FIDELITY EXPLORATION AND PRODUCTION COMPANY
DEER CREEK NORTH - CBNG WELL DRILLING APPLICATIONS

Fidelity Exploration and Production Company
1842 Sugarland Drive, Suite 103
Sheridan, WY 82801

State of Montana Oil and Gas Lease OG-31307-94
Township 9 South, Range 41 East, Section 10 (SE4SW4)
Big Horn County, Montana

Fidelity Exploration and Production Company (Fidelity) has proposed an amended plan of development (POD) for the Deer Creek North Area, which is located within an approved expansion area of the CX Field. The Deer Creek North phase includes one 40 acre state tract in Township 9 South, Range 41 East, Section 10. This amended POD consists of the drilling and completion of 184 coal bed natural gas (CBNG) wells (68 Fed, 112 fee, 4 state).

The wells will be drilled on regulatory spacing of two wells per 160 acres per coal seam. The 4 wells proposed on the state tract will be co-located on one pad site in order to develop and produce from the four specific coal zones.

Power, water and gas flowlines would be underground and routed along a single corridor. Gas production is routed to compressor/manifold stations adjacent to state land. Water management for the four state wells would utilize authorized discharge to the Tongue River pursuant to existing MPDES permits.

The Montana Board of Oil and Gas Conservation (MBOGC) has approved the Deer Creek North Amended POD and issued a Record of Decision on January 18, 2006. The fee wells will be developed in the POD area will be developed regardless of whether development occurs on the 40 acre state common schools tract.

The draft Environmental Assessment was released for public comment on February 22, 2006, with comments requested by March 24, 2006. As of April 4, 2006, one comment expressing general support for the proposed action had been received. The final EA with a draft record of decision is attached for your review.

The director requests Land Board consideration and, as appropriate, authorization to approve the Deer Creek North amended plan of development relative to activities proposed for the SE4SW4 of state section 10, Township 9 South, Range 41 East.

STATE OF MONTANA

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

TRUST LAND MANAGEMENT DIVISION

ENVIRONMENTAL ASSESSMENT
TONGUE RIVER – DEER CREEK NORTH AMENDED PROJECT

Township 9 South, Range 41 East, Section 10: [SE4SW4]
Big Horn County, Montana

FINAL

With Proposed Record of Decision

April 4, 2006

TRUST LAND MANAGEMENT DIVISION

DECISION RECORD
AND
FINDING OF NO SIGNIFICANT IMPACT

Fidelity Exploration and Production Company
Deer Creek North Amended CBNG Project Plan of Development

Proposal:
Fidelity Exploration and Production Company (Fidelity) has proposed an amended plan of development (POD) for the Deer Creek North project area, which is located within an approved expansion area of CX field. The original plan of development included the drilling and completion of 170 coal bed natural gas wells (71 federal, 99 fee) with one well drilled per coal bed per 160 acres. A joint environmental assessment was completed by the Bureau of Land Management, Montana Board of Oil and Gas Conservation, and the Montana Department of Environmental Quality. The MBOGC issued a Finding of No Significant Impact (FONSI) on September 12, 2005. Permits to drill were issued for the fee wells in this original POD and all 99 have been drilled and are either producing or awaiting connection for production. The BLM has not yet issued a record of decision for the federal wells in the project.

This amended project proposal involves drilling and completion of an additional 184 wells (68 federal, 112 fee, and 4 state) within the original project boundary, effectively increasing the well density in the project to two wells per coal seam per 160 acres. The MBOGC completed an EA for the 112 fee wells and 4 state wells in the amended POD and issued a FONSI on January 18, 2006. The permits to drill for the 112 fee and 4 state wells have been issued.

Decision:
The Trust Land Management Division is under the regulatory authority of the Montana Board of Oil and Gas for oil and gas operations in Montana. TLMD is also under the regulatory authority of MDEQ for air quality, water quality, and water discharge. The operator must abide by the rules and regulations imposed by the regulatory agencies.

Implementation of Alternative B will entail the following actions:

- A total of 4 coal bed natural gas wells will be drilled on one pad on state land. Each well will target a different coal seam within the Fort Union formation. Approximately ¾ acres of land will be disturbed for the pad, with approximately 75% of the disturbance being reclaimed upon completion of a commercial well.
- An underground power line, a four inch waterline, and gas lines would be placed in a single corridor with a road that will access the state well pad.
- The four inch underground water line will run from the well pad on the state tract to authorized surface discharge points (outfalls 015 and 016) on the Tongue River under the existing MPDES permits (MT0030457 and M0030724). Initially, approximately 24 gallons per minute will be produced and potentially discharged from the state coal bed natural gas wells. Each individual well will have a polyethylene flowline installed below

grade from the wellhead to transport gas to the existing Rancholme 14 battery in section 14. The corridors for the water lines and the gas lines will be identical. Additional beneficial uses include transport of water to the Spring Creek and Decker Coal Mines, impoundments located off the state tract, dust control, and stock water use.

- Fidelity will continue to monitor each discharge point on the Tongue River and file reports in accordance with their existing MPDES permits.

The Trust Land Management Division portion of this POD is a small fraction of the entire project area. The state has 40 acres with 4 wells out of a total of 354 wells in the POD area. This is consistent with development patterns in surrounding areas. Coal bed natural gas development is within the existing CX Field boundaries and will continue around the state tract. The Coal Bed Natural Gas Field Operating and Reclamation Requirements were established to mitigate any impacts that may occur as a result of the development on state lands and will be incorporated into the project approval.

Finding of No Significant Impact

Based upon a review of the Environmental Analysis done jointly by the Bureau of Land Management, Montana Board of Oil and Gas Conservation, and the Montana Department of Environmental Quality on the original POD area in conjunction with the Environmental Analysis done by MBOGC for the amended POD and the state specific EA, I find that approval of the proposed action does not constitute a major state action significantly affecting the quality of the human environment, and does not require the preparation of an environmental impact statement.

_____
Monte G. Mason
Chief, Minerals Management Bureau
<DATE>

CHAPTER 1:
PURPOSE AND NEED FOR ACTION

1.1 Proposed Action

Fidelity Exploration and Production Company (Fidelity) has proposed an amended plan of development (POD) for the Tongue River- Deer Creek North Area, which is in an approved expansion area of CX field (approved February 12, 2004). The original plan of development included the drilling of 170 coal bed natural gas (CBNG) wells (71 federal, 99 fee) with one well drilled per coal bed per 160 acres. A joint environmental assessment was completed by the Bureau of Land Management, Montana Board of Oil and Gas Conservation, and the Montana Department of Environmental Quality for both the Deer Creek North POD and the Pond Creek POD, neither of which contained state lands. The MBOGC issued a Finding of No Significant Impact (FONSI) on September 12, 2005. Permits to drill were issued for the fee wells in this original POD and all 99 have been drilled and are either producing or awaiting connection for production. The Bureau of Land Management has not yet issued a record of decision (ROD) for the Deer Creek North and Pond Creek joint EA.

This project area lies within the CX field boundary directly east of the Dry Creek POD and Badger Hills POD, and north of the Coal Creek POD area. The state portions of these previous PODs were approved by the Montana Board of Land Commissioners (Land Board) on September 15, 2003, February 11, 2004, and April 18, 2005, respectively. Figure 1 shows the location of the Deer Creek North POD relative to the other three state approved projects. Figure 2 outlines the Deer Creek North project area.

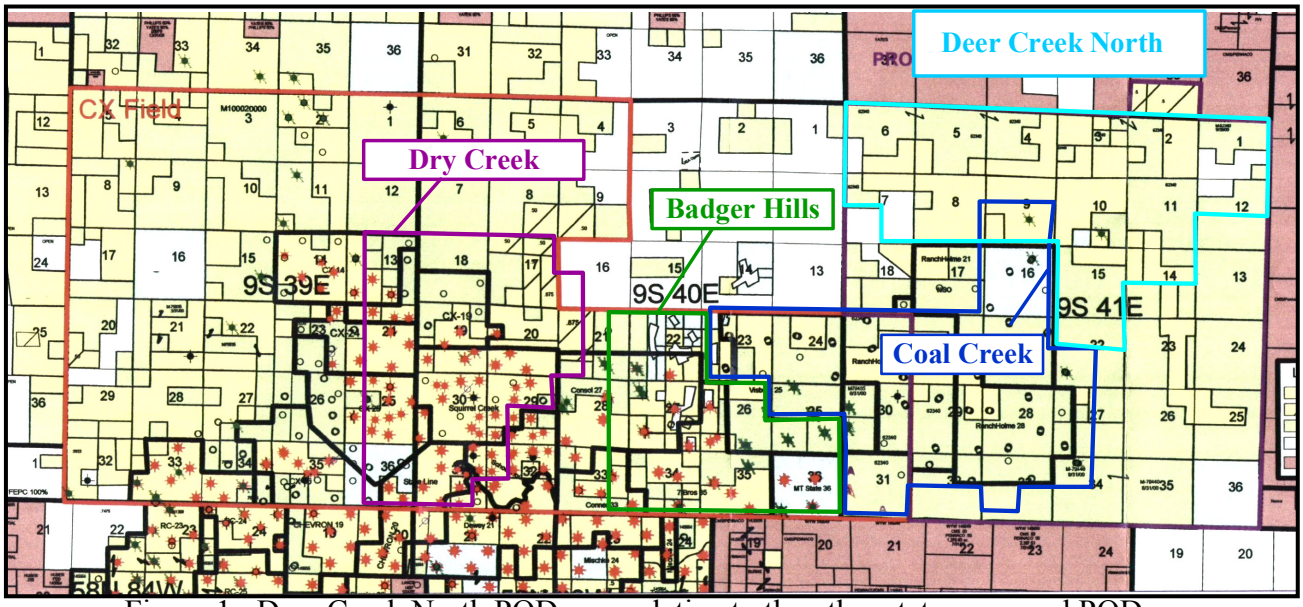

Figure 1: Deer Creek North POD area relative to the other state approved PODs

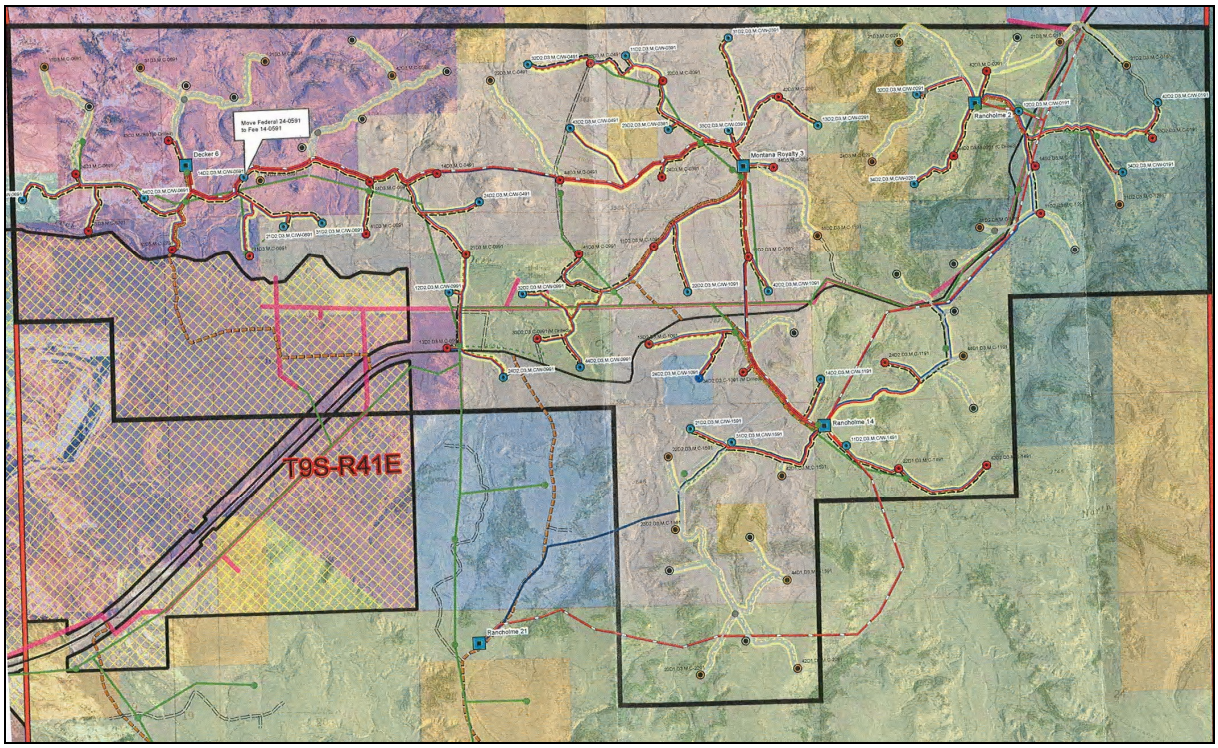

Figure 2: Fidelity's Tongue River-Deer Creek North POD Area

The amended Deer Creek North POD was submitted to the MBOGC on December 8, 2005. This POD proposed an additional 184 wells (68 federal, 112 fee, and 4 state) within the original POD boundary, effectively increasing the well density in the project to two wells per coal seam per 160 acres. The MBOGC completed an EA for the 112 fee wells and 4 state wells in the amended Deer Creek North POD and issued a FONSI on January 18, 2006. The permits to drill for the 112 fee and 4 state wells have been issued.

This environmental assessment focuses on the 4 proposed wells on state-owned land. It incorporates by reference and tiers off of the two completed EAs for the Deer Creek North project area. The pertinent documents that are incorporated by reference and utilized in this analysis are as follows:

- Montana Statewide Final Oil and Gas EIS and Amendment of the Powder River and Billings RMP (MT FEIS) approved April 30, 2003;
- The CX Field Expansion approved on February 12, 2004.
- The Deer Creek North Plan of Development, accepted by Montana Board of Oil and Gas Conservation on March 17, 2005;
- The Fidelity Deer Creek North Environmental Assessment, which is a joint assessment by Bureau of Land Management, Montana Department of Environmental Quality, and Montana Board of Oil and Gas Conservation (Joint EA). MBOGC FONSI issued September 12, 2005.
- The Fidelity Deer Creek North Plan of Development Amended Environmental Assessment, which is an assessment completed by the Montana Board of Oil and Gas Conservation for the fee and state wells within the project area. MBOGC FONSI issued January 18, 2006.

1.2 Need for the Action

Fidelity Exploration and Production Company holds valid federal, state, and private oil and gas leases in the Deer Creek North Project Area. Fidelity submitted applications to drill coal bed natural gas wells on state land to the Montana Board of Oil and Gas Conservation and were approved on January 20, 2006. Oil and Gas leases issued by the State of Montana require the lessee to submit proposed activities on the state lease to the department for review. The Montana Environmental Policy Act (MEPA) requires that an environmental review be completed if the action has a potential for impacting the human environment.

The Montana Department of Natural Resources and Conservation, Trust Land Management Division manages state-owned trust lands under the direction of the Land Board. Both the Land Board and the Department have the fiduciary duty to manage and utilize these lands to generate revenue for the trust beneficiaries, which are the schools throughout the State of Montana. It is TLMD's responsibility to consider environmental impacts and to protect the future income generating capacity of the lands.

Coal bed natural gas production is relatively new to Montana. Since the first wells were drilled on state lands and began producing in 2003, total revenue has reached approximately $2,422,478 for the school trust fund with current revenue exceeding $170,000 per month.

1.3 Relevant Plans, EISs, EAs, Regulations, and Other Documents

1.3.1 Montana MT Final Oil and Gas EIS and Amendment of the Powder River and Billings Resource Management Plans (MT FEIS) approved April 30, 2003.

1.3.2 The Fidelity Exploration and Production Company CX Field Expansion Proposal, approved by the Montana Board of Oil and Gas Conservation on February 12, 2004.

1.3.3 The Fidelity Exploration and Production Company Tongue River Deer Creek North Plan of Development, accepted by the Montana Board of Oil and Gas Conservation on March 17, 2005.

1.3.4 The Fidelity Exploration and Production Company Tongue River Deer Creek North Plan of Development Joint Environmental Assessment by Bureau of Land Management, Montana Board of Oil and Gas Conservation, and Montana Department of Environmental Quality. MBOGC FONSI issued September 12, 2005.

1.3.5 The Fidelity Exploration and Production Company Tongue River Deer Creek North Amended Plan of Development, accepted by the Montana Board of Oil and Gas Conservation on December 8, 2005.

1.3.6 The Fidelity Exploration and Production Company Tongue River Deer Creek North Amended Plan of Development Environmental Assessment by the Montana Board of Oil and Gas Conservation. FONSI issued January 18, 2006.

1.4 Objectives of the Action

1.4.1 **Objective #1**: Develop a coal bed natural gas project in southeastern Montana encompassing federal, fee, and state surfaces and minerals.

1.4.2 **Objective #2**: Operate state and fee wells in conjunction with adjacent/nearby federal lease wells, sharing facilities constructed and operating on the leases.

1.4.3 **Objective #3**: Increase the revenue generated for the State of Montana school trust fund.

1.5 Decision(s) That Must Be Made

The Minerals Management Bureau Chief of the Trust Land Management Division of the Montana Department of Natural Resources and Conservation must review the CBNG Plan of Development for State Lands (as briefly described in Section 1.1 and in detail in Section 2.2) and determine if the selected alternative (plan) would or would not be a major state action, significantly affecting the quality of the human environment. If the Bureau Chief determines that it would not significantly affect the quality of the human environment, then he could prepare and sign a ROD (Record of Decision) and the project could proceed, subject to approval by the Land Board. Otherwise, an EIS and a ROD must be prepared and signed before the four state wells in the Deer Creek North Amended Project could proceed.

1.6 Scope of This Environmental Analysis

1.6.1 Issues Studied in Detail

1.6.1.1 Air Quality (Issue #1)

Increased activity in the project area could result in increased air emissions from drilling equipment and increased travel to and from the well locations for the duration of the project.

1.6.1.2 Cultural Resources (Issue #2)

Land disturbance caused by constructing the well pads and the infrastructure that is necessary for completion of this project could have an impact on the cultural resources in the area.

1.6.1.3 Hydrology (Issue #3)

Coal bed natural gas production carries water from the coal seams during the initial production phases. Management of produced water currently utilizes direct discharge to the Tongue River at authorized discharge points under an existing MPDES permit, delivery by flowline to coal mines for dust suppression, and, to a lesser extent, delivery by flowline for stockwater.

1.6.1.4 Lands and Realty (Issue #4)

There is currently a State of Montana grazing lease that covers the 40 acres of state land in section 10. Increased coal bed natural gas development could decrease the AUMs that are currently set for this lease and could interrupt grazing patterns during the drilling and construction phases.

1.6.1.5 Soils (Issue #5)

Construction of the well pad and infrastructure and the increased travel on the two track trail into the state tract could result in soil impacts and effect soil productivity depending on area and degree of physical effects. Erosion could also be a problem throughout the duration of this project.

1.6.1.6 Vegetation (Issue #6)

Construction of the well pad and infrastructure and the increased travel on the two track trail into the state tract could result in the temporary removal of vegetation. Increased activity in the area also increases the potential of noxious weed introduction.

1.6.1.7 Wildlife (Issue #7)

Coal bed natural gas development could alter the habitat or create disturbance that could be detrimental to wildlife species.

1.6.1.8 Social and Economic (Issue #8)

Coal bed natural gas development could positively impact the revenue generated for the school trust fund.

1.6.2 Issues Eliminated From Further Study

1.6.2.1 Noise (Resource #1)

Coal bed natural gas development could increase the noise level in the project area during the initial drilling phase.

Rationale for Elimination: This project area lies within the existing CX Ranch field. Coal bed natural gas development is occurring throughout the entire field. There will be no compressor stations or batteries on state lands. The increased level of noise will only occur during the weeks that it will take to drill the wells.

1.6.2.2 Aesthetics (Resource #2)

Drilling and completing the four wells on state lands would require that an insulated fiberglass cover and a pump panel be placed on the surface to house the well casing, piping, valves, flow meters and pressure gauges.

Rationale for Elimination: This project area lies in an area of hills and valleys, making the long-range visibility of these well housings improbable. In addition, the covers and panels are small (less than 4 feet tall) and will be painted in a manner to blend in with the landscaping whenever possible. There is no legal public access to this tract, so public viewing of the wells will not occur.

1.6.2.3 Recreation (Resource #3)

A portion of this POD is crucial mule deer winter habitat. As a result, the recreation potential for fall hunting of big game is probable.

Rationale for Elimination: There is no public access to the state lands, which makes recreational use difficult.

1.7 Applicable Permits, Licenses, and Other Consultation Requirements

1.7.1 Treated Water Discharge Permit from MDEQ

1.7.2 Untreated Water Discharge Permit from MDEQ

1.7.3 Air Quality Permits from MDEQ for drilling rig operations

CHAPTER 2:
ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Introduction

The purpose of this chapter is to describe and compare the alternatives by summarizing the environmental consequences. There are two alternatives outlined in this chapter: the No Action Alternative (Alternative A) and the Proposed Action (Alternative B). Based on the descriptions of the relevant resources in Chapter 3: Affected Environment and the predicted effects of both alternatives in Chapter 4: Environmental Consequences, this chapter presents the predicted attainment of project objectives and the predicted effects of all alternatives on the quality of the human environment in comparative form, providing a basis for choice among the options for the decision maker and the public.

2.2 Description of Alternatives

2.2.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

2.2.1.1 Principal Actions of Alternative A

Coal bed natural gas on state land would not be developed. However, ongoing DNRC permitted and approved activities would continue in the project area:

- Livestock grazing: an existing surface lease for 13 animal unit months (AUMs) would continue on the project area.
- Offset Development: Selection of Alternative A does not prevent offset lands from being developed for coal bed natural gas production.

2.2.1.2 Past Relevant Actions

The plan of development area is within the existing CX Field boundaries. There are currently 496 productive coal bed natural gas wells in the existing field and permits have been issued for all of the fee and state wells in the Deer Creek North Amended POD, including the 4 state wells analyzed in this environmental assessment.

2.2.1.3 Present Relevant Actions Not Part of the Proposed Action

The Montana Board of Oil and Gas Conservation issued a FONSI for the Deer Creek North Amended POD EA on January 18, 2006. Based on the analysis of cumulative impacts from development of state and private minerals, they determined that there would be no significant direct, indirect, or cumulative impacts as a result of CBNG development in the POD area. As a result, fee minerals will be developed in the POD area surrounding the state tract.

2.2.1.4 Reasonably Foreseeable Relevant Actions Not Part of the Proposed Action

Fidelity Exploration and Production Company and Pinnacle Gas Resources have other Plans of Development that are being drafted for other lands within the existing CX Field and outlying areas. Coal bed natural gas development will likely continue in the vicinity over the next 30 years.

All of these activities would also occur if Alternative B, which is described in Section 2.2.2, were implemented.

2.2.2 Alternative B: Coal Bed Natural Gas Development on State Lands (Proposed Action)

2.2.2.1 Principal Actions of Alternative B

- A total of 4 coal bed natural gas wells would be drilled on one pad site within the state tract. Each well would be drilled to a different coal seam within the Fort Union Formation. Approximately ¾ acre of land would be disturbed for the pad.
- An underground power line, a four inch waterline, and gas lines would be placed in a single corridor with a road that would access the state well pad.
- A four inch underground water line would run from the well pad on the state tract to authorized surface discharge points (outfalls 015 and 016) on the Tongue River under the existing MPDES permits (MT0030457 and MT0030724). Initially, approximately 24 gallons per minute would be produced and potentially discharged from the state coal bed natural gas wells. Each individual well would have a polyethylene flowline installed below grade from the wellhead to transport gas to the Rancholme 14 battery in Section 14. The corridors for the water lines and the gas lines would be identical. Additional beneficial uses include transport of water to the Spring Creek and Decker Coal Mines, impoundments located off the state tract, dust control, and stock water use.
- Fidelity would continue to monitor each discharge point on the Tongue River and file reports in accordance with their existing MPDES permit.

Table 1
Well List for State Tract

Well Number	Township	Range	Section	Spot Call
State 24C/W-1091	9S	41E	10	SESW
State 24D2-1091	9S	41E	10	SESW
State 24D3-1691	9S	41E	10	SESW
State 24M-1691	9S	41E	10	SESW

2.2.2.2 Mitigation and Monitoring

The Montana Department of Natural Resources and Conservation, Trust Land Management Division has developed the Coal Bed Natural Gas Field Operating and Reclamation Requirements to mitigate disturbances and cumulative impacts to the environment. A copy of these requirements is provided in Appendix A of this environmental assessment.

The Montana Department of Environmental Quality has the regulatory authority over the monitoring of water quality and air quality issues. Montana Board of Oil and Gas Conservation has the regulatory authority over oil field operations. In conjunction with these regulating agencies, Fidelity has identified the following mitigation and monitoring measures in addition to the standard requirements enforced by MDEQ and MBOGC:

- Each surface discharge point will be monitored and sampled, and reports will be submitted in accordance with its respective MPDES permit requirements.
- Sampling locations along the Tongue River at locations upstream and downstream of the permitted outfalls will be maintained under the respective MPDES permit requirements.

- Fidelity's Storm Water Pollution Prevention Plan for major construction activities requires bi-weekly monitoring and monitoring following major runoff events.
- Groundwater monitoring and mitigation of impacts to existing water users will take place according to the water well agreement negotiated with each landowner.
- The USGS will continue to monitor the Tongue River watershed at their various stream flow monitoring stations in the Tongue River.
- Regional ground water monitoring programs have been implemented in the coal bed aquifers in the area and are administered by the BLM, the MDEQ, and MDNRC. Montana Bureau of Mines and Geology (MBMG) has installed several monitoring wells in the Tongue River, Powder River and Rosebud Creek watersheds.

2.3 Summary Comparison of the Activities, the Predicted Achievement of Project Objectives, and the Predicted Environmental Effects of All Alternatives

2.3.1 Summary Comparison of Project Activities

Project Activity	Alternative A (No Action)	Alternative B (Proposed Action)
Drill CBNG wells on State Land	0 Wells Drilled	4 State Wells Drilled
Overhead Power lines Installed	None	None
Underground Power lines	None	One corridor for power, water, gas, and road
Two Track Trails/All Weather Roads	One existing two track trail	One existing two track trail
Water lines/Gas lines	None	Water line and gas line installed for each well.
Water Discharge	Currently, approximately 1450 gpm discharged into Tongue River under existing permit (some state produced water)	Increased discharge under the existing MPDES permits
Water Quality/Air Quality Monitoring	Required under existing MPDES permit	Required under existing MPDES permit.

2.3.2 Summary Comparison of Predicted Achievement of Project Objectives

Project Objective	Alternative A (No Action)	Alternative B (Proposed Action)
Develop a coal bed natural gas project in southeastern Montana encompassing federal, fee, and state surfaces/minerals	No state minerals would be developed. Federal and fee minerals would continue to be developed.	State, federal, and fee minerals would all be developed.
Operate state/fee wells with adjacent/nearby federal lease wells, sharing facilities constructed and operating on the leases	Federal and fee wells would be operated together. State wells would not be drilled.	State, fee, and federal wells would share new and existing facilities to reduce the amount of land disturbance.
Increase the revenue generated for mineral owners	State trust fund would receive 0.78125% of the gross value of the produced natural gas from section 10.	State trust fund would receive 0.78125% of the gross value of the produced natural gas from section 10. State wells would increase the total production from the section.

2.3.3 Summary Comparison of Predicted Environmental Effects

Issue	Alternative A (No Action)	Alternative B (Proposed Action)
Air Quality	No impact to air quality from state activity. Pollutant emissions would occur from federal and fee mineral development. Emissions would be regulated by MDEQ.	Pollutant emissions would occur in the short term but would remain below the limits. Emissions would be regulated by MDEQ.
Cultural Resources	No impact to cultural resources from state activity.	No impact to cultural resources from state activity.
Hydrology	No impact to hydrology from state activity. No additional discharge from state lands. Discharge would continue from state, fee, and federal wells within the existing CX field under existing MPDES permits.	Additional discharge into the Tongue River under the existing MPDES permits. A total of approximately 24 gpm would be added to current discharge from the state wells.
Lands and Realty	No impact to lands and realty from state activity. Existing grazing lease and oil and gas lease would remain in effect for state lands.	4 CBNG wells would be drilled on state lands and related infrastructure put in place. The existing grazing lease would remain in effect.
Soils	No impact to soils from state activity. Grazing of the state tract would continue, which could have minor impacts on the soil, such as compaction and erosion.	Increased chance for soil compaction due to vehicle travel and increased chance for erosion due to topsoil and vegetation removal. Degradation in soil quality could also occur.
Vegetation	No impact to vegetation from state activity. Grazing on state tract would continue to harvest vegetation.	Some vegetation would be removed for well pad construction. Vehicle travel could decrease vegetation quality and quantity. It also increases potential for introduction of noxious weeds.
Wildlife	No impact to wildlife from state activity. Offset federal and fee mineral development could impact wildlife in the area.	State tract is critical mule deer winter range. Mitigation to avoid disruption of habitat would be necessary.
Social and Economic	No impact to social and economic factors from state activity. State and local income tax would be increased due to federal/fee mineral development. Revenue generated for the state trust fund would continue for the communitized area.	State and local income tax increase from federal/fee/state development. State trust fund would receive 0.78125% of royalties generated from section 10. The four state wells would increase the overall production from the section.

2.4 Identification of the Preferred Alternative

Alternative B: Coal Bed Natural Gas Development is the preferred alternative.

CHAPTER 3:
AFFECTED ENVIRONMENT

3.1 Introduction

This chapter details the existing condition of the environmental resources and factors of the Deer Creek North Amended POD that would affect or that would be affected by implementing either Alternative A or Alternative B. Chapter 3 focuses on the site-specific issues described in Section 1.6.1.

This description of the existing environment in Chapter 3, the description of the activities of Alternative A: No Action in Chapter 2, and the predicted effects of Alternative A in Chapter 4 combine to establish the **baseline conditions** against which the decision maker and the public can compare the potential effects of Alternative B: Coal Bed Natural Gas Development on State Lands.

3.2 Description of Relevant Affected Resources

3.2.1 Air Quality

Air pollution is controlled through the ambient air quality and emission standards established by the Clean Air Act and under Montana laws implemented by the Montana Department of Environmental Quality (MDEQ). The Clean Air Act Amendments of 1977 created a system for the Prevention of Significant Deterioration (PSD) of "attainment" and "unclassified" area. This program is designed to limit the increase in pollutant areas above a legally defined baseline level (Montana Ambient Air Quality Standards (MAAQS) establishes upper limits), depending on the classification of the area. PSD Class I areas have more stringent limits than PSD Class II areas. The allowable incremental impacts for NO_2, SO_2, and PM_{10} within PSD Class I areas are more restricted (MT FEIS).

The closest PSD Class I defined area is the Northern Cheyenne Indian Reservation, which lies approximately 20 miles north of the project area. Pollutants throughout the project area are very limited due to the small number of industrial facilities and residential sources. All of the air quality issues are regulated by the MDEQ and are outlined for the entire project area in the completed EAs for the Deer Creek North Area and the MT FEIS.

3.2.2 Cultural Resources

Cultural Resources are tangible remains of past human activity within the landscape. Cultural Resources are identified and defined as geographic units or "sites" where past human activity occurred and evidence of past use can be documented. Generally, any site of human activity older than 50 years can be considered a cultural resource.

Fidelity Exploration and Production Company contracted Ethnoscience, Inc. of Billings, MT to conduct a cultural resource investigation on the state land in this project area from June 19, 2004 through August 4, 2004. Surveys were conducted in blocks using 30 meter

transects. A total of 38.65 acres out of the 40.00 total state acres were surveyed. No cultural properties were identified.

A Cultural Resource Annotated Bibliography System (CRABS) search was conducted that included all of the sections crossed by this POD. In addition, the State Historic Preservation Office's (SHPO) list of properties determined eligible to the National Register of Historic Place was consulted. In 1972, the University of North Dakota (UND) was contracted by the BLM to identify and evaluate cultural resources in several counties throughout the area (Wagers & Strait, 2004). Two sites were identified in Section 10, neither of which is located on the state lands associated with the Deer Creek North project area. No sites were identified on state lands through a literature search, aerial photography/survey, or an archaeological survey and assessment for the East Decker and North Extension for the Decker Coal Company.

3.2.3 Hydrology

The entire Deer Creek North POD lies within the Tongue River Watershed. Fidelity currently produces 496 CBNG wells within the Tongue River Project (TRP) of which 31 are DNRC Conservation Easement wells, the water of which is permitted to be pumped solely to the Decker Coal Mine. Total water production from the remaining 465 producing wells is approximately 1450 gallons per minute (gpm) with nearly all of the water being discharged into the Tongue River. Approximately 200 gpm is piped to the Spring Creek Coal Mine for industrial use or provided to local ranchers for livestock watering.

3.2.3.1 Surface Water

The Tongue River Watershed covers approximately 1477 square miles. It originates in the Big Horn Mountains in Wyoming and runs north and is perennial throughout its length to the Yellowstone River. There are many tributaries to the Tongue River, including Deer Creek, which runs through the project area. Most of the drainage consists of relatively undisturbed forest and rangeland with cultivated agriculture occurring in the valley bottoms. More information relating to the surface waters within the project area can be found in Chapter 3 of the MT FEIS and the completed EAs for the Deer Creek North project area.

Fidelity has an existing MPDES permit (MT0030457) that expires on March 31, 2011 that allows discharge into the Tongue River through 15 specified outfalls. Discharge between November 1 and February 28 shall not exceed 2500 gpm. Between March 1 and June 30, the maximum discharge rate is 2375 gpm, and from July 1 to October 31, the maximum discharge rate is 1600 gpm. Additional flow restrictions are applicable during the July 1 to October 31 seasonal period. Total discharges to the upper reach of the Tongue River are limited to 1000 gpm. The remainder of the permitted flows may be discharged below the final Wyoming border. Other limitations imposed on this permit include:

- Total suspended solids (TSS) monthly average of 25 and daily maximum of 30 mg/L for all permitted outfalls.

- Effluent pH shall remain between 6.5 and 9.0 standard units. Any single analysis beyond the limitation is a violation of the permit conditions.
- When daily stream flow values are less than 35 cubic feet per second (cfs) as recorded at USGS gauging station at the State Line near Decker, the permittee shall conduct daily instream monitoring of specific conductance at an identified location. The permittee shall cease discharging to the Tongue River if the measured instream specific conductance exceeds the following value on any two consecutive calendar days and cannot recommence until the flow in the Tongue River at the gauge identified exceeds 35 cfs:

November 1 through March 1:	2500 µS/cm
March 2 through October 31:	1500 µS/cm

- Effluent flow rate must be monitored continuously.
- pH, temperature, specific conductivity, and total dissolved solids must be measured weekly by permit identified measurement types.
- Total suspended solids, sodium, calcium, magnesium, sodium adsorption ratio, ammonia, fluoride, total nitrogen, nitrate, Kjeldahl nitrogen, and phosphorous must be measured monthly by permit identified measurement types.
- Oil and grease and whole effluent toxicity must be measured quarterly by permit identified measurement types.
- Special conditions outlined in the permit include supplemental effluent monitoring, instream monitoring of the Tongue River for outlined parameters, nutrient monitoring, mandatory effluent diffuser installation ground water monitoring, and toxicity reduction evaluation if necessary.

Fidelity has also obtained a second MPDES permit that allows for 1700 gpm of treated produced coal bed natural gas water to be discharged through one permitted outflow. Treatment consists of ion exchange and fluoride removal with provisions to allow blending of raw produced waters up to the instream water quality standards. The permit expires on March 31, 2011. The limitations imposed through this permit include:

- Between November 1 and March 1:
  - Total Suspended Solids average monthly maximum is 25 mg/L and daily maximum is 30 mg/L.
  - Total Nitrogen average monthly maximum is 1.2 mg/L and daily maximum is 1.7 mg/L
  - Sodium Adsorption Ratio average monthly maximum is 5 and daily maximum is 7.5.
  - Specific Conductance average monthly maximum is 1500 µS/com and daily maximum is 2500 µs/cm.
  - Percentage of untreated produced water shall not exceed 23% of the produced water delivered to the facility.
- Between March 2 and June 30:
  - Total Suspended Solids average monthly maximum is 25 mg/L and daily maximum is 30 mg/L.

    - Total Nitrogen average monthly maximum is 1.3 mg/L and daily maximum is 1.8 mg/L
    - Sodium Adsorption Ratio average monthly maximum is 3 and daily maximum is 4.5.
    - Specific Conductance average monthly maximum is 1000 µS/com and daily maximum is 1500 µs/cm.
    - Percentage of untreated produced water shall not exceed 14% of the produced water delivered to the facility.
  - Between July 1 and October 31:
    - Total Suspended Solids average monthly maximum is 25 mg/L and daily maximum is 30 mg/L.
    - Total Nitrogen average monthly maximum is 1.1 mg/L and daily maximum is 1.6 mg/L
    - Sodium Adsorption Ratio average monthly maximum is 3 and daily maximum is 4.5.
    - Specific Conductance average monthly maximum is 1000 µS/com and daily maximum is 1500 µs/cm.
    - Percentage of untreated produced water shall not exceed 14% of the produced water delivered to the facility.

Other permit limitations include:

- Effluent pH shall remain between 6.5 and 9.0 standard units.
- Treated effluent flow rate and raw water used in blending must be monitored continuously.
- pH, temperature, and specific conductivity must be measured daily by permit identified measurement types.
- Total suspended solids, total dissolved solids, sodium, calcium, magnesium, sodium absorption ratio, ammonia, and fluoride must be measured weekly by permit identified measurement types.
- Total nitrogen, nitrate + nitrate, Kjeldahl nitrogen, and phosphorous must be measured monthly by permit identified measurement types.
- Whole effluent toxicity, mercury, radium, and arsenic must be measured quarterly by permit identified measurement types.
- Special conditions outlined in the permit include supplemental effluent monitoring, groundwater monitoring, nutrient monitoring, mandatory mixing zone diffuser installation, and toxicity reduction evaluation if necessary.

3.2.3.2 Ground Water

The sands and coals of the Fort Union formation are a major source of groundwater in the project area. Wells within these formations can produce as much as 40 gpm, but typically yield closer to 15 gpm. This formation generally is encountered from approximately 50 feet to 600 feet in the project area. CBNG produced water quality information by coal seam is presented in the Table 2 below.

Table 2
Coal Bed Natural Gas Produced Water Quality

Coal Seam	pH	TDS (mg/L)	SAR	EC (µmhos/cm)
Dietz 1	8.0	1640	55.8	2710
Dietz 2	8.3	1670	66.7	2700
Dietz 3	8.0	1630	71.3	2630
Monarch	8.3	1470	84.9	2390
Carney	8.3	1620	70.8	2610

Fidelity performed a complete water rights search through the Department of Natural Resources and Conservation to document any permitted surface and ground water rights within and surrounding the project area. Furthermore, in the course of securing surface use and water mitigation agreements with the respective landowners, Fidelity conducted site specific research and field reconnaissance to identify undocumented wells and springs within each project area. The results showed that several stock reservoirs and direct flow surface water rights were permitted within and downstream of the project area. The water rights search for this area also indicated that eleven permitted water wells exist within a one mile radius of the POD boundary. None of the wells or springs within the project area or the one mile boundary are on state lands.

3.2.4 Lands and Realty

The surface of the state tract is leased to Rancholme Cattle Company for grazing purposes. According to field evaluations, the entire state tract is suitable for grazing. The AUM's for this lease is set at 13.

The nearest public road to the state tract is a county road that runs north of the state tract approximately ¼ of a mile in an east west direction through section 10. The access from the county road to the state tract is private. As a result, there is no public access to the state tract.

3.2.5 Soils

Information regarding soil composition was presented in the Deer Creek North POD that was submitted to MBOGC, BLM, and DNRC in March 2005. The information was collected from the Natural Resource Conservation Service (NRCS). The Soil Survey of Big Horn County, Montana (1977) was also used to obtain site-specific soil summaries for the entire project area.

Deer Creek is an intermittent to ephemeral stream, which typically flows only during periods of high precipitation and runoff (WWC Engineering, 2005). Soils in the project area have developed in alluvium and residuum derived from the Tongue River Member of the tertiary Fort Union Formation and the Eocene Wasatch Formation. Lithology consists of light to dark yellow and tan siltstone and sandstones with coal seams in a matrix of shale. In many areas, coals that were located near the surface have burned, producing clinker or scoria. Due to the varied topography throughout the project area, many different types of soils have developed.

Within the state tract, four different soil types exist. The Hydro loam (Hna) consists of deep, nearly level to gently sloping well-drained soils on terraces, fans, and benches (WWC Engineering, 2005). These soils formed in clay loam and silty clay loam alluvium that contains a moderate amount of sodium. Permeability is slow and available water capacity is moderate or high. Runoff is slow to medium and the hazard of erosion is slight to moderate.

The second type of soil present on the state tract is Terrace escarpments, loamy (TCb). This type of land occurs on steep, eroded edges of fans, terraces, and foot slopes (WWC Engineering, 2005). Areas are generally 100 to 500 feet wide, and they separate soils on the main parts of the fans and terraces from soils on the flood plains. The material ranges from clay loam to fine sandy loam and is commonly stratified. Slopes range from 8 to 50 percent. Runoff is rapid and the hazard of erosion is severe.

The third type of soil present is McRae loam (Ms), which consists of deep well drained soils that formed in loam and clay loam alluvium (WWC Engineering, 2005). This soil type occurs primarily on foot slopes and fans. Runoff is medium and the hazard of erosion is moderate. This soil is suitable to irrigated and dry farmed crops, hay, wildlife, recreation, and range.

The fourth and final type of soil present on the state tract is Saline land (SA). Saline land is in river and perennial stream valleys on seeped and saline affected areas on flood plains, terraces, and fans (WWC Engineering, 2005). Most areas have a water table at a depth of 3 to 6 feet. The salinity effect is estimated to range from moderate to severe. Salt crusts, common in the spring, give the area a light gray color. Runoff is slow, and the hazard of erosion is slight.

3.2.6 Vegetation

The Deer Creek North POD is situated within the short grass Plains (Wagers & Strait, 2004). Western wheatgrass, bluebunch wheatgrass, and blue grama are dominant grass species throughout the entire project area. Other plants identified in the area include cactus, sagebrush, juniper, and pine. A 2002 field evaluation of the entire state tract revealed the species and composition around the well pads and proposed infrastructure and are outlined in table 3 below.

Table 3
Species and Composition of Vegetation on State tract

COMMON NAME	SCIENTIFIC NAME	COMPOSITION
Western Wheatgrass	Agropyron smithii	10%
Bluebunch Wheatgrass	Agropyron spicatum	5%
Green needlegrass Prairie sandreed Sideoats grama Little bluestem Others	Stipa viridula Calamovilfa longifolia Boutelous curtipendula Schizachyrium scoparium	5%
Blue grama	Bouteloua gracilis	5%
Prairie junegrass Sandbergs bluegrass	Koeleria pyramidata Poa sandbergii	5%
Threadlead sedge	Carex filifolia	5%
Foxtail barley	Hordeum jubatum	10%
Forbs		15%
Silver Sagebrush	Artemisia cana	10%
Plains Pricklypear Cactus Broom Snakeweed Fringed Sagewort	Opuntia Polyacantha Gutierrezia sarothrae Artemisisa frigida	10%
Kentucky Bluegrass Cheatgrass	Poa pratensis Bromus tectorum	20%

A search of the Montana Natural Heritage Program's Plant Species of Concern List revealed no element occurrences on state lands (Montana Natural Heritage Program, 2003).

3.2.6.1 Noxious Weeds

No state listed noxious weeds were discovered by a search of inventory maps, databases, or field evaluations.

3.2.7 Wildlife

Fidelity contracted Hayden-Wing Associates (HWA) to perform baseline wildlife surveys of the Deer Creek North POD in 2004. Surveys conducted included aerial surveys for wintering bald eagles on and within a one mile buffer of the POD, ground surveys of greater sage grouse leks and sharp tailed grouse leks on and within a one mile buffer of the POD, ground surveys for burrowing owl nests on and within 0.5 miles of the POD, ground surveys for potential mountain plover habitat on and within 0.5 miles of the POD, ground surveys to determine the presence/absence of breeding mountain plover on and within 0.5 miles of the POD, ground surveys of black tailed prairie dog colonies on and within 0.5 miles of the POD, and aerial surveys of mule deer within designated winter range.

3.2.7.1 Raptors

Fourteen raptor nests were found within the surveyed area of the Deer Creek North POD and its one-mile buffer. Only nine of the 14 nests were located in the

actual POD. These raptors included five red tailed hawk nests, three burrowing owl nests, and one unknown raptor nest. None of the nine nests were located on the state tract. The closest nest was a Red-tailed hawk that is just over a half mile away from proposed activity on state lands.

Three Burrowing Owl nests were located within the POD boundary. All three are located approximately 1 mile from the state tract. This raptor species is on the Montana Animal Species of Concern List (Montana Natural Heritage Program, 2004). One Golden Eagle nest is located outside the POD boundary. It is approximately a mile and a half from the proposed activity on state lands. One Great Horned Owl nest also lies within the one mile buffer of the project boundary. It is approximately 2 miles from any proposed activity on state lands. This raptor species is on the Montana Animal Species of Concern List (Montana Natural Heritage Program, 2004). There are also two red tailed hawk nests within the one mile buffer zone.

No active bald eagle nests were located within the Deer Creek North POD or its one-mile buffer.

3.2.7.2 Prairie Dogs

Three black-tailed prairie dog colonies were located within the Deer Creek North POD boundary. The largest of the three colonies lies over a mile and half from the state tract and is 68.6 acres in size. One colony is located in Sections 15 and 22, approximately 1 mile south of the state tract and is 27.3 acres in size. The third colony is located in section 4 and is approximately a mile and a half from the state tract and is 14.8 acres in size.

According to the USFWS guidelines for determining suitable black-footed ferret habitat, a black tailed prairie dog complex is defined as an aggregation of two or more neighboring prairie dog colonies separated by a distance of less than 4.34 miles and totaling 80 acres or more. The three towns within the POD area and its one mile buffer meet these criteria and would be considered suitable habitat for black footed ferrets.

3.2.7.3 Plover

Two areas of potential mountain plover habitat were found within the POD boundary. One is located in Sections 8 and 9 and is 43.2 acres in size. The second is located in Sections 15 and 22 and is 23 acres in size. Neither of these areas was closer than a mile from the state tract. No mountain plover were seen or heard during the presence/absence surveys conducted on the potential mountain plover habitat patches in 2005, 2004, or 2003 surveys.

3.2.7.4 Greater Sage Grouse and Sharp Tailed Grouse

Information regarding greater sage grouse and sharp tailed grouse lek locations within the Deer Creek North POD and a two-mile buffer were obtained from Hayden-Wing Associates (HWA), University of Montana (U of M), Spring Creek

Coal Company (SCC), and Decker Coal Company (DCC). Based on the information obtained from the four entities, on ground studies were conducted on the known leks and to search for new or undocumented leks. SCC and DCC also collected data on several of the known leks as part of their annual wildlife monitoring programs.

One active sharp tailed grouse lek was identified within the POD boundary. It is located approximately 2 miles from the state tract. No sage grouse leks were identified within the POD. Two inactive sharp tailed grouse leks and one sage grouse lek with unknown status were located within the one mile buffer of the project area.

3.2.7.5 Big Game

The entire state tract is located within an area designated by the BLM as crucial mule deer winter habitat. During the wildlife surveys, elk, mule deer, and pronghorn antelope were observed and documented.

3.2.8 Social and Economic

Development and production activity continues to include state land ownership in the CX Field and surrounding areas, located in Big Horn County. Royalty revenue received for the month of November 2005 totaled $171,723, generated from about 2244 acres of state-owned land in the Badger Hills POD, Dry Creek POD, and Coal Creek POD. Sixteen wells in the Coal Creek project were drilled and completed, with 4 being hooked up in November 2005. Royalties are anticipated for the remaining 12 wells for December 2005 or January 2006. Total royalty generated for state trust lands through November 2005 is $2,422,478 for coal bed natural gas.

A more in depth analysis of the social and economic conditions of the project area can be found in Chapter 3: Affected Environment, and the Socioeconomic appendix of the MT FEIS.

CHAPTER 4:
ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This chapter forms the scientific and analytic basis for the summary comparison of effects presented in Chapter 2 of this Environmental Assessment. This chapter describes the environmental consequences or effects of the proposed action and the cumulative effects of concurrent and future state activities within the analysis areas.

4.2 Predicted Attainment of Project Objectives of all Alternatives

4.2.1 Predicted Attainment of Project Objective #1: Develop a coal bed natural gas project in southeastern Montana encompassing federal, fee, and state surfaces and minerals.

4.2.1.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Under this alternative, coal bed natural gas development would continue on federal and fee lands adjacent to the state tract in the project area. Since this project areas lies within the existing CX field and an existing POD area, development would likely expand around the undeveloped state tract in all directions. Natural gas from the coal beds on the state tract could be drained and produced without compensation from offset wells drilled on the adjacent sections.

4.2.1.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Under this alternative, coal bed natural gas development would occur on the state tract concurrently with the other lands in the Deer Creek North POD area. This provides a more reasonable, efficient, and systematic means of developing the gas field. In addition, concurrent development of the state tract with the federal and private lands would prevent drainage, protect the correlative rights of the state, thereby ensuring the state receives the maximum royalty for the minerals removed from the state tract.

4.2.2 Predicated Attainment of Project Objective #2: Operate state and fee wells in conjunction with adjacent/nearby federal lease wells, sharing facilities constructed and operating on the leases.

4.2.2.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Under this alternative, fee and federal wells would be operated independently of any state activity. As a result, if development of this state tract were to be considered at a later date, additional facilities and infrastructure could be required on the state surface in order to produce the wells.

4.2.2.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Under this alternative, fee, federal, and state wells would be operated together, eliminating the need of unnecessary land disturbances and additional infrastructure.

4.2.3 Predicted Attainment of Project Objective #3: Increase the revenue generated for the State of Montana school trust fund.

4.2.3.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Under this alternative, the economic contribution to the School Trust would be limited to the current lease rentals and royalties from this tract. The state will receive royalty revenue for CBNG development on the tract due to the communitization agreement in effect for the section, but the state's minerals would not contribute to the revenue. This would have a direct effect upon the TLMD's fiduciary obligation to generate revenue for the beneficiaries of the school trust fund. Development would continue around the state tract allowing drainage of state minerals. This would reduce or eliminate the potential for development of the state minerals in the future.

4.2.3.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Under this alternative, four wells would be drilled on the state tract. This would positively impact local and state tax revenue. The state school trust would receive royalty revenue equivalent to .78125% of the gross value of the produced natural gas from the entire communitized section. Based upon performance of the other wells in the CX field and the current gas price, these four wells would generate over $18,000 for the Common School Trust over the life of the project.

4.3 Predicted Effects on Relevant Affected Resources of All Alternatives

4.3.1 Predicted Effects on Air Quality (Issue #1)

4.3.1.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Direct and Indirect**:** There would be no direct or indirect impacts as a result of this alternative.

Cumulative: No cumulative impacts as a result of state activities. Development of minerals on federal and fee lands would continue under the No Action alternative. The cumulative impacts are discussed and analyzed in the completed EAs for the Deer Creek North project area and in the MT FEIS.

4.3.1.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Direct and Indirect: Pollutant emissions would occur during the drilling phase of the four wells on state lands. Localized short term increases in CO, No_x, SO_2, $PM_{2.5}$ and PM_{10} concentrations would occur. However, maximum concentrations wouldremain well below the applicable state, local, and federal air quality standards. The Montana Department of Environmental Quality has the regulatory authority to review and issue permits covering all new or modified air pollution emission sources. These permits are required prior to construction.

During the production phase of this project, vehicle traffic could result in an intermittent deterioration in air quality in the area. Dry conditions could cause a higher volume of dust in the air.

The following mitigation measures have been proposed for this alternative:

- Fidelity would install remote monitoring equipment to minimize the amount of vehicle traffic to and from the individual well sites. This would decrease the pollutant emissions during the production phase of the project.
- The Montana Board of Oil and Gas Conservation regulates gas venting. They prohibit venting of commercial quantities of gas. Since extensive

infrastructure is already in place throughout the project area, only a limited amount of testing would occur prior to well hookup.

Cumulative: The cumulative impacts to air quality are addressed in the MT FEIS, which analyzed cumulative impacts of drilling up to 26,000 coal bed Natural Gas wells within Montana. Cumulative impacts resulting from the development of state and private lands within the Deer Creek North Project have been analyzed in the MBOGC EAs for both the Deer Creek North and the Deer Creek North Amended POD.

4.3.2 Predicted Effects on Cultural Resources (Issue #2)

4.3.2.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Direct and Indirect: There would be no direct or indirect impacts to cultural resources as a result of state activity under this alternative.

Cumulative: There would be no cumulative impacts to cultural resources under this alternative.

4.3.2.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Direct and Indirect: No cultural resource sites were identified in the state portion of this POD. The proposed activity on state lands would not disturb the cultural resources in the POD area.

The following mitigation measures would be enforced for this alternative:

- If any cultural values (sites, artifacts, human remains) are observed that were not previously addressed and reviewed, they would be left intact, operations stopped, and the TLMD notified immediately. Fidelity is responsible for informing all persons in the area who are associated with this project that they would be subject to prosecution for knowingly disturbing historic of archaeological sites, or for collecting artifacts. TLMD would conduct an evaluation of the cultural values to establish appropriate mitigation, salvage, or treatment. If additional archaeological survey work is required, lessee would be responsible for this expense. [This is required in both the lease agreement and the CBNG Field Operating and Reclamation Requirements in Appendix A].

Cumulative: No cumulative impacts to cultural resources would occur as a result of state land development. No sites have been determined eligible for the National Register within this tract.

4.3.3 Predicted Effects on Hydrology (Issue #3)

4.3.3.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Direct and Indirect: No direct or indirect impacts to hydrology would occur as a result of state activity under this alternative.

Cumulative: The state would not contribute to cumulative impacts under this alternative. Development of federal and fee minerals in POD would continue

throughout the POD area. Information regarding the cumulative impacts to hydrology can be found in the completed Deer Creek North POD EAs and the MT FEIS.

4.3.3.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Direct and Indirect: Fidelity currently produces water from 496 coal bed natural gas wells in the TRP area, of which 31 are Montana Department of Natural Resources and Conservation (DNRC) Conservation Easement wells, the water from which is permitted to be pumped solely to the Decker Coal Mine. The current water production rate from the remaining 465 wells is approximately 1450 gallons per minute (gpm) with nearly all of that being discharged into the Tongue River under an existing MPDES permit (MT0030457) or transferred to the Spring Creek Coal Mine for industrial uses. A small percentage of the produced water is provided to local ranchers to supplement livestock watering as needed.

The 99 fee wells in the original Deer Creek North POD have all been drilled and are awaiting connection. The 71 federal wells will not be drilled until the Bureau of Land Management completes an environmental assessment for the project. The 99 completed wells in the original POD will add approximately 594 gpm of produced water in addition to the existing 1450 gpm that is produced from the remaining wells in CX field. The 116 wells in this infill drilling POD will add approximately 696 gpm to the total water production. The management of the produced water under Alternative B would involve approximately 2740 gpm of produced water. Initial water production from the state wells, based on a 6 gpm initial production rate assumption, would be 24 gpm. This water would be discharged to the Tongue River under one of the two existing MPDES permits. Once the water production exceeds the volume permitted in the untreated water discharge permit (MT0030457), water would be transported to a water treatment facility, which would be located south of the POD area. Storage ponds would be constructed at the facility as a bypass holding pond to provide approximately 17 acre feet of backup storage during treatment plant downtime. There is also an existing reservoir with a capacity of 44.6 acre-feet at the treatment facility. The discharge permit for untreated water, the discharge permit for treated water, and the storage ponds would provide Fidelity with sufficient water management capacity to accommodate anticipated water production from existing a proposed Deer Creek North project development. No pits or ponds would be located on the state tract.

Cumulative Impacts: The two principal concerns with CBNG water are SAR and salinity (Horpestad & Skaar, 2001). Depending on the relative amounts of these two constituents and the makeup of the soil, direct discharge of CBNG water onto the surface could result in deterioration of soil hydraulic characteristics and decrease of crop production as the energy that the crops need to extract the water from the soil increases. Thresholds for SAR and salinity have not become standard, as the affects are very site specific. The Deer Creek North POD water management plan incorporates water treatment prior to discharge in conjunction with untreated water discharge. Under an approved water management plan and

treated water discharge permit, 95 percent or more of the total salts (primarily sodium) would be removed from the water. This would increase the quality of the water and also minimize the impacts that discharging the water would have on the soil. No water discharge would occur on the state tract. Discharge to waters of the state is regulated by MDEQ. Other beneficial use is at the discretion of the landowners and subject to any applicable regulations and permits. Additional information regarding the cumulative impacts can be found in the MT FEIS.

Fidelity performed an analysis of potential impact to surface water resources resulting from the development of additional wells in the Deer Creek North POD. Direct and cumulative impact analyses were performed using a steady state, mass balance mixing model, with inputs of estimated flow and water quality data for Tongue River and identified existing and potential point source discharges. The model assessed electrical conductivity (EC), sodium (Na), calcium (Ca), and magnesium concentrations. Sodium Adsorption Ratio (SAR) was calculated from the resulting Na, Ca, and Mg ion concentrations. Projections at various points within the Tongue River indicated no exceedances of Montana water quality standards for EC and SAR. Average ammonia and fluoride concentrations remained below the non-degradation criteria identified by the MDEQ in its Statement of Basis for the MPDES permit MT0030457. The model results also indicated values of EC and SAR below current Montana water quality standards.

4.3.4 Predicted Effects on Lands and Realty (Issue #4)

4.3.4.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Direct and Indirect**:** There would be no direct or indirect impacts to lands and realty as a result of state activity under this alternative. The existing surface grazing lease would not be impacted and there would be no effects to the available grazing land. Grazing patterns would not change.

Cumulative: Under this alternative, no cumulative impacts would occur as a result of state activities.

4.3.4.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Direct and Indirect**:** Under this alternative, the existing surface grazing lease would remain in effect. Total lands available for grazing purposes would be reduced by approximately ¾ acre during the construction phase. However, this would be short term. After the wells have been completed and temporary disturbance reclaimed, the total area unavailable for grazing would be less than ¼ acre.

Cumulative: Under this alternative, no cumulative impacts would occur to the lands and realty as a result of state activity. The increase in produced water could serve as a beneficial use to our surface lessee in the future. If such beneficial use were proposed for the state tract, that proposal would have to be reviewed and approved by the Department and the appropriate permits obtained from the Water Rights Bureau.

4.3.5 Predicted Effects on Soils (Issue #5)

4.3.5.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Direct and Indirect: Under this alternative, no coal bed natural gas development would occur. The existing surface grazing lease would remain in effect, which would allow for the continuing harvest of vegetation on state lands.

Cumulative: Under this alternative, no cumulative impacts would occur as a result of state activities. However, federal and fee minerals would still be developed. Additional information regarding the cumulative impacts to soils is available in the completed Deer Creek North project EAs and the MT FEIS.

4.3.5.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Direct and Indirect: Under this alternative, the project area would be developed as proposed in the POD. One well pad would be constructed for the purpose of drilling four coal bed natural gas wells. It is estimated that the pad site would disturb approximately ¾ acre for the four well pad. Topsoil would be moved and stockpiled prior to pad construction. Two mud pits would be excavated on the pad site to contain drilling fluids and water. Upon completion of a productive well, approximately three quarters of the disturbance would be reclaimed according to the CBNG Field Operating and Reclamation Requirements in Appendix A, and the other quarter of land disturbance would be reclaimed upon plugging and abandoning the wells.

Drilling and completing the wells under Alternative B would cause minimal compaction, erosion, and soil quality degradation. Topsoil removal reduces the soil quality on the wellsites. The longer the soil remains exposed to the atmosphere and adverse weather conditions, the more likely erosion would occur (Muckel, 2004). Some of the soils found in the state tract have moderate to high erosion hazards. This erosion rate is increased when accompanied by high winds and rain periods. The following mitigation measures would be enforced to minimize soil damage and erosion:

- Construction is restricted to dry or frozen conditions.
- The well pad and pits would be excavated immediately before construction instead of exposing the soil for several months.
- The disturbed soils would be covered with vegetation or mulch as soon as possible.
- Other requirements are outlined in Appendix A.

In addition to the well pad construction, there would be one two track trail in the northeast portion of the state tract. The water, gas, and underground power lines would be installed in a common corridor to reduce the potential for erosion, compaction, and soil quality deterioration. In general, vehicle travel could compact the soil. Depending on the amount of compaction, infiltration could be decreased and the potential for runoff and erosion could increase. Compaction potential is increased in wet conditions. As a mitigation measure, vehicle travel would be restricted to dry and frozen conditions and only on the approved two track trail. Travel across undisturbed rangeland or unapproved trails would be prohibited.

Cumulative: State and local laws and the Clean Water Act require that erosion and sediment control plans be developed prior to construction. Montana Department of Environmental Quality has the regulatory authority over water quality issues and they would address these issues when necessary. The completed Deer Creek North EAs and the MT FEIS have further detail on the cumulative impacts to soils from CBNG development.

Mitigation measures for soil impacts are outlined in the CBNG Field Operating and Reclamation Requirements in Appendix A of this assessment.

4.3.6 Predicted Effects on Vegetation (Issue #6)

4.3.6.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Direct and Indirect: No direct or indirect effects on vegetation would occur to state land as a result of this alternative. The existing surface grazing lease would remain in effect, which would continue to allow for harvest of vegetation. Compaction could occur as a result of animals walking across the rangeland, but the impacts are very minimal.

Cumulative: No cumulative impacts to vegetation would occur as a result of state activities under this alternative.

4.3.6.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Direct and Indirect: Well pad construction, road construction, and infrastructure would require that the vegetation and topsoil be removed on approximately 1 acre of the state tract. This would temporarily reduce the amount of vegetation available to livestock and wildlife. The impacts to vegetation from vehicle travel would include plant growth restriction due to soil compaction and the increased potential for introduction of noxious weeds to the surface. In addition, the well pad disturbance would remove vegetation temporarily until reseeding is complete. However, these impacts would be short term and minimal.

Mitigation measures that would be enforced include:

- Upon completion of a commercial well, 75% of the disturbed well pad area would be reseeded with native grasslands and techniques outlined in Appendix A and site specific reclamation plans prescribed by the land offices.
- Vehicle travel would be restricted to dry or frozen conditions
- Prevention and control measures would be required for noxious weeds as outlined in Appendix A.

Cumulative: A reduction in the vegetation amounts and quality would reduce the area of land available for grazing. However, disturbance is short term and minimal. Any land that is disturbed would be reclaimed and reseeded. The total number of AUMs available for grazing would not change.

4.3.7 Predicted Effects on Wildlife (Issue #7)

4.3.7.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Direct and Indirect: No direct or indirect impacts as a result of state activity under this alternative.

Cumulative: There would be no cumulative impacts as a result of state activity under this alternative. Federal and fee minerals would be developed in the remainder of the POD area. The cumulative impacts for the project area are discussed and analyzed in the completed Deer Creek North POD EAs and the MT FEIS.

4.3.7.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

4.3.7.2.1 Raptors

Direct and Indirect: During the wildlife surveys conducted by HWA, fourteen raptor nests were found within the surveyed area of the Deer Creek North POD and its one-mile buffer. None of these nests were located on state lands. The closest nests was a Red-tailed hawk, which is just over a half mile away from any proposed activity on state lands, and three burrowed owl nests, which are approximately one mile from the state tract. The Burrowed Owl is listed on the Montana Species of Concern List. No active bald eagle nests were located within 5 miles of any proposed activity on state lands. This alternative proposes above ground power lines throughout the POD area. However, none of the above ground lines transect the state tract.

Cumulative: The cumulative impacts to raptors from the development of the entire project area could include direct habitat loss and displacement due to infrastructure and human disturbance. These, and other potential impacts are outlined in the completed Deer Creek North project area EAs and the MT FEIS.

4.3.7.2.2 Prairie Dogs

Direct and Indirect: During the wildlife survey, no prairie dog colonies were located on state lands. Three colonies were located within the POD area, with the largest being 68.6 acres in size. Based on USFWS guidelines for determining suitable black-footed ferret habitat, a black tailed prairie dog complex is defined as an aggregation of two or more neighboring prairie dog colonies separated by a distance of less than 4.34 miles and totaling 80 acres or more. The three towns within the POD and its 0.5 mile buffer meet these criteria and would be considered suitable habitat for black footed ferrets.

There would be no direct contact with the prairie dog complex as a result of state mineral development. The nearest prairie dog complex lies approximately a mile from any state proposed activity. As a result, disturbance to prairie dogs and prairie dog complexes from state activities would be minimal.

Cumulative: Three total prairie dog colonies were located within the Deer Creek North POD. The cumulative impact to prairie dogs is discussed in more detail in the MT FEIS.

4.3.7.2.3 Mountain Plover

Direct and Indirect: Two areas of potential mountain plover habitat were found within the POD. The potential mountain plover habitat is approximately 1 mile from the state tract.

Surface use is prohibited within ¼ mile of active mountain plover nest sites. There is no evidence that mountain plover actually exist in this area, it is only a potential habitat area. In addition, state development would be beyond the ½ mile no surface occupancy buffer. Impacts to mountain plover as a result of state mineral development would be minimal.

Cumulative: There would be no cumulative impacts to mountain plover as a result of state activities. The potential mountain plover habitats within the POD area lie within Sections 8, 9, 15, and 22, which is a mix of federal and fee minerals and surface ownership Details regarding cumulative impacts to mountain plover from fee, federal, and state mineral development can be found in the MT FEIS.

4.3.7.2.4 Greater Sage Grouse and Sharp Tailed Grouse

Direct and Indirect: The most common impacts to sage grouse and sharptailed grouse due to CBNG development are human disturbance and habitat alteration. One active sharp tailed grouse lek was identified within the POD boundary. No sage grouse leks were identified. Two inactive sharp tailed grouse leks and one sage grouse lek with unknown status were located within the one mile buffer of the project area. None of the active leks are within 2 miles of the state tract. Therefore, the impact to grouse would be minimal as a result of state activities.

Cumulative: Increased activity in the vicinity of sage grouse leks and sharp tailed grouse leks could effect this species through human disturbance and habitat alternation. Additional information regarding cumulative impacts to grouse can be found in the MT FEIS.

4.3.7.2.5 Big Game

Direct and Indirect: Mule deer could be impacted by habitat fragmentation, habitat disturbance, and human disturbance. The state tract lies within a crucial mule deer winter range. The following mitigations would be implemented to minimize the impacts to mule deer:

- A No Surface Occupancy (NSO) between December 1 and March 31 within the crucial winter range for new land disturbances.

Deer populations would likely only be effected for a short amount of time while well drilling and infrastructure construction is occurring. The loss of vegetation as a result of construction operations could also impact deer populations. As the production phase is implemented and restoration of the disturbed well pad sites is complete, deer would likely return to the area.

Cumulative: The decrease in area of crucial mule deer winter range due to the increased development in the area could occur in the future. However, disturbance by activity and construction activities is short term and deer populations would only be temporarily effected. It is anticipated that populations would return to the area in the production phase of this project.

4.3.8 Predicted Effects on Social and Economic Factors (Issue #8)

4.3.8.1 Alternative A: No Coal Bed Natural Gas Development (No Action)

Direct and Indirect**:** Under this alternative, state minerals would not be developed. As a result, the economic contribution to the School Trust would be limited to the royalties generated as a result of a communitization agreement for section 10 in its entirety. With the additional fee and federal wells drilled surrounding the state tract, the minerals beneath the state tract would not be developed. This would have a direct effect upon the TLMD's fiduciary obligation to generate revenue for the beneficiaries of the school trust fund. This would reduce or eliminate the potential for development of state minerals in the future.

Cumulative: There would still be an increase in state and local taxes due to coal bed natural gas development from federal and fee minerals. There would be little difference in employment opportunities between the two alternatives.

4.3.8.2 Alternative B: Coal Bed Natural Gas Development (Proposed Action)

Direct and Indirect: Under this alternative, state minerals would be developed. As a result, the state school trust would receive royalty revenue equivalent to 0.78125% of the gross value of the produced natural gas from the entire section (state owns 6.25% of the section). Based upon performance of the other wells in the CX field and the current gas price, these four wells would generate over $18 thousand to the Common School Trust over the 10-15 year life of the project.

Cumulative: There would be an increase in the state and local taxes due to coal bed natural gas development of state, federal, and fee minerals. The increase in production would create a minimal increase in the number of the jobs relating to the activity.

CHAPTER 5:
AGENCY CONSULTATION AND PUBLIC COMMENT

The following agencies were consulted throughout the development of this Environmental Assessment:

- Fidelity Exploration and Production Company
- Bureau of Land Management – Miles City, MT Office
- Montana Board of Oil and Gas Conservation

Public comment has been solicited via press release, website posting, and mail out to interested parties.

One comment was received (see next page) expressing general support for the proposed action.

Prepared by: Bobbi Jo Coughlin, Petroleum Engineer, Minerals Management Bureau

/s/

April 4, 2006

Mason, Monte

From: Coughlin, Bobbi Jo
Sent: Tuesday, March 14, 2006 7:55 PM
To: Mason, Monte
Subject: FW: Deer Creek North Coal Bed Natural Gas (CBNG)

Monte,
Received this comment in support of Deer Creek North POD.

From: JOHN & CONNIE MORRIS [mailto:cjm@fiberpipe.net]
Sent: Friday, March 10, 2006 8:52 PM
To: Coughlin, Bobbi Jo
Subject: Deer Creek North Coal Bed Natural Gas (CBNG)

Bobbi:

I am in favor of developing the Deer Creek North Coal Bed Natural Gas (CBNG) by Fidelity. We need to move forward with CBNG development in Montana. There are enough rules in place to do it responsibly and Fidelity is working hard toward to be a responsible company. I am very familiar with the real data from CBNG studies and the effects that development has had. These effects are proven to not have detrimental effects to date from Fidelity's activities. Allow it to continue.

Thank you,
Connie Morris
HC 39 Box 30
Otter, MT 59062
406-784-2485

REFERENCES

Horpestad, A. & Skaar, D. (2001). Water Quality Impacts from Coal Bed Natural Gas Development in the Powder River Basin, Wyoming and Montana.

Montana Department of Natural Resources and Conservation. (2004). Best Management Practices for Grazing.

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Muckel, Gary B. (ed). Understanding Soil Risks and Hazards: Using Soil Survey to Identify Areas With Risks and Hazards to Human Life and Property. Retrieved from Natural Resource Conservation Service website: http://soils.usda.gov/use/risks.html

WWC Engineering. (2005). Hydrology and Soils Appendix for Tongue River – Deer Creek North Project.

APPENDIX A

COAL BED NATURAL GAS FIELD OPERATING AND RECLAMATION REQUIREMENTS

*DNRC refers to DNRC Trust Land Management Division (TLMD)

A. Notifications

a. Notify the DNRC, Southern Land Office at least 48 hours prior to beginning any construction and/or drilling operations (406-247-4400).
b. Any variances from the following guidelines or the site specific stipulations must be approved by DNRC.
c. The lessee (lessee includes lessee, operator, contractors, or any other agent conducting activities on lease premises pursuant to authority conveyed by the state lessee) shall obtain approval prior to construction of any new surface disturbing activities that are not specifically addressed in the approved operating plan or POD Surface Use Plan.
d. Phased reclamation plans will be submitted to DNRC for approval prior to individual POD facility abandonment.
e. A notice of Intent to Abandon must be submitted for approval. Upon completion of plugging, a copy of the Subsequent Report of Abandonment must also be submitted.
f. If any cultural values (sites, artifacts, human remains) are observed that were not previously addressed, reviewed, and approved by DNRC, they will be left intact, operations stopped, and the DNRC notified immediately. The lessee is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. DNRC will conduct an evaluation of the cultural values to establish appropriate mitigation, salvage, or treatment. If additional archaeological survey work is required, lessee will be responsible for this expense.

B. Construction

a. Vehicle Travel:
    i. Construction and other project related traffic will be restricted to approved routes. Cross country vehicle travel will not be allowed.
    ii. Maximum speed on all lessee constructed and maintained roads will not exceed 25 miles per hour.
    iii. The lessee shall restrict travel on unimproved two-track roads during periods of inclement weather or spring thaw when the possibility exists for excessive surface resource damage (e.g. rutting in excess of 4 inches, travel outside two-track roadway, etc). This applies to pre-approval APD-POD planning (surveying, staking), drilling, production, and reclamation operations.
b. Construction activities can only occur pursuant upon DNRC written approval of the operating plan.
c. All construction activities for off wellpad facilities will be addressed in an operation plan submitted by Fidelity Exploration and Production Company.

d. Soil:
    i. Stockpiled topsoil and pit material must be stored to prevent material from entering drainages.
    ii. Equipment cannot be stored on the topsoil stockpile.
    iii. The lessee will limit vegetation removal and the degree of surface disturbance, utilizing all practicable measures to minimize erosion and stabilize disturbed soils.
    iv. Topsoil will be salvaged for use in reclamation on all areas of surface disturbance (roads, locations, pipelines, etc). Clearly segregate topsoil from excess spoil material.
    v. The lessee will not push soil material and overburden over side slopes or into drainages. All soil material disturbed will be placed in an area where it can be retrieved without creating additional undue surface disturbance and where it does not impeded watershed and drainage flows.
    vi. Construct the backslope no steeper than ½:1, and construct the foreslope no steeper than 2:1 unless otherwise directed by DNRC.
    vii. Maintain a minimum 20 foot undisturbed vegetative border between toe of fill pad and/or pit areas and the edge of adjacent drainages, unless otherwise directed by DNRC.
e. Drilling, casing, and cementing operations shall be designed and conducted as requested by MBOGC.
f. Construction and drilling activity will not be conducted using frozen or saturated material during periods when watershed damage or excessive rutting is likely to occur.
g. With the overall objective of minimizing surface disturbance and retaining land stability and productivity, the lessee shall use equipment that is appropriate to the scope and scale of work being done for roads and well pads (use equipment no larger than needed for the job).
h. To minimize electrocution potential to birds of prey, all overhead electrical power lines will be constructed to standards identified by the Avian Power Line Interaction Committee (1996).
i. The lessee shall use wheel trenches or ditch witches to construct all pipeline trenches, except where extreme topography or other environmental factors preclude their use.
j. Reserve pits:
    i. Reserve pits will be adequately fenced during and after drilling operations until pit is reclaimed so as to effectively keep out wildlife and livestock. Adequate fencing is defined as follows:
        1. Construction materials will consist of steel or wood posts. Three or four strand wire (smooth or barbed) fence or hog panel (16 foot length by 50 inch height) or plastic snow fence must be used with connectors such as fence staples, quick-connect clips, hog rings, hose clamps, twisted wire, etc.

2. Construction standards: Posts shall be firmly set in ground. If wire is used it must be taut and evenly spaced, from ground level to top wire, to effectively keep out animals. Hog panels must be tied and sturdy. Fence must be at least 2 feet from edge of pit. Three sides must be fenced prior to commencing drilling, and the fourth side of the fence immediately upon completion of drilling, prior to rig release. Fence must be left up and maintained in adequate condition until pit is closed.

ii. The reserve pit will be oriented to prevent collection of surface runoff. After the drilling rig is moved, the lessee may need to construct a trench on the uphill side of the reserve pit to divert surface drainage around it. If constructed, the trench will be left intact until the pit is closed.

iii. The reserve pit will be lined with an impermeable liner if required by the DNRC or MBOGC. An impermeable liner is any liner having a permeability less than 10-7 cm/sec. The liner will be installed so that it will not leak and will be chemically compatible with all substances that may be put in the pit. Liners made of any man-made synthetic material will be of sufficient strength and thickness to withstand normal installation and pit use. In gravelly or rocky soils, a suitable bedding material such as sand will be used prior to installing the liner.

iv. The reserve pit will be constructed so that at least half of its total volume is in solid cut material (below natural ground level).

v. The only fluids/waste materials which are authorized to go into the reserve pit are RCRA exempt exploration and production wastes:
   1. Drilling muds and cutting
   2. Rigwash
   3. Excess cement and certain completion and stimulation fluids defined by EPA as exempt

vi. It may not include drilling rig waste, such as:
   1. Hydraulic fluids
   2. Engine oil
   3. Oil filters
   4. Cement, drilling mud, or other product sacks
   5. Paint, pipe dope, chemical, or other product container.
   6. Chemicals and chemical rinsate.

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

k. <u>Culverts</u>:

i. Culverts will be placed on channel bottoms on firm, uniform beds, which have been shaped to accept them, and aligned parallel to the

channel to minimize erosion. Backfill will be thoroughly compacted.

ii. All culverts will be appropriately sized.

l. Pipelines:

i. Pipeline construction shall not block nor change the natural course of any drainage. Pipelines shall cross perpendicular to drainages. Pipelines shall not be run parallel in drainage bottoms. Suspended pipelines shall provide adequate clearance for maximum runoff.

ii. Pipeline trenches shall be compacted during backfilling. Pipeline trenches shall be routinely inspected and maintained to ensure proper settling, stabilization, and reclamation.

m. During construction, emissions of particulate matter from well pad and road construction would be minimized by application of water or other non-saline dust suppressants with at least 50 percent control efficiency. Dust inhibitors (surfacing materials, non-saline dust supressants, and water) will be used as necessary on unpaved roads that present a fugitive dust problem. The use of chemical dust suppressants on state surface will require prior approval from DNRC.

n. Lessees are required to obtain a National Pollution Discharge Elimination System (NPDES) Storm Water Permit from MDEQ as required prior to any suface disturbing activities.

o. If in the process of air drilling the wells there is a need to use mud, all circulating fluids will be contained either in an approved pit or in an aboveground containment tank. The pit or containment tank will be large enough to safely contain the capacity of all expected fluids without danger to overflow. Fluid and cuttings will not be squeezed out of the pit, and the pit will be reclaimed in an expedient manner.

p. Production facilities (including dikes) must be placed on the cut portion of the location and a minimum of 15 feet from the toe of the back cut unless otherwise approved by DNRC.

q. A complete copy of the Application for Permit to Drill (APD), including conditions, stipulations, and the H2S contingency plan (if required) shall be available for reference at the well site during the construction and drilling phases.

r. This drilling permit is valid for either one year from the approval date or until lease expiration, whichever comes first.

C. Operations/Maintenance

a. Waste Disposal:

i. Trash or other debris must not be disposed of on the pad.

ii. Burning of materials or oil is not allowed.

iii. All waste, other than human waste and drilling fluids, will be contained in a portable trash cage. This waste will be transported to a State approved waste disposal site immediately upon completion of drilling operations. No trash or empty barrels will be placed in the reserve pit or buried on location. All state and local laws and

regulations pertaining to disposal of human and solid waste will be complied with.

iv. Sewage shall be placed in a self-contained, chemically treated porta-potty on location.

v. The lessee and their contractors shall ensure that all use, production, storage, transport, and disposal of hazardous materials associated with the drilling, completion, and production of these wells will be in accordance with all applicable existing and hereafter promulgated federal, state, and local government rules, regulations, and guidelines. All project related activities involving hazardous materials will be conducted in a manner to minimize potential environmental impacts. In accordance with OSHA requirements, a file will be maintained onsite containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances which are used in the course of construction, drilling, completeion, or production operations.

b. The lessee shall complete CBNG wells (case, cement, and under ream), or abandon as soon as possible, but no later than 30 days after drilling operations, unless an extension is given by DNRC.

c. Confine all equipment and vehicles to the access road(s), pad(s), and area(s) specified in the approved APD or POD.

d. Rat and mouse holes shall be filled and compacted from the bottom to the top immediately upon release of the drilling rig from the location.

e. Noxious Weeds:

i. The lessee will be responsible for prevention and control of noxious weeds and weeds of concern on all areas of surface disturbance associated with this project (well locations, roads, water management facilities, etc.) Use of pesticides shall comply with the applicable State laws. Pesticides shall be used only in accordance with their registered uses and within limitations. Lessee shall monitor disturbed areas for the presence of noxious weeds from June through September throughout the life of the field.

ii. Control efforts must be done as necessary and as specified by DNRC once noxious weeds are identified with the intent of erradicating and preventing seed production.

f. All permanent above-ground structures (e.g. production equipment, tanks, etc.) not subject to safety requirements will be painted to blend with the natural color of the landscape. The paint used will be a color acceptable to DNRC.

g. Lessees are advised that prior to installation of any oil and gas well production equipment which has the potential to emit air contaminants, the owner or lessee of the equipment must notify the Montana Department of Environmental Quality (MDEQ) to determine permit requirements. Examples of pertinent well production equipment include fuel-fired equipment (e.g. diesal generators), separators, storage tanks, engines, and dehydrators.

h. Fire Safety:
    i. During the fire season (June-October), the lessee shall institute all necessary precautions to ensure that fire hazard is minimized, including, but not limited to, mowing vegetation on the access route(s) and well location(s), keeping fire fighting equipment readily available when drilling, etc. DNRC may also require additional measures for fire prevention.
    ii. If a fire is started by lessee activities, the lessee may be liable for suppression costs by 50-63-103, MCA.
i. Erosion:
    i. Upgrade and maintain access roads and drainage control (e.g. culverts, drainage dips, ditching, crowning, surfacing, etc.) as necessary and as directed by DNRC to prevent soil erosion and accommodate safe, environmentally sound access.
    ii. DNRC may direct additional control measures for roads, pipelines, drainages, or other surface disturbances as needed.
j. Any spilled or leaked oil, produced water, or treatment chemicals must be reported in accordance with MBOGC requirements and immediately cleaned up in accordance with DNRC requirements. This includes cleanup and proper disposition of soils contaminated as a result of such spills/leaks.
k. Changes in operational and/or environmental conditions may require additional or modified requirements.
l. No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of 4 inches deep, the soil shall be deemed too wet to adequately support construction equipment.
m. All water discharge must comply with State law and must have permit prior to commencing.
n. Landscape those areas not required for production to the surrounding topography as soon as possible. The fluids and mud must be dry in the reserve pit before recontouring pit area. The lessee will be responsible for recontouring and reseeding of any subsidence areas that develop from closing a pit.

D. Dry Hole/Reclamation

a. When individual facilities such as well locations, pipelines, discharge points, impoundments, etc. are no longer needed, they need to be addressed in a reclamation plan and approved by the DNRC. Individual items that will need to be addressed in reclamation plans include, but are not limited to:
    i. Configuration of reshaped topography, drainage systems, and other surface manipulations.
    ii. Waste disposal
    iii. Revegetation methods, including specific seed mix (pounds pure live seed/acre) and soil treatments (seedbed preparation, fertilization, mulching, etc.).

iv. Other practices that will be used to reclaim and stabilize all disturbed areas, such as water bars, erosion fabric, hydro-mulching, etc.
v. An estimate of the timetables for beginning and completing various reclamation operations relative to weather and local land uses.
vi. Methods and measures that will be used to control noxious weeds, addressing both ingress and egress to the individual well or POD.
vii. Decommissioning/removal of all surface facilities.
viii. Closure, reclamation, or approved transfer of areas utilized for produced CBNG water, including discharge points, reservoirs, off-channel pits, land application areas, livestock/wildlife watering facilities, surface discharge stream channels, etc.

b. For abandonment, surfacing material and culverts must be removed unless requested to remain in place by DNRC. The roads and ditches must be recontoured and seeded in accordance with DNRC requirements.
c. <u>Pit reclamation</u>:
    1. All pit(s) must be emptied of all fluids within 90 days after completion of drilling operations. The pit must be closed properly to assure protection of soil, water, and vegetation.
    2. Squeezing of pit fluids and cuttings is prohibited. Pits must be dry of fluids or they must be removed via vac truck or other environmentally acceptable method and disposed of in a State approved location prior to backfilling, recontouring, and replacement of topsoil.
    3. The pit may not be cut or trenched.
    4. Pit mud/sludge material may be buried onsite after the material has dried.
    5. The pit material must be covered with a minimum of 1 ½' of soil.
    6. The lessee will be responsible for recontouring any subsidence areas that develop from closing a pit.
    7. The plastic pit liner (if any) may be folded in with prior BOGC approval.
d. The reclamation effort will be evaluated as a success if the previously disturbed area is stabilized, all potential water erosion is effectively controlled and the vegetative stand is established with at least 70% cover.
e. All disturbed lands associated with this project, including the pipelines, access roads, water management facilities, etc. will be expediently reclaimed and reseeded in accordance with the surface use plan and any pertinent site-specific reclamation.
f. Disturbed lands will be recontoured back to conform with existing undisturbed topography. No depressions will be left that trap water or form ponds.
g. Before the location has been reshaped and prior to redistributing the topsoil, the lessee will rip or scarify the drilling platform and access road on the

contour, to a depth of at least 12 inches. The rippers are to be no further than 24 inches apart.

h. Topsoil shall be evenly distributed.. Prepare the seedbed by disking to a depth of 4 to 6 inches following the contour.

i. Waterbars are to be constructed at least one foot deep, on the contour with approximately two feet of drop per 100 feet of waterbar to ensure drainage, and extended into established vegetation. All waterbars are to be constructed with their berm on the downhill side to prevent the soft material from silting in the trench. The initial waterbar should be constructed at the top of the backslope. Subsequent waterbars should follow the following general spacing guidelines:

Slope (Percent)	Spacing Interval (Ft)
<2	200
2-4	100
4-5	75
>5	50

j. The lessee will drill seed on the contour to a depth of 0.5 inch, followed by cultivation to compact the seedbed, preventing soil and seed losses.
    i. Slopes too steep for machinery may be hand broadcast and raked with twice the specified amount of seed. To be effective, complete spring seeding after the frost has left the ground and prior to May 15. Fall or dormant seedings must be completed according to NRCS timing recommendations.

k. A Final Abandonment Notice must be submitted prior to a final abandonment evaluation by DNRC.

l. Soil fertility testing and the addition of soil amendments may be required to stabilize some disturbed lands.

m. Reduce the backslope to 2:1 and the foreslope to 3:1 unless otherwise directed by DNRC. Reduce slopes by pulling fill material up from foreslope into the top of cut slopes

n. The lessee shall seed all disturbed areas, using an agreed upon method suitable for the location. Seeding shall be repeated if a satisfactory stand is not obtained as determined by DNRC upon evaluation after the following growing season. The lessee shall seed all disturbed areas with the seed mixture(s) listed below unless otherwise approved by DNRC area office. The seed mixture(s) shall be planted in the amounts specified in pounds of pure live seed (PLS)/acre. There shall be no primary or secondary noxious weed seed in the seed mixture. Seed shall be tested and the viability testing of seed shall be done in accordance with State law(s) and within six months prior to purchase. The seed mixture container shall be tagged in accordance with State law(s) and available for inspection by DNRC.

o. Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area. Smaller/heavier

seeds have a tendency to drop to the bottom of the drill and are planted first. The lessee shall take appropriate measures to ensure this doesn't occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre noted below are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by DNRC. Evaluation of growth will not be made before completion of the second growing season after seeding. DNRC is to be notified a minimum of seven days prior to seeding of the project.

i. **Seed Mixture** (silty, clayey, or silt clay loams)

a) The combination must include at least four of the following species. Western wheatgrass must be included in the mix. Thickspike wheatgrass may be substituted for wheatgrass only when western wheatgrass in unavailable. Species and variety substitution may be approved by the DNRC Area Office.

Species of Seed	Variety	Common Name	Pound/acre PLS)*
Pascopyrum smithii	Rosanna	Western Wheatgrass	3.00
Pseudoroegneria spicata	Goldar	Bluebunch wheatgrass	2.00
Stipa viridula	Lodom	Green needlegrass	2.00
Elymus trachycaulus	Pryor	Slender wheatgrass	2.00
Stipa comata		Needle and thread	1.00
Bouteloua curtipendula		Sideoats Grama	2.00
Schizachyrium scoparium		Little bluestem	2.00

p. ** Pure live seed (PLS) formula: % of purity of seed mixture times % germination of seed mixture = portion of seed mixture that is PLS.*