

Environmental Assessment For

Powder River Gas, LLC

Castle Rock-Stevens Pan of Development (2005)

This site-specific analysis tiers into and incorporates by reference the information and analyses contained in the Final Statewide Oil and Gas Environmental Impact Statement-January 2003 (Final CBNG EIS) jointly prepared by the Bureau of Land Management (BLM), Montana Department of Environmental Quality (MDEQ), and the Montana Board of Oil and Gas Conservation (MBOGC) and adopted by the MBOGC on March 26, 2003, and the Programmatic EIS on Oil and Gas Drilling In Montana (Programmatic EIS), prepared under the supervision of the Office of the Governor and adopted by the MBOGC on December 28, 1989.

Proposed Action – Title: Powder River Gas LLC (PRG) Castle Rock-Stevens Plan of Development.

Location of Proposed Action

The proposed Plan of Development (POD) includes Coal Bed Natural Gas (CBNG) development drilling in Sections 5-8, 18 and 19, Township 6 South, Range 48 East, and Sections 1,12,13, and 24, Township 6 South, Range 47 East, Powder River County, Montana. The surface and a significant portion of the mineral ownership in the project area are private. All minerals within the nominal eighty (80) acre spacing units being drilled and produced are privately owned. PRG proposes to drill 284 CBNG wells to test and produce water and natural gas from the Cook/Otter, Pawnee, Sawyer Knobloch, and Terret/Stag coal seams. The proposed action is the drilling and production of 284 CBNG wells.

Purpose and Need

The proposed action involves the development of CBNG resources believed to exist within the project. The lands involved are fee lands, all under oil and gas leases. Recovery of natural gas resources is a direct benefit to the mineral owners, both public and private, to state and local governments, and public schools as recipients of tax receipts. Natural gas has become a fuel of choice for environmental reasons and national demand as well as the price received for this commodity has increased substantially during recent years. This Environmental Assessment (EA) will determine the applicability and sufficiency of the overarching Environmental Impact Statements (EIS), the extent to which the EIS's adequately describe and mitigate impacts, and the need for appropriate site-specific mitigation.

Description of the Proposed Action

The Castle Rock-Stevens project was initiated with submission of the PRG Castle Rock-Stevens POD. All of the proposed 284 wells will be under the regulatory jurisdiction of the MBOGC.

The Proposed Action includes the use of existing infrastructure as well as proposed new installations. Construction of about 22.05 miles of two-track access road, approximately 9.73 miles of new voluntarily proposed corridor with co-located water, gas, and power lines are to

minimize surface disturbances, and 4.41 miles of proposed crown and ditch road. Four Central Distribution Points are also proposed for construction. There are thirty six (36) evaporation and eighteen (18) containment/storage ponds proposed to support the management of the water produced in association with natural gas produced from various underground coal seams. Wells will be drilled, one per coal bed, on shared sites with four wells located on a common well site (or “pad”) to develop the Cook/Otter, Pawnee, Sawyer Knobloch, and Terret/Stag coal seams.

Wells are expected to be drilled with truck-mounted, water well type rigs; because this type of rig can be set on uneven terrain, the surface is generally not bladed nor will a pad site be constructed unless topography requires it. An 80-foot by 150-foot area is typically mowed to accommodate the rig, and small reserve pits, approximately 35 feet long x 35 feet wide x 12 feet deep are constructed to serve the drilling wells on that site. A total of approximately one acre is required for up to four wells drilled on a site. After setting surface casing, the wells are completed using 7” steel well casing set and cemented to surface from the top of the target coal bed. Small diameter tubing and an electric submersible pump are installed in the well. Topsoil is stripped and saved during any surface disturbing operations and used for reclamation of the disturbed area. PRG intends to equip producing wells with telemetry systems to reduce traffic at individual sites by pumpers. In addition, travel to well sites during wet or soft ground conditions will be restricted to emergencies.

Well heads, compressors, and other surface facilities will be equipped with appropriate frost boxes painted an unobtrusive color and fenced to protect against damage by cattle. Electric flow devices or chart recorders will measure natural gas and water production.

PRG has submitted a surface use plan, water management plan, and reclamation plan as required in the March 26, 2003 MBOGC Record of Decision. The POD for this project includes a number of maps and exhibits that are available for public inspection at the MBOGC offices in Helena and Billings.

Hearing Process and Public Involvement

PRG submitted its Castle Rock-Stevens POD to the MBOGC on April 7, 2005 as Docket No. 184-2005. The Castle Rock-Stevens POD was approved by the MBOGC on April 28, 2005 by Order 151-2005. Also approved in this order was the change of spacing for the coal seams to one well per seam per 80-acres. The MBOGC 2003 Record of Decision (ROD) and MBOGC Order 99-99 apply to this proposed action. Order 99-99 was established by the MBOGC to recognize the Montana Department of Natural Resource (MDNRC) Controlled Ground Water Area for the Powder River Basin and to establish minimum requirements for information to be considered at a public hearing. PRG’s application complies with the information submission requirements of both the ROD and Order 99-99. However, the order requires that the operator prepare a groundwater monitoring plan and that the plan be approved by the Technical Advisory Committee.

Public Hearings are advertised in the statewide *Helena Independent Record* and the official newspaper of the county in which the proposed operations are to take place. In addition, notice of the public hearing is mailed to the MBOGC’s mailing list and a notice is published on its web site. The applicant, in matters affecting the permanent spacing of wells, must give actual notice to water rights holders of record within one-half mile of the external boundaries of the proposed project area. The proposed project has fulfilled standard public notice requirements.

Other Regulatory Requirements

Table 1-1, page 1-14 of the Final Statewide Oil & Gas EIS identifies the applicable permits and reviews for CBNG activities and the agencies responsible for each; Table 1-2 of the same document identifies the permissible activities associated with CBNG development. Approval of PODs must be made by the BLM for federal interests and by the MBOGC for state and fee lands under the preferred alternative adopted by both agencies in the Final Statewide Oil & Gas EIS. In this case, 284 proposed wells are under MBOGC jurisdiction and all the wells are located on fee minerals and surface. Water discharge permits, air quality permits and storm water discharge permits are the responsibility of the MDEQ.

Alternatives

Alternatives present different management options to address the relevant major issues related to the proposed action. A no action alternative was considered in the 2003 Montana Statewide EIS. Under this alternative no proposed wells in the Castle Rock-Stevens POD Area could be drilled. Taking no action on the current proposal would prohibit the lawful recovery of private property (i.e., coal bed natural gas). The 2003 Montana Statewide EIS also considered other alternatives, including a Preferred Alternative which is consistent with PRG's proposed Castle Rock-Stevens POD.

For the subject analysis, Alternative A is the "No Action" Alternative. In this alternative no approval would be issued for the POD and no wells would be drilled or produced. This alternative was included to provide the required basis for comparison with Alternative B, the "Proposed Alternative."

Alternative B is the operator's proposed action. Under this alternative, PRG's Castle Rock-Stevens POD would be approved, including drilling and production of the 284 fee wells and construction of the associated infrastructure. This alternative was developed to analyze full implementation of PRG's proposal, while incorporating mitigating measures identified during project review that would avoid or reduce impacts to area resources. Alternative B is the agency's preferred alternative.

Table 1 presents a descriptive summary of the two alternatives considered.

Alternatives considered but eliminated from Detailed Analysis

The alternatives below were considered for resolving planning questions or issues, but were not analyzed in detail because of technical, legal, or other constraints.

Injection of All Produced Effluent: This alternative was suggested as a means to reduce the amount of water requiring treatment or surface disposal. But the feasibility of re-injection of produced water is quite variable and site specific. Furthermore, the regulatory burden for injection into shallow, drinking water aquifers requires a lead time of a year or more before permit approval. For these reasons, injection of produced water is proposed as one of multiple water management techniques. During the development process the operator may seek to evaluate potential injection zones for technical and economic feasibility. Where appropriate, re-injection of produced water will be utilized as one of the water management options.

Phased Development: This alternative was suggested as a means to reduce the amount of environmental impact by spreading development over a long period of time. Phased development of CBNG was not considered because of several important concepts that are relevant to the CBNG industry, including the protection of correlative rights, prevention of waste, and because phased development is implicit in the permitting process. Discussion on each of these concepts is presented below:

- **Protection of Correlative Rights:** The Montana Board of Oil and Gas Conservation (MBOGC) is required to protect correlative rights so as to minimize drainage of minerals by off-lease drilling and production. Drainage can be prevented by minimum set-backs from lease boundaries and mirror-image locations off-setting location exceptions. Another way drainage is prevented is the express freedom to drill any legal locations. Two contiguous tracts must be equally drillable or drainage may occur by the first well to be drilled; if the offsetting well is delayed, such as by a phased development restriction on the number of CBNG wells per year, drainage could occur.
- **Prevention of Waste:** MCA Section 82-11-111(1) provides: “The board shall make such investigations as it considers proper to determine whether waste exists or is imminent or whether other facts exist which justify action by the board under the authority granted by this chapter with respect thereto.” Waste is defined at 82-11-101(16) as follows:

(16) (a) “Waste” means:

- (i) physical waste, as that term is generally understood in the oil and gas industry;
 - (ii) the inefficient, excessive, or improper use of or the unnecessary dissipation of reservoir energy;
 - (iii) the location, spacing, drilling, equipping, operating, or producing of any oil or gas well or wells in a manner which causes or tends to cause reduction in the quantity of oil or gas ultimately recoverable from a pool under prudent and proper operations or which causes or tends to cause unnecessary or excessive surface loss or destruction of oil or gas; and
 - (iv) the inefficient storing of oil or gas. (The production of oil or gas from any pool or by any well to the full extent that the well or pool can be produced in accordance with methods designed to result in maximum ultimate recovery, as determined by the board, is not waste within the meaning of this definition.)
- (b) The loss of gas to the atmosphere during coal mining operations is not waste within the meaning of this definition.

The thrust of the Board’s responsibility, as defined in the statutes quoted above, is to assure efficiency and prevent waste in the production of oil and gas resources including CBNG. To the extent that requiring a particular operator or operators to phase production by deferring development in one or more areas could cause waste; in the case of CBNG development, restricting an operator’s number of wells could cut the efficiency of the operator’s dewatering plans and reduce ultimate CBNG recovery. The Board not only has no authority to enter such an order, the order would violate the Board’s duties.

- **Implicit Phased Development:** The MBOGC as well as other state and federal regulatory agencies have CBNG permit mechanisms in place to cover drilling and pit construction that must be satisfied before development can occur. These permitting mechanisms require ongoing analysis to allow development to continue. The MBOGC’s position is that these permitting mechanisms implicitly phase development of the

resource. This implicit phasing of development, which comprises the Preferred Alternative, also achieves the board's objective of managing resource conservation and development.

Cumulative Actions

Cumulative effects are the result of impacts from other past, present, or reasonably foreseeable future actions that would overlap in time and locale with the direct effects of the proposed action or alternatives, thus resulting in "cumulative effects" distinctly different (greater or less) than the direct effects. The actions listed below have been considered as potential contributors to cumulative effects.

- **Conventional Oil Wells:** There are six abandoned conventional oil wells within the project area. They were never productive and are all registered as cement-plugged wells.
- **Existing Montana CBNG Development:** According to the MBOGC website, October 7, 2005, approximately 14 CBNG wells have been drilled in Powder River County. Status of these wells includes drilling, shut-in, producing, and completed. Currently 5 of these wells are considered to be in production. All of these wells are considered to be wildcat wells.
- **Gravel/Scoria Pits:** Some gravel or scoria would be used to surface project area roads and would come from already permitted mineral material sites. Surface disturbance associated with gravel or scoria mining would not exceed existing permit limits. The potential for cumulative or connected impacts from mineral material excavation is minimal.
- **Existing Wyoming CBNG Development:** According to the Wyoming Oil and Gas Conservation Commission website, June 1, 2005, 26,353 CBNG wells have been drilled in the state. These wells range in status from spudded, producing through abandonment. Generally, the State of Wyoming CBNG development has occurred since the early 1990's, most located in the Powder River Basin of north central/eastern Wyoming. The CBNG development is primarily located between the cities of Gillette and Sheridan.

Specifically, according to the WOGCC from 2002 to 2005, the Upper Tongue River Basin has been predicted to cumulatively have 4,281 wells drilled and 63,630 acre feet of produced water (2002, 2003, 2004, and 2005 January to March, is actual data and 2005 from March on, is predicted).

The scope and nature of the Wyoming CBNG development, as well as its distance from the PRG project, would not likely create cumulative impacts to resources in the PRG project area. No cumulative impacts to water quality are likely because no discharge of produced water is occurring from the proposed project.

Affected Environment and Environmental Consequences

PRG's Castle Rock-Stevens Plan of Development covers lands in southeastern Powder River County, Montana. The area is in the northwestern portion of the Powder River Basin and lies on the divide between the Tongue River and Powder River watersheds. Surface use agreements and

water well mitigation agreements have been accepted by or offered to, all private landowners in the project area.

Air Quality

Air pollution is regulated under the Federal Clean Air Act and under Montana laws implemented by the MDEQ. The project area is in a PSD Class II area, which allows for moderate, controlled air impacts.

Air quality could be impacted by suspended particulate matter generated during drilling and production primarily due to dust associated with travel on unimproved roads; emissions from drilling rig engines, field and main compressor facilities, and venting gas during testing of wells prior to hookup.

Air quality regulations require certain new or existing modified air pollution emission sources (including CBNG compression facilities) to undergo a permitting review before construction can commence. The MDEQ has the primary authority to review and require permits and/or control devices prior to construction. A source emitting less than 25 tons of any regulated pollutant, excluding hazardous air pollutants, without controls does not require a permit. This proposed POD, however, anticipates the installation of up to four new compressors to meet the anticipated compression requirements of the project. At this level of compression, it does not appear that a MAQP would be required. However, if additional compression is needed, the operator may need to obtain a MAQP for applicable emissions.

Mitigation proposed by the operator includes implementation of speed limits on unpaved roads to reduce dust emissions, installation of equipment to minimize travel to individual well sites, and use of natural gas to fuel compressor engines. Gas venting is minimized by a MBOGC regulatory requirement prohibiting venting of commercial quantities of gas. Some gas emission from well testing prior to hookup, boreholes drilled as monitor wells, mineral exploration holes and other holes of unknown origin may occur. The operator is required to plug such emission sources, and PRG has demonstrated its willingness to promptly report and plug these sources.

The drilling of CBNG wells, although a temporarily intense activity, is of relatively minor concern for air impacts because of the limited time that drilling actually occurs. The water well rigs employed are smaller than those commonly used to drill conventional oil and gas wells in the state and do not have high horsepower engines. Typically, no more than 1-2 days are required to drill a well to the depths proposed. Air Quality impacts are not expected to be significant and the operator's proposed mitigation measures are adequate. MDEQ permitting requirements mitigate longer-term impacts from point sources such as compressor engines.

Water Quality and Quantity

The Castle Rock-Stevens Project lies on the divide between the Tongue River and Powder River watersheds in an area that receives an average of approximately 12 inches of annual precipitation. The project area is approximately 35 miles south-east of Ashland, Montana. As required in the MBOGC ROD, a water management plan for the project has been prepared by Western Land Services, Inc. (WLSI) and is incorporated into this EA by reference.

PRG expects the initial water production from the new wells proposed in this project will be approximately 25.5 gallons per minute (GPM) declining by approximately 40% per year based upon historic effluent production data collected from active CBNG fields located in Wyoming

and south-eastern Montana. The proposed 284 development wells will initially add a maximum of approximately 7,242 GPM of produced water. PRG proposes three water management options for the Castle Rock-Stevens project: total containment/evaporation, storage retrieval/injection and storage/treatment/land application. PRG will utilize one or a combination of these options after water quality and quantity values have been established. Each option will be developed and will be initiated to comply with Local, State, and Federal regulatory guidelines, rules and regulations. Any new storage or evaporation off-channel impoundments will be located in upland locations and sited to avoid interfering with natural runoff channels and to avoid capture of water that would otherwise travel to downstream water rights holders.

Water well mitigation agreements have been offered to all owners of registered wells/springs within one mile of the project boundary. An inventory of springs and water wells is attached to the water management plan. According to state records, there are ten stock water wells and two developed springs within the POD area and eight permitted water wells and two springs are located within one mile of the POD boundary.

The Hydrology and Groundwater section of the Final Statewide Oil & Gas EIS discusses the Powder River Basin groundwater, surface water, and stratigraphy in detail. The stratigraphic section in the project area includes alluvial aquifers under and near stream channels, the coal aquifers, and the impermeable aquitards that impede or eliminate vertical movement of water between coal aquifers. Monitoring reports document the effect of CBNG water withdrawal as well as the compartmentalized nature of the coal aquifers due to faulting in the Powder River Basin of Montana. Many faults are visible at the surface and have been mapped by geological researchers. These down-to-the-basin faults have been shown to retard or prevent the movement of water (and gas) across the fault boundary; as a result, draw-downs of water pressure in the aquifer are not uniform. Local groundwater chemistry is described in the water management plan while regional groundwater quality is characterized in the Final Statewide Oil & Gas EIS.

The proposed water management plan relies on three methods of water management. The potential impacts of each are described in the Final Statewide Oil & Gas EIS. Water well mitigation agreements effectively guarantee replacement of water if the well owner is adversely impacted. The nature of groundwater reservoirs in the project area minimize any potential impacts that water withdrawn from coal seams would have on users of shallow alluvial aquifers.

Soils, Vegetation, Land Use

Fort Union and Wasatch Formations are at the surface in the Castle Rock-Stevens project area; the Fort Union is the older of these two Tertiary-aged formations and is composed of sandstone, siltstone, clay-shale, impure limestone, and coal while the Wasatch Formation is composed of light colored massive sandstones, drab colored shale, and lignite. Erosion in the project area has created a rugged, badland topography where the more resistant sandstone and scoria (“clinker”) form hills and buttes. Increased precipitation during Modern and Pleistocene climate episodes increased surface water flows and created isolated alluvial terraces and gravel-capped benches.

Soils in the project area are described in the Soils Appendix of the Final Statewide Oil & Gas EIS and consist primarily of shallow to very deep, well drained soils formed in-situ of materials weathered from silty clay and silty shale bedrock. Due to the variability of topography and bedrock, soil groups vary throughout the project area. Soil K-factors for the project area indicate medium to high runoff and moderate to severe erosion potential for disturbed soils. Specific soil information and a soils map are included in the POD. Principle vegetation in the area includes grassland (approximately 70%), forest (approximately 20%), and shrub-land (approximately

10%). PRG proposes the possibility of utilizing managed irrigation as part of its water management plan.

The proposed CBNG development activity includes surface disturbance required to construct gas and water handling infrastructure, drill wells and construct access roads. Approximately 22.05 miles of new 2-track road will be constructed as described in the POD. Applicant has located proposed construction activities to avoid steep slopes and surface disturbance that would require removal of trees. Specific road locations, surfacing requirements and final or intermediate reclamation of disturbed areas and roads on private land is subject to consultation between PRG and the landowner. However, MBOGC rules require stockpiling of topsoil as well as prompt re-vegetation of disturbed areas. Reseeding of disturbed areas will be done with a seed mix acceptable to the owner; without specific instructions from the landowner, BLM or National Resource Conservation Service (NRCS) recommended seed mixtures will be utilized. No important cumulative or irreversible impacts to existing land use or to soils are expected from the proposed action. The operator is responsible for construction of erosion/sedimentation controls during construction and production operations.

Health Hazards/Noise

CBNG produced in this area of Montana does not appear to contain H₂S or other contaminants that could impact public safety and health. The almost pure methane produced from Powder River Basin CBNG wells is lighter than air and does not accumulate in low areas; therefore there is little exposure hazard to the public. Closed buildings and frost-boxes around well-heads may allow accumulations of gas, however, these facilities are generally off-limits to the general public. CBNG operators have established strictly enforced no-smoking policies and other operating procedures to avoid fire or explosion hazards to their employees and authorized visitors. Tank batteries and compressor buildings are equipped with combustible gas detectors.

Noise due to drilling CBNG wells is of a short-term nature and of relatively low level as the water-well type drilling rigs used are smaller and have smaller engines than conventional oil or gas drilling rigs (the 1989 Programmatic EIS describes typical drilling rigs used in Montana). CBNG rigs commonly operate only during daylight hours. CBNG wells in the Montana portion of the Powder River Basin typically take only 1-2 days to drill. Field compressors are a source of noise and operate on a continuous basis. Up to four compressors are proposed in this POD, although the actual number of compressors will depend on the level of gas production. The operator has voluntarily agreed to take reasonable precautions to locate compressors away from residences and beneficially utilize the natural topographic setting to minimize noise impacts to the area.

In addition to human residents, noise could affect wildlife. The Final Statewide Oil & Gas EIS and especially the Biological Opinion Appendix discuss impacts to Threatened and Endangered Species from noise disturbance. The relatively short duration drilling operation and construction activities may have noise levels that could impact noise sensitive populations; however, ongoing CBNG production and associated maintenance activities would have little noise impact. PRG will locate battery facilities and field compressors to avoid identified sensitive habitat. The operator also agrees to avoid construction or drilling activities within a quarter-mile of sage grouse or sharp tail grouse leks during the nesting season to protect these species from noise disturbance during this critical period.

Wildlife/Recreation

Western Land Services of Sheridan, WY prepared the 2005 Wildlife and Habitat Review of the Castle Rock-Stevens area for PRG. The MBOGC does not have authority to require private landowners to implement any special wildlife stipulations, acquiesce to third party surveys, or to provide habitat for wildlife. However, the operator has done a baseline survey that includes the entire PRG project area. There are no known threatened, endangered or special status species in the project area.

The impact that the Castle Rock-Stevens project will have on recreation areas is expected to be minimal due to the fact that the project is made up of privately owned land. The impact that is created due to this project will be negotiated between PRG and the land owner. The agreement will mitigate impact to the satisfaction of the land owner.

Historical/Cultural/Paleontological Resources

The MBOGC cannot require archeological/cultural surveys on private property, as the underlying laws generally do not apply to private property. The Castle Rock-Stevens project is located on fee lands, where the surface and mineral rights are held by private individuals and the records were reviewed (Western Land Services, 2005) as part of the POD process.

The Ethnographic Overview of Southeast Montana prepared by Peterson and Deaver (2002) for the Final Statewide Oil & Gas EIS provides a current inventory of historical and cultural sites of the project area obtained from the Montana Historical Preservation Office database. The area has seen limited archeological reconnaissance; three projects were undertaken between 1982-2003, which were documented by Western Land Services for the Castle Rock-Stevens POD (Western Land Services 2005). A description of the affected archaeological environment is difficult to determine at this point as only a very small portion of the project area has undergone archaeological inventory.

Social/Economic

Social and economic impacts of CBNG development are discussed in the 2003 Statewide Oil & Gas EIS and in the Socioeconomic Appendix to the EIS. Additional demands on governmental services, impacts on county facilities, and significant relocation or population increases are not expected to result from approval of the proposed action. Increase in natural gas production from the project area is likely, resulting in a significant increase in both state and county tax income. Royalty owners will also benefit from natural gas production. Natural gas is expected to increase in value due to potential market shortfalls and increasing demand for gas as both a space heating fuel and as a fuel for generation of electricity. Approval of the proposed action will increase gas reserves and production in Powder River County.

Remarks/Special Concerns

The proposed action involves the drilling of a total of 284 wells, all of which are fee (on privately owned minerals) wells. The proposed action includes construction of infrastructure needed to produce the proposed wells.

Monitoring of water withdrawals and reporting of production is required as part of the MBOGC's regulatory program. Additionally, monitoring requirements will be established for the Castle Rock-Stevens project. As data from the wells is obtained an annual groundwater monitoring

report will be required. The Technical Advisory Committee established by DNRC’s Controlled Groundwater Area for the Powder River basin reviews the monitoring plan and report(s).

Sections 82-11-172 MCA, through 82-11-174, MCA, known as the “Coal Bed Methane Production Offset Act”, requires the MBOGC to issue drilling permits to protect lands under its jurisdiction from drainage by wells permitted by agencies/lands not under its jurisdiction. This Castle Rock-Stevens project area does not include lands not under MBOGC jurisdiction (federal lands). Production from adjacent or nearby lands not under the jurisdiction of the MBOGC may, however, cause drainage from fee lands unless protective Castle Rock-Stevens wells are promptly permitted and drilled.

Summary: Evaluation of Impacts and Cumulative Effects

The 2003 Statewide Oil & Gas EIS identified and analyzed the cumulative effects of CBNG development in the Powder River Basin region. The CX field and environs formed the analogue for analysis used in the EIS, as it is the only source of CBNG project level data available in Montana. The Castle Rock-Stevens field is north east of the CX field and lies within the same environmental setting. The EIS is directly applicable to the proposed action and accurately identifies impacts and mitigation appropriate to this EA analysis. The following table summarizes impacts and mitigation applicable to the Castle Rock-Stevens project:

Resource	Summary of Impacts and Mitigation	
	Alternative A - No Action	Alternative B - Proposed Action
Air Quality	No change from existing conditions	Minimal impact from well drilling operations due to short duration; air permit requirements mitigate impacts from significant point sources: voluntary speed limits, minimization of traffic to individual wells mitigate fugitive dust impacts. This proposed action does not significantly increase air quality impacts.
Water Quality and Quantity	No change from existing conditions	New off channel containment impoundments are proposed and enlargement of existing impoundments may be required in the future. MBOGC inspectors will periodically monitor sites. Cumulative effects on groundwater quantity are limited to the coal zones being produced; water well mitigation agreements protect groundwater appropriators; DNRC Controlled Ground Water Area order outlines jurisdiction and procedure for the area. Overall impacts to water quantity and quality are mitigated below the level of significance for the proposed action.

Resource	Summary of Impacts and Mitigation	
	Alternative A - No Action	Alternative B - Proposed Action
Soils, Vegetation, Land Use	No change from existing conditions	Short-term damage to vegetation and some disruption of existing land use is expected. The operator has proposed a minimum number of surfaced roads; MBOGC requirements for prompt re-vegetation of disturbed areas minimize overall and cumulative effects. Operator has negotiated surface use agreements that cover land uses proposed in the project area. No significant impact to these resources is expected.
Health Hazards/ Noise	No change from existing conditions	No long-term impacts are expected due to the operator's selection of sites to minimize impacts. Short-term impacts related to noise levels during drilling and construction activities are less than those described in the 1989 Programmatic EIS. Operator has substantive programs intended to protect safety of workers and public.
Wildlife/ Recreation	No change from existing conditions	Operator will install devices to discourage raptor roosting on power poles within 1/4 mile of active leks and will use raptor protective power line structure where underground utilities are not practical. Voluntary vehicle speed limits are also protective of wildlife. With the voluntary mitigation, wildlife impacts due to approval of the proposed action are not considered significant or long term.
Historical/ Cultural/ Paleontological Resources	No change from existing conditions	Cultural and historical resource surveys have been conducted on nearby lands as part of the 2003 Montana Statewide Oil and Gas EIS. Although antiquities laws generally do not apply to private landowners, the operator has voluntarily agreed to consult with the surface owner and halt construction if resources are discovered on private land.

Resource	Summary of Impacts and Mitigation	
	Alternative A - No Action	Alternative B - Proposed Action
Social/Economic	No change from existing conditions	Some short-term impacts to private landowners/residents of the area are expected; relocation or population increases are not expected. Positive impact to state and county tax base is likely. Royalty owners will benefit from the proposed action. Most adverse impacts occur during drilling and infrastructure construction and are short term. No significant increase in demand for local government services or long-term adverse impacts are likely from this project approval.
Remarks/ Special Concerns	No change from existing conditions	Monitoring requirements will be established for the Castle Rock-Stevens project. Once data from the wells is obtained an annual groundwater monitoring report will be completed. The applicant has offered surface use agreements and water well mitigation agreements for the project area, as required. Production from nearby lands not under the jurisdiction of the MBOGC "Coal Bed Methane Production Offset Act", such as federal wells, may cause drainage to private landowners unless the offsetting protective wells are promptly permitted and drilled.

Contacts and References:

- Final Statewide Oil and Gas EIS, adopted March 2003 (MBOGC, MDEQ, BLM)
- Final Programmatic EIS, Adopted December 1989 (MBOGC)
- Montana 2002 and 2003 Baseline Wildlife Inventory (Hayden-Wing Associates)
- Environmental Assessment Coal Creek Field Project – August 2005
- Environmental Assessment Dietz Project – September 2005
- Plan of Development Castle Rock Project – April 2005