

**UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
Buffalo Field Office  
Buffalo, Wyoming**

**SURFACE USE  
CONDITIONS OF APPROVAL  
EA # WY-070-11-38**

Project Name: Wilkinson POD

Operator: Coleman Oil & Gas

List of wells:

	Well Name	Well #	TWP	RNG	Sec	QTR	Lease #
1	WILKINSON FEDERAL	34-17	42N	72W	17	SWSE	WYW134204
2	WILKINSON FEDERAL	43-17	42N	72W	17	NESE	WYW134204
3	WILKINSON FEDERAL	21-17	42N	72W	17	NENW	WYW134204
4	WILKINSON FEDERAL	12-17	42N	72W	17	SWNW	WYW134204
5	WILKINSON FEDERAL	12-19	42N	72W	19	SWNW	WYW134204
6	WILKINSON FEDERAL	23-19	42N	72W	19	NESW	WYW136680
7	WILKINSON FEDERAL	21-19	42N	72W	19	NENW	WYW134204
8	WILKINSON FEDERAL	34-19	42N	72W	19	SWSE	WYW134204
9	WILKINSON FEDERAL	41-19	42N	72W	19	NENE	WYW134204
10	WILKINSON FEDERAL BRIDLE BIT R	41-30	42N	72W	30	NENE	WYW136680
11	WILKINSON FEDERAL BRIDLE BIT R	21-30	42N	72W	30	NENW	WYW143523
12	WILKINSON FEDERAL BRIDLE BIT R	12-30	42N	72W	30	SWNW	WYW143523
13	WILKINSON FEDERAL BRIDLE BIT R	23-30	42N	72W	30	NESW	WYW143523
14	WILKINSON FEDERAL LEAVITT	14-4	42N	72W	4	SWSW	WYW62351
15	WILKINSON FEDERAL LEAVITT	14-5	42N	72W	5	SWSW	WYW72039
16	WILKINSON FEDERAL LEAVITT	23-5	42N	72W	5	NESW	WYW72039
17	WILKINSON FEDERAL LEAVITT	34-6	42N	72W	6	SWSE	WYW72039
18	WILKINSON FEDERAL LEAVITT	43-6	42N	72W	6	NESE	WYW72039
19	WILKINSON FEDERAL LEAVITT	14-7	42N	72W	7	SWSW	WYW138125
20	WILKINSON FEDERAL LEAVITT	23-7	42N	72W	7	NESW	WYW138125
21	WILKINSON FEDERAL LEAVITT	21-7	42N	72W	7	NENW	WYW138125
22	WILKINSON FEDERAL LEAVITT	12-7	42N	72W	7	SWNW	WYW138125
23	WILKINSON FEDERAL LEAVITT	12-8	42N	72W	8	SWNW	WYW138125
24	WILKINSON FEDERAL LEAVITT	21-8	42N	72W	8	NENW	WYW138125
25	WILKINSON FEDERAL LEAVITT	21-9	42N	72W	9	NENW	WYW72039
26	WILKINSON FEDERAL LEAVITT	12-9	42N	72W	9	SWNW	WYW72039
27	WILKINSON FEDERAL LEAVITT	41-9	42N	72W	9	NENE	WYW62351
28	WILKINSON FEDERAL LEAVITT	32-9	42N	72W	9	SWNE	WYW62351

**Water Management:**

The following water management infrastructure was inspected and approved for use in association with this POD:

	<b>IMPOUNDMENT Name / Number</b>	<b>Qtr/Qtr</b>	<b>Section</b>	<b>TWP</b>	<b>RNG</b>	<b>Capacity (Acre Feet)</b>	<b>Surface Disturbance (Acres)</b>
1	5-1	SESE	5	42N	72W	0.8	1.2
2	5-2	SESE	5	42N	72W	2.7	4.0
3	7-1	NWNE	7	42N	72W	0.1	0.1
4	7-2	SWSE	7	42N	72W	0.3	0.3

**Programmatic Mitigation Measures Identified in the PRB FEIS ROD**

The following programmatic mitigation measures are listed in Appendix A-5 of 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.

**Site Specific Conditions of Approval**

In addition to the operator committed measures, and those incorporated from the PRB FEIS, the BLM is including the following site-specific COAs to alleviate environmental impacts:

**Surface Use**

1. All road segments must be completed, including any culverts, low water crossings and required surfacing, before the drilling rig or other drilling equipment moves onto the pad.
2. Surface disturbance is prohibited in any of the following areas or conditions. Construction with frozen material or during periods when the soil material is saturated, or when watershed damage is likely to occur. Exception, waiver, or modification of this limitation may be approved in writing, including documented supporting analysis, by the Authorized Officer, with an acceptable plan for mitigation of anticipated impacts.
3. All permanent above-ground structures (e.g. , production equipment, tanks, etc.) not subject to safety requirements will be painted to blend with the natural color of the landscape. The paint used will be a color which simulates “Standard Environmental Colors.” The color selected for this POD is Covert Green (18-0617 TPX).
4. The operator will seed on the contour to a depth of no more than 0.5 inch. To maintain quality and purity, certified seed with a minimum germination rate of 80% and a minimum purity of 90% will be used. On BLM surface or in lieu of a different specific mix desired by the surface owner, use the following:

**SPECIES-CULTIVAR**

**LBS PLS/ACRE**

**10-14” Precipitation Zone**

**Loamy Ecological Site Seed Mix**

<b>Species</b>	<b>% in Mix</b>	<b>Lbs PLS*</b>
<b><i>Western Wheatgrass</i></b> (Pascopyrum smithii)/ <b><i>Thickspike Wheatgrass</i></b> (Elymus lanceolatus ssp. Lanceolatus)	30	4.8
<b><i>Bluebunch Wheatgrass</i></b> (Pseudoroegneria spicata ssp. Spicata)	10	1.2
<b><i>Green needlegrass</i></b> (Nassella viridula)	25	3.0

Species	% in Mix	Lbs PLS*
<i>Slender Wheatgrass</i> (Elymus trachycaulus ssp. Trachycaulus)	20	1.2
<i>Prairie coneflower</i> (Ratibida columnifera)	5	0.6
<i>White or purple prairie clover</i> (Dalea candidum, purpureum)	5	0.6
<i>Rocky Mountain beeplant</i> (Cleome serrulata) /or <i>American vetch</i> (Vicia □mericana)	5	0.6
<b>Totals</b>	<b>100%</b>	<b>12 lbs/acre</b>

\*PLS = pure live seed. Northern Plains adapted species  
Double this rate if broadcast seeding

### Wildlife

#### Mountain Plover

The following conditions will alleviate impact to mountain plovers:

1. A mountain plover nesting survey shall be conducted in the prairie dog colonies in Sections 4 and 7 T43N R72W. This condition will be implemented on an annual basis for the duration of surface-disturbing activities. 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.
  - a. If no mountain plover observations are identified, then activities may be permitted until the following breeding season (March 15).
  - b. If a plover is observed, no surface-disturbing activities shall occur within 0.25 miles of the prairie dog colony from 15 March through 31 July.
2. No dogs will be permitted at work sites to reduce the potential for harassment of mountain plovers.

#### Swift Fox

The following conditions will alleviate impacts to swift fox:

1. A swift fox survey will be required in Sections 4 and 7 T43N R72W between April 15 and June 15.

This condition will be implemented on an annual basis for the duration of surface disturbing activities. All survey results must be submitted in writing to the BFO.

- a. If a swift fox den is identified, then a seasonal disturbance-free buffer of 0.25 mile shall be maintained between March 1 and 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).

#### Raptors

The following conditions will alleviate impacts to raptors:

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

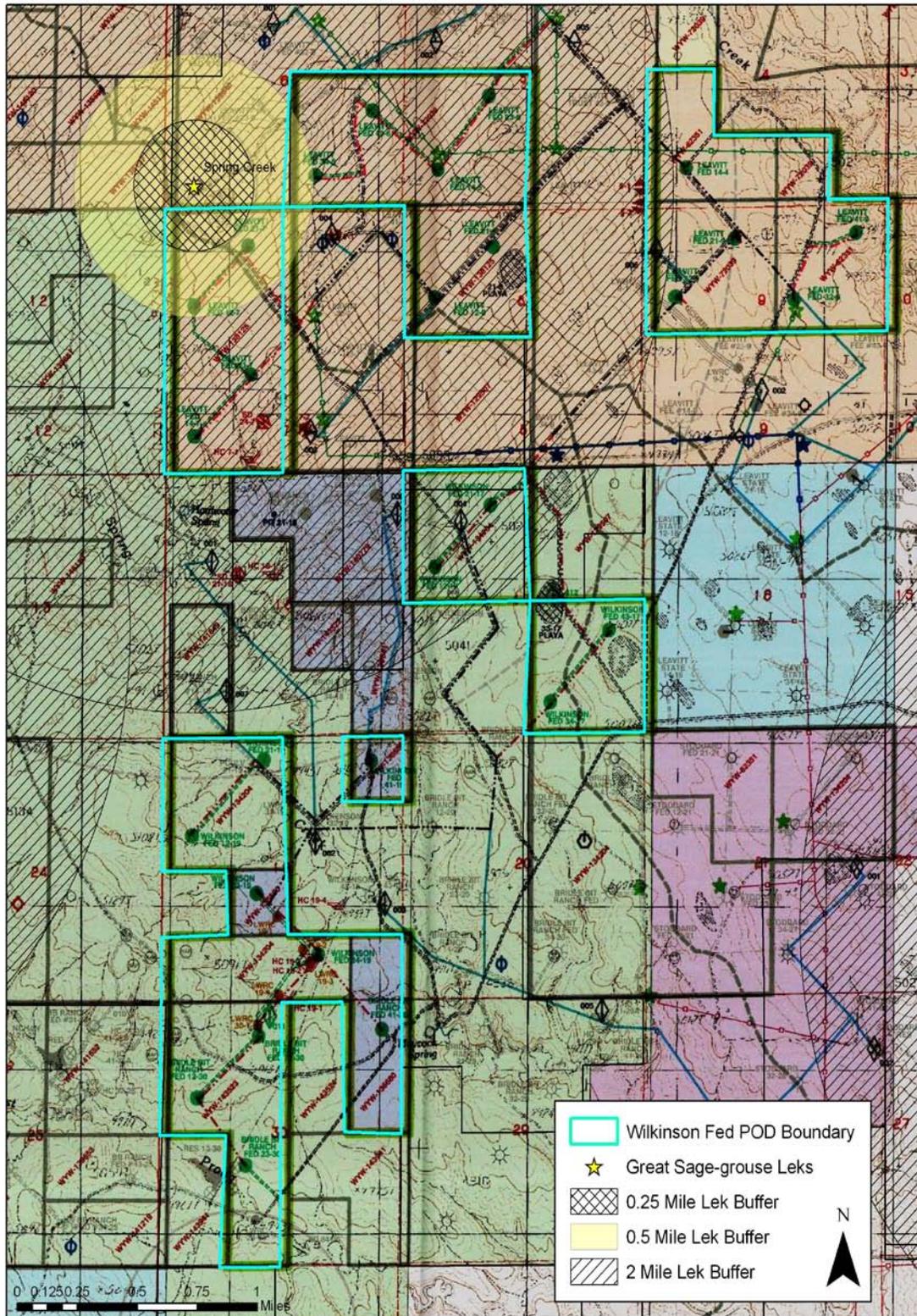
Office (307-684-1100) shall be notified within 24 hours.

**Sage-Grouse**

The following conditions will alleviate impacts to sage-grouse:

1. No surface disturbing activities are permitted within 2 miles of the Spring Creek lek (S06 T42N R72W) between March 15 and June 30, prior to completion of a sage-grouse lek survey. This condition will be implemented on an annual basis for the duration of surface disturbing activities. See attached map for affected wells and infrastructure.

**Well and infrastructure in the Wilkonson POD affected by sage-grouse timing limitations.**



2. If an active lek is identified during the survey, the 2 mile timing restriction (March 15-June 30) will

be applied, and surface disturbing activities will not be permitted until after the nesting season. 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.

### **Western Burrowing Owls**

The following conditions will alleviate impacts to burrowing owls:

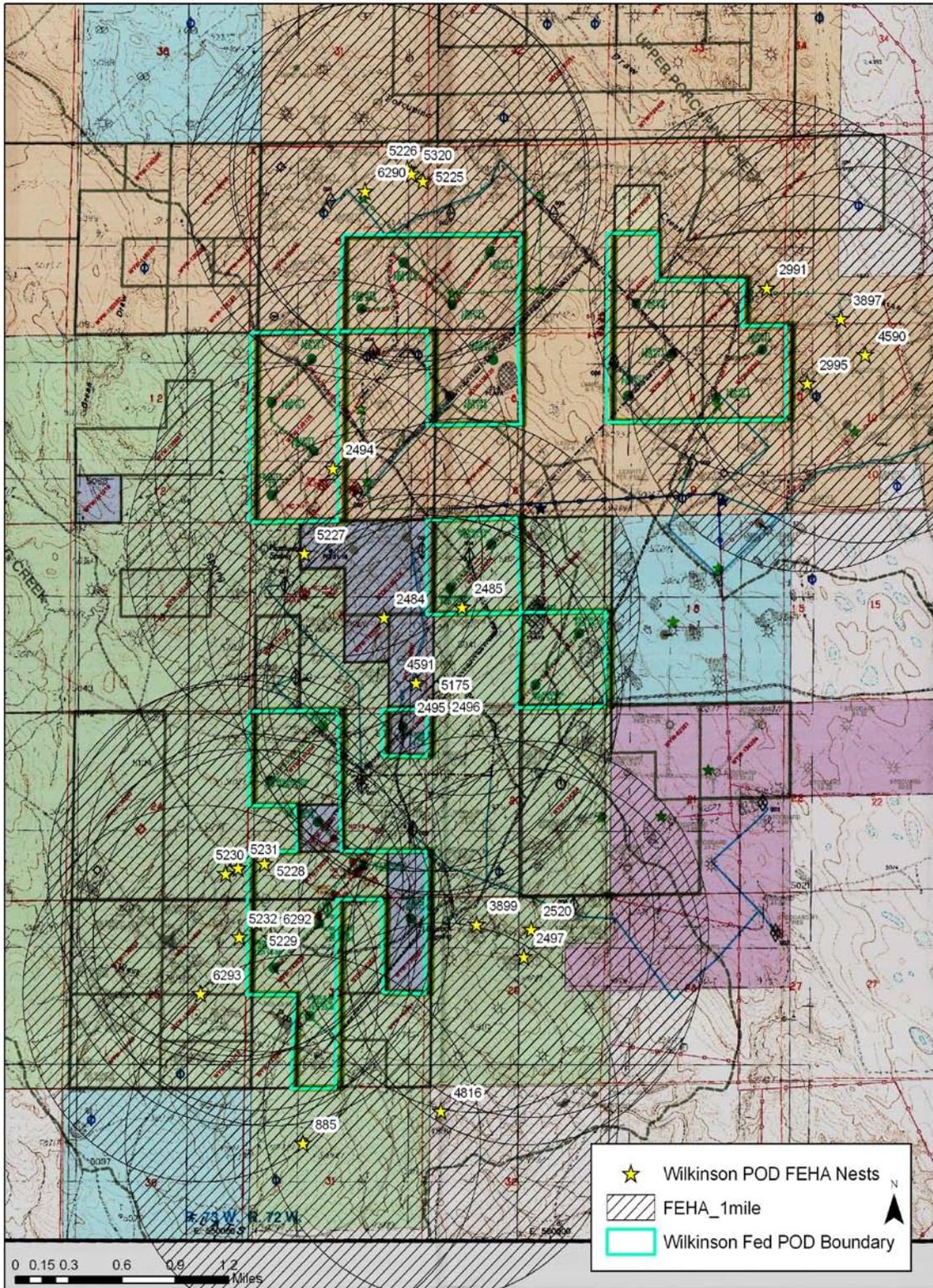
1. No surface-disturbing activities shall occur within 0.25 mile of all identified prairie dog colonies, from 15 April through 31 August, annually, prior to a burrowing owl survey. This timing limitation will be in effect unless surveys determine that no burrowing owls are present. A 0.25 mile buffer will be applied if a burrowing owl nest is identified. This will affect wells and associated infrastructure within 0.25 miles of the prairie dog towns in Sections 4 and 7 T43N R72W.
  - a. Surveys shall be conducted by a biologist following BLM protocol. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities.
  - b. If a burrowing owl nest is located during project construction or operation, the Buffalo Field Office (307-684-1100) shall be notified within 24 hours.

### **Ferruginous Hawks**

The following conditions will alleviate impacts to ferruginous hawks:

1. No surface-disturbing activities shall occur within 1.0 mile of all identified ferruginous hawk nests, from 1 February through 31 July, annually, prior to a nesting survey (as agreed by the Operator). This timing limitation will be in effect unless surveys determine the nest to be inactive. See attached map for affected wells and infrastructure.
  - a. Surveys shall be conducted by a biologist following BLM protocol. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities.
  - b. If an undocumented ferruginous hawk nest is located during project construction or operation, the Buffalo Field Office (307-684-1100) shall be notified within 24 hours.
2. Nest occupancy and productivity checks shall be completed for nests within one mile of any surface disturbing activities (e.g., well drilling or pipeline installation) across the entire POD for as long as the POD is under construction (as agreed by the Operator). 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 one 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 of that 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. In 2011, this applies to the nest(s) identified in the attached map and is subject to change each year after that, pending surveys.

**Wells and infrastructure in the Wilkinson POD affected by timing limitations for ferruginous hawks.**



## **Water**

1. The operator will sample the Hardwater Spring located at NWNW Sec 18 T42N R72W, twice each year (spring and fall) for the duration of production to determine any changes in water quality or quantity. Maycock Spring, located in the NWNW Sec 28 T42N R72W, will be monitored in the spring and fall for active flow. If the Maycock Spring becomes active, the same sampling protocol will be followed as is required for Hardwater Spring. Analysis will follow the WYPDES Permit initial quality criteria suite. Flow rate will also be determined. Copies of water quality and quantity data will be reported to the BLM BFO. If it is determined that either are changing as a result of CBNG production in the area, additional mitigation may be required.
2. Provide the WSEO permit and bonding documentation for the 5-2 Reservoir prior to commencing well production.

### **Standard Conditions of Approval Identified in the PRB FEIS ROD**

Standard Conditions of Approval are those measures that apply to all oil and gas development. These conditions are applied to both APD and SN when they are not specifically addressed in those plans by the Companies. There are standard conditions of approval that apply only to CBM activities and others that apply to both conventional oil and gas and CBM activities. Section A.2.1 identifies standard conditions of approval applicable to development involving only coal bed methane. Section A.2.2 identifies standard conditions of approval that are pertinent to all federal oil & gas lease development. Not all of the conditions in this second section are applicable to development of CBM.

It is important to note that site-specific mitigation measures are also developed by the BLM authorized officer, as needed, on a case-by-case basis at the onsite inspection to address special, unanticipated issues not addressed by a programmatic mitigation measure or standard conditions of approval (e.g., erosive soils, steep slopes, proximity to existing improvements, etc.).

The following standard conditions of approval are listed in Appendix A-4 of the PRB FEIS ROD.

#### **Applicable to Coal Bed Methane Well Development Only**

1. A pre-construction field meeting shall be conducted prior to beginning any dirt work approved under this POD. The operator shall contact the BLM Authorized Officer Debby Green @ 307-684-1058 at least 4-days prior to beginning operations so that the meeting can be scheduled. The operator is responsible for having all contractors present (dirt contractors, drilling contractor, pipeline contractor, project oversight personnel, etc.) including the overall field operations superintendent, and for providing all contractors copies of the approved POD, project map and BLM *Conditions of Approval* pertinent to the work that each will be doing.
2. Reserve pits will be adequately fenced during and after drilling operations until pit is reclaimed so as to effectively keep out wildlife and livestock. Adequate fencing, in lieu of more stringent requirements by the surface owner, is defined as follows:
  - Construction materials will consist of steel or wood posts. Three or four strand wire (smooth or barbed) fence or hog panel (16-foot length by 50-inch height) or plastic snow fence must be used with connectors such as fence staples, quick-connect clips, hog rings, hose clamps, twisted wire, etc. Electric fences will not be allowed.
  - Construction standards: Posts shall be firmly set in ground. If wire is used, it must be taut and evenly spaced, from ground level to top wire, to effectively keep out animals. Hog panels must be tied securely into posts and one another using fence staples, clamps, etc. Plastic snow fencing must be taut and sturdy. Fence must be at least 2-feet from edge of pit. 3 sides fenced before beginning drilling, the fourth side fenced immediately upon completion of drilling and prior to rig release. Fence must be left up and maintained in adequate condition until pit is closed.
3. Reserve pits will be closed as soon as possible, but no later than 90 days from time of drilling/well completion, unless the BLM Authorized Officer gives an extension. Squeezing of pit fluids and cuttings is prohibited. Pits must be dry of fluids or they must be removed via vac truck or other environmentally acceptable method prior to backfilling, recontouring and replacement of topsoil. Mud and cuttings left in pit must be buried at least 3-

feet below recontoured grade. The operator will be responsible for recontouring any subsidence areas that develop from closing a pit before it is sufficiently dry.

4. The operator shall complete wells (case, cement and under ream) as soon as possible, but no later than 30 days after drilling operations, unless an extension is given by the BLM Authorized Officer.
5. If in the process of air drilling the wells there is a need to utilize mud, all circulating fluids will be contained either in an approved pit or in an aboveground containment tank. The pit or containment tank will be large enough to safely contain the capacity of all expected fluids without danger of overflow. Fluid and cuttings will not be squeezed out of the pit, and the pit will be reclaimed in an expedient manner.
6. The operator shall restrict travel on unimproved two-track roads during periods of inclement weather or spring thaw when the possibility exists for excessive surface resource damage (e.g., rutting in excess of 4-inches, travel outside two-track roadway, etc.).
7. Phased reclamation plans will be submitted to BLM for approval prior to individual POD facility abandonment via a Notice of Intent (NOI) Sundry Notice. Individual facilities, such as well locations, pipelines, discharge points, impoundments, etc. need to be addressed in these plans as they are no longer needed. Individual items that will need to be addressed in reclamation plans include:
  - Pit closure (Close ASAP after suitably dry, but no later than 90 days from time of drilling unless an extension is given by BLM Authorized Officer.) BLM may require closure prior to 90 days in some cases due to land use or environmental concerns.
  - Configuration of reshaped topography, drainage systems, and other surface manipulations.
  - Waste disposal.
  - Revegetation methods, including specific seed mix (pounds pure live seed/acre) and soil treatments (seedbed preparation, fertilization, mulching, etc.). On private surface, the landowner should be consulted for the specific seed mix.
  - Other practices that will be used to reclaim and stabilize all disturbed areas, such as water bars, erosion fabric, hydro-mulching, etc.
  - An estimate of the timetables for beginning and completing various reclamation operations relative to weather and local land uses.
  - Methods and measures that will be used to control noxious weeds, addressing both ingress and egress to the individual well or POD.
  - Decommissioning/removal of all surface facilities.
  - Closure and reclamation of areas utilized or impacted by produced CBM water, including discharge points, reservoirs, off-channel pits, land application areas, livestock/wildlife watering facilities, surface discharge stream channels, etc..
8. The first well drilled to each targeted coal zone will be designated as the POD reference well. Designated reference wells must have the ability to be sampled at the wellhead. Water quality samples will be collected by the operator and submitted for analysis using WDEQ NPDES criteria within 30-60 days of initial water production. Results of the analysis will be submitted to the BFO-BLM Authorized Officer as soon as they become available.

## **Pertinent to All Oil and Gas Well Development**

### **General**

1. If any cultural values [sites, artifacts, human remains (Appendix L FEIS)] are observed during operation of this lease/permit/right-of-way, they will be left intact and the Buffalo Field Manager notified. The authorized officer will conduct an evaluation of the cultural values to establish appropriate mitigation, salvage or treatment. The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work

that might further disturb such materials, and contact the authorized BLM officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places;
  - the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
  - a time-frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction measures.
2. If paleontological resources, either large or conspicuous, and/or a significant scientific value are discovered during construction, the find will be reported to the Authorized Officer immediately. Construction will be suspended within 250 feet of said find. An evaluation of the paleontological discovery will be made by a BLM approved professional paleontologist within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of any significant paleontological values. Operations within 250 feet of such a discovery will not be resumed until written authorization to proceed is issued by the Authorized Officer. The applicant will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operation.
  3. Please contact Debby Green, Natural Resource Specialist, at (307) 684-1058, Bureau of Land Management, Buffalo, if there are any questions concerning the following surface use COAs.

#### **Construction**

1. The operator will limit vegetation removal and the degree of surface disturbance wherever possible. Where surface disturbance cannot be avoided, all practicable measures will be utilized to minimize erosion and stabilize disturbed soils.
2. Construction and drilling activity will not be conducted using frozen or saturated soil material during periods when watershed damage or excessive rutting is likely to occur.
3. Remove all available topsoil (depths vary from 4 inches on ridges to 12+ inches in bottoms) from constructed well locations including areas of cut and fill, and stockpile at the site. Topsoil will also be salvaged for use in reclamation on all other areas of surface disturbance (roads, pipelines, etc.). Clearly segregate topsoil from excess spoil material. Any topsoil stockpiled for one year or longer will be signed and stabilized with annual ryegrass or other suitable cover crop.
4. The operator will not push soil material and overburden over side slopes or into drainages. All soil material disturbed will be placed in an area where it can be retrieved without creating additional undue surface disturbance and where it does not impede watershed and drainage flows.
5. Construct the backslope no steeper than ½:1, and construct the foreslope no steeper than 2:1, unless otherwise directed by the BLM Authorized Officer.
6. Maintain a minimum 20-foot undisturbed vegetative border between toe-of-fill of pad and/or pit areas and the edge of adjacent drainages, unless otherwise directed by the BLM Authorized Officer.
7. With the overall objective of minimizing surface disturbance and retaining land stability and productivity, the operator shall utilize equipment that is appropriate to the scope and scale of work being done for roads and well pads (utilize equipment no larger than needed for the job).
8. To minimize electrocution potential to birds of prey, all overhead electrical power lines will be constructed to standards identified by the Avian Power Line Interaction Committee (1996).

9. The operator shall utilize wheel trenchers or ditch witches to construct all pipeline trenches, except where extreme topography or other environmental factors preclude their use.
10. A flare pit will be constructed on the well pad for use during drilling operations. It will be located at least 125 feet from the well head and will be located down-wind from the prevailing winds.
11. Reserve pit will be adequately fenced during and after drilling operations until reclaimed so as to effectively keep out wildlife and livestock. This requires that it be fenced on the three nonworking sides prior to drilling and on the remaining side immediately following rig release. Fencing will be constructed in accordance with BLM specifications. (Plastic snow fence is not acceptable fencing material for conventional wells.)
12. The reserve pit will be oriented to prevent collection of surface runoff. After the drilling rig is removed, the operator may need to construct a trench on the uphill side of the reserve pit to divert surface drainage around it. If constructed, the trench will be left intact until the pit is closed.
13. The reserve pit will be lined with an impermeable liner if permeable subsurface material is encountered. An impermeable liner is any liner having a permeability less than  $10^{-7}$  cm/sec. The liner will be installed so that it will not leak and will be chemically compatible with all substances that may be put in the pit. Liners made of any man-made synthetic material will be of sufficient strength and thickness to withstand normal installation and pit use. In gravelly or rocky soils, a suitable bedding material such as sand will be used prior to installing the liner.
14. The reserve pit will be constructed so that at least half of its total volume is in solid cut material (below natural ground level).
15. Culverts will be placed on channel bottoms on firm, uniform beds, which have been shaped to accept them, and aligned parallel to the channel to minimize erosion. Backfill will be thoroughly compacted.
16. The minimum diameter for culverts will be 18 inches. However, all culverts will be appropriately sized in accordance with standards in BLM Manual 9113.
17. Construction and other project-related traffic will be restricted to approved routes. Cross-country vehicle travel will not be allowed.
18. Maximum design speed on all operator constructed and maintained roads will not exceed 25 miles per hour.
19. Pipeline construction shall not block nor change the natural course of any drainage. Pipelines shall cross perpendicular to drainages. Pipelines shall not be run parallel in drainage bottoms. Suspended pipelines shall provide adequate clearance for maximum runoff.
20. Pipeline trenches shall be compacted during backfilling. Pipeline trenches shall be routinely inspected and maintained to ensure proper settling, stabilization and reclamation.
21. During construction, emissions of particulate matter from well pad and road construction would be minimized by application of water or other non-saline dust suppressants with at least 50 percent control efficiency. Dust inhibitors (surfacing materials, non-saline dust suppressants, and water) will be used as necessary on unpaved roads that present a fugitive dust problem. The use of chemical dust suppressants on public surface will require prior approval from the BLM Authorized Officer.
22. Operators are required to obtain a National Pollution Discharge Elimination System (NPDES) Storm Water Permit from the Wyoming DEQ for any projects that disturb five or more acres (changing to one acre in March 2005). This general construction storm water permit must be obtained from WDEQ prior to any surface disturbing activities and can be obtained by following directions on the WDEQ website at <http://deq.state.wy.us>. Further information can be obtained by contacting Barb Sahl at (307) 777-7570.

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

### **Operations/Maintenance**

1. Confine all equipment and vehicles to the access road(s), pad(s), and area(s) specified in the approved POD.
2. All waste, other than human waste and drilling fluids, will be contained in a portable trash cage. This waste will be transported to a State approved waste disposal site immediately upon completion of drilling operations. No trash or empty barrels will be placed in the reserve pit or buried on location. All state and local laws and regulations pertaining to disposal of human and solid waste will be complied with.
3. Rat and mouse holes shall be filled and compacted from the bottom to the top immediately upon release of the drilling rig from the location.
4. The operator will be responsible for prevention and control of noxious weeds and weeds of concern on all areas of surface disturbance associated with this project (well locations, roads, water management facilities, etc.) Use of pesticides shall comply with the applicable Federal and State laws. Pesticides shall be used only in accordance with their registered uses and within limitations imposed by the Secretary of Interior. Prior to the use of pesticides on public land, the holder shall obtain from the BLM authorized officer written approval of a plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, location of storage and disposal of containers, and any other information deemed necessary by the authorized officer to such use.
5. Sewage shall be placed in a self-contained, chemically treated porta-potty on location.
6. The operator and their contractors shall ensure that all use, production, storage, transport and disposal of hazardous and extremely hazardous materials associated with the drilling, completion and production of this well will be in accordance with all applicable existing or hereafter promulgated federal, state and local government rules, regulations and guidelines. All project-related activities involving hazardous materials will be conducted in a manner to minimize potential environmental impacts. In accordance with OSHA requirements, a file will be maintained onsite containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds and/or substances which are used in the course of construction, drilling, completion and production operations.
7. Produced fluids shall be put in test tanks on location during completion work. Produced water will be put in the reserve pit during completion work per Onshore Order #7.
8. The only fluids/waste materials which are authorized to go into the reserve pit are RCRA exempt exploration and production wastes. These include:
  - drilling muds & cuttings;
  - rigwash; and,
  - excess cement and certain completion & stimulation fluids defined by EPA as exempt.It does not include drilling rig waste, such as:
  - spent hydraulic fluids;
  - used engine oil;
  - used oil filter;
  - empty cement, drilling mud, or other product sacks;
  - empty paint, pipe dope, chemical or other product containers; and,
  - excess chemicals or chemical rinsate.Any evidence of non-exempt wastes being put into the reserve pit may result in the BLM Authorized Officer requiring specific testing and closure requirements.
9. Operators are advised that prior to installation of any oil and gas well production equipment which has the potential to emit air contaminants, the owner or operator of the equipment must notify the Wyoming

Department of Environmental Quality, Air Quality Division (phone 307-777-7391) to determine permit requirements. Examples of pertinent well production equipment include fuel-fired equipment (e.g., diesel generators), separators, storage tanks, engines and dehydrators.

10. If this well is drilled during the fire season (June-October), the operator shall institute all necessary precautions to ensure that fire hazard is minimized, including but not limited to mowing vegetation on the access route(s) and well location(s), keeping fire fighting equipment readily available when drilling, etc.

**Dry Hole/Reclamation**

1. All disturbed lands associated with this project, including the pipelines, access roads, water management facilities, etc will be expediently reclaimed and reseeded in accordance with the surface use plan and any pertinent site-specific COAs.
2. Disturbed lands will be recontoured back to conform with existing undisturbed topography. No depressions will be left that trap water or form ponds.
3. The fluids and mud must be dry in the reserve pit before recontouring pit area. The operator will be responsible for recontouring of any subsidence areas that develop from closing a pit before it is

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

4. Before the location has been reshaped and prior to redistributing the topsoil, the operator will rip or scarify the drilling platform and access road on the contour, to a depth of at least 12 inches. The rippers are to be no farther than 24 inches apart.
5. Distribute the topsoil evenly over the entire location and other disturbed areas. Prepare the seedbed by disking to a depth of 4-to-6 inches following the contour.
6. Waterbars are to be constructed at least one (1) foot deep, on the contour with approximately two (2) feet of drop per 100 feet of waterbar to ensure drainage, and extended into established vegetation. All waterbars are to be constructed with the berm on the downhill side to prevent the soft material from silting in the trench. The initial waterbar should be constructed at the top of the backslope. Subsequent waterbars should follow the following general spacing guidelines:

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

7. BLM will not release the performance bond until the area has been successfully revegetated (evaluation will be made after the second complete growing season) and has met all other reclamation goals of the surface owner and surface management agency.
8. A Notice of Intent to Abandon and a Subsequent Report of Abandonment must be submitted for abandonment approval.
9. For performance bond release approval, a Final Abandonment Notice (with a surface owner release letter on split-estate) must be submitted prior to a final abandonment evaluation by BLM.
10. Soil fertility testing and the addition of soil amendments may be required to stabilize some disturbed lands.

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

#### **Producing Well**

1. Landscape those areas not required for production to the surrounding topography as soon as possible. The fluids and mud must be dry in the reserve pit before recontouring pit area. The operator will be responsible for recontouring and reseeding of any subsidence areas that develop from closing a pit before it is completely dry.
2. Reduce the backslope to 2:1 and the foreslope to 3:1, unless otherwise directed by the BLM Authorized Officer. Reduce slopes by pulling fill material up from foreslope into the toe of cut slopes.
3. Production facilities (including dikes) must be placed on the cut portion of the location and a minimum of 15 feet from the toe of the back cut unless otherwise approved by the BLM Authorized Officer.
4. A dike will be constructed completely around the production facilities (i.e. production tanks, water tanks, and heater-treater). The dikes for the production facilities must be constructed of impermeable soil, hold 110% of the capacity of the largest tank plus 1-foot of freeboard, and be independent of the back cut.
5. Any chemicals used in treating the wells (e.g., corrosion inhibitor, emulsion breaker, etc.) will be in a secure, fenced-in area with appropriate secondary containment structure (dikes, catchment pan, etc.).
6. The load out line coming from the oil/condensate tank(s) will have a suitable containment structure to capture and recycle any oil spillage that might occur.
7. Individual production facilities (tanks, treaters, etc.) will be adequately fenced off (if entire facility not already fenced off).
8. Any spilled or leaked oil, produced water or treatment chemicals must be reported in accordance with NTL-2A and immediately cleaned up in accordance with BLM requirements. This includes clean-up and proper disposition of soils contaminated as a result of such spills/leaks.
9. Distribute stockpiled topsoil evenly over those areas not required for production and reseed as recommended.
10. Upgrade and maintain access roads and drainage control (e.g., culverts, drainage dips, ditching, crowning, surfacing, etc.) as necessary and as directed by the BLM Authorized Officer to prevent soil erosion and accommodate safe, environmentally-sound access.
11. Prior to construction of production facilities not specifically addressed in the APD/POD, the operator shall submit a Sundry Notice to the BLM Authorized Officer for approval.
12. If not already required prior to constructing and drilling the well location, the operator shall immediately upgrade the entire access road to BLM standards (including topsoiling, crowning, ditching, drainage culverts, surfacing, etc.) to ensure safe, environmentally-sound, year-round access.
13. Waterbars shall be installed on all reclaimed pipeline corridors per the guidelines in A.4.2.4 #6.

#### **Groundwater**

1. Concerns exist about the interaction between reservoirs and shall groundwater. At impoundment locations, it may be necessary to conduct investigations at representative sites around the basin to quantify impacts of water infiltration and lateral movement. Shall groundwater wells will be installed in cooperation with the operator and regularly sampled in areas where it has been determined during pre-construction that class I groundwater may be affected by infiltration or potential for lateral movement exists.

#### **Surface Water**

1. Locate discharge points in areas that will minimize erosion and impacts to the receiving channel, existing improvements, and downstream users.
2. Locate discharge points in stable, low gradient drainage systems and below active headcuts, when possible. If

discharge is located above a Headcut, mitigation measures will be required by the BLM Authorized Officer on a site specific basis. Some mitigation measures will require engineering design.

3. All discharge points will require energy dissipation measures.
4. Discharge points may not be authorized by BLM regardless of NPDES status or previous use. Sites may be moved or otherwise mitigated by the BLM Authorized Officer during onsite inspections where environmental issues exist.
5. Cumulative produced water discharge must not exceed the naturally occurring 2 year peak flow of the receiving channel.
6. Discharge Points will not be located in playas or enclosed basins unless it can be demonstrated that it can be done without resulting in adverse impacts. Discharges into valley bottoms with no defined low-flow channel will generally not be allowed, but will be reviewed on a site-specific basis.
7. Channel Crossings:
  - Minimize channel disturbance as much as possible by limiting pipeline and road crossings.
  - Avoid running pipelines and access roads within floodplains or parallel to a stream channel.
  - 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.
  - Channel crossings by pipelines will be constructed so that the pipe is buried at least four feet below the channel bottom.
8. 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.
9. Concerns regarding the quality of the discharged CBM water on downstream irrigation use may require operators to increase the amount of storage of CBM water during the irrigation months and allow more surface discharge during the non-irrigation months.
10. The BLM will consult with appropriate state agencies regarding West Nile Virus. If determined to be necessary, a condition of approval will be applied at the time of APD approval to treat mosquitoes for any CBM discharge waters that become stagnant.

#### **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 CBM discharges at concentrations exceeding detectable limits.
2. Areas of highly erosive soils will be avoided when drill sites, two-track access routes, and pipeline routes are surveyed and staked in order to substantially reduce the amount of soil loss.
3. Where feasible, gas and water pipelines and electrical cables will be installed in disturbance corridors. Disturbance corridors combine two or more utility lines (water, gas, electric) in common trenches, usually within access roadways.

#### **Cultural Resources**

1. The Companies will conduct development in and around the Crazy Woman Battlefield in a way that preserves

the eligibility of the site for nomination to the National Register of Historic Places. Approvals of APDs and PODs will require prior coordination with the SHPO and BLM's archaeologists.

2. For development within 0.25 mile either side of the Bozeman Trail, companies will conduct evaluation of segments to determine their eligibility to the National Register of Historic Places. Mitigation of adverse impacts to segments of the trail that contribute to its eligibility for the NRHP will be determined on a case-by-case basis.

#### **Vegetation**

1. Weed educational material will be reviewed with operators during preconstruction on-site meetings with operators, subcontractors, and landowners and will also be attached to approved APDs and PODs.
2. Temporarily fence reseeded areas, if not already fenced, for at least two complete growing seasons to insure reclamation success on problematic sites (e.g. close to livestock watering source, erosive soils etc.).

#### **Wetland/Riparian**

1. To protect the biological and hydrologic features of riparian areas, woody draws, wetlands, and floodplains, all well pads, compressors, and other non-linear facilities will be located outside of these areas.
2. To reduce adverse effects on existing wetlands and riparian areas, water discharge should not be allowed if increased discharge volumes or subsequent recharge of shallow aquifers will inundate and kill woody species, such as willows or cottonwoods.
3. For any jurisdictional wetlands identified that may be impacted, a detailed mitigation plan will be developed during the APD/POD or sundry notice approval process. Federal requirements to replace all impacted wetlands will mitigate this loss, so environmental impacts will occur only during the life of the project (including reclamation).
4. Any fences used in wetland areas should be placed well back from the wetlands to prevent waterfowl mortalities and should be constructed to standards that allow big game movements.
5. Crossings of wetland/riparian areas by linear features, such as pipelines, roads, and power lines will be avoided to the extent practicable. Where crossings cannot be avoided, impacts will be minimized through use of the following measures:
  - Site-specific mitigation plans will be developed during the APD, POD, or Sundry Notice approval process for all proposed disturbance to wetland/riparian areas.
  - Crossings will be constructed perpendicular to wetland/riparian areas where practical.
  - 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.
  - Wetland areas will be disturbed only during dry conditions (that is, during late summer or fall), or when the ground is frozen during the winter.
  - No waste material will be deposited below high water lines in riparian areas, flood plains, or in natural drainage ways.
  - The lower edge of soil or other material stockpiles will be located outside the active floodplain.
  - Drilling mud pits will be located outside of riparian areas, wetlands, and floodplains, where practical.
  - Disturbed channels will be re-shaped to their approximate original configuration or stable geomorphological configuration and properly stabilized.
  - Reclamation of disturbed wetland/riparian areas will begin immediately after project activities are complete.

#### **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. The Companies will locate compressor stations so that noise from the stations 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.

2. Containment impoundments will be fenced to exclude wildlife and livestock. If they are not fenced, they will be designed and constructed to prevent entrapment and drowning.
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*.

### **Threatened, Endangered, or Sensitive Species**

#### **Bald Eagle**

1. In the event that a bald eagle (dead or injured) is located during construction or operation, the USFWS' Wyoming Field Office (307-772-2374) and the USFWS' Law Enforcement Office (307-261-6365) will be notified within 24 hours.
2. Special habitats for raptors, including wintering bald eagles, will be identified and considered during the review of Sundry Notices.
3. 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.

#### **Black-footed Ferret**

1. Additional mitigation measure may be necessary if the site-specific project is determined by a BLM biologist to have adverse effects to black-footed ferrets or their habitat. In the event that a mountain plover is located during construction or operation, the USFWS' Wyoming Field Office (307-772-2374) and the USFWS' Law Enforcement Office (307-261-6365) will be notified within 24 hours.

#### **Mountain Plover**

1. A disturbance-free buffer zone of 0.25 mile will be established around all mountain plover nesting locations between March 15 and July 31.
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.

#### **Ute Ladies'-tresses Orchid**

1. Suitable habitat will be avoided wherever possible.
2. Companies operating in areas identified with weed infestations or suitable Ute ladies'-tresses orchid habitat will be required to submit an integrated pest management plan prior to APD approval. Mitigation will be determined on a site-specific basis and may include such measures as spraying herbicides prior to entering areas and washing vehicles before leaving infested areas. Infestation areas of noxious weeds have been identified through the county Weed and Pest Districts and are available at the Buffalo BLM office.

### **Transportation**

1. The companies will provide georeferenced spatial data depicting as-built locations of all facilities, wells, roads, pipelines, power lines, reservoirs, discharge points, and other related facilities to the BLM upon completion of POD construction and development.
2. Companies will contact the counties to pursue development of maintenance agreements to ensure county roads

are adequately maintained for the projected increase in use.

**Visual Resources**

1. The companies will complete the following measures, where practical: use existing well pads where feasible; use vegetative and topographic screening when siting well locations; avoid highwall cuts.
2. Within the designated VRM Class II corridors along Interstate 90 and State Highway 14, all project facilities on BLM surface will be screened completely from these highways or camouflaged to retain basic elements of form, line, color and texture of the landscape.
3. The Companies will mount lights at compressor stations 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.
4. Use buried power lines to each well, where feasible, to reduce the linear element in the landscape.

**Air Quality**

A number of mitigation options for CBM are part of WDEQ’s normal regulatory procedure. For instance, in the permitting of compressors, the agency always requires the application of BACT. The theory here is simply that given the air resource available, within technological and financial feasibility, the number of operations that can be allowed is maximized.

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.
  - A variety of potential emission reduction measures (BLM 1999d) are available to further limit Nox and other air pollutant emissions. The evaluation was not intended to rank or identify a required emission reduction measure; the appropriate level of control will be determined and required by the applicable air quality regulatory agencies during the pre-construction permit process.

BLM will also continue to cooperate with existing visibility and atmospheric deposition impact monitoring programs. The need for, and the design of, additional monitoring could include the involvement of the EPA Region 8 Federal Leadership Forum and applicable air quality regulatory agencies. Based upon future recommendations, operators could be required to cooperate in the implementation of a coordinated air quality monitoring program. Oil and gas lease terms (Section 6) require the lessee, within the lease rights granted, to take measures deemed necessary by the lessor for the conduct of operations in a manner that minimizes adverse impacts to air quality, as well as other resources.

2. Table A-1 and Table A-2 below present mitigation options for particulate matter and nitrogen oxide emissions.

**Table A-1 Fugitive Dust Mitigation Measures (PM10), Effectiveness and Cost**

	Dust Sources					
	Disturbed Areas			Unpaved Roads <sup>1</sup>		
Mitigation Options	Establish plant cover for all disturbed lands by certain time (re-vegetation)	Water roads to attain certain percent moisture <sup>2</sup>	Apply soil stabilizer	Set and enforce speed limit	Gravel roads	Paved road

Effectiveness	Level proportional to percentage of land cover	0-50% reduction in uncontrolled dust emissions	33 to 100% control efficiency	80% for 15 mph 65% for 20 mph 25% for 30 mph	30% reduction	90% reduction
Estimated Cost	\$/acre	\$4000/mile	\$2,000 to \$4,000/mile per year	Unknown	\$9,000/mile	\$11,000 to \$60,000/mile

Note:

1. Improved and County roads
2. Wetting of construction roads during the construction period. Wetting of construction roads not required for once a month maintenance trips to well pads.
3. Reductions assume 40 mile per hour base speed.

**Table A-2 Nitrogen Oxides (NO<sub>x</sub>) Mitigation Measures Efficiency**

	NO <sub>x</sub> Emissions Sources			
	Field Compressors	Sales Compressors	Temporary Diesel Generators <sup>1</sup>	Heavy Equipment
Mitigation Options Efficiency	Implement Best Available Control Technology <sup>2</sup> Typically results in a NO <sub>x</sub> emission rate of about 1 g/bhp-hr	Implement Best Available Control Technology <sup>2</sup> Typically results in a NO <sub>x</sub> emission rate of about 1 b/bhp-hr	Register with State; will regulate as appropriate	Voluntary use of diesel engines

Notes: 1 Wyoming is currently registering these generators to determine NO<sub>x</sub> emissions

2. BACT could include electric compression.

### Geology

Inadvertent release to the atmosphere of the methane resource will be controlled through WOGCC requirements and APD conditions of approval that address well control, casing, ventilations, and plugging procedures appropriate to site-specific CBM development plans.

#### Areas of Critical Environmental Concern

1. When APDs are received that may affect the relevance and importance criteria for potential ACEC's, the need for interim management measures will be re-evaluated and/or additional site-specific mitigation would be implemented to ensure protection of values meeting the relevance and importance criteria, FEIS Appendix R.