BUREAU OF LAND MANAGEMENT
BUFFALO FIELD OFFICE
ENVIRONMENTAL ASSESSMENT (EA)
FOR
Williams
Carr Draw III East Remand
PLAN OF DEVELOPMENT
WY-070-EA09-078

INTRODUCTION

On March 4, 2008, the Buffalo Field Office (BFO) Manager issued the Carr Draw III East (CD3-E) Environmental Assessment (EA), #WY-070-080-029, and Finding of No Significant Impact (FONSI)/Decision Record (DR). William P. Maycock and Powder River Basin Resource Council filed 2 separate requests for State Director Review stating BLM failed to consider several important sensitive resources such as impacts to the burrowing owl, black-tailed prairie dog, elk, and sage grouse when approving the CD3-E Plan of Development (POD). The BLM Acting Deputy State Director (DSD) affirmed the decision of the Buffalo Field Office Manager in approving 82 wells on 41 locations in the CD3-E POD. The parties filed appeals of the DSD's decision with IBLA. On March 16, 2009, the IBLA issued their decision in *Maycock et al.* (177 IBLA 1) setting aside and remanding BLM's decision to authorize coal bed natural gas (CBNG) development within the CD3-E POD. The IBLA was unable to conclude why sage-grouse mitigation applied to the CD3-E POD should be different than that applied in a case recently decided by the Board, *Yates Petroleum* (176 IBLA 144). The IBLA noted the BLM, in approving activities in the CD3-E POD, tiered environmental analyses to the same planning document as used in *Yates.*

As a matter of background, in May 2006, Yates Petroleum Company appealed BLM's application of a Condition of Approval (COA) prohibiting surface-disturbing activities from March 1 through June 15 within 3 miles of active sage-grouse leks in two Powder River Basin (PRB) PODs. Yates believed the requirement was inconsistent with sage-grouse mitigation presented in the 1985 Buffalo Resource Management Plan (RMP) and the 2003 Powder River Basin, Oil and Gas Project Record of Decision (ROD) and filed an appeal. The Board ruled in *Yates* that when making a decision regarding discrete surface-disturbing oil and gas development activities, BLM has the authority to impose reasonable measures which include restricting the siting or timing of lease activities. The decision to impose a 3-mile timing restriction to protect sage-grouse and its habitat was supported by the record and by the then in effect BLM Wyoming sage-grouse policy.

The IBLA *Maycock* decision rejected arguments that the BLM could rely upon existing NEPA analysis under the 1985 Buffalo Resource Management Plan (RMP) and 2003 Powder River Basin Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) until further research provides better guidance regarding appropriate sage-grouse protection measures. The protection measures for sage-grouse that were applied to the CD3-E POD are identical or substantially similar to the protection measures used throughout most of BLM-administered lands in Wyoming.

The Wyoming sage-grouse policy the IBLA referred to in *Yates* is Instruction Memorandum (IM) WY - 2004-057, "Statement of Policy Regarding Sage-Grouse Management Definitions, and Use of Protective Stipulations, and Conditions of Approval (COAs)". This policy was issued on August 16, 2004 by the BLM Wyoming State Director to Field Managers and Deputy State Directors.

The IM concluded that it had become necessary for BLM Wyoming to "…establish consistent policy and management direction for sage-grouse management on BLM administered Public Lands…" The policy set a priority for BLM Wyoming Field Offices (FOs) to map sagebrush ecosystems and sage-grouse seasonal habitats. Until these habitats were mapped, BLM Wyoming Field Offices were to continue to utilize the 2-mile radius circle surrounding a sage-grouse lek as a "flagging device" for applying stipulations or COAs to disturbance and disruptive activities, where appropriate. The policy acknowledges not all sagebrush habitats within the 2-mile radius may be suitable nesting habitat. Where FOs had completed the identification and mapping of sage-grouse nesting habitat they were to consider applying appropriate stipulations or COAs beyond the 2-mile radius, after site-specific evaluation. All recommendations, mitigation, and conservation measures were to be analyzed in a site-specific NEPA document and be incorporated, as appropriate, as conditions of approval for permits, plans of development, and other use authorizations.

On September 29, 2005, BLM Wyoming FO Managers were notified that IM 2004-057 would expire at the end of the Fiscal Year and would not be extended in its present form. The notification, however, states BLM Wyoming will work with the Washington Office (WO) in updating this guidance, and until such time a new policy is developed for sage-grouse management, the FOs should provide sage-grouse protection using information developed in their land use plans.

Since the expiration of IM 2004-057, new information has been provided through on-going research which provides in more detail the potential impacts from coal bed natural gas development to sage-grouse species in the PRB. In early 2008, BFO staff identified, based on the recent studies, sage-grouse protection in the 2003 Powder River Basin Final Environmental Impact Statement (PRB FEIS) and the 1985 Buffalo RMP may not be adequate to protect the species in the Basin.

Recently the BFO has taken several steps to consider the evolving information on impacts to sage-grouse which could result from development activities on federal lands. These steps include the following:

- February 2008: BFO consolidates research and data to identify high-quality sage-grouse habitat in the basin.
- March, 2008: BFO, Wyoming State Office (WYSO) and WO establish the need for a Land Use Plan (LUP) approach to evaluate impacts to sage-grouse and habitat; LUP amendment or revision discussed. Decision to begin a Land Use Plan Revision is approved 2 years ahead of original schedule.
- May 28, 2008: BFO conducts public meeting to present habitat information developed through research in the Powder River Basin. BFO solicits additional information from the public and interested energy development companies to refine sage-grouse habitat maps. Objective is to establish areas of interim management for sage-grouse to preserve "decision space" during the LUP process.
- August 13, 2008: BFO releases map of sage-grouse "focus areas", depicting approximately one million acres of habitat to receive additional; protection during the LUP process. BFO also released "Guidance for general management actions during BFO Resource Management Plan Revision" containing criteria for development in "focus areas". This guidance includes the following requirement; "The proponent will be asked to demonstrate that the proposal can be managed in a manner that effectively conserves sage-grouse habitats (in focus areas) affected by the proposal."
- Concurrently with BFO efforts, on August 1, 2008, the Governor of the State of Wyoming issued an Executive Order (EO 2008-2) mandating special management for all lands within sage-grouse "Core Population Areas." Lands for special management were identified by the Wyoming Governor's Sage-Grouse Implementation Team, and generally mimic the majority of the "focus"

areas identified by the BFO. This Team also made recommendations on stipulations to be placed on development activities on state lands to ensure existing habitat function is maintained within those areas.

- August 13, 2008 – Present: BFO crafts updated impacts assessment to be included in all project analysis affecting sage-grouse habitat. This analysis includes research conducted in the Powder River Basin and other sage-grouse research published since the 2003 PRB EIS ROD. Analysis explicitly tied impacts to the impacts accepted under the 2003 ROD.
- October 1, 2008: BFO officially begins the Resource Management Plan Revision. This process was accelerated by two years to more rapidly assess impacts to sage-grouse.
- April 14, 2009: BFO/WYSO enters into agreement with University of Montana and the Miles City FO to conduct a population viability analysis in the PRB. Emphasis will be on the adequacy of BFO "focus areas" for maintenance of a persistent sage-grouse population. Information gathered will be used in the development of alternatives for the Land Use Plan revision.

The State of Wyoming Office of the Governor issued an Executive Order (EO 2008-2) on August 1, 2008, directing state agencies to focus on maintenance and enhancement of sage-grouse habitats and populations in Core Population Areas. The intent of the Core Areas is to implement a higher level of protection for at least two-thirds of the sage-grouse population in Wyoming. It is the State of Wyoming's position that activities located outside of identified sage-grouse Core Areas be allowed to move forward with lesser restrictions. During the revision of the Resource Management Plan, BFO has combined the "Core Population Area" strategy with locally developed scientific information, establishing rigorous protections inside BFO focus areas and appropriate, site-specific mitigation measures for high-quality sage-grouse habitat outside of focus areas.

This site-specific analysis of CD3-E addresses the proposed action as it relates to impacts to sage-grouse and sage-grouse habitat. While this document tiers into and incorporates by reference the Carr Draw III East Environmental Assessment, this project EA addresses only site-specific impacts to, and new information concerning sage-grouse that were not covered within the Buffalo Field Office planning documents or the CD3-E EA.

1. PURPOSE AND NEED

The purpose and need of the proposed action is to determine how and under what conditions, to allow Williams to exercise lease rights granted by the United States to develop the oil and gas resources on federal leaseholds.

Development of the Carr Draw III East POD wells would return royalties to the federal Treasury as well as stimulate local economies.

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

This action responds to the goals and objectives outlined in the Resource Management Plan for the Public Lands Administered by the Bureau of Land Management (BLM), Buffalo Field Office, April 2001 and the Powder River Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment (PRB FEIS) approved April 30, 2003. This action helps move the Project Area toward desired conditions for mineral development with appropriate mitigation consistent with the goals,

objectives and decisions outlined in these two documents.

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

The proposed action 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's Carr Draw III East POD for 82 coal bed natural gas well Application For Permit to Drill (APD) and associated infrastructure.

Proposed Well Information: There are 82 wells proposed within this POD, the wells are vertical bores proposed on an 80 acre spacing pattern with 2 wells per location. Each well will produce from the Big George or Wall coal seam. Proposed well house dimensions are 6 ft wide x 10 ft length x 6 ft height. Well house color is Carlsbad Canyon, 2.5Y 6/2, selected to blend with the surrounding vegetation. Wells are located as follows:

	Well Name	Well #	Qtr/Qtr	Sec	TWP	RNG	Lease #
1	CARR DRAW III E CARU	11-18BG*	NWNW	18	50N	75W	WYW146811
2	CARR DRAW III E CARU	11-18W	NWNW	18	50N	75W	WYW146811
3	CARR DRAW III E CARU	12-19BG	SWNW	19	50N	75W	WYW154404
4	CARR DRAW III E CARU	12-19W	SWNW	19	50N	75W	WYW154404
5	CARR DRAW III E CARU	14-19BG	SWSW	19	50N	75W	WYW154404
6	CARR DRAW III E CARU	14-19W	SWSW	19	50N	75W	WYW154404
7	CARR DRAW III E CARU	21-19BG	NENW	19	50N	75W	WYW146811
8	CARR DRAW III E CARU	21-19W	NENW	19	50N	75W	WYW146811
9	CARR DRAW III E CARU	23-19BG	NESW	19	50N	75W	WYW146811
10	CARR DRAW III E CARU	23-19W	NESW	19	50N	75W	WYW146811
11	CARR DRAW III E CARU	32-19BG	SWNE	19	50N	75W	WYW146811
12	CARR DRAW III E CARU	32-19W	SWNE	19	50N	75W	WYW146811
13	CARR DRAW III E CARU	34-19BG	SWSE	19	50N	75W	WYW146811
14	CARR DRAW III E CARU	34-19W	SWSE	19	50N	75W	WYW146811
15	CARR DRAW III E CARU	41-19BG	NENE	19	50N	75W	WYW146811
16	CARR DRAW III E CARU	41-19W	NENE	19	50N	75W	WYW146811
17	CARR DRAW III E CARU	43-19BG	NESE	19	50N	75W	WYW146811
18	CARR DRAW III E CARU	43-19W	NESE	19	50N	75W	WYW146811
19	CARR DRAW III E CARU	12-20BG	SWNW	20	50N	75W	WYW146811

	Well Name	Well #	Qtr/Qtr	Sec	TWP	RNG	Lease #
20	CARR DRAW III E CARU	12-20W	SWNW	20	50N	75W	WYW146811
21	CARR DRAW III E CARU	14-20BG	SWSW	20	50N	75W	WYW146811
22	CARR DRAW III E CARU	14-20W	SWSW	20	50N	75W	WYW146811
23	CARR DRAW III E CARU	22-20BG	SENW	20	50N	75W	WYW146811
24	CARR DRAW III E CARU	22-20W	SENW	20	50N	75W	WYW146811
25	CARR DRAW III E CARU	34-20BG	SWSE	20	50N	75W	WYW129538
26	CARR DRAW III E CARU	34-20W	SWSE	20	50N	75W	WYW129538
27	CARR DRAW III E CARU	43-20BG	NESE	20	50N	75W	WYW146811
28	CARR DRAW III E CARU	43-20W	NESE	20	50N	75W	WYW146811
29	CARR DRAW III E CARU	21-29BG	NENW	29	50N	75W	WYW129538
30	CARR DRAW III E CARU	21-29W	NENW	29	50N	75W	WYW129538
31	CARR DRAW III E CARU	41-29BG	NENE	29	50N	75W	WYW129538
32	CARR DRAW III E CARU	41-29W	NENE	29	50N	75W	WYW129538
33	CARR DRAW III E CARU	14-30BG	SWSW	30	50N	75W	WYW146812
34	CARR DRAW III E CARU	14-30W	SWSW	30	50N	75W	WYW146812
35	CARR DRAW III E CARU	21-30BG	NENW	30	50N	75W	WYW146812
36	CARR DRAW III E CARU	21-30W	NENW	30	50N	75W	WYW146812
37	CARR DRAW III E CARU	31-30BG	NWNE	30	50N	75W	WYW146812
38	CARR DRAW III E CARU	31-30W	NWNE	30	50N	75W	WYW146812
39	CARR DRAW III E CARU	34-30BG	SWSE	30	50N	75W	WYW146812
40	CARR DRAW III E CARU	34-30W	SWSE	30	50N	75W	WYW146812
41	CARR DRAW III E CARU	41-30BG	NENE	30	50N	75W	WYW146812
42	CARR DRAW III E CARU	41-30W	NENE	30	50N	75W	WYW146812
43	CARR DRAW III E CARU	42-30BG	NESE	30	50N	75W	WYW146812
44	CARR DRAW III E CARU	42-30W	NESE	30	50N	75W	WYW146812
45	CARR DRAW III E CARU	21-31BG	NENW	31	50N	75W	WYW146812
46	CARR DRAW III E CARU	21-31W	NENW	31	50N	75W	WYW146812
47	CARR DRAW III E CARU	14-13BG	SWSW	13	50N	76W	WYW146290
48	CARR DRAW III E CARU	14-13W	SWSW	13	50N	76W	WYW146290
49	CARR DRAW III E CARU	23-13BG	NESW	13	50N	76W	WYW146290
50	CARR DRAW III E CARU	23-13W	NESW	13	50N	76W	WYW146290
51	CARR DRAW III E CARU	32-13BG	SWNE	13	50N	76W	WYW146290
52	CARR DRAW III E CARU	32-13W	SWNE	13	50N	76W	WYW146290
53	CARR DRAW III E CARU	34-13BG	SWSE	13	50N	76W	WYW146290
54	CARR DRAW III E CARU	34-13W	SWSE	13	50N	76W	WYW146290
55	CARR DRAW III E CARU	43-13BG	NESE	13	50N	76W	WYW146290
56	CARR DRAW III E CARU	43-13W	NESE	13	50N	76W	WYW146290
57	CARR DRAW III E CARU	34-23BG	SWSE	23	50N	76W	WYW146290
58	CARR DRAW III E CARU	34-23W	SWSE	23	50N	76W	WYW146290
59	CARR DRAW III E CARU	44-23BG	SESE	23	50N	76W	WYW146290

	Well Name	Well #	Qtr/Qtr	Sec	TWP	RNG	Lease #
60	CARR DRAW III E CARU	44-23W	SESE	23	50N	76W	WYW146290
61	CARR DRAW III E CARU	14-24BG	SWSW	24	50N	76W	WYW146290
62	CARR DRAW III E CARU	14-24W	SWSW	24	50N	76W	WYW146290
63	CARR DRAW III E CARU	21-24BG	NENW	24	50N	76W	WYW146290
64	CARR DRAW III E CARU	21-24W	NENW	24	50N	76W	WYW146290
65	CARR DRAW III E CARU	23-24BG	NESW	24	50N	76W	WYW146290
66	CARR DRAW III E CARU	23-24W	NESW	24	50N	76W	WYW146290
67	CARR DRAW III E CARU	12-25BG	SWNW	25	50N	76W	WYW147335
68	CARR DRAW III E CARU	12-25W	SWNW	25	50N	76W	WYW147335
69	CARR DRAW III E CARU	22-25BG	SENW	25	50N	76W	WYW147335
70	CARR DRAW III E CARU	22-25W	SENW	25	50N	76W	WYW147335
71	CARR DRAW III E CARU	23-25BG	NESW	25	50N	76W	WYW146290
72	CARR DRAW III E CARU	23-25W	NESW	25	50N	76W	WYW146290
73	CARR DRAW III E CARU	32-25BG	SWNE	25	50N	76W	WYW146290
74	CARR DRAW III E CARU	32-25W	SWNE	25	50N	76W	WYW146290
75	CARR DRAW III E CARU	34-25BG	SWSE	25	50N	76W	WYW147335
76	CARR DRAW III E CARU	34-25W	SWSE	25	50N	76W	WYW147335
77	CARR DRAW III E CARU	43-25BG	NESE	25	50N	76W	WYW147335
78	CARR DRAW III E CARU	43-25W	NESE	25	50N	76W	WYW147335
79	CARR DRAW III E CARU	21-26BG	NENW	26	50N	76W	WYW33138
80	CARR DRAW III E CARU	21-26W	NENW	26	50N	76W	WYW33138
81	CARR DRAW III E CARU	41-26BG	NENE	26	50N	76W	WYW33138
82	CARR DRAW III E CARU	41-26W	NENE	26	50N	76W	WYW33138

County: Campbell

Applicant: Williams, United States

Surface Owners: William Maycock

Project Description:
On March 02, 2006, Williams submitted the Carr Draw III POD with 197 APDs. BLM inspected the area July 10-19 of 2006. Due to potentially significant impacts to the Fortification Creek elk herd, the Carr Draw III POD was returned to Williams who then divided it into two PODs. The non-elk range POD was then resubmitted as the Carr Draw III East POD with 84 APDs. Two wells (one location; 12-13) were dropped from consideration due to non-reclaimable access, leaving 82 APDs for analysis. This POD borders the Fortification Creek elk herd yearlong range, with the 21-26 well and the western portion of the existing road in section 26 within the yearlong range. The Cumulative Effects to the Fortification Creek Elk Herd Environmental Report (Bills 2007) was completed in September 2007 and is used in this EA analysis. The Buffalo Field Office is currently working on an amendment to the RMP addressing CBNG development in the Fortification Creek Area. This project is in compliance with all past RMP & PRB EIS decisions.

The proposed action involves the following:

Drilling of 82 total federal coal bed methane (CBM) wells (41 to Big George and 41 to Wall coal zones) to depths of approximately 1200 and 2200 feet respectively. Drilling and construction activities are anticipated to be completed within two years, the term of an APD. Drilling and construction occur 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 may impose longer temporal restrictions on portions of this POD.

Well metering shall be accomplished by telemetry at the well head. Routine well visits would be limited to an average of once a week.

A Water Management Plan (WMP) was submitted that involves the following infrastructure and strategy: Use of existing discharge points and stock water reservoirs within these previously approved PODs; Schoonover Road Unit #1, 2, 3, & 5; and South Prong Unit 3. A waterline was approved through sundry (EA# WY-070-08-013) on 10/19/2007 which transports the produced water south to the aforementioned PODs. No water, produced in association with a federal action, is approved to be discharged within the Carr Draw III East POD.

An unimproved and improved road network.

An above ground power line network to be constructed by a 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. Temporary diesel generators shall be placed at the power drops.

A storage tank of 500-1000 gallon capacity shall be located with each diesel generator. Generators are projected to be in operation for six months. Fuel deliveries are anticipated to be one time per week. Noise level is expected to be 100 decibels at 1 meter distance.

A buried gas, water and power line network, no central gathering/metering facilities and no compression 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:

- Comply with all applicable Federal, State and Local laws and regulations.
- 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.
- 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.

After good faith efforts failed to reach a surface use agreement, the Operator has submitted a good and sufficient bond in accordance with 43 CFR 3814.

2.3. Alternative C

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 COAs, if they will alleviate environmental effects of the operator's proposal.

Alternative C incorporates components of the Wyoming Governor's Sage Grouse Implementation Team's "Core Population Area" strategy and local research to provide appropriate protections for sage-grouse, while meeting the purpose and need for the Carr Draw III East project.

Alternative C also incorporates habitat mapping efforts in the project area and on-site verification of habitat suitability. Mapped sage-grouse habitat and site-specific habitat evaluation indicate that seasonal restrictions on surface-disturbing activities are appropriate for all locations in the Car Draw III East POD *except* locations 21-26 and 34-30.

The specific changes identified for each location in the Carr Draw III East POD are listed below under 2.3.1:

2.3.1. Changes as a result of the on-sites

Well #	**Location**	**Access**	**Changes on-sites**
12-13	sagebrush slope	unstable soils, large cut and fill, erosion on road. Adjust alignment and grade	Dropped due to inability to reclaim access.
14-13	saddle	a) Use dam for access. b) move road away from knob @ 30 M west of proposed road.	No need for SSRP (site specific reclamation plan) with a commitment to 20 foot maximum width on ridges. Second ridge line after drop stay to west (off crest).
23-13	east facing slope	main road	Main utilities line. pad. pull through design
32-13	blm ridge	Ridge.	Moved well up ridge to flatter spot, out of sage-grouse habitat. Pipeline in road. Drop road off west side of ridge on to slope. Use old cow trail on main ridge road where it turns south after the 32-13 turn-off.
34-13	west sage slope	main road	change to pull through

Well #	Location	Access	Changes on-sites
43-13	side hill	ridge road on BLM. Use existing 2-track.	Put pipeline in road. No need for SSRP with a commitment to 20 foot maximum width on ridges.
12-18	sage slope	new - steep- engineer	Move well to Hayden surface. Avoid raptor nest. Reduce surface disturbance. Avoid site specific reclamation plan.
12-19	sage slope	new	Moved 100 feet closer to fence out of best sage and grass.
14-19	Prairie dog town		Moved south to edge of prairie dog town
21-19	sage ridge	ridge	Minimize corridor along ridge (20 feet)
23-19	swale		pad moved south / east toward road and fence
32-19	ridge access to old oil location		Moved to north-west for CBNG drainage
41-19	sage and juniper slope	new	Moved east 100 feet
43-19	sage slope		Move closer to road
12-20	sage slope	road template culvert	Moved 100 meters closer to main road
23-20	sage bench	new	Moved to road moved away from nest
34-20	bench	new	Discussed size of needed work area. Needs to be addressed on all locations.
43-20	gentle sage slope	new	Move toward road
43-23	swale	New. Needs engineering	Very loose soils at location. Very poor reclamation potential. Moved location south to 44-23
12-24	steep canyon	20 foot cut. road cannot be reclaimed to contour	Dropped well due to inability to reclaim.
14-24	barber creek	along bottoms, pipeline needs to be assured that it will stay in the ground along the creek. Test compaction? Fabric?	Water well close 150 ft. Moved well up off the creek bottom. Water well agreement needed.
12-25	sage hump		Pipeline down ridge to Barber Creek? pull well back to grassy spot
21-25	gentle sage slope	sandy ridge	Move south 500 feet. Need pad. Now the 41-26
23-25	ridge	sandy ridge	Move road off ridge on west side to edge of sage avoid sandy soils
43-25	slope	sandy road	Pad. move 300 feet south. Thin soils. Minimize blading

Well #	Location	Access	Changes on-sites
41-26	south side of Barber Creek	need to design crossing for Barber Creek	Move to the north. land owner wants access from south.
21-29	sage slope	new	Minimal blading
41-29	old oil road and location		No blade work needed on road in. move wells toward old hole
21-30	slope	new	Move south east 100 feet. move road south of sand knob
32-30	slope	new	Moved out of view from ranch house
34-30	ridge	Existing BLM.	Place Pipeline in road where needed. No spillage. 25 feet disturbance on ridge lines. No blade work where it's not needed
41-30	sage slope	new. Proposed new corridor across Barber Cr.	Access from the east. Move well east across draw. Stay east of sagebrush on access
43-30	sage slope can be seen from ranch house	new really long access for single well	Moved across drainage to west to reduce access and hide well.
21-31	slope	pipeline road. No spillage. 25 feet disturbance. Need pad.	Moved gate down fence line to avoid parallel roads. Avoid corner posts. Moved well to top of hill – no pad. Avoid powerlines.

3. DESCRIPTION OF AFFECTED ENVIRONMENT

3.1. Threatened and Endangered and Sensitive Species

3.1.1. Sensitive Species

3.1.1.1. 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 United States Fish and Wildlife Services (USFWS) to list greater sage-grouse as threatened or endangered. 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).

The 2003 PRB EIS significance threshold and population viability assumptions are based on the analysis that sufficient functioning habitat for sage grouse will remain to support population viability within the project area. The six areas identified as BFO sage-grouse Focus Areas (identified in the Introduction), assume that sufficient amounts of good quality sage-grouse habitat remains unfragmented by energy or other man-made infrastructure; it is also assumed that the fragmented portions in the "energy areas" of sage-grouse habitat provide for the necessary breeding, feeding and sheltering components to sustain sage-grouse habitat connectivity between the six Focus Areas.

These basic concepts for management are based on the assumptions that sufficient "islands" of undisturbed (by human infrastructure) sage-grouse habitat would remain to sustain a large enough sage-grouse population for the long-term, and be surrounded by the planned major management activities (MMAs) in the PRB (for sage-grouse in the PRB, the MMA are livestock grazing and energy development)[1]. Research on sage-grouse in the PRB was initiated to determine what direct, indirect and cumulative impacts energy development would have on both sage-grouse habitat and its constituent resident population.

Doherty et al. (2007) modeled sage-grouse habitat (Nesting/Brood Rearing and Wintering) in the PRB, based on telemetry from individual sage-grouse. The Focus Areas were developed to encompass approximately 75% of PRB habitat, based on the 95% kernel estimates from Doherty et al.'s (2007) research, as well as total population estimates (based on male lek attendance) in PRB from 2005-2007 (Doherty, unpublished data 2008).

The state of WY has also designated sage-grouse Core Areas, which were drawn to encompass approximately ⅔ of the Wyoming sage-grouse *population (not habitat),* based on male attendance at lek sites (WYG&F data 2007). Thus, the BFO Focus Area management strategy was refined to utilize this new management strategy, new PRB research data sets and the conservation biology ideas that: 1) larger areas of unfragmented habitat are superior for long-term population sustainability than smaller habitat areas; 2) there would be some high quality habitat remaining in energy developed areas between the designated PRB sage-grouse Focus/Core Areas; 3) Although somewhat fragmented by the CBM development, the habitat remaining functional between sage-grouse Focus/Core Areas would provide population connectivity in spite of some local PRB leks being extirpated in the short-term (10-15 yrs), and; 4) the CBM developed areas within the PRB would "play-out" fairly quickly (5-15 yrs), and the following required reclamation would regain most of the sage-grouse habitat carrying capacity in the PRB (i.e., almost equal to the PRB SG habitat quantity and quality prior to intensive energy development), which existed prior to the 2003 EIS.

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. According to habitat maps and site specific assessment, moderately dense to dense sagebrush is present throughout the southern half of the project area. Sections 25 and 26, T50N, R76W and Sections 20, 29, 30 and 31, T50N, R75W contained large stands of sagebrush and moderate topography. Sagebrush communities within the northern half of the project area contained areas of shorter, more dispersed sagebrush. Approximately 88 percent of the project area meets seasonal habitat requirements and are large enough to meet the landscape scale requirements of the bird (BLM 2008). Sage-grouse habitat models indicate that 61 percent of the project area contains high quality sage-grouse nesting habitat and 57 percent of the project area contains high quality sage-grouse wintering habitat (Walker et al. 2007). Old and fresh sign was observed in the project area primarily in the southern and southeastern portion of the project area in Sections 19, 20 and 30, T50N, R75W as well as in Sections 25, 26, and 36, T50N, R76W. Individual sage-grouse were observed by Western Land Services in NESE Section 19 (Aksamit 2007). The BLM biologist observed a hen and brood among the sagebrush and greasewood in the floodplain of North Prong of Barber Creek in NENE Section 26, T50N, R76W. BLM records identified 10 sage-grouse leks within 4 miles of the project area. The 4-mile distance was recommended by the State wildlife agencies' ad hoc committee for consideration of oil and gas development effects to nesting habitat (Wyoming Game

[1] Given homogeneous habitats, the average population size and species diversity per unit will increase as the unit size increases. This mathematical relationship for populations tend to follow a logistical regression (i.e., nonlinear) relationship.

& Fish Department (WGFD) 2008). These lek sites are identified below (Table 3.1).

Table 3.1. Sage-grouse leks surrounding the Carr Draw III East project area.

Lek Name	Legal Location	Status In (year - Peak Males)	Distance From Project Area (miles)
Hayden I	SWSE Sec. 17 T50N, R75W	'79 – 39, '80 – 73, '82 – 24, '85 – 14, '88 – 44, '89 – 10, '92 – 4, '95 – 7, '98 – 0, '01 – 32, '02 – 17, '03 – 21, '04 – 17, '05 – 17, '06 – 27, '07 – 22, '08 - 19	0.33
Hayden II	SESW Sec. 31 T51N, R75W	'79 – 39, '80 – 23, '83 – 8, '85 – 0, '88 - 8, '91 – 13, '92 – 7, '95 – 0, '98 – 0, '00 – 0, '01 – 7, '02 – 3 '03&'04 – 2, '05 – 0, '06-'08 - 2	2.76
Hayden Satellite A	SWNE Sec. 22 T50N, R75W	'80 – 9, '85 – 18, '88 – 23, '89 – 12, '92 – 5, '95 – 23, '98 – 0, '00 – 40, '01 – 1, '02-'04 – 0, '05 – 2, '06 – 4, '07 – 2, '08 - 0	1.03
Hayden Satellite B	NENW Sec. 27 T50N, R75W	'80 – 7, '85 – 0, '88 – 0, '91 – 4, '92 – 0, '95 – 0, '98 – 30, '00 – 20, '01&'02 – 0, '03 – 22, '04 – 12, '05 – 63, '06 – 33, '07 – 30, '08 - 29	1.84
Barber Creek South Prong	NWSE Sec. 1 T49N, R76W	'06 – 8, '07 – 0, '08 - 4	1.32
Watsabaugh IV	NENE Sec. 17 T49N, R75W	'04 – 7, '05 – 34, '06 – 51, '07 – 45, '08 - 44	2.72
Laskie Draw	SESW Sec. 4 T49N, R76W	'04 – 3, '05 – 6, '06 – 4, '07 – 19, '08 - 0	2.82
Laskie Draw East	NENW Sec. 3 T49N, R76W	'05 – 20, '06 – 23, '07 – 24, '08- 11	1.61
Fortification	SWNW Sec. 25 T51N, R76W	'98 - 0, '00-'04 - 0, '05 – 1, '06-'08 – 0,	3.05
Watsabaugh I	NESW Sec. 36 T50N, R75W	'97 – 0, '00 – 45, '01 – 20, '02 – 0, '03 – 15, '04 – 0, '05 – 20, '06 – 34, '07 – 38, '08 - 31	3.57

4. ENVIRONMENTAL CONSEQUENCES

4.1. Sensitive Species Direct and Indirect Effects

4.1.1. Greater sage-grouse Direct and Indirect Effects

Ten occupied leks are within four miles of the Carr Draw III East POD boundary. The proposed action will adversely impact nesting, brood rearing, as well as winter habitat. 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 percent 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.

A two-mile timing limitation, given the long-term population decline and that less than 50% of sage-grouse are expected to nest within the limitation area, 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 sage-grouse questions and relationships between 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).

Proposed project elements that are anticipated to negatively impact grouse, in approximate numbers, are: CBNG wells on 41 locations, 18.3 miles of new roads, 28 miles of new pipelines, 4.2 miles of new 3-phase overhead power, increased vehicle traffic on established roads and increased noise. Using 0.6 miles as a distance for which sage-grouse will avoid otherwise suitable habitat (Holloran et al. 2007, Aldridge and Boyce 2007), effective sage-grouse habitat loss will be 15.6 square miles from overhead power, 20.8 square miles from roads, 35.5 square miles from pipelines and 14.5 square miles from 32 well locations. These numbers are not additive since each well location has an associated road and power and in many cases wells are closer than 0.6 miles to each other. Therefore, the above numbers over-represent anticipated impacts within the project area. However, if totaled, since most well locations are within 0.6 miles of each other, the entire project area (approximately 8.6 square miles within the POD boundaries) can be considered affected.

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.

Greater sage-grouse habitat will be 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 will result 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 finds 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 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)

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).

During the on-site, Williams' representatives and the BLM biologist negotiated modifications to the proposed action to minimize impacts to sage-grouse and habitat. The changes, incorporated into this alternative, are identified below:

1. The 43-25 wells were relocated approximately 150 feet south out of sagebrush to reduce disturbance to sage-grouse habitat.
2. The 43-20 wells were relocated approximately 440 feet northwest to an area of less dense sagebrush to reduce disturbance to sage-grouse habitat.
3. The 41-29 wells were relocated approximately 150 feet southwest to an existing plugged and abandoned oil well location to avoid increased fragmentation of sage-grouse habitat.
4. The access route to the 34-20 well was realigned to go around a hill and stay on the edge of dense sagebrush to reduce disturbance to sage-grouse habitat.
5. The 23-20 wells were relocated to within 200 feet of the county road and out of dense sagebrush to reduce increased fragmentation of sage-grouse habitat.
6. The 12-19 wells were relocated approximately 200 feet south to an existing fence line to reduce increased fragmentation of sage-grouse habitat.
7. The 23-19 wells were relocated approximately 300 feet southeast to an existing fence line and out of dense sagebrush to reduce increased fragmentation of sage-grouse habitat.
8. The 43-30 wells (now 42-30) were relocated approximately 500 feet northwest to an existing road and fence line to reduce increased fragmentation of sage-grouse habitat.
9. The 41-30 wells were relocated approximately 350 feet east to a ridge top, out of dense sagebrush to reduce disturbance to sage-grouse habitat.
10. The 14-20 wells were relocated to the existing dry hole to reduce increased fragmentation of sage-grouse habitat.
11. The 21-31 wells were relocated approximately 480 feet southeast to close proximity to existing powerlines to reduce increased fragmentation of sage-grouse habitat.
12. The 14-30 wells were relocated approximately 250 feet south out of dense sagebrush to reduce disturbance to sage-grouse habitat.
13. The 32-25 wells were relocated approximately 125 feet to an existing fence line to reduce increased fragmentation of sage-grouse habitat.
14. The 21-25 wells were relocated approximately 600 feet southeast to the ridge top and out of dense sagebrush to reduce disturbance to sage-grouse habitat.

15. The 12-25 wells were relocated approximately 250 feet east, out of dense sagebrush to reduce disturbance to sage-grouse habitat.
16. The 41-19 wells were relocated approximately 150 feet east, out of dense sagebrush to reduce disturbance to sage-grouse habitat.

To further minimize impacts to sage-grouse utilizing habitat affected by the proposed action, surface disturbing activities will be restricted during sage-grouse breeding and nesting periods for project components located in sage-grouse habitat for the life of the project. These restrictions will affect all locations and accesses *except* the 21-26 and 34-30 locations, which were consolidated with existing disturbance outside of sage-grouse habitat.

4.1.2. 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, state, and federal fluid mineral development. The sage-grouse cumulative impact assessment area for this project encompasses a four mile radius from the following leks: Hayden I, Hayden II, Hayden Satellite A, Hayden Satellite B, Barber Creek South Prong, Watsabaugh IV, Laskie Draw, Laskie Draw East, Fortification, and Watsabaugh I.

As of April 13, 2009, there are approximately 1,194 existing wells and associated infrastructure within four miles of the ten leks - an area of 198 square miles. The existing well density is approximately 6.0 wells per square mile. Due to this level of development there is a high probability that the population(s) breeding at these leks may become extirpated without the federal development.

As of April 7, 2009, there are 1457 proposed federal wells (according to the Automated Fluid Mineral Support System database) (82 are the wells from this project) and 975 additional proposed wells (according to the April 13, 2009, Wyoming Oil and Gas Conservation Commission database) proposed within four miles of the ten leks. With the addition of the proposed wells that are not associated with this proposed action, the well density within four miles of the leks increases to 12.1 wells/section. With the additional approval of alternative C (41 proposed well locations), the well density increases to 12.3 wells/section.

CBNG is a recent development, with the first well drilled in 1987 (Braun et al. 2002). In February 1998 there were 420 producing wells primarily restricted to eastern Campbell County (BFO 1999). By May 2003 there were 26,718 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).

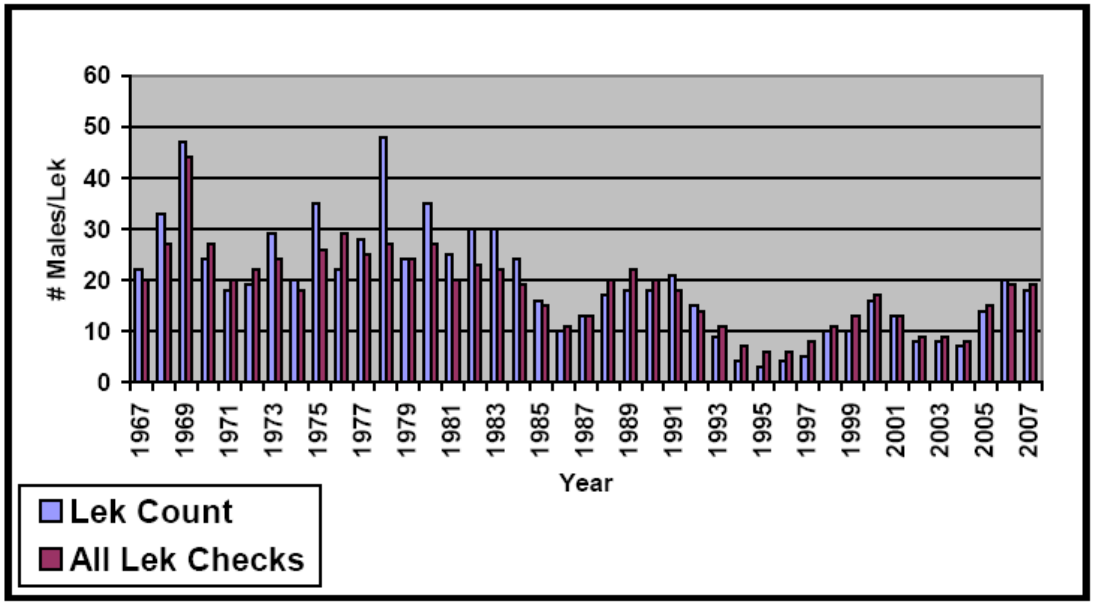
The Powder River Basin Oil and Gas Project FEIS (BLM 2003) concluded that "Activities associated with the proposed project would affect sage-grouse in several ways. These effects may include: (1) increased direct mortality (including legal hunting, poaching, and collision with power lines and vehicles); (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 suggest that the 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.

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). The existing development within the cumulative impacts assessment area has further fragmented the sage-grouse habitat. Disturbance created by this project will contribute to additional fragmentation.

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



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).

In January 2008, BFO staff identified that sage-grouse protections in the 2003 PRB EIS may not be adequate to preserve sage-grouse population viability in the Powder River Basin. BFO consolidated research and data to identify high-quality sage-grouse habitat in the basin and developed a map of sage-grouse "focus areas". These areas encompass approximately 1 million acres of habitat, and are managed under criteria established in "Guidance for general management actions during BFO Resource Management Plan Revision" (Appendix 1). This general guidance includes the following requirement; "The proponent will be asked to demonstrate that the proposal can be managed in a manner that effectively conserves sage-grouse habitats affected by the proposal."

Based on the best available science presented above, the proposed action will most likely contribute to the abandonment of the ten leks within four miles of the project area. However, given the ongoing planning actions specific to sage-grouse, changes to the proposed action identified, and timing limitations applied, the proposed action should not affect population viability across the project area or the species' range.