

# CHAPTER 1

## INTRODUCTION

### 1.1 SUMMARY

This Environmental Assessment (EA) discusses the purpose, need, and potential short and long-term environmental impacts of the Thunderhead Coalbed Natural Gas (CBNG) Project. Lance Oil and Gas Company, Inc. (Lance) proposes drilling and operating 32 CBNG wells and associated facilities on federal gas leases on federal lands administered by the United States Forest Service (USFS) as part of the Thunder Basin National Grassland (TBNG), Douglas Ranger District. The BLM would administer the federally owned minerals.

Lance holds valid federal oil and gas leases on a portion of the TBNG located in the Powder River Basin of Wyoming (Figure 1.2-1). These leases created contractual and property rights between Lance and the government of the United States to develop oil and natural gas resources. Lance proposes to extract and transport CBNG from its federal leases in the USFS TBNG, an administrative unit of the Medicine Bow/Routt National Forest. Federal mineral ownership within the Project Area is administered by the U.S. Department of the Interior Bureau of Land Management (BLM).

The proposed project is located approximately three miles southeast of Wright, Wyoming, and approximately 40 miles south of Gillette, Wyoming, in southern Campbell County within the Little Thunder Creek watershed in the Powder River Basin. The project boundaries include approximately 2,829 acres located on portions of noncontiguous TBNG lands and portions of the private lands that lie between them. All of the proposed wells are located on USFS lands within the TBNG; however, the project would require the construction of some new associated facilities on non-USFS lands. Affected TBNG lands are located in T43N/R71W, including:

- All of Section 8 except the NENE quarter, and the SWSW quarter of Section 9;
- The east half of Section 10, the west half of Section 11, the west half of the east half of Section 14; and
- The south half of Section 18, all of Section 20 except the NWNW quarter, and the northwest quarter and west half of the southwest quarter of Section 21.

In addition, the project includes minimal adjacent private lands where linear features, such as roads, connect project wells to existing shared gas and water collection facilities. The existing facilities are located on privately owned surface in NENW Section 14; NESW Section 10; NWNW Section 13; SENE Section 9; SWNW Section 18; SWNE Section 21, all in T43N/R71W; and NESE Section 13 in T43N/R72W.

Private, state, and TBNG lands would provide access to the proposed wells. The proposed wells would be located immediately adjacent to property owned by the Thunder Basin Coal Company to the east, the State of Wyoming, and local ranchers. Leakage of CBNG through active mine

highwalls and drainage of federal gas by adjacent non-federal wells represents a loss of revenue to the United States. Development of the Proposed Action would capture these revenues and would contribute to the maintenance of an available natural gas supply for the national market.

Lance has submitted 32 Applications for Permits to Drill (APDs) to the BLM, Buffalo Area Field Office, which has forwarded the APDs to the Douglas Ranger District for review and approval of a surface use plan of operations (SUPO). The locations of the wells comprise three separate areas known as Thunderhead 1, 2, and 3. The wells would produce CBNG from the Wyodak-Anderson coal seam and would be drilled on 80-acre spacing to a depth of less than 1,000 feet. The productive life of the wells is expected to be approximately 10 years.

The associated facilities required by the proposed project would include new roads, gas and water pipelines, electrical utility (power) lines, buildings that house the central gathering points for gas and produced water, produced water discharge points, stock tanks, and culverts. Project development would require the use of similar existing facilities, located near the proposed wells. Project development would result in the use of roads previously constructed and currently in use in addition to the new roads required for access to the proposed wells.

This EA includes a detailed description of the Proposed Action and two alternatives to the Proposed Action, including the No Action alternative. The No Action alternative, Alternative A, assumes that development of the proposed 32 CBNG wells is precluded. The Proposed Action, Alternative B, considers the development of 32 CBNG wells within the TBNG. Alternative C, the modified development scenario, considers the development of 28 CBNG wells within the TBNG.

Although Thunderhead 1, 2, and 3 each has its own Plan of Development (POD), this EA analyzes the effects of developing all three areas. Impacts from the proposed project would principally involve surface disturbances from construction or improvement of roads, construction of well sites, installation of pipelines, installation of buried and overhead utilities, and construction of associated production facilities.

Issues identified during scoping include the effects to wildlife, including sage grouse, and the effects of discharging produced water to surface drainages. Discharge of produced water into local ephemeral drainages would increase downstream water volumes and effect water quality. Produced water would also be beneficially used for wildlife and stock watering.

Direct, indirect and cumulative effects were addressed for each resource area potentially affected by the project. Effects of implementing this project are summarized in the following discussion. Surface disturbance will result from construction of well sites, collection facilities, roads, and pipelines. These activities are expected to effect about 2 percent of the Project Area in the short term and about 0.2 percent in the long term.

Figure 1.2-1 General Location Map

This page Blank

Some species of wildlife may be disturbed by implementation of the project. Effects include additional noise, activity, human presence, habitat loss, and an increased risk of mortality. Effects are expected to be greatest during the construction phase of the project. Long term effects are expected to be much less disruptive. Alternative C was designed to protect high value wildlife sites. Both Alternative B and C could add to cumulative effects occurring in the Powder River Basin.

Water to be discharged to surface drainages is of good quality and is not expected to adversely affected water quality in downstream channels or soil properties on adjacent lands. Additional amounts of discharged water would be used to water livestock and wildlife. Flow augmentation is not expected to reach more than 13 miles downstream where Little Thunder Creek is still ephemeral. Additional flows are not expected to have adverse impacts on downstream channels, reservoirs, or water rights. Ground water depletions are not expected but water well agreements will be offered to nearby well owners in case such an event does occur.

All effects are expected to be within the range of effects analyzed in the Final Environmental Impact Statement and Proposed Plan Amendment for the Powder River Basin Oil and Gas Project (PRB O&G FEIS).

## **1.2 DOCUMENT STRUCTURE**

The document is organized as follows:

*Introduction (Chapter 1):* Chapter 1 provides a short description of the project background, the purpose of and need for the project, a summary of the Proposed Action, and a description of the framework under which this document will be evaluated. The decision framework includes a description of the relationship among the decision-making agencies, a summary of laws and regulations that apply to mineral development, a description of the Proposed Action's conformance with U.S. Department of Agriculture Forest Service (USFS) management directives, and the types of decisions to be made by the federal agencies with respect to this EA and the Proposed Action. This section also details how the USFS informed the public of the proposal and how the public responded.

*Comparison of Alternatives, including the Proposed Action (Chapter 2):* Chapter 2 provides a detailed description of the Proposed Action and alternatives to the Proposed Action. Environmental mitigation measures are discussed as they would apply to the Proposed Action. The chapter includes a comparison of the evaluated alternatives. Other alternatives that were considered but not included in this EA are also discussed.

*Affected Environment and Environmental Consequences (Chapter 3):* Chapter 3 describes the environmental resources that characterize the Project Area and the effects of implementing the Proposed Action and other alternatives. The analyses are organized by resource area. Within each resource area section, the affected environment is described, followed by the effects and cumulative effects of implementing each alternative.

*Consultation and Coordination (Chapter 4):* Chapter 4 provides a list of preparers and agencies consulted during the development of this EA.

*References (Chapter 5):* Chapter 5 includes a complete list of the documents and communications used to develop this EA.

*Appendices:* The appendices provide detailed information used to support the analyses developed in the EA.

### **1.3 BACKGROUND**

In 1999, Barrett Resources Corporation (Barrett) proposed development in the Project Area to the BLM under several different drilling scenarios. Changes to its proposal were subsequently driven by changing BLM concepts of efficient POD size, mineral drainage position, and potential effects of combining USFS lands with other lands under the same POD. On March 8, 2001, the PODs, which included 48 wells, were proposed to the BLM and USFS as Thunderhead 1 (7 wells), Thunderhead 2 (17 wells), and Thunderhead 3 (24 wells). In May 2001, Barrett was purchased by Williams Production RMT Company (Williams), and the wells were transferred to Williams. Prior to October 2002, some of the proposed wells became the property of Westport Resources Corporation. At that time, the total well count dropped to the current proposed number of 32 wells. On November 1, 2003, properties that included the proposed Thunderhead PODs became the property of Lance.

Although some CBNG drilling in the Powder River Basin was initiated in the late 1980s, it was in the late 1990s that the potential of the Fort Union CBNG play was recognized. CBNG development continued uninterrupted on private and state lands, with more than 10,000 CBNG wells producing in Wyoming at the end of 2002. Most of these wells were located in the Powder River Basin (WOGCC, 2003). The Powder River Basin is currently the most active area of CBNG drilling in the United States. Several successive environmental documents were completed under the auspices of the National Environmental Policy Act (NEPA) that addressed CBNG development in the Powder River Basin on federal lands. The most recent analysis of CBNG development, the PRB O&G FEIS, authorized the development of 39,400 additional CBNG wells on federal lands. The CBNG wells proposed by Lance to be drilled were analyzed in the PRB O&G FEIS.

### **1.4 PURPOSE AND NEED**

The purpose of this EA is to authorize the BLM to permit drilling under an appropriate SUPO and Conditions of Approval (COAs).

Implementation of the Proposed Action would:

- Contribute to available natural gas supply for the national market;
- Prevent drainage of the federally owned gas resource to adjacent, nonfederal wells; and
- Allow Lance to develop natural gas (methane) from coalbeds pursuant to Lance's rights under existing oil and gas leases granted by the BLM.

Natural gas is an integral part of the U.S. energy future due to its ready availability from domestic sources, the presence of an existing market delivery infrastructure, and the environmental advantages associated with this clean-burning fuel. Developing the domestic reserves of natural gas helps to reduce national dependence on potentially unstable foreign suppliers and ensures an adequate, stable supply. Production of domestic natural gas has helped to ensure that the U.S. will maintain its economic well-being and promotes national security. The environmental advantages of natural gas combustion versus other conventional fuels are emphasized in the 1990 Clean Air Act amendments (42 United States Code [USC] 7671 *et seq.*).

The increasing fraction of natural gas production represented by CBNG is an important part of national efforts to maintain a stable domestic supply. In 1999, CBNG represented approximately 6.7 percent of total U.S. dry gas production. As of the end of 2002, national CBNG production reached nearly 4 billion cubic feet (bcf) daily. Powder River Basin wells supplied approximately 20 percent of the total CBNG production and approximately 7.4 percent of the total national dry gas production. At present, CBNG development in the Powder River Basin is the most active onshore oil and gas development within the continental U.S. and is making an increasingly important contribution to its energy security. CBNG development constituted 57 percent of U.S. natural gas production growth during the 1990s (Energy Information Administration, 2003).

Development of Project Area CBNG wells would prevent drainage of federal gas from loss to nearby non-federal wells. Loss of natural gas to adjacent developed leases represents a loss of revenue as well as the energy resource to the U.S. In addition, producing CBNG through wellbores on offset leases often results in small amounts of residual gas left in the coal seam. The remaining gas may not be economical or practical to recover, thus resulting in a net loss of the mineral resource. The proposed wells lie within areas where the BLM estimates drainage has occurred but where an estimated 40 to 70 percent of the CBNG remains (Stenger, 2001).

Finally, national mineral leasing policies recognize the statutory rights of lessees to develop federal mineral resources to meet continuing national needs and economic demands so long as undue and unnecessary environmental degradation is avoided. The Record of Decision (ROD) for the most recent TBNG resource management document, the *Final Environmental Impact Statement and Land and Resource Management Plan Revision - Thunder Basin National Grassland* (TBNG LRMP, USFS, 2002), states (page 43) that existing lease rights will be honored.

Development and production of non-federally owned gas in the vicinity of the Project Area would almost certainly continue regardless of Project Area development.

## 1.5 DECISION FRAMEWORK

### 1.5.1 Relationships Between Agencies

The Federal Onshore Oil and Gas Leasing and Reform Act (FOOGLRA) of 1988 authorizes the USFS to consent to SUPOs. As the surface management agency for the lands that would be affected by the implementation of the Proposed Action, the USFS Douglas Ranger District Office in Douglas, Wyoming, is the lead agency for this EA.

According to the terms of the 1920 Mineral Leasing Act, the BLM is the agency authorized to manage federal mineral interests on federal or split estate lands. The wells planned under the Proposed Action would be drilled into federal minerals and, therefore, the BLM is a cooperating agency in this process. The Buffalo Field Office of the BLM in Buffalo, Wyoming, manages federal mineral interests in the Project Area. The BLM is responsible for permitting, inspection, and enforcement programs related to oil and gas production in the Project Area. Its responsibilities include processing APDs; conducting pre-drill inspections of the proposed drill sites; assessing the status of cultural and threatened or endangered species clearances; conducting compliance inspections and enforcement actions for lease terms and conditions, safety, production verification, and site maintenance; and well abandonment inspections.

For mineral licenses, permits, and leases, the USFS cooperates with the BLM to ensure that its management goals and objectives are achieved, that impacts upon the surface are mitigated to the maximum degree possible, and that the land affected is rehabilitated. The USFS responds to BLM proposals to issue mineral leases and permits after reviewing the TBNG land management plan. Under FOGRA, the USFS has statutory responsibility for consenting to leasing decisions and makes recommendations to the BLM to protect surface resources and to prevent conflicts with other plans, activities, and programs of the TBNG.

A number of other federal, state, and local governmental agencies have authority over various aspects of oil and gas development in the Project Area. A list of possible regulatory authorities for the Proposed Action can be found in Section 1.5.2, *Applicable Laws Relating to Minerals Development*. All relevant agencies and the public have been invited to participate in this environmental analysis process.

### 1.5.2 Applicable Laws Relating To Minerals Development

The development of oil and gas resources on federal lands is managed by numerous laws and regulations affecting the recovery of resources as well as management of the surface. Among the more important regulations relating to minerals development are:

- *Mineral Leasing Act (1920) (30 USC 181-263, as amended)* – Authorizing the Secretary of the Interior to issue leases for the disposal of certain minerals (currently coal, phosphate, sodium, potassium, oil, oil shale, gilsonite, and gas), including leases beneath National Forest surface.

- *Mineral Leasing Act for Acquired Lands (1947)(30 USC 351-359 as amended)* - Stating that all deposits of coal, phosphate, oil, oil shale, gas, sodium, potassium, and sulfur that are owned or may be acquired by the United States shall be leased by the Secretary of the Interior under the same provisions as contained in the mineral leasing laws.
- *Mining and Minerals Policy Act (1970) (30 USC 21)* - Emphasizing the need for the ongoing development of stable domestic mining and minerals industries.
- *National Materials and Minerals Policy Research and Development Act of 1980 (30 USC 1601 et seq.)* - Directing the Secretary of Agriculture, regardless of current management plan status, to process applications for leases and permits to explore, drill, and develop resources on National Forest System (NFS) lands in a timely manner.
- *Federal Onshore Oil and Gas Leasing Reform Act (1987) (30 USC 195, 226-3)* - Granting the Secretary of Agriculture expanded authority over oil and gas leasing decisions on USFS lands and requiring USFS approval of BLM issued leases and approval of surface disturbance.

The following applicable BLM regulations, orders, notices, standard conditions of approval, and general requirements constitute the range of standard procedures and environmental protection measures that are applied to individual operators and projects and are authorized by 43 CFR 3160.

*Onshore Oil and Gas Orders:*

- Onshore Order No.1 - Approval of Operations
- Onshore Order No. 2 - Drilling Operations
- Onshore Order No. 3 - Site Security
- Onshore Order No. 4 - Measurement of Oil
- Onshore Order No. 5 - Measurement of Gas
- Onshore Order No. 6 - Hydrogen Sulfide Operations
- Onshore Order No. 7 - Disposal of Produced Water
- Onshore Order No. 8 - Well Completions/Workovers/Abandonment (Proposed Rule)
- Onshore Order No. 9 - Waste Prevention and Beneficial Use of Oil and Gas (Not Published)
- Notices to Lessees
- BLM Conditions of Approval for Coalbed Methane Completions
- BLM General Requirements for Oil and Gas Operations on Federal and Indian Lands.

The State of Wyoming would play a significant role in the regulatory oversight of the Proposed Action. The Wyoming Department of Environmental Quality (WDEQ) exercises jurisdiction

over issues relating to air and water quality. In 1972, the Clean Water Act (CWA) was enacted, requiring that any discharge of potential pollutants from a point source to surface waters of the United States be regulated through issuance of a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES permit process would apply to the surface discharge of CBNG-produced water. The state would also administer Section 402(p) of the CWA requiring permits for the discharges of storm water associated industrial activity. The office of the Wyoming State Engineer (WSEO) would be responsible for regulating the appropriation of water when a coal seam is de-watered. The WDEQ also administers the Clean Air Act (CAA), which regulates emissions of air pollutants. The Wyoming State Historic Preservation Office (SHPO) would supervise the management and disposition of cultural resource properties on state lands.

A general listing of agencies that could be involved in the Proposed Action and their respective regulatory authorities is shown in Table 1.5-1. Not all of these agencies would have authority over the Proposed Action. The regulations listed in Table 1.5-1 include those that include protection of surface resources.

**Table 1.5-1 Federal, State, and County Permits, Approvals, and Authorizing Actions**

<b>Agency</b>	<b>Permit, Approval or Action</b>	<b>Authority</b>
<b>U.S. Forest Service (USFS)</b>	Approval of Plan of Development for surface use of well pad	Forest Service Manual (FSM) 1950
	Cooperation with BLM's APD approval process on USFS administered land	FSM 1500
	Special Use Permit for access road right-of-way (ROW), road decommissioning, and pipeline	Forest Service Handbook (FSH) 1509.11
	Special Use Permit to utility company for installation and operation of powerline	Federal Register Notice 5-22-95
	Antiquities and cultural resource permits on USFS-administered land	<i>Antiquities Act of 1906</i> , as amended (16 U.S.C. 431-433); <i>Archaeological Resources Protection Act of 1979</i> , as amended (16 U.S.C. Sections 470aa-470ll); <i>Preservation of American Antiquities</i> , as amended (43 C.F.R. 3)
<b>Bureau of Land Management (BLM)</b>	Permit to drill, deepen, or plug back on BLM-managed land or minerals (APD process)	<i>Mineral Leasing Act of 1920</i> , as amended (30 U.S.C. 181 et seq.) <i>Requirements for Operating Rights Owners and Operators</i> , as amended (43 C.F.R. 3162)
	Authorization for flaring and venting of natural gas on BLM-managed land or minerals	<i>Mineral Leasing Act of 1920</i> , as amended (30 U.S.C. 181 et seq.); <i>Requirements for Operating Rights Owners and Operators</i> , as amended (43 C.F.R. 3162)

Agency	Permit, Approval or Action	Authority
	Plugging and abandonment of a well on BLM-managed land or minerals	<i>Mineral Leasing Act of 1920</i> , as amended (30 U.S.C. 181 et seq.); Requirements for Operating Rights Owners and Operators, as amended (43 C.F.R. 3162)
<b>U.S. Army Corps of Engineers (COE)</b>	Section 404 permits and coordination regarding placement of dredged or fill material in area waters and adjacent wetlands	Section 404 of the <i>Clean Water Act of 1972</i> , as amended (33 U.S.C. 1344); EPA-administered Permit Programs: The National Pollutant Discharge Elimination System (NPDES), as amended (40 C.F.R. 122); state program requirements (40 C.F.R. 123); Section 404(b)(1) Guidelines for Specific Disposal Sites for Dredged or Filled Material, as amended (40 C.F.R. 230)
<b>U.S. Fish and Wildlife Service (USFWS)</b>	Coordination, consultation and impact review on federally listed threatened and endangered species	<i>Fish and Wildlife Coordination Act</i> (16 U.S.C. 661-666c), Section 7 of the <i>Endangered Species Act of 1973</i> , as amended (16 U.S.C. 1536); <i>Bald Eagle Protection Act</i> (16 U.S.C. 668-668dd)
	Migratory bird impact coordination	<i>Migratory Bird Treaty Act</i> (16 U.S.C. 704)
<b>U.S. Department of Transportation (DOT)</b>	Control pipeline maintenance and operation	Transportation of natural and Other Gas by Pipeline, Annual Reports, Incident Reports, and Safety Related Condition Reports, as amended (49 C.F.R. 191); Transportation of Natural and Other Gases by Pipeline: Minimum Safety Standards, as amended (49 C.F.R. 192)
<b>Wyoming Department of Environmental Quality - Water Quality Division (WDEQ-WQD)</b>	Permits to construct settling ponds and waste water systems, including ground water injection and disposal wells	<i>Wyoming Environmental Quality Act</i> , Article 3, Water Quality, as amended (W.S. 35-11-301 through 35-11-311)
	Regulate disposal of drilling fluids from abandoned reserve pits	<i>Wyoming Environmental Quality Act</i> , Article 3, Water Quality, as amended (W.S. 35-11-301 through 35-11-311)
	NPDES permits for discharging produced water and storm water runoff	WDEQ-WQD Rules and Regulations, Chapter 18; <i>Wyoming Environmental Quality Act</i> , Article 3, Water Quality, as amended (W.S. 35-11-301 through 35-11-311); Section 405 of the <i>Federal Water Pollution Control Act (Clean Water Act)</i> (codified at 33 U.S.C. 1345); EPA-administered Permit Programs: NPDES, as amended (40 C.F.R. 122); State Program Requirements (40 C.F.R. 123); EPA Water Program Procedures

Agency	Permit, Approval or Action	Authority
		for Decision-making, as amended (40 C.F.R. 124)
	Administrative approval for discharge of hydrostatic test water	<i>Wyoming Environmental Quality Act</i> , Article 3, Water Quality, as amended (W.S. 35-11-301 through 35-11-311)
<b>Wyoming Department of Environmental Quality - Air Quality Division (WDEQ-AQD)</b>	Permits to construct and permits to operate	<i>Clean Air Act</i> , as amended (42 U.S.C. 7401 et seq.); <i>Wyoming Environmental Quality Act</i> , Article 2, Air Quality, as amended (W.S. 35-11-201 through 35-11-212)
<b>Wyoming Department of Environmental Quality - Land Quality Division (WDEQ-LQD)</b>	Mine permits, impoundments, and drill hole plugging on state lands	<i>Wyoming Environmental Quality Act</i> , Article 4, Land Quality, as amended (W.S. 35-11-401 through 35-11-437)
<b>Wyoming Department of Environmental Quality - Solid Waste Division (WDEQ-SWD)</b>	Construction fill permits and industrial waste facility permits for solid waste disposal during construction and operations	<i>Wyoming Environmental Quality Act</i> , Article 5, Solid Waste Management, as amended (W.S. 35-11-501 through 35-11-520)
<b>Wyoming Department of Transportation (WDOT)</b>	Permits for oversize, overlength, and overweight loads	Chapters 17 and 20 of the Wyoming Highway Department Rules and Regulations
	Access permits to state highways	Chapter 13 of the Wyoming Highway Department Rules and Regulations
<b>Wyoming Oil and Gas Conservation Commission (WOGCC)/Wyoming Board of Land Commissioners/Land and Farm Loan Office</b>	Approval of oil and gas leases, ROWs for long-term or permanent off-lease/off-unit roads and pipelines, temporary use permits, and developments on state lands	Public Utilities, W.S. 37-1-101 et seq.
<b>WOGCC</b>	Permit to drill, deepen, or plug back (APD process)	WOGCC Regulations, Chapter 3, Operational and Drilling Rules, Section 2 Location of Wells
	Permit to use earthen pit (reserve pits)	WOGCC Regulations, Chapter 4, Environmental Rules, Including Underground Injection Control Program Rules for Enhanced Recovery and Disposal Projects, Section 1, Pollution and Surface Damage (Forms 14A and 14B)
	Authorization for flaring or venting of gas	WOGCC Regulations, Chapter 3, Operational and Drilling Rules, Section 45 Authorization for Flaring or Venting of gas
	Permit for Class II underground injection wells	Underground Injection Control Program: Criteria and Standards, as amended (40 C.F.R. 146); state Underground Injection Control Programs, State-administered program - Class II Wells, as amended (40 C.F.

Agency	Permit, Approval or Action	Authority
		R. 147.2551)
	Well plugging and abandonment	WOGCC Regulations, Chapter 3, Section 14, Reporting (Form 4); Section 15, Plugging of Wells, Stratigraphic Tests, Core, or Other Exploratory Holes (Form 4)
	Change in depletion plans	<i>Wyoming Oil and Gas Act</i> , as amended (Form W.S. 30-5-110)
<b>Wyoming State Engineer's Office (WSEO)</b>	Permits to appropriate ground water (use, storage, wells, dewatering)	W.S. 41-3-901 through 41-3-938, as amended (Form U.W. 5)
	Permits to construct dams and reservoirs	W.S. 41-3-301 et seq., as amended (Forms SW3, SW4)
<b>Wyoming State Historic Preservation Office (SHPO)</b>	Cultural resource protection, programmatic agreements, consultation	Section 106 of <i>National Historic Preservation Act of 1966</i> , as amended (16 U.S.C. 470 et seq.) and Advisory Council Regulations on the Protection of Historic and Cultural Properties, as amended (36 C.F.R. 800)
<b>Campbell County</b>	Construction/use permits	County Code and Zoning Resolution
	Conditional use permits	County Code and Zoning Resolution
	Road use agreements/oversize trip permits	County Code
	County road crossing/access permits	County Code/Engineering Department
	Small wastewater permits	County Health Department
	Hazardous material recordation and storage	County Code
	Zone changes	Zoning Resolution
	Filing Fees	County Code
	Noxious weed control	County Code

### 1.5.3 Management Plan Conformance

The USFS contributes to the nation's demand for minerals by encouraging responsible mineral development. The USFS and BLM administer the mineral laws and regulations to minimize surface resource impacts while supporting sound energy and minerals exploration and development. Programmatic environmental concerns are addressed during USFS and BLM land and resource management planning processes. The objective of a land and resource management plan is to guide all natural resource management activities and establish management standards and guidelines. Decisions on this EA will be made in the context of relevant programmatic NEPA actions, as described in this section.

Resource management in the TBNG was updated with the 2002 issuance of the ROD for the 2002 FEIS for the Northern Great Plains Management Plans Revision (USFS, 2001b) and the and TBNG LRMP (USFS, 2002). This EA tiers to these two documents.

The *Northern Great Plains Management Plans Revision* was developed to be an ecosystem approach to revising grassland management plans in Wyoming, North Dakota, and South Dakota. Although the analysis contained in this FEIS incorporated the similarities among each planning area, each planning unit used the analysis and participated in developing a management plan specific to that unit. One resulting document was the TBNG LRMP.

The TBNG LRMP describes, in general terms, the desired condition of the Grassland and allocates land into Management Areas. Management Areas are defined by the resources that could be optimally administered to achieve a particular emphasis or theme. Each Management Area is characterized by a prescription that facilitates the achievement of the desired conditions consistent with the theme. Resource goals, objectives, standards, and guidelines provide land managers a set of parameters that guide implementation of projects on the surface. The mix of Management Area prescriptions in the TBNG LRMP provides for continued coal, oil and gas development, livestock grazing, and other uses.

The Proposed Action is consistent with Management Area Prescriptions as outlined in the TBNG LRMP. The Project Area is entirely contained within what the TBNG LRMP terms the Hilight Bill Geographic Area (100,780 acres). Dominant Management Area Prescription allocations for this area are Category 6.1, *Rangeland with Broad Resource Emphasis* (51,440 acres) and Category 8.4, *Mineral Production and Development* (47,993 acres). Activities in the Hilight Bill area include recreational big game hunting and the extraction of coal, uranium, oil, and gas. Areas classified as Category 6.1 “display low to high levels of livestock grazing developments (such as fences and water developments), oil and gas facilities, and roads (USFS, 2001, page 3-25).” Areas classified as Category 8.4 emphasize “mineral operations of all types” “to effectively remove available commercial mineral resources, concurrent with other ongoing resource uses and activities (USFS 2001, page 3-26).”

Oil and gas extraction in the TBNG is also guided by the decisions made in applicable BLM NEPA documents. The BLM operates in accordance with the Federal Land Policy and Management Act of 1976 (FLPMA), which mandates that the BLM consider multiple uses for the lands it administers. FLPMA specifies that the BLM considers the land’s inherent natural resources as well as its mineral resources when making land management decisions. The BLM’s responsibility extends to environmental protection, public health, and safety associated with oil and gas operations on public lands. Pursuant to FLPMA, the BLM has the authority to protect the environmental resources associated with federal oil and gas leases; therefore, environmental protections may be imposed as lease conditions. Mineral leasing decisions made by the BLM result in a contractual commitment from the United States to allow for development by Lance in accordance with stipulations and restrictions incorporated within the leases.

In accordance with the Federal Onshore Oil and Gas Leasing Reform Act (FOOGLRA) of 1987 and its implementing regulations, leasing and specific lands decisions were made in the 1990s on all the high and moderate oil and gas potential lands in the TBNG. On April 22, 1994, the ROD for the *Oil and Gas Leasing on the Thunder Basin National Grassland FEIS* was issued. This document authorized the BLM to lease federal oil and gas resources in the TBNG subject to certain stipulations described in the ROD and pertinent to the surface use of USFS lands.

Development of CBNG from federal, state, and private leases within the Powder River Basin has been occurring for a number of years. In November 1999, the BLM issued its ROD on the *Final EIS for the Wyodak Coal Bed Methane Project*. The Wyodak Project Area encompasses the TBNG and the Project Area. This EIS authorized the development and production of CBNG on federal lands within the Wyodak Project Area. The total level of development authorized in the ROD was 5,000 new productive CBNG wells (Pierson, 1999).

By August 2000, the number of new productive CBNG wells reached the level of development authorized in the ROD for the Wyodak Coal Bed Methane Project, and the BLM discontinued the approval of new federal permits to drill CBNG wells (Stenger, 2000). However, interest in and demand for CBNG in the Powder River Basin continued to increase, and oil and gas companies continued to develop new CBNG wells on state and private leases. The BLM and the USFS determined this development was draining CBNG from federal leases. The BLM subsequently conducted a drainage analysis in the *Wyodak Drainage Coal Bed Methane Environmental Assessment* (Wyodak Drainage EA). The decision for this EA, released on March 26, 2001, authorized the development of 2,500 additional CBNG wells on federal leases within the Wyodak Project Area (Stenger, 2001). Permitting of CBNG wells located on federal surface or minerals continued under terms of the Wyodak Drainage EA until February 28, 2003, at which time all wells authorized had been allocated.

To analyze the effects of CBNG development in the Powder River Basin, the BLM and USFS completed another NEPA evaluation assessing continued development of CBNG from federal leases in that area. The PRB O&G FEIS was released on January 17, 2003. A ROD for this EIS was issued April 30, 2003. The PRB O&G FEIS is the current programmatic NEPA document that addresses CBNG development within the Powder River Basin, including the TBNG (BLM, 2003) and the Project Area.

### **1.5.4 Decisions To Be Made**

Federal jurisdiction of the project is divided between the USFS and the BLM. Decisions for this EA will be separately issued by each agency. The decision makers will determine:

- Whether the analysis contained within this document is adequate for the purposes of reaching informed decisions regarding Project development;
- Whether the Proposed Action involves the potential for significant impacts;
- Whether the Proposed Action is in conformance with applicable land and resource management plans and programmatic plans developed under NEPA; and
- What Conditions of Approval (COAs) may be attached to project authorization.

The USFS District Ranger will decide whether to approve the SUPO as described in the Proposed Action or select a different alternative. The decision on this EA will pertain to those areas in the Proposed Action where there are federal minerals, federal surface, or both. Although private lands may be included in the analyses to the extent that they are included within the Proposed Action, they are not bound by the decision that results from these analyses.

If the result of this EA is a Finding of No Significant Impact (FONSI), development as described in the Proposed Action will be allowed to proceed, possibly with additional activities, mitigating measures and monitoring requirements, consistent with lease stipulations.

## 1.6 PUBLIC INVOLVEMENT

A Scoping Statement (Appendix A) and request for public comment was mailed to 72 organizations, agencies, and individuals known as parties interested in proposed activities in the TBNG. Notice of the Proposed Action was also published in the Casper Star-Tribune on July 5, 2001. The list of potentially interested parties to whom the Scoping Statement was sent is presented in Appendix B.

Eight comment letters were received in response to this solicitation and are part of the public record. Four of the scoping responses were from State of Wyoming agencies, one was a letter of support, two were from individuals, and one was from an environmental organization. A summary of the comments received, the comment source, and a reference to the section number in the EA in which the comment is addressed is contained in Appendix C.

## 1.7 ISSUES

The USFS separated scoping issues into two groups:

- Issues that drive alternatives development and/or issues that are analyzed as environmental consequences; and
- Other issues.

Issues that drive alternatives development were defined as those directly or indirectly caused by implementing the Proposed Action.

Other issues were identified as those:

- Outside the scope of the Proposed Action;
- Already decided by law, regulation, Forest Plan, or other higher level decision;
- Irrelevant to the decision to be made; or
- Conjectural and not supported by scientific or factual evidence.

The Council for Environmental Quality (CEQ) NEPA regulations require this delineation: "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." Determination of significance is included in the comments summary in Appendix C.

The issues and concerns that drive alternatives development and/or are analyzed as environmental consequences were identified during the scoping period ending on August 6, 2001. These issues are summarized in Table 1.7-1. Those issues that did not result in alternatives analyzed in this EA are discussed in Section 2.7. Issues that are analyzed in the EA

as environmental consequences or through mitigation are discussed in their appropriate resource area sections in Chapter 3.

**Table 1.7-1 Issues That Drive Alternatives Development and/or Are Analyzed as Environmental Consequences**

<b>Issues That Drive Alternatives Development</b>		
<b>Resource Area</b>	<b>Issue</b>	<b>Indicators that can measure whether the issue can be remedied by implementing different alternatives</b>
<b>Wildlife</b>	Adverse impacts to sage grouse and ferruginous hawks would result from the connecting routes and well sites for the wells 14-8 and 23-8 in Thunderhead POD 1 and 21-11 and 12-11 in Thunderhead POD 2, Township 43 North, Range 71 West.	Consideration of this issue resulted in the development of Alternative C.
	No ground disturbance within big game winter habitat, parturition areas, and migration routes or within one mile of any ranked species by the Wyoming Natural Diversity Database or Wyoming Game and Fish Department.	Restriction of ground disturbing activities in these areas would be enabled through the designation of No Surface Occupancy (NSO) areas but would not allow development of the leases. This potential alternative was not considered in this EA. For further discussion, see Section 2.7.
<b>Land use and access</b>	Consider alternative routes or the use of helicopters to minimize crossing Forest Service lands.	The use of helicopters to transport personnel to and from project facilities was eliminated from detailed analysis for reasons discussed in Section 2.7.
	Drill only in existing and maintained roads.	Requiring the operator to drill in areas accessible only by existing and maintained roads would require the operator to be able to access the leased minerals from directional well bores. Consideration of mandated directional drilling was eliminated from consideration analysis for reasons discussed in Section 2.7.
	Designate new Research Natural Areas (RNAs).	The Project Area and the area surrounding it are modified by previous oil and gas development as well as grazing. The Project Area does not exhibit the characteristics of a pristine area and therefore, this issue was not considered further. Designation of RNAs is a forest planning issue and is addressed in the Northern Great Plains Management Plans Revision. Additional discussion is located in Section 2.7.
<b>Geology</b>	Mass wasting may occur in unstable or potentially unstable slopes.	Typical slope of Project Area terrain; types of soils on the surface and amount of moisture retention.

<b>Issues That Drive Alternatives Development</b>		
<b>Resource Area</b>	<b>Issue</b>	<b>Indicators that can measure whether the issue can be remedied by implementing different alternatives</b>
<b>Groundwater</b>	Underground fires may affect ground water quality.	Evaluation of geologic characteristics of the coal seams in the Powder River Basin that may lend themselves to spontaneous combustion.
	Effect of extracting water to produce CBNG on water table levels, well production, and production of CBNG from water wells.	Precautionary agreements between the applicant and owners of water wells in the vicinity of the Project Area.
	Leaks, spills, or dumping of chemicals may affect ground water.	Precautions taken by the applicant to ensure that chemical releases would not occur.
<b>Surface water</b>	Effects to wetlands.	Changes to water quality, water quantity, vegetative and wildlife habitat.
	Effects of discharged produced water on erosion and icing at road crossings.	Anticipated volumes of CBNG produced water, channel sizes, applicant-committed engineering measures used to manage the produced water.
	Effects to water quality of Little Thunder Reservoir.	Differences between current water quality in the Little Thunder Reservoir and CBNG produced water that would be released in the drainage.
	Mandate that all produced water from CBM wells be injected or retained in reservoirs or pits.	Re-injection of produced water was eliminated from detailed analysis for reasons discussed in Section 2.7.
<b>Air quality</b>	Effects of above ground fires.	Changes in visibility due to fine particulates from fires in or near the Project Area.
<b>Soils</b>	Effects of chemicals on soils.	Types of chemicals to be used in project development and precautions taken by the applicant that limit soil exposure to chemicals.
	Effects of produced water to soil characteristics.	Analytical measurements of quality of produced water.
<b>Vegetation</b>	Possible infestation of noxious weeds.	Precautions taken by the applicant to ensure that noxious weed infestation would not occur.
	Effects of surface disturbance to vegetation.	Length of time required for vegetation to re-establish; whether the disturbed area would be re-seeded.
	Effects of using defoliant and other chemicals to native plants.	Anticipated use of defoliant and their chemical characteristics; effects on re-establishment of vegetation.

<b>Issues That Drive Alternatives Development</b>		
<b>Resource Area</b>	<b>Issue</b>	<b>Indicators that can measure whether the issue can be remedied by implementing different alternatives</b>
<b>Wildlife and fisheries</b>	Effects of increased traffic on wildlife mortality.	Presence of roads in wildlife habitat; anticipated road use; vehicle speeds.
	Possible habitat fragmentation due to fencing.	Amount of kinds of fencing that would be installed for project use.
	Possible effects to the black-footed ferrets, sage grouse, passerine, and raptors.	Determination of existence of appropriate wildlife habitat in Project Area; results of surveys to determine whether these species are present; proximity of project development and facilities to known occurrences of these species in the Project Area.
	Effects of produced waters and chemical spills to aquatic biota.	Analytical measurements of quality of produced water.
	Effects of increased flows on native prairie fish.	Determination of anticipated flows of produced water; effects of increased flows on stream channels, vegetation, and other required elements of habitat for this species.
<b>Recreation</b>	Possible effects of new permanent and temporary roads on off-road vehicle and recreational use.	Evaluation of current off-road vehicle use in and near the Project Area; determination of likelihood of increased road usage for these vehicles if additional roads are built in or near the Project Area.
<b>Cultural resources</b>	Possible effects to cultural and historic sites/properties.	Evaluation of current status, including location, condition, and significance, of cultural properties in or near the Project Area as a result of Class III survey; determination of likelihood of adverse effects to identified cultural properties by comparing location of proposed project facilities to the cultural properties.
<b>Noise</b>	Effects on habitat and sage grouse, passerine, and raptor reproduction.	Determination of existence of appropriate wildlife habitat in Project Area; results of surveys to determine whether these species are present; proximity of project development and facilities to known occurrences of these species in the Project Area.

1.1 SUMMARY ..... 1

1.2 DOCUMENT STRUCTURE..... 5

1.3 BACKGROUND ..... 6

1.4 PURPOSE AND NEED..... 6

1.5 DECISION FRAMEWORK..... 8

    1.5.1 Relationships Between Agencies..... 8

    1.5.2 Applicable Laws Relating To Minerals Development..... 8

    1.5.3 Management Plan Conformance..... 13

    1.5.4 Decisions To Be Made..... 15

1.6 PUBLIC INVOLVEMENT ..... 16

1.7 ISSUES ..... 16

**Table 1.5-1 Federal, State, and County Permits, Approvals, and Authorizing Actions ..... 10**

**Table 1.7-1 Issues That Drive Alternatives Development and/or Are Analyzed as  
Environmental Consequences..... 17**

Figure 1.2-1 General Location Map ..... 3

**Comment:** I'M CONFUSED AS TO WHY THE TABLE OF CONTENTS IS LOCATED HERE. IS IT SUPPOSED TO BE UP FRONT??