

**Decision on Action and Application for Categorical Exclusion  
For Activities Associated with Oil and Gas Development  
Section 390, Energy Policy Act of 2005**

Brinkerhoff Extension POD & Burgess 13 POD  
Marathon/Pennaco Energy  
WY-070-CX10-3-291, WY-070-CX10-3-292, WY-070-CX10-3-284, WY-070-CX10-3-285, WY-070-  
CX10-3-286, WY-070-CX10-3-287, WY-070-CX10-3-288, WY-070-CX10-3-289,  
Bureau of Land Management  
Buffalo Field Office

**Description of the Proposed Action**

The Proposed Action is to explore for and possibly develop natural gas reserves within geologic formations currently leased by Marathon Pennaco Energy in Wyoming.

Marathon Pennaco Energy submitted the Brinkerhoff Extension POD and Burgess 13 POD on 3/16/2009 & 2/03/2009 to the BFO.

Brinkerhoff Extension POD has 6 Federal APD's to develop and produce natural gas resources within coal bearing formations of the Powder River Basin (PRB). The wells are vertical bores proposed on an 80 acre spacing pattern with 1 well per location. Each well will produce from Lower Carney coal seams.

Burgess 13 POD has 2 Federal APD's to develop and produce natural gas resources within coal bearing formations of the Powder River Basin (PRB). The wells are vertical bores proposed on an 80 acre spacing pattern with 1 well per location. Each well will produce from Carney coal seams.

Onsite visits were conducted in on 6/23/2010 to evaluate the proposal and modify as necessary to alleviate environmental impacts. BLM sent a post-onsite deficiency on 7/6/2010.

A list of proposed wells is included in Table 2.1.

**Table 2.1 Proposed Wells**

	Well Name	Well #	Qtr/Qtr	Sec	TWP	RNG	Lease #	CX #
1	Burgess 13 BLM	15-12MZCR	SWSE	12	56N	83W	WYW152659	WY-070-CX10-3-292
2	Burgess 13 BLM	7-12MZCR	SWNE	12	56N	83W	WYW155759	WY-070-CX10-3-291
3	Brinkerhoff Fed	15-19-57-82MZ/CR	SWSE	19	57N	82W	WYW140726	WY-070-CX10-3-284
4	Brinkerhoff Fed	1-30-57-82MZ/CR	NENE	30	57N	82W	WYW140726	WY-070-CX10-3-285
5	Brinkerhoff Fed	3-30-57-82MZ/CR	NENW	30	57N	82W	WYW140726	WY-070-CX10-3-286
6	Perry Ranch Fed	5-30-57-82MZ/CR	SWNW	30	57N	82W	WYW140726	WY-070-CX10-3-287
7	BLM Fed	7-30-57-82MZ/CR	SWNE	30	57N	82W	WYW140726	WY-070-CX10-3-288
8	Perry Ranch Fed	3-31-57-82MZ/CR	NENW	31	57N	82W	WYW140726	WY-070-CX10-3-289

The following impoundments, previously approved for use in association with the water management plan for Brinkerhoff POD, were inspected and approved for use in association with the water management strategy for the Brinkerhoff Extension POD:

**Table 2.2 List of Impoundments:**

	IMPOUNDMENT Name / Number	Qtr/Qtr	Section	TWP	RNG	Capacity (Acre Feet)	Surface Disturbance (Acres)
1	Double-Wide	SWSE	23	57	83	26.9	No New
2	Stew	SWSE	23	57	83	64.2	No New

**Realty**

A right-of-way, WYW-170204, granted under the Federal Land Policy and Management Act of 1976, for an existing two-track road, Burgess 13 POD, on public lands described as follows:

6th PM, Sheridan County, Wyoming,  
T. 56 N., R. 83 W., sec. 12: W2SE.

The right-of-way area granted herein is 16 feet wide, 1,030 feet long, and contains 0.378 acres, more or less.

The following right-of-way was inspected and is required in association with the Master Surface Use Plan for the Burgess 13 POD. It will fall within the constraints of the appropriate stipulations and conditions of approval of the POD:

<b>Right-of-way</b>	<b>Aliquot</b>	<b>Sec</b>	<b>TWP</b>	<b>RNG</b>	<b>Use/Types</b>	<b>Surface Dist. (Acres)</b>
WYW-170204	W2SE	12	56N	83W	Existing 2-track road	0.378

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 for maps showing the proposed well locations and associated facilities described above. More information on CBNG well drilling, production and standard practices also is available in the PRB FEIS, Volume 1, pages 2-9 through 2-40 (January 2003).

The total surface disturbance for this action consists of: 4.73 (Brinkerhoff Extension) and 2.15 (Burgess 13).

**Plan Conformance**

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

**Plan of Operations**

The proposal is designed in conformance with all bureau standards and incorporates appropriate best management practices, required and designed mitigation measures determined to reduce the effects on the environment.

A surface use plan of operations describing all proposed surface-disturbing activities has been reviewed and is approved pursuant to Section 17 of the Mineral Leasing Act, as amended.

**Compliance with the Energy Policy Act of 2005**

The proposed activity has been determined to be statutorily categorically excluded from NEPA documentation in accordance with Section 390 of the National Energy Policy Act of 2005.

These documents have been reviewed and have been determined to consider potential environmental effects associated with the proposed activity at a site specific level.]

The environmental assessment for JM Huber Corporation’s Prairie Dog Creek POD EA # WY-070-07-138 was approved on 6/22/2006 and identifies future development of coal bed natural gas as reasonably foreseeable.

## **Persons and Agencies Consulted**

### **Wildlife**

The wildlife biologist has reviewed the sundry proposal and determined that the proposal, combined with the Conditions of Approval from Pennaco Energy's Brinkerhoff POD approved December 17, 2004 (EAWY-070-17-2004) and Huber's Prairie Dog Creek POD approved June 22, 2007 EAWY-070-07-138 are (1) consistent with the Final Environmental Impact Statement (WY-070-02-065) and programmatic biological opinion (ES-6-WY-07-F012) for the Powder River Basin Oil and Gas Project; and (2) consistent with the effects analyzed in the site specific Endangered Species Act section 7 consultation and does not change the determinations in that consultation.

### **Water Management:**

The operator has submitted comprehensive Water Management Plans (WMP) for the Brinkerhoff Extension and Burgess 13 projects which incorporate sound water management practices, monitoring of downstream impacts within the Upper Tongue River watershed, and commitment to comply with Wyoming State water laws and regulations. It also addresses potential impacts to the environment and landowner concerns. Qualified hydrologists, in consultation with the BLM, developed the water management plan. Adherence with the plan, in addition to BLM applied mitigation (in the form of COAs), would reduce project area and downstream impacts from proposed water management strategies.

Water produced in association with CBNG from Brinkerhoff Extension POD will be added to existing off channel impoundments which were included and analyzed in the original Brinkerhoff POD.

The primary water management strategy proposed to be used in the Burgess 13 POD will be the use of a Subsurface Drip Irrigation (SDI) system that has been installed in multiple cultivated fields that total 500 acres. These facilities have been developed for fee and state CBNG production. The operator has obtained a Class 5F2 Underground Injection Control (UIC) permit (UIC 07-542) for the disposal of water by SDI. The produced water from the Burgess 13 project will be piped to the existing facilities that include a lined, off channel surge pond, a pump station, where the water will be treated to meet criteria established in the UIC permit, and the subsurface irrigation laterals. Apart from the installation of pipelines from the two Burgess 13 wells to the existing pipelines, no new surface disturbance will be associated with the water management of this project.

According to Wyoming State Water Law (W.S. 41-3-101) the water extracted in the production of CBNG is the waters of the state; BLM policy 1982 directs the BLM's cooperation and full compliance with State water laws. SDI is permitted and regulated by Wyoming Department of Environmental Quality (WDEQ) through the UIC program, requiring a WDEQ 5F2 UIC permit. The BLM is responsible for analyzing the proposed action with available data provided in the WMP for the POD and disclose potential impacts of the proposed action. Responsibility, liability, monitoring, mitigation measures and reclamation should be addressed in the surface use agreement (SUA).

SDI systems are designed to utilize cations present in the soils to mitigate the impact of the quality of CBNG water on soils. The irrigation quality of the CBNG "produced water" and the variability of soils and the range in characteristics (RIC) of their physical and chemical properties within the project area, have the potential to cause long term soil impacts.

Water produced in association with CBNG development has a moderate to high salinity hazard and often has a very high sodium hazard relative to standards used for irrigation suitability. The sodium hazard of CBNG produced water may affect the soil resource. Sodic irrigation water may cause dispersion of clays and clogging of soil pores; thereby impairing soil hydraulic conductivity, water availability, and soil aeration, all of which are important to long term soil health and productivity. Elevated sodium

concentrations can harm some plants due to direct toxicity as the sodium is taken up by the root cells. Sodium can also indirectly affect crop growth by causing calcium, potassium, and magnesium deficiencies.

With time, salts from CBNG produced water can accumulate in the root zone in concentrations that can affect plant growth and water use. Semi arid and arid climates create the potential for upward movement of salts into the root zone. Proper plant selection for deep rooted salt tolerance is important. Germination of these plant species may require special management practices to prevent negative impacts to soils.

Long term produced water disposal creates the potential for impacts to shallow groundwater aquifers. Impacts to these resources are difficult to predict or model. Historically, impacts have occurred from similar projects in the Powder River Basin, but those impacts have been addressed under the authority of WDEQ. As part of their UIC permit, the operator has installed 15 groundwater monitoring wells in and around the SDI sites. It was found that the shallow groundwater in the area is of WDEQ Class III or IV. The monitoring wells will continue to be sampled in accordance with criteria outlined in the UIC permit and the data is reported to WDEQ to ensure that adverse impacts to the shallow groundwater do not occur.

Sites should be closely monitored to assure long term soil health and productivity is maintained. Specific soil chemical and physical property thresholds should be established to ensure that the soil is not measurably impacted, and that remedial actions can be implemented before soil damage occurs. These thresholds should be based on soil type, vegetation, water quality, soil and/or water amendments used, potential land use, beneficial use goals, and landowner requests. Monitoring of the SDI site should include an evaluation of soil chemical and physical properties, runoff, erosion, water quantity and quality, and vegetative performance.

The long term impacts and mitigation success of SDI projects are unknown at this time. Impacts are subjective and not well defined, and long term effects will depend on the success of applied soil amendments, and the effectiveness of monitoring, management, mitigation efforts. Reclamation and mitigation goals maybe difficult to achieve, and are likely to be expensive, but are the sole responsibility of the operator, contractor and landowner.

### **Groundwater**

The average anticipated water production per well is 15 gpm which equates to a combined 105 gpm (0.23 cfs or 169 acre-feet per year) for the seven wells in the Brinkerhoff Extension project, and 30 gpm (0.07 cfs or 48 acre-feet per year) for the two wells in the Burgess 13 project. The water quality of the produced water is expected to be similar to a reference water sample analysis which was submitted from a well producing from the Smith, Dietz 1, Dietz 3, Monarch, and Carney coal zones (see table below).

The PRB FEIS predicts an infiltration rate of 39 % to groundwater aquifers and coal zones in the Upper Tongue River drainage area (PRB FEIS pg 4-5). For this action, it may be assumed that a maximum of 41 gpm will infiltrate at or near the discharge points and impoundments (66 acre feet per year). The PRB FEIS predicts that one of the environmental consequences of coal bed natural gas production is possible impacts to the groundwater. The 25 permitted water wells within 1 mile of the Brinkerhoff project area, produce from depths which range from 37 to 510 feet compared to 1115 - 2017 feet to the coal zones. The 9 permitted water wells within 1 mile of the Burgess 13 project area produce from depths which range from 52 to 194 feet compared to 571 - 1659 feet to the coal zones. The operator has offered water well agreements to holders of properly permitted domestic and stock wells within the circle of influence (½ mile of a federal CBNG producing well) of the proposed wells.

**Surface Water**

The following table shows the average values of EC and SAR as measured at selected USGS gauging stations at high and low monthly flows as well as the Wyoming groundwater quality standards for TDS and SAR for Class I to Class III water (there is no current standard for EC). It also shows constituent limits for TDS, SAR and EC detailed in the project area WYPDES permit, and the concentrations found in the POD’s representative water sample.

**Table 2.3 Comparison of Existing and Predicted Water Quality**

Sample location or Standard	TDS mg/l	SAR	EC µmhos/cm
Tongue River at state line, near Decker, WY Gauging station 06306300			
Historic Data Average at Maximum Flow		0.36	318
Historic Data Average at Minimum Flow		0.86	731
WDEQ Quality Standards for Wyoming Groundwater (Chapter 8)			
Drinking Water (Class I)	500		
Agricultural Use (Class II)	2,000		
Livestock Use (Class III)	5,000	8	
WDEQ Water Quality Requirement for WYPDES Permit: #WY0053449 at discharge point	NA	NA	7,500
Predicted Produced Water Quality Comingled Smith, Dietz 1, Dietz 3, Monarch and Carney Coal Zones	1690	88.3	2680

There were no springs located within the Brinkerhoff Extension or Burgess 13POD boundaries.

The operator has obtained a Wyoming Pollutant Discharge Elimination System (WYPDES) permit #WY0053449 for the discharge of water produced from the Brinkerhoff Extension POD, and a Underground Injection Control (UIC) permit (UIC 07-542) from the WDEQ.

**Table 2.4 WDEQ Permit Parameters**

Parameters	POD Water Quality 7-21-10	WYPDES Permit WY0053449 Maximum Concentrations	UIC Permit 07-542 Limit
pH	8.36	6.5 to 9.0	6.5 to 8.5
Specific Conductance	2,680 mg/l	7,500 µmhos/cm max	NA
Dissolved Iron	136 µg/l	1,000 µg/l max	NA
Total Arsenic	<0.5 µg/l	NA	NA
Chlorides	10 mg/l	2,000 mg/l	2,000 mg/l
Total Dissolved Solids	1,850 mg/l	NA	5,000 mg/l
Sulfate	NA	NA	3,000 mg/l

Alternative (2A), the approved alternative in the Record of Decision for the PRB FEIS, states that the peak production of water discharged to the surface will occur in 2006 at a total contribution to the mainstem of the Upper Tongue River of 5 cfs (PRB FEIS pg 4-94). The predicted maximum discharge rate from these 8 wells is anticipated to be a total of 135 gpm or 0.30 cfs to SDI or impoundments. In the unlikely event that all of the water produced by this project were to resurface in the Upper Tongue River, it would constitute 6% of the predicted total CBNG produced water contribution.

**Cultural**

Class III cultural resource inventory was conducted for the project prior to on-the-ground work (BFO # 70090055, 70090045). Arcadis conducted Class III cultural resource inventories following the Archeology and Historic Preservation, Secretary of the Interior's Standards and Guidelines (48CFR190) for the project. Seth Lambert, BLM Archaeologist, reviewed the reports for technical adequacy and compliance with Bureau of Land Management (BLM) standards, and determined them to be adequate.

There are no eligible sites within the APE of the proposed project. Following the Wyoming State Protocol Section VI (A)(1) the Bureau of Land Management electronically notified the Wyoming State Historic Preservation Officer (SHPO) on 09/07/10 that no historic properties exist within the APE.

**Decision and Rationale on Action**

I have decided to implement Marathon Pennaco Energy to develop the APD discussed above with the following Conditions of Approval (COAs):

**Surface**

- 1. Adhere to all conditions of approval attached. See attachment A.

**Wildlife**

Raptors

The following conditions will alleviate impacts to raptors:

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

Township/Range	Section	Wells and Infrastructure
T57N/R82W	30	Well location(s): 1-30-57-82MZ/CR, 3-30-57-82MZ/CR, 5-30-57-82MZ/CR and 7-30-57-82MZ/CR. All access road and associated utility corridor within the NENW, NENE, SWNW, SWNE and SENE of this section.
T56N/R83W	12	Well location(s): 15-12-56-83 MZ/CR and 7-12-56-83 MZ/CR. All access road and associated utility corridor within the SESW, SENW, SWNE and SESW of this section.

- a. Surveys to document nest occupancy shall be conducted by a biologist following BLM protocol, between April 15 and June 30. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities. Surveys outside this window may not depict nesting activity. If a survey identifies active raptor nests, a 0.5 mile timing buffer will be implemented. The timing buffer restricts surface disturbing activities within 0.5 mile of occupied raptor nests from February 1 to July 31.
- b. Nest occupancy and productivity checks shall be completed for nests within a 0.5 mile of any surface disturbing activities across the entire POD for as long as the POD is under construction. Once construction of the POD has ceased, nest occupancy and productivity checks shall continue for the first five years on all nests that are within a 0.5 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. The nests that are checked each year is subject to change, pending surveys.

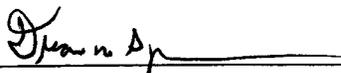
2. If an undocumented raptor nest is located during project construction or operation, the Buffalo Field Office (307-684-1100) shall be notified within 24 hours.
3. Well metering, maintenance and other site visits within 0.5 miles of raptor nests should be minimized as much as possible during the breeding season (February 1 – July 31).

The above COAs and/or terms and conditions provide justification for this decision and may not be segregated from project implementation without further NEPA review. In addition, I have reviewed the plan conformance statement and have determined that the proposed activity is in conformance with the applicable land use plan(s). Further, I have reviewed the proposal to ensure the appropriate exclusion category as described in Section 390 of the Energy Policy Act of 2005 has been correctly applied. It is my determination that no further environmental analysis is required.

The above described action must be completed by 6/22/2011.

**Implementation Date**

This project will be implemented on or after the below date.

  
\_\_\_\_\_  
Duane Spencer  
Field Manager

9/15/10  
\_\_\_\_\_  
Date

**Administrative Review or Appeal Opportunities**

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

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

## **LIST OF INTERDISCIPLINARY TEAM PREPARERS AND REVIEWERS**

Meleah Corey, Natural Resource Specialist  
Casey Freise, Supervisory Natural Resource Specialist  
Brent Sobotka, Hydrologist  
Mathew Warren, Petroleum Engineer  
Kristine Phillips, Legal Instruments Examiner  
Seth Lambert, Archaeologist  
Jim Verplancke, Wildlife Biologist  
Kerry Aggen, Geologist  
Chris Durham, Assistant Field Manager, Resources  
Paul Beels, Associate Field Manager, Minerals & Lands  
Duane W. Spencer, Field Manager

Interdisciplinary Team Lead: Meleah Corey

### **Contact Person**

For additional information concerning this decision, contact  
Meleah Corey  
Natural Resource Specialist  
Buffalo Field Office  
1425 Fort Street  
Buffalo WY 82834  
307-684-1070

**Attachment A**

**SURFACE USE  
CONDITIONS OF APPROVAL**

**I Programmatic mitigation measures identified in the PRB FEIS ROD**

**Surface Water**

1. Channel Crossings:
  - a) 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.
  - b) Channel crossings by pipelines will be constructed so that the pipe is buried at least four feet below the channel bottom.
2. 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.

**Wildlife**

1. 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.

**Air Quality**

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

**II Site Specific Conditions of Approval**

**Wildlife**

Raptors

The following conditions will alleviate impacts to raptors:

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

Township/Range	Section	Wells and Infrastructure
T57N/R82W	30	Well location(s): 1-30-57-82MZ/CR, 3-30-57-82MZ/CR, 5-30-57-82MZ/CR and 7-30-57-82MZ/CR. All access road and associated utility corridor within the NENW, NENE, SWNW, SWNE and SENE of this section.

Township/Range	Section	Wells and Infrastructure
T56N/R83W	12	Well location(s): 15-12-56-83 MZ/CR and 7-12-56-83 MZ/CR. All access road and associated utility corridor within the SESW, SENW, SWNE and SESW of this section.

- c. Surveys to document nest occupancy shall be conducted by a biologist following BLM protocol, between April 15 and June 30. All survey results shall be submitted in writing to a Buffalo BLM biologist and approved prior to surface disturbing activities. Surveys outside this window may not depict nesting activity. If a survey identifies active raptor nests, a 0.5 mile timing buffer will be implemented. The timing buffer restricts surface disturbing activities within 0.5 mile of occupied raptor nests from February 1 to July 31.
  - d. Nest occupancy and productivity checks shall be completed for nests within a 0.5 mile of any surface disturbing activities across the entire POD for as long as the POD is under construction. Once construction of the POD has ceased, nest occupancy and productivity checks shall continue for the first five years on all nests that are within a 0.5 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. The nests that are checked each year is subject to change, pending surveys.
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.
  3. Well metering, maintenance and other site visits within 0.5 miles of raptor nests should be minimized as much as possible during the breeding season (February 1 – July 31).

**General**

1. All changes made at the onsite will be followed. They have all been incorporated into the operator’s POD.
2. The operator must provide documentation that a copy of the Surface Use Plan of Operations has been provided to each landowner, in accordance with the requirements of Onshore Order #1.

**Surface Use**

1. All permanent above-ground structures (e.g., production equipment, tanks, etc.) not subject to safety requirements will be painted to blend with the natural color of the landscape. The paint used will be a color which simulates “Standard Environmental Colors.” The colors selected for the Brinkerhoff Extension POD and Burgess 13 POD is Covert Green.
2. Provide 4” of aggregate where grades exceed 8% for stability and erosion prevention.
3. The operator is responsible for having the licensed professional engineer certify that the actual construction of the road meets the design criteria and is constructed to Bureau standards.
4. The culvert locations will be staked prior to construction. The culvert invert grade and finished road grade will be clearly indicated on the stakes. Culverts will be installed on natural ground, or on a designed flow line of a ditch. The minimum cover over culverts will be 12” or one-half the diameter

whichever is greater. Drainage laterals in the form of culverts or water bars shall be placed according to the following spacing:

<u>Grade</u>	<u>Drainage Spacing</u>
2-4%	310 ft
5-8%	260 ft
9-12%	200 ft
13-15%	150 ft.

5. The operator will follow the guidance provided in the Wyoming Policy on Reclamation (IM WY-90-231) specifically the following:

Reclamation Standards:

- C. 3. The reclaimed area shall be stable and exhibit none of the following characteristics:
- Large rills or gullies.
  - Perceptible soil movement or head cutting in drainages.
  - Slope instability on, or adjacent to, the reclaimed area in question.
- C.4. The soil surface must be stable and have adequate surface roughness to reduce runoff and capture rainfall and snow melt. Additional short-term measures, such as the application of mulch, shall be used to reduce surface soil movement.
- C.5. Vegetation canopy cover (on unforested sites), production and species diversity (including shrubs) shall approximate the surrounding undisturbed area. The vegetation shall stabilize the site and support the planned post disturbance land use, provide for natural plant community succession and development, and be capable of renewing itself. This shall be demonstrated by:
- Successful onsite establishment of species included in the planting mixture or other desirable species.
  - Evidence of vegetation reproduction, either spreading by rhizomatous species or seed production.
- C.6. The reclaimed landscape shall have characteristics that approximate the visual quality of the adjacent area with regard to location, scale, shape, color and orientation of major landscape features and meet the needs of the planned post disturbance land use.

6. The operator will drill seed on the contour to a depth of 0.5 inch, followed by cultipaction to compact the seedbed, preventing soil and seed losses. To maintain quality and purity, the current years tested, certified seed with a minimum germination rate of 80% and a minimum purity of 90% will be used. Attachment 1 is a map of the project area which identifies the ecological sites and designates the seed mix preference. On BLM surface or in lieu of a different specific mix desired by the surface owner, use the following:

<b>Loamy Ecological Site Seed Mix</b>		
<b>Species</b>	<b>% in Mix</b>	<b>Lbs PLS*</b>
<b>Western Wheatgrass</b> (Pascopyrum smithii)/or <b>Thickspike Wheatgrass</b> (Elymus lanceolatus ssp. lanceolatus)	30	3.6
<b>Bluebunch Wheatgrass</b> (Pseudoroegneria spicata ssp. Spicata)	10	1.2
<b>Green needlegrass</b> (Nassella viridula)	25	3.0
<b>Slender Wheatgrass</b> (Elymus trachycaulus ssp. trachycaulus)	20	2.4

<b>Loamy Ecological Site Seed Mix</b>		
<b>Species</b>	<b>% in Mix</b>	<b>Lbs PLS*</b>
<i>Prairie coneflower</i> ( <i>Ratibida columnifera</i> )	5	0.6
<i>White or purple prairie clover</i> ( <i>Dalea candidum, purpureum</i> )	5	0.6
<i>Rocky Mountain beeplant</i> ( <i>Cleome serrulata</i> ) /or <i>American vetch</i> ( <i>Vicia americana</i> )	5	0.6
<b>Totals</b>	<b>100%</b>	<b>12 lbs/acre</b>

<b>Shallow Loamy Ecological Site Seed Mix</b>		
<b>Species</b>	<b>% in Mix</b>	<b>Lbs PLS*</b>
<i>Western Wheatgrass</i> - ( <i>Pascopyrum smithii</i> )/	20	2.4
<i>Bluebunch wheatgrass</i> – ( <i>Pseudoroegneria spicata</i> ssp. <i>Spicata</i> )	30	3.0
<i>Idaho fescue</i> – ( <i>Festuca idahoensis</i> Elmer)	30	3.0
<i>American vetch</i> ( <i>Vicia americana</i> ) <b>OR</b> <i>Cicer Milkvetch</i> – ( <i>Astragalus</i> )	10	1.2
<i>Winterfat</i> – ( <i>Ceratoides lanata</i> )	5	0.6
<i>Lewis, Blue, or Scarlet flax</i> ( <i>Linum lewisii</i> )	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

**Water Management**

- To control erosion, no water will be allowed to overflow the tire stock water tanks.
- The operator shall submit to the BLM a copy of the WYPDES Permit(s) as they become available from the WDEQ. The operator has committed to comply with all the regulations and reporting requirements of the WYPDES permits as issued by the WDEQ for this action.

**III Standard Conditions of Approval**

**A. General**

- 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. 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.).
  4. The first producing well drilled to each targeted coal zone will be designated as the POD “Reference Well”. Reference wells will not be required for PODs within a 6 mile radius of the first reference well designated by the operator, nor for co-mingled coal zones. The designated reference well must be equipped to be sampled at the well head. A reference well sample will be collected from the wellhead and submitted for analysis; using the list of analytes identified in WDEQ WYPDES Application for Permit to Surface Discharge Produced Water from CBM New Discharges, Renewals, or Major Modifications, within 30 to 60 days of initial water production. Results of the analysis will be submitted to the BFO-BLM authorized Officer as they become available.
  5. By November 1 each year, 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 for all PODs where construction and development have been completed.
  6. If any dead or injured threatened, endangered, proposed, or candidate species is located during construction or operation, the U.S. Fish and Wildlife Service’s Wyoming Field Office (307-772-2374), their law enforcement office (307-261-6365), and the BLM Buffalo Field Office (307-684-1100) shall be notified within 24 hours. If any dead or injured sensitive species is located during construction or operation, the BLM Buffalo Field Office (307-684-1100) shall be notified within 24 hours.
  7. All other conservation measures and terms and conditions identified in the Powder River Basin Oil and Gas Project Biological Opinion (WY6633) shall be complied with.
  8. 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.
  9. All contractors will have a copy of the pod map and conditions of approval with them at all times.

**B. Construction**

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 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. All roads, pads, impoundments and locations where engineered construction will occur will be completely slope staked for the pre-construction onsite.
3. 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.
4. 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.
5. 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.
6. 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.
7. Construct the backslope no steeper than 1½:1, and construct the foreslope no steeper than 2:1, unless otherwise directed by the BLM Authorized Officer.
8. 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.
9. 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).
10. To minimize electrocution potential to raptors, all overhead electrical power lines will be constructed to Avian Power Line Interaction Committee (1996) standards and additional standards identified in the PRB FEIS Biological Opinion (Volume 3, Appendix K, page 43).
11. The operator shall utilize wheel trenchers or ditchers to construct all pipeline trenches, except where extreme topography or other environmental factors preclude their use.
12. 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.

13. 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.
14. 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.
15. The reserve pit will be constructed so that at least half of its total volume is in solid cut material (below natural ground level).
16. 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.
17. The minimum diameter for culverts will be 18 inches. However, all culverts will be appropriately sized in accordance with standards in BLM Manual 9113.
18. Construction and other project-related traffic will be restricted to approved routes. Cross-country vehicle travel will not be allowed.
19. Maximum design speed on all operator-constructed and maintained roads will not exceed 25 miles per hour.
20. 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.
21. Pipeline trenches shall be compacted during backfilling. Pipeline trenches shall be routinely inspected and maintained to ensure proper settling, stabilization and reclamation.
22. 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.
23. 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.

24. 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.
25. Weed educational material will be reviewed with operators during pre-construction on-site meetings with operators, subcontractors, and landowners and will also be attached to approved APDs and PODs.
26. Companies will contact the counties to pursue development of maintenance agreements to ensure county roads are adequately maintained for the projected increase in use.

### **C. Operations/Maintenance**

1. The operator shall complete coal bed natural gas 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.
2. 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.
3. Confine all equipment and vehicles to the access road(s), pad(s), and area(s) specified in the approved APD or POD.
4. 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.
5. 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.
6. 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.
7. Sewage shall be placed in a self-contained, chemically treated porta-potty on location.
8. 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 these wells 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.

9. 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.
10. The only fluids/waste materials which are authorized to go into the reserve pit are RCRA exempt exploration and production wastes. These include:
  - drilling muds & cuttings
  - rigwash
  - excess cement and certain completion & stimulation fluids defined by EPA as exempt

It does not include drilling rig waste, such as:

- spent hydraulic fluids
- used engine oil
- used oil filter
- empty cement, drilling mud, or other product sacks
- empty paint, pipe dope, chemical or other product containers
- excess chemicals or chemical rinsate

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

11. 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, re-contouring and replacement of topsoil. Mud and cuttings left in pit must be buried at least 3-feet below re-contoured grade. The operator will be responsible for re-contouring any subsidence areas that develop from closing a pit before it is sufficiently dry.
12. 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.
13. If this well is drilled during the fire season (June-October), the operator shall institute all necessary precautions to ensure that fire hazard is minimized, including but not limited to mowing vegetation on the access route(s) and well location(s), keeping fire fighting equipment readily available when drilling, etc.

#### **D. Dry Hole/Reclamation**

1. 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 re-contoured 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 re-contouring pit area. The operator will be responsible for re-contouring 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 re-contour 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. 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
7. BLM will not release the performance bond until all disturbed areas associated with the APD/POD have 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.
12. 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 - 4	310
5 - 8	260
9 - 12	200
12-15	150

**E. Producing Well**

1. Landscape those areas not required for production to the surrounding topography as soon as possible. The fluids and mud must be dry in the reserve pit before re-contouring pit area. The operator will be responsible for re-contouring 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. Any spilled or leaked oil, produced water or treatment chemicals must be reported in accordance with NTL-3A 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.
5. Distribute stockpiled topsoil evenly over those areas not required for production and reseed as recommended.
6. 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.
7. 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.
8. 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. This requirement does not supercede or apply where specific road requirements are addressed in the APD/POD surface use plan (e.g., two track road, spot upgrade, etc.)
9. Waterbars shall be installed on all reclaimed pipeline corridors per the guidelines in D #12.