSULTATION/COORDINATION

Contact	Title	Organization	Present at Onsite
Patrick Barker	Project Manager	Western Land Services	yes
Penny Bellah	Regulatory Team Lead	Williams Production	no
Gene Mankin	Landowner	T-Chair ranch	yes
Patricia Clark	Landowner	T-Chair	yes
Mark Deibert	Project Manager	Western Land Services	yes

6. OTHER PERMITS REQUIRED

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

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