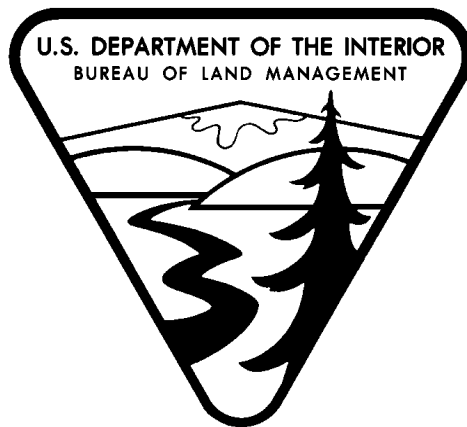


**Coal Bed Natural Gas**  
**APD and Project POD**  
**Guidance Manual**

**May 28, 2003**



**Bureau of Land Management**

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## MISSION STATEMENT

It is the mission of the Bureau of Land Management to sustain the health, diversity and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/MT/GI-03/014



In Reply To:  
3160

# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Miles City Field Office  
111 Garryowen Road  
Miles City, Montana 59301  
<http://www.mt.blm.gov/mcfo/>



May 30, 2003

Dear Reader:

This is a copy of the Miles City Field Office Coal Bed Natural Gas (CBNG) Guidance Document . The purpose of the Guidance Document is to assist people with the preparation of Applications for Permit to Drill (APDs) and Project Plans of Development (PODs) addressing proposed CBNG activities. The Guidance Document is referenced in the Montana Final Statewide Oil and Gas EIS/Amendment, and will provide a means to help implement decisions found in the Record of Decision, April 2003.

The Guidance Document is divided into two major parts. The first part outlines the information required in a complete APD and a complete POD. The second part provides examples of supporting material required in a complete POD. Other information addressing maps, field inspections and names and phone numbers of BLM employees are also provided.

We hope this Guidance Document will be helpful to those who prepare APDs and PODs, and assist those who review these applications. If you have any questions, need additional information or would like to schedule a meeting to discuss our procedures, please contact me or anyone of the individuals from our office listed at the back of the Guidance Document.

Sincerely,

David McIlroy  
Field Manager  
Miles City Field Office

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## **ABBREVIATIONS AND ACRONYMS**

AO	Authorized Officer
APD	Application for Permit to Drill
BMW	Basin Monitoring Wells
CBM	coalbed methane
CDP	Central Delivery Points
CMM	coal mine methane
CRABS form	Cultural Resource Annotated Bibliography System
DEIS	Draft Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FWS	Fish and Wildlife Service
GIS	geographic information system
GWIC	Geological Groundwater Information Center
MAPS	Montana Agricultural Potentials System
MBOGC	Montana Board of Oil and Gas Conservation
MDEQ	Montana Department of Environmental Quality
MFWP	Montana Fish Wildlife and Parks
MOU	Memorandum of Understanding
MPDES	Montana Pollutant Discharge Elimination System
MSDS	material safety data sheet
MSDS	Material Safety Data Sheets
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NSO	No Surface Occupancy
Project POD	Project Plan of Development
RMP	Resource Management Plan
RMU	Regional Monitoring Units
ROW	right-of-way
SHPO	State Historic Preservation Act
TD	total depth
TEC&SC	threatened, endangered, candidate and other species of concern
USGS	U.S. Geological Survey (USDI)
WMP	Water Management Plan
WMP	Wildlife Monitoring Plan
WMPP	Wildlife Monitoring and Protection Plan

## I. INTRODUCTION

This guidebook has been prepared to assist the Operator in preparing APDs and Project Plans of Development (Project PODs) for CBNG wells and projects proposed on federal surface or minerals managed by the BLM, within the Miles City and Billings Field Office's.

Actions in this guidance manual are in conformance with the Record of Decision for the Montana Statewide Oil and Gas EIS.

## ELECTRONIC COMMERCE

Operators can obtain further electronic permitting as a method that an operator or permit agent can use to send oil and gas permit applications and reports directly to the BLM via the Internet. This includes:

- Well Completion Report
- Sundry Notice
- Attachments (documents, maps, drawings, etc.)

Information about electronic permitting on the Internet at <http://www.otshq.com>, or by calling Paul Brown, AFMSS Project Manager, at (303) 236-8586.

## II. REQUIRED COMPONENTS OF AN APPLICATION FOR PERMIT TO DRILL (APD)

A complete APD for an individual well consists of:

- Form 3160-3 (Application for Permit to Drill or Deepen)
- Drilling Plan
- Surface Use Plan
- Required Maps and Well Survey Plat
- Bond/Surety Information
- Certification
- Cultural Report

These forms are available on the Internet at <http://www.mt.blm.gov/oilgas/operation>.

Form 3160-3 and addenda must be filled out as completely as possible and submitted in triplicate. The form shall be signed by the company official having the responsibility and authority to supervise and direct all activities related to the permit and who can be contacted in case of problems. As an alternative to the operator signing the application, agents are allowed to sign applications with written approval from the operator.

Self-certification and bonding information statements are to be included within APD Item 13 of the surface use plan. A self-certification statement is not required if the Operator is also the operating rights owner or lessee for the lease. The bond statement should contain the BLM bond number (not the surety company's number.)

**An example of a self-certification statement is:** *ABC Coal Bed Methane Company certifies that it is authorized by the proper lease interest owners to conduct operations associated with this application.*

**An example of a bond statement is:** *Bond coverage pursuant to 43 CFR 3104 for lease activities is being provided by ABC Coal Bed Methane Company with their BLM bond MT1010.*

### **III. REQUIREMENTS FOR THE DRILLING PLAN**

A Drilling Plan in sufficient detail is required to enable BLM to complete an evaluation of the technical adequacy of and environmental effects associated with the proposed project. Operators need to submit a drilling plan with each copy of Form 3160-3, or reference thereon if it is already on file with BLM or is being submitted for more than one well. The Drilling Plan must include a description of the pressure control system and circulation mediums, the testing, logging and core program, pertinent geologic data and information on expected problems and hazards.

A Drilling Plan may be submitted for a single well or as a Master Drilling Plan for several wells within a Project POD proposed to be drilled within the project. The Drilling Plan may cover more than one federal lease. Modifications to the Drilling Plan may be approved by BLM.

The following points are required to be addressed:

1. Estimated tops of important geologic markers for each well. Indicate the estimated top of each coal bed not just the top of the Fort Union formation. (*A generic elevation for all wells in a project is not acceptable*).
  2. Estimated depths at which the top and bottom of anticipated water (particularly fresh water), oil, gas or other mineral-bearing formations, including each coal bed, are expected to be encountered and the lessee's or operator's plans for protecting such resources.
  3. Operator's minimum specifications for pressure control equipment to be used and a schematic diagram thereof showing sizes, pressure ratings (or API series) and the testing procedures and testing frequency. (*A request for a variance from Onshore Order No. 2 for use of non-standard BOP equipment must be included with the APD*).
  4. Any supplementary information more completely describing the drilling equipment, casing and cementing program. (*Manufacturer's pipe data (Internal Yield, Collapse and Joint strength as a minimum) are required for non-API grade pipe*).
  5. Type and characteristics of the proposed circulating medium or mediums to be employed in drilling, the quantities and types of mud and weighing material to be obtained, the monitoring equipment to be used on the mud system.
  6. Anticipated type and amount of testing, logging and coring.
  7. Expected bottom hole pressure and any anticipated abnormal pressures, temperatures or potential hazards, such as hydrogen sulfide, along with contingency plans for mitigating such hazards.
  8. Any other facets of the proposed operation which the lessee or operator wished to include for BLM's consideration of the application. The operator must include a statement addressing the feasibility of directional drilling and a statement and analysis of the potential for affecting Indian minerals or water resources and their proposal to protect these resources.
- An example of a Drilling Plan can be found in Appendix C.

## **IV. REQUIREMENTS FOR THE SURFACE USE PLAN**

A Surface Use Plan in sufficient detail is required to enable BLM to complete an evaluation of the technical adequacy of and the environmental effects associated with the proposed Project. Operators must submit a surface use plan with each copy of Form 3160-3 (APD), or reference thereon if it is already on file with BLM or is being submitted for more than one well.

A Surface Use Plan may be submitted for a single well or as a Master Surface Use Plan for several wells where the construction and reclamation operations would be the same within a Project. The Surface Use Plan may cover more than one federal lease. Modifications to the Plan may be approved by BLM.

The lessee or operator must provide a Surface Use Plan that includes maps, plats and narrative descriptions that address the following points:

### **1. Existing Roads**

A legible, labeled topographic map (1:24000 scale) showing: a) federal lease boundaries; b) surface ownership; c) description of access route to well site; d) appropriately labeled access road(s); e) location of proposed well site in relation to a town or other easily locatable point (county road or state highway) along with a narrative of directions; and f) a description of the type and condition of existing roads and any plans for improvement and maintenance. Also refer to the attached “Map Requirements” section on page 14.

### **2. Proposed Access Roads**

Two types of roads are primarily anticipated to be used for CBNG projects: a) BLM temporary roads that are essentially two-track roads with minor upgrades and b) BLM resource roads which are surfaced and provide all-season access. Full descriptions of these road types can be found in the *Surface Operating Standards for Oil and Gas Exploration and Development* (commonly known as the “Gold Book”) as well as *BLM Manual Section 9113*. Both documents are available at BLM offices or <http://www.mt.blm.gov/oilgas/operation/>. All permanent and temporary access roads to be constructed or upgraded must be identified and labeled on a map (this should be part of the 1:24000 map). Surface ownership must also be shown.

BLM or the surface owner may restrict the use of two-track roads (BLM Temporary Roads) during inclement weather and spring when severe rutting and other resource impacts might occur. Upgrading may be necessary along certain portions of the two-track roads.

BLM will require certain roads to be improved to BLM Resource Road minimum standards (crown and ditch, surfacing, water-wings, culverts, etc.) to provide safe, year-round, all-weather access. Use the *Surface Use Standards for Oil & Gas Exploration & Development* (Gold Book) and the *BLM Roads Standards Manual 9113* for designing roads. Dust control will be required when necessary and must be addressed in the Master Surface Use Plan.

#### **A. BLM Temporary Roads**

Besides identifying this road on a map, the following information must be provided.

- Length and width of proposed road



- Areas needing repairs or improvements
- Types of improvements

## **B. BLM Resource Roads**

Besides identifying this road in a map, the following information must be provided.

- Length of proposed road
- Width of total disturbance (maximum of 40')
- Width of running surface (travel way)
- Maximum sustained grade(>200')
- Maximum pitch grade (<200')
- Major cuts and fills (>2')
- Drainage design (crowning, ditches, culvert locations and sizes, low water crossings, etc.)
- Fence cuts, gates, cattle guards
- Surfacing material (minimum of 3" depth)

**NOTE:** In areas involving major environmental and safety concerns (e.g., steep slopes, rough topography, erosive soils, major drainage crossings, significant cuts & fills, public access, etc.), the Operator must provide detailed engineering designs for review and approval by BLM.

## **C. Corridors**

Where possible, whether improved or two-track, the roads should serve as a common corridor for the gas, water, or electric lines (or any combination of these). If this is the case, then a corridor should be identified and labeled as such in the map legend.

## **3. Location of Existing Wells**

Include and define all wells and springs (domestic water, livestock water, injection, disposal, monitoring, producing, abandoned and drilling) within a one-mile radius of any proposed wells on a map or plat (See "Map Requirements" section on page 9). The type and legal description of the well(s) should also be listed, differentiating between conventional and CBNG (note whether federal, state or fee).

## **4. Location of Existing and/or Proposed Facilities**

A map (see "Map Requirements" section on page 9) must be included showing the location of all existing and proposed production facilities associated with all the wells, including:

- Central gathering/metering facilities/field and sales compressors
- Generator sites
- Pipelines (gas and water)
- Power lines (aerial and buried)
- Water discharge points
- Impoundments
- Water development sites
- Monitoring wells

**NOTE:** The proposed facility or method, including mitigation measures, must be described. List any associated permits. Corridors should, where feasible, be used to combine roads, pipelines and electric lines. These corridors must be described in the text portion of the Surface Use Plan.

## **5. Location and Type of Water Supply**

The water source(s) (well, creek, reservoir, river, etc.), transportation method (temporary surface pipeline, truck, etc.) and expected quantities for all water to be used in drilling must be described and shown on a map.

## **6. Construction Material**

Describe the character, source and intended use of all construction material (scoria, gravel, etc.). If the federal government owns the construction material, the Operator may be required to purchase the material.

## **7. Methods for Handling Waste Disposal**

Describe the methods and locations proposed for safe containment and disposal of waste material that results from the drilling and production of the proposed well(s) and operations within the Project area. Waste materials normally associated with CBNG development include, but is not limited to cuttings, drilling fluids, garbage and other solid waste, chemicals, sewage and produced water (see the Water Management Plan).

Describe procedures for proper handling and disposal of hazardous materials and waste. Include a statement to the effect that *the operator and its contractors shall ensure that all use, production, storage, transport and disposal of hazardous materials or hazardous wastes associated with the drilling, completion and production of wells and project operations 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. A file will be maintained 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. The Operator must state where these files are maintained.

## **8. Ancillary Facilities**

Describe any ancillary facilities, such as airstrips and camps associated with the proposed drilling or development activities.

## **9. Well Site Layout**

For well pads requiring cuts and fills, a well pad plat and supporting information as described in Onshore Order No. 1 must be submitted.

For well pads not requiring cuts and fills, a generic well pad diagram, including dimensions of the work area and reserve pit, must be submitted. The diagram must show the actual pad orientation on the ground and geographic proximity to nearby drainages or water bodies.

Slope staking of the well pad may be done at the request of the Operator or as required by BLM.

Multiple wells should be drilled on the same well pad where possible. Well pads must be designed to accommodate multiple wells as needed.

**NOTE:** BLM will not accept well site layout plats for constructed drill pads that have not been surveyed, designed and drawn by a qualified and licensed professional surveyor or engineer.

## **10. Plans for Surface Reclamation**

Describe the specific plans for either interim or final reclamation of disturbed lands (pit, well pads, access roads, pipelines, water management structures, compressor sites, etc.) associated with drilling and production operations in the Project. Address complete reclamation, including but not limited to:

- Pit closure (close no later than 90 days after completion of drilling unless an extension is given by BLM).
- Configuration of reshaped topography, drainage systems and other surface manipulations.
- Waste disposal methods and facilities.
- Re-vegetation 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.
- Noxious weed management actions.
- 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 timetable for beginning and completing reclamation operations relative to season and local land uses.
- Fugitive dust control measures.

## **11. Surface Ownership**

Show the surface ownership at the well location and access road for an individual APD, or the entire Project area for a Project POD (See “Map Requirements” on page 9). Where the well site and other facilities are on split estate (private surface/federal minerals), provide the name, address and telephone number of surface owner or designated representative. The names, addresses and telephone numbers of all surface owners within one mile of proposed wells, will also be required to ensure that water mitigation agreements, as required by the Powder River Basin Controlled Groundwater Area, are in place.

APDs or Project PODs on split-estate lands will not be approved unless the Operator: a) certifies that a surface owner agreement has been reached, or b) certifies in a statement that an agreement could not be reached and that the Operator will comply with the provisions of the law or the regulations governing the Federal or Indian right of reentry to the surface under 43 CFR 3814.

## **12. Other Information**

The following additional information is also needed and required as part of the Surface Use Plan.

### **A. Water Management Plan**

The lessee/operator must provide a comprehensive water management plan that describes how produced water will be managed during the testing and production of well(s) and describes the final disposition of the produced water. The water management plan must be part of the APD for an exploratory well and part of the Project POD for a CBNG Project.

Information to help prepare water management plans and an “Example Water Management Plan” can be found in Appendix A.

### **B. Water Well Agreement/Certification**

Operators are required to certify that owners, including BLM, of water wells and springs potentially affected by proposed CBNG operations were offered a Water Mitigation Agreement in accordance with MBOGC Order 99-99 Item 6. This Order requires that “The mitigation agreement must provide for prompt supplementation or replacement of water from any natural spring or water well adversely affected by the CBNG project and shall be under such conditions as the parties mutually agree upon.”

If a Water Mitigation Agreement is not reached with the landowner(s), the operator agrees to mitigate possible impacts of the coal bed methane well(s) in accordance with Montana State Water Laws and MBOGC Order 99-99.

### **C. Soil Survey Requirements**

All companies submitting APDs and PODs for CBNG projects must submit a soil survey for the project area. One source for this information is the 1:24,000 scale NRCS soil maps by county (SSURGO Data). A summary of the digital SSURGO data available from the NRCS is available at <http://nris.state.mt.us/nrcs/soils/datapage.html>. STATSGO soil data, at 1:250,000 scale, for the entire state of Montana is also available at <http://nris.state.mt.us/gis/datatop.html>. The STATSGO data should only be used in areas where SSURGO data is not available. The applicant must submit a soil survey map showing soil types and all proposed structures (roads, well pads, buildings, pipelines, basins, land application areas, etc.). The soil survey must include the type of survey used, a detailed description of the soil types present and information on the parent material and development of the soils. Data on soil texture, pH, EC, SAR, porosity and permeability is also required. An example of the required soil information is provided in the example soil survey report in Appendix B.

### **D. Cultural Resources Plan**

All federal CBNG projects must comply with the National Historic Preservation Act. The BLM has many responsibilities under the National Historic Preservation Act of 1966 (NHPA), the Archaeological Resource Protection Act of 1979 (ARPA), the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) and the American Indian Religious Freedom Act of 1978. In addition, BLM will adhere to its obligations under its National Programmatic Agreement and the implementing protocol with Montana SHPO.

BLM's primary concerns are that significant cultural resources have been identified and protected either by avoidance or mitigation. Companies need to be aware of cultural resources identified within their Project area in order to plan the locations of well pads and infrastructure so that significant cultural resources are not impacted.

A block survey is highly recommended in order to ensure that all components of a federal CBNG Project area are covered by a cultural resource inventory. One of the most frequent factors for delaying approval of CBNG Project PODs or APDs is inadequate cultural coverage of the entire Project area, thus causing multiple surveys for a single project. Information to help prepare cultural resource plans can be found in Appendix E.

#### **E. Wildlife Monitoring Plan**

For Project PODs, a Wildlife Monitoring Plan (WMP) will be provided to BLM to acquire existing wildlife information, monitor populations and assess specific mitigation measures for effectiveness. The WMP will help BLM operators and cooperators identify problems, design project plans, monitor decisions and make recommendations to adjust management actions. The application must include a description incorporating application of programmatic measures from the WMP to protect wildlife in the project area. A copy of the WMP can be found in Appendix F.

#### **F. BLM Right-of-Way**

A BLM right-of-way (ROW) is required when surface disturbance or occupancy is proposed off-lease on BLM surface, or on-lease by someone other than the lessee or Operator. A BLM ROW application would be required for proposed activities by the lessee or Operator for off-lease BLM surface and third parties on lease on BLM surface. Information about BLM rights-of-way, the application process and electronic forms can be found at <http://www.blm.gov/nhp/what/lands/realty/row>.

### **13. Lessee's or Operator's Representative and Certification**

The name, address and telephone of the responsible field representative shall be included. The lessee or operator submitting the APD shall certify as follows:

*I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with operations proposed herein will be performed by \_\_\_\_\_ and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.*

Date \_\_\_\_\_  
Name and Title \_\_\_\_\_

## **V. REQUIRED COMPONENTS OF A PLAN OF DEVELOPMENT (Project POD, for multiple wells and infrastructure)**

**A complete Project POD consists of the following:**

- Cover letter containing operator name, project name, list of wells (name and number by lease, with legal description including quarter-quarter)
- Master Drilling Plan
- Master Surface Use Plan
- Water Management Plan
- Cultural Resource Inventory Plan
- Wildlife Monitoring Plan
- Project Maps
  - \* Surface ownership with Project Boundary
  - \* Mineral ownership with Project Boundary
  - \* Existing and proposed Well sites
  - \* Compressor sites
  - \* Flow line routes
  - \* Utility line routes
  - \* Transportation routes
- Applications for Permit to Drill for each federal well
- List of all permitting agencies involved.
- Surface owner agreements
- Water mitigation agreements
- Any additional information required by the rules of MBOGC.

Submit two copies (one with original signature) of each item listed above. Submit three copies of each well APD (one with original signature) that contain either a reference to the Master Drilling or Surface Use Plan for the Project or specific information that is different from the Master Drilling or Surface Use Plan for the Project.

Individual well APDs will be accepted and processed without a Project POD in accordance with requirements of Onshore Order #1. A Project POD will be required before processing and approving APDs for multiple wells from an Operator in the same geographic area.

The Master Drilling and Surface Use Plans must follow the same format as the single well APD Drilling and Surface Use Plans described in **Sections IV and V**. The Master Plans provide information for a group of wells, rather than just one well and should be used where drilling and surface use operations for multiple wells in a Project would be the same.

The Project POD will assist the BLM's technical and environmental (NEPA) review of the APDs and onsite inspections(s). The BLM will approve the Project POD and individual APDs when they are technically and administratively complete and meet all BLM requirements.

## **VI. CBNG PROJECT POD or APD MAP REQUIREMENTS**

CBNG Project POD or APD maps must conform with the following standards:

- 1:24000 scale topographic

- All of the following items, as defined, must be shown on a map:

<u>Map Theme</u>	<u>Definition</u>
<b>Boundaries</b>	
Project POD boundary	The outer boundary
Lease boundaries	Delineate between individual lease boundaries
Surface Ownership	Delineate BLM, State and Private and between individual private landowners
<b>Roads</b>	
Existing County Roads	Clearly identify each county road used for access (or other improved roads)
Two-track (existing)	*two-track trails that will be used within the Project POD
Two-track (proposed)	**two-track trails proposed for Project POD
Spot upgrade areas	Locations on two-track trails and existing improved roads requiring spot upgrading or maintenance
All weather upgraded (existing and proposed)	**upgraded, all weather, year round, environmentally-sound road
	* BLM Temporary Road Standards apply
	**BLM Resource Road Standards apply
<b>Road Structures</b>	
Culverts	Proposed and existing
Cattle guards	Proposed and existing
Gates	Proposed and existing
Low Water Crossings	Proposed and existing
<b>Wells</b>	
Proposed CBNG wells	Within Project POD boundary (if multiple Project PODs, identifying colors)
Existing CBNG wells	Within one-mile radius of each proposed federal CBNG well
Existing oil and gas wells	Within one-mile radius of each proposed federal CBNG well
Existing water wells	Within one-mile radius of each proposed federal CBNG well
P&A wells	Within one-mile radius of each proposed federal CBNG well
Injection wells	Within one-mile radius of each proposed federal CBNG well
Monitoring wells	Any existing and proposed within the Project POD boundary
Springs	Within one-mile radius of each proposed federal CBNG well
<b>NOTE:</b> A one-mile radius from the project or lease boundary may be used so long as all wells are within the entire project and one-mile radiuses are shown.	
<b>Water Management Structures</b>	
Watershed boundary(s)	
Water discharge points and accompanying pipeline routes	Proposed and Existing
Head cuts and other erosion areas (associated with discharge points)	Proposed and Existing
Reservoirs/ Impoundments (including livestock)	Proposed and Existing
Stock watering tanks	Proposed and Existing
Any other water management facilities	Proposed and Existing

### **Project POD Facilities**

Gas gathering pipelines/sales lines  
Gas trunk lines  
Water pipelines  
Buried electric lines  
Overhead power lines  
Central gathering/metering buildings  
Sales Compressor Stations  
Corridor\*\*\*

\*\*\* A common corridor for the gas, water and electric lines (or any combination of these) may be established alongside the access road. In this case, a corridor should be identified and labeled as such in the map legend. This will avoid the clutter of numerous parallel lines on the map. Submit two copies initially with the Project POD and two copies of the final map (after preapproved site inspections have been completed and all changes have been made before any APDs are approved).

### **GEOGRAPHIC INFORMATION SYSTEM MAP SUBMISSIONS**

In addition to paper copies, Operators are requested to submit electronic project maps that have been developed using geographic information system (GIS) software as part of their CBNG Project PODs. The preferred medium is a CD. Electronic submission of the first and final maps, plus the standard hard copies, would be ideal. The information generated from GIS project maps will benefit BLM in tracking cumulative impacts from CBNG development.

## **VII. FIELD CONSIDERATIONS**

### **A. Project Plan Preparation**

Proper project planning involves developing your Project in the context of actual Project area conditions, such as topography, land ownership, soils, vegetation, land uses, existing improvements, existing water, etc. Therefore, you must spend time in the project area in order to develop a viable Project plan that accurately reflects actual Project area conditions and facilities. The primary objectives of BLM with Project planning are:

- Facilitate orderly field development
- Minimize surface disturbance and environmental impacts from CBNG development
- Maximize reclamation potential and expediently return disturbed land to its natural productive state
- Involve surface owners early in the planning process to address proposed actions on private surface

### **B. Project Plan Review**

Some of the surface use criteria/standards that BLM specialists use for evaluating the Project and should be considered in project planning are listed below.



## **1. Wells**

Wells should be:

- located in environmentally suitable areas;
- located on gentle topography (<30% slopes) and away from narrow ridge tops;
- located in stable, non-erosive soil areas;
- located where no or minimal drill pad construction (other than pit) is needed;
- kept out of drainages, 100 year flood plains, playas, seep areas, wetland habitats and sand blow-outs, special status and threatened and endangered species habitat;
- kept away from occupied dwellings (no closer than 300');)
- located to be safely accessible year-round.
- located, if possible, in existing disturbance areas;
- located at least 50' from an oil or gas well.

## **2. Central Gathering/Metering Facilities**

Facilities should be located using the same criteria noted above and:

- located to minimize visual and noise impacts;
- located to minimize the surface impact.

## **3. Pipeline (gas, water and power) Routes**

Pipeline routes should be:

- located in environmentally suitable areas;
- located to avoid steep slopes, erosive soils, drainages, playas, wetland habitats, special status and threatened and endangered species habitat;
- located in existing disturbance corridors if possible;
- located along access routes if possible;
- located in same trenches or immediately parallel to, if possible (common corridors);
- use buried power lines, if possible.

## **4. Access Roads**

Access roads should be:

- located to provide safe, year round travel;
- designed and constructed to accommodate anticipated traffic and weather conditions
- located out of or away from snow drifting areas;
- kept out of lowland bottoms, drainages, wet areas and special status and threatened and endangered species habitat;
- located on ridge tops and on gentle upland slopes where possible;
- located on grades less than 8%, where possible.

## **5. Water Management Plan Considerations:**

- locate discharge points in areas that will minimize erosion and impacts to the receiving channel, downstream users, existing improvements and vegetation;
- locate discharge points in stable, low gradient drainage systems and below active head cuts;
- design proper energy dissipation measures at outlet (vertical culvert with rip-rap, etc.);
- consider all upstream contributions (natural flow/runoff and other wells) and determine through sound hydrologic analysis whether the water from the wells (based on known or anticipated water production rates and water quality) will adversely impact downstream improvements, beneficial uses (reservoirs, hay ground, etc.);
- use sound engineering and hydrologic analyses to design new and/or improve existing reservoirs, erosion stabilization measures and other water management measures;

- locate impoundments out of drainage channels and at least ¼ mile away from riparian/wetland areas and hardwood draws on BLM surface;
- consult private surface owner(s) early on and throughout the development of water management plans.

More detailed information on what needs to be included in a water management plan can be found in Appendix A.

## **6. Drilling and Production Related Field Considerations**

- All well control equipment must meet the minimum requirements as set forth in Onshore Order No. 2 unless a waiver is granted by the BLM.
- All blooie lines must end a minimum of 30' from the wellbore and be securely anchored. The blooie lines must be in a straight line.
- The minimum requirement for casing centralizers is all casing strings will have centralizers on the bottom three joints of the casing (a minimum of one centralizer per joint starting with the shoe joint).
- Cementing of all strings will be required to be circulated to surface. If remedial cementing is necessary, the work will be required to be completed prior to drilling out the shoe. Cement bond logs may be required to verify cement tops if no cement is returned to the surface.
- If non-API grade pipe is proposed, submission of manufacturer's dimensions and strength table must be submitted with the APD.
- All gas compression production equipment must be installed and operated in a manner to not allow the surface casing pressure to fall below atmospheric pressure. An appropriate pressure gauge is required to be installed on each casing annulus to monitor this pressure.
- From the time a well pad is constructed or a well is spudded (if no well pad construction), until installation of the permanent abandonment marker, all well locations must be properly identified with a legible sign. The well sign and abandonment marker will include the well number, operator name, lease number and the surveyed location. At each Project POD building site where federal wells are being metered, the operator is required to maintain a legible sign displayed in a conspicuous place. This sign is required to be in place at the time metering goes online. The sign must include: *Project POD name, Operator, Federal well numbers and Federal lease numbers being metered at the Project POD building and surveyed location of the building.*

## **VIII. PRE-APPROVAL ONSITE INSPECTION REQUIREMENTS AND STANDARDS**

Operators must have all proposed CBNG facilities accurately marked and flagged on-the-ground as represented on the Project map before site inspections are conducted with BLM. Facilities are defined as “all areas of new surface disturbance associated with federal well development,” and include:

### **A. Well Locations (including monitoring and disposal wells)**

- These must be clearly staked (preferably metal post) with well name, number and legal description (surveyed footages from two-established section boundary lines) on stake. Two 100-foot directional reference stakes if no drill site construction is necessary (200' if pad construction needed.) If drill pad construction is needed, then the pad and pit perimeters must be clearly staked by a licensed professional surveyor or engineer with cuts and fills identified on stakes.
- BLM must have the cut and fill diagrams for in-office review before conducting onsite inspections.
- The Project map received as part of the Project POD must accurately depict all of the items in the “Map Requirements” section.
- If an Operator is unsure of the need for a constructed drill site, have the drill site surveyed with site corners staked prior to the site inspection.
- Operators need to plan and stake their CBNG Project components out on the ground with surface owners (on split-estate land), using all of the guidelines and criteria outlined in this guidebook.

### **B. Pipelines (gas and water), Power Lines and Buried Power Cables**

- Pipelines, power lines and buried power cables must be clearly center-line staked or flagged within line-of-sight or 300', whichever is less.

### **C. Access Roads**

- All access roads (existing and proposed two-tracks and all weather improved) must be spot-upgraded in the following areas: culverts, blading, crowning and ditching, surfacing areas and low-water crossings. Each and every spot upgrade area will be clearly staked from where construction begins to where it ends.
- The Project POD Master Surface Use Plan must contain a narrative that describes the improvement/construction that is proposed at each spot upgrade area marked in the field. These should be numerically identified and described in the Master Surface Use Plan.
- Existing and proposed two-track roads will be clearly flagged within line of sight or 300', whichever is less.

### **D. Central Gathering/Metering Facilities, Compressors & Other Buildings**

- The perimeters need to be clearly staked with cuts and fills identified. The type and extent of surface disturbance, including a cut and fill diagram by a licensed professional surveyor or engineer, needs to be addressed in the Project POD Master Surface Use Plan.

## **E. Water Management Facilities**

- Water discharge points, reservoirs, impoundments, erosion control sites (such as head cuts), culverts, low-water crossings and proposed surface water monitor sites need to be clearly staked and numbered (or otherwise uniquely identified).
- A complete water management plan is required by BLM before conducting onsite inspections.

**\*Having all of the above described work completed on the ground, in addition to submitting a complete written Project POD, is necessary for BLM to do adequate NEPA analysis on Federal CBNG Projects and to permit them in a timely and efficient manner.**

## **IX. SUNDRY NOTICES AND CHANGES TO APPROVED CBNG PROJECT PODS**

A Sundry Notice (Form 3160-5) should be submitted to the BLM, in triplicate, whenever there are subsequent operations associated with individual CBNG wells or Project POD. Sundry Notices are used for reporting operations and for approving operations. Examples of Sundry Notices related to CBNG development include:

- Change of Operator
- First production reports
- Drilling reports
- Moving a drill location
- Change of plans usually involving surface use operations (access roads, pipelines, water management plans, etc.)
- New construction (access roads, pipelines, discharge points, reservoirs, or other new surface-disturbing activities that are not addressed within an approved APD or Project POD).
- Update map when Sundry is submitted.

Sundry Notices can either be mailed in or can be e-mailed via electronic commerce following the guidelines contained under the “Electronic Commerce” section. A Sundry Notice form can be downloaded or printed from <http://www.mt.blm.gov/oilgas/operation> or <http://www.nc.blm.gov/blmforms>. BLM will attempt to process and approve most Sundry Notices within 30 days. Operators should call BLM to check on the status of a Sundry Notice.

### **A. SURFACE DISTURBANCE SUNDRY NOTICES**

Any Sundry Notice that involves surface disturbance, even on private surface over Federal minerals must be reviewed and approved by BLM before operations can begin. In split-estate cases, Operators are required to have both the surface owner and BLM’s approval before beginning operations. An Operator is subject to a violation notice, monetary assessment, or shut-in of operations notice for conducting surface disturbing activities on a Federal lease without BLM approval.

More information on Sundry Notices involving surface-disturbing activities can be found in the “Requirements for the Surface Use Plan” section.

## **B. CHANGE OF PLAN SUNDRY NOTICES**

One of the most common and cumbersome Sundry Notices for BLM to process is the Change of Plan. These changes normally come in after CBNG project plans have been approved and are usually the result of poor planning or coordination with surface owners. Please be aware that Change of Plan Sundry Notices associated with approved Project PODs may take additional NEPA analysis and time to process and approve.

## **X. RESOURCES & REFERENCE MATERIALS**

### **A. INTERNET ADDRESSES**

All federal oil and gas regulations, operating orders, unitization and communitization information, nationwide notices to lessees and required BLM forms (except for the Surface Use & Hydrologic Field Data summary forms in Appendix G) can be found at:

<http://www.mt.blm.gov/oilgas/operation/> or  
<http://www.nc.blm.gov/blmforms>

Information on the Montana BLM minerals program can be found at:

<http://www.mt.blm.gov>

Montana Board of Oil & Gas Conservation information can be found at:

<http://www.bogc.dnrc.state.mt.us>

Montana Department of Environmental Quality information can be found at:

<http://www.deq.state.mt.us> and  
<http://www.deq.state.mt.us/coalbedmethane>

Miles City Field Office information can be found at:

<http://www.mt.blm.gov/mcfo>

## **B. POTENTIAL DATA SOURCES FOR PREPARING SURFACE USE PLANS & SUPPORT MATERIALS**

**Montana Bureau of Mines and Geology Groundwater Information Center (GWIC):** A database that allows the user to search for water well depths, yields, stratigraphy, static-water levels, water-quality or other data.

<http://mbmgtgwic.mtech.edu/>

**Montana State University's Montana Agricultural Potentials System (MAPS):** A geographic information system (GIS) that provides estimates of land and climate attributes such as mean annual precipitation, evaporation potential, dates of first and last freeze, mean monthly temperature and general soils and vegetation information.

<http://www.montana.edu/places/maps/>

**Montana BOGC - Coal Bed Methane Home Page:** Users can access board orders specific to coal bed methane, well and permit lists and links to other related sites on the Internet.  
<http://www.bogc.dnrc.state.mt.us/CoalBedMeth.htm>

**Montana Bureau of Mines & Geology and U.S. Bureau of Land Management coal-bed methane bibliography database:** A comprehensive yet concise resource on coal-bed methane documentation.  
<http://www.mbgm.mtech.edu/coal/DEFAULT.htm>

**Montana DEQ - Coal Bed Methane Home Page:** This web site provides information about coal bed methane in Montana and northeastern Wyoming.  
<http://www.deq.state.mt.us/coalbedmethane/index.asp>

**USGS Coal Bed Methane Research Home Page:** This site summarizes the research that has been conducted by the USGS related to CBNG potential and the concerns associated with CBNG development.  
<http://energy.cr.usgs.gov/oilgas/CBMethane/index.htm>

**USGS Water Data for Montana:** This site provides a link to USGS surface water and groundwater data in Montana. This includes stream monitoring sites, including real time and historical data of water quality and discharge rates and groundwater data.  
<http://waterdata.usgs.gov/mt/nwis/>

**US Geological Survey Home Page:** This is a good source of general hydrology data and software.  
<http://www.usgs.gov/>

**US-EPA Coalbed Natural Gas Outreach Program:** This Web site is intended to educate persons about the EPA Coalbed Natural Gas Outreach Program. In addition, the Web site serves as a resource portal to the broader world of Coalbed Natural Gas (CBNG) and coal mine methane (CMM) development and use.  
<http://www.epa.gov/cmop/>

**Montana State Library Natural Resource Information System (NRIS):** The NRIS GIS system acts as a clearinghouse for GIS databases and provides services to State, Federal, Private, Non-Profit and Public groups or individuals needing access to GIS technology.  
<http://www.nris.state.mt.us/gis/gis.html>

**Montana Board of Oil and Gas – WebMapper:** This is the project website for the Development of Best Management Practices utilizing Geographical Information Systems technologies for efficient environmental protection during Coalbed Natural Gas Production.  
[http://www.bogc.dnrc.state.mt.us/website/mtCBM/webmapper\\_intro.htm](http://www.bogc.dnrc.state.mt.us/website/mtCBM/webmapper_intro.htm)

**Montana Soil Data Download:** This website provides downloadable GIS files and databases for the soil surveys in each county.  
<http://nris.state.mt.us/nrcs/soils/datapage.html>

**BLM Contacts**  
**Miles City Field Office**

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