

CHAPTER 1
PURPOSE AND NEED

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CHAPTER 1

PURPOSE AND NEED

1.0 INTRODUCTION

The Atlantic Rim Natural Gas Project (ARPA) began in 2000 with a 96 coal bed natural gas (CBNG) well proposal submitted by Stone & Wolf. A scoping notice describing the 96 well project was mailed out to the public on February 25, 2000. During the preparation of the environmental assessment for its CBNG exploration program, Stone & Wolf sold its operating rights to Petroleum Development Corporation (PEDCO) and Warren Resources Incorporated (WRES). In addition to the Stone & Wolf properties, PEDCO / WRES had also acquired additional lease holdings on private and federal lands located north of the Stone & Wolf proposal. PEDCO / WRES notified BLM on May 3, 2001, they wished to withdraw their application for the 96 well project.

In June of 2001, the Atlantic Rim operators submitted to the BLM, Rawlins Field Office (RFO), that they proposed to explore and develop coalbed natural gas (CBNG) resources located within the administrative boundary of the BLM's RFO in Townships 13 through 20 North, and Ranges 89 through 92 West, Carbon County, Wyoming. Upon review of the new proposal, the BLM determined the increase in CBNG well numbers and the level of development activity could potentially result in significant impacts and that an environmental impact statement (EIS) would be necessary.

The newly proposed Atlantic Rim CBNG project was scoped commencing on June 14, 2001. The project area encompasses approximately 270,080 acres, of which 173,672 (64.3%) acres are federal surface, 14,060 acres (05.2%) are State of Wyoming lands, and 82,348 acres (30.5%) are private or fee surface. In the scoped proposal in 2001, PEDCO and the other operators proposed a maximum of 3,880 CBNG wells to be drilled in the ARPA area. The number of wells was calculated by estimating 8 wells / section (80 acre) spacing throughout the entire ARPA (Appendix M: 2001 Project Area). Drilling was projected to last for approximately 6-10 years, with a life-of-project (LOP) of 20-30 years. In December 2002, WRES entered into a partnership with Anadarko Petroleum Corporation (APC) for the exploration and potential development of the ARPA. At that time, APC became the lead proponent of the ARPA EIS document.

Interim Exploration Drilling Program (IEDP)

In 2001 to obtain additional data and to allow for interim drilling concurrent with the preparation of the DEIS, an Interim Exploration Drilling Program (IEDP) was developed by the RFO in conjunction with the BLM's Reservoir Management Group (RMG) describing the criteria for which interim drilling would be allowed (see Appendix A, Interim Drilling Policy). A maximum of 200 exploration CBNG wells in nine Plan of Development (POD) locations would be allowed and a maximum of 24 CBNG wells drilled within any one POD (Appendix M: 2001 Project Area). Individual PODs were subsequently analyzed by the BLM through NEPA for effects and significance and separate decisions made for each POD (Table 1-1). Currently only six of the nine PODs have been analyzed with an environmental assessment, FONSI and Decision Record issued for each. The operators have not submitted proposals to the BLM for the 3 remaining PODs.

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Table 1-1. Current POD Status and General Location.

EA/Pod Name	Date of Decision Record	General Location
Pod #1 No Name	No proposal submitted	T20N-R89W
Red Rim	04-30-04	T20N-R89W
Jolly Roger Alpha	12-14-04	T18 &19N-R90W
Jolly Roger Beta	No proposal submitted	T18 &19N-R90W
Doty Mountain	02-06-04	T17N-R91W
Blue Sky	7-26-02	T15N-R91W
Sun Dog/Cow Creek	12/21/01 & 6-26-02	T16N-R90 & 91W
Brown Cow	12-12-03 Phase I	T14N-R90 & 91W
Muddy Mountain	No proposal submitted	T14N-R90W

The primary objective of the exploratory drilling was to drill, complete, and produce CBNG wells to determine:

- gas content and productivity of the coals,
- what density of wells is needed to effectively dewater coal formations and produce natural gas,
- if produced water can be effectively disposed of through re-injection,
- which drilling and completion techniques are economical,
- water quality, connectivity to surface waters, and
- and to what depths or pressure windows may be preferred to target economic gas production.

1.1 PROJECT DESCRIPTION AND LOCATION

1.1.1 Description

Anadarko Petroleum Corporation of Houston, Texas, has submitted to the Bureau of Land Management (BLM), Rawlins Field Office, that they and other operators (including Double Eagle Petroleum and Mining Company, and Warren Resources, Inc.), hereafter referred to as “the Operators”), a proposal to explore and develop coalbed natural gas (CBNG) resources located within the administrative boundary of the BLM’s Rawlins Field Office. The Operators have proposed to drill, complete, and operate approximately 2,000 new natural gas producing wells, of which 1,800 wells would be CBNG production from Mesaverde coals and 200 wells would be production from deeper conventional formations. Drilling is expected to occur over approximately 20 years, with an estimated life-of-project (LOP) of 30-50 years.

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During preparation of this environmental impact statement (EIS) exploratory drilling on an interim basis has taken place with the approval of the BLM within the Atlantic Rim Project Area (ARPA). The Operators needed to conduct exploratory drilling to define the gas resource and collect information used in the preparation of this EIS. Table 1-4 describes interim drilling pods and well status.

1.1.2 Location

The ARPA is located within the administrative boundary of the BLM's Rawlins Field Office. The proposed ARPA is generally located in Townships 13 through 20 North, and Ranges 89 through 92 West, Carbon County, Wyoming, as shown in Appendix M: Project Area Map and 2005 Proposed Action Project Area. The total project area encompasses approximately 270,080 acres, of which 173,672 acres are federal surface; 14,060 acres are State of Wyoming lands; and 82,348 acres are private surface (Table 1-1; Appendix M: Ownership).

Table 1-2. Surface Ownership of the ARPA.

	Area/Acres	%
Federal	173,672	64.3
State	14,060	5.2
Fee	82,348	30.5
Total	270,080	100.0

Surface ownership does not always correspond to mineral ownership. As detailed in Tables 1-2 and 1-3 the Federal government manages more mineral estate than surface estate. The BLM does not control or authorize mineral development on private or state lands except for those areas where BLM owns the mineral rights. In those cases where private or state land developments impact BLM through actions such as access across federally managed lands the BLM must analyze those proposals under NEPA prior to approving such actions.

Table 1-3 Mineral Ownership within the ARPA.

	Area/Acres	%
Federal	179,438	66.4
State	12,384	04.6
Private	78,258	29.0
Total	270,080	100.0

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Table 1-4. Interim Pods and Status within the ARPA.

Pod #	Name	Acres	Wells			Total	Project Status
			Gas	Injection	Monitor		
1	Not Planned	-x-x-	0				Dropped by Proponent
2	Red Rim	Pending	16	2		18	Approved 4/30/04
3	Jolly Roger Beta	-x-x-	0				Not Proposed to Date
4	Jolly Roger	5,120	26	2	1	29*	Approved 12/14/04
5	Doty Mtn.	1,920	24	2		26	Completed
6	Cow Creek	2,050	14	1	1	16	Completed
6	Sun Dog	1,000	10	1		11	Completed
7	Blue Sky	1,921	23	2	1	25	In-fill Drilling in Progress
8	Brown Cow	800	24	2		26	Completion Expected Fall 2005
9	Muddy Mtn						On Hold—Environmental Concerns

*number may drop

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1.2 PURPOSE OF AND NEED FOR ACTION

1.2.1 Purpose and Need for the Proposed Development

Exploration and development of federal oil and gas leases by private industry are an integral part of the BLM's oil and gas leasing program under authority of the Mineral Leasing Act (MLA) of 1920 as amended, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976 (FLPMA), the National Materials and Minerals Policy, Research and Development Act of 1980, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987.

The BLM oil and gas leasing program encourages development of domestic oil and gas reserves. Natural gas (including coalbed natural gas) is an integral part of the United States' energy future due to its availability and the presence of the existing market delivery infrastructure. By developing domestic reserves of clean burning natural gas, the U.S. would reduce dependence on foreign energy, such as natural gas from Mexico and Canada. The environmental advantages of burning natural gas rather than oil or coal were emphasized by the U.S. Congress and by the President when the Clean Air Act Amendments of 1990 were signed into law. In addition, the Energy Policy acts of 2001 and 2005 emphasize the development of domestic natural gas reserves for supply and economic stability.

To meet this growing demand, the National Petroleum Council projects that U.S. domestic gas production will increase from the 2002 level of 18 trillion cubic feet (TCF) to 21 TCF in 2025. The remaining demand will be met by imports of foreign natural gas, primarily from Canada. A portion of the increase in domestic supply is projected to be met by growth in production from nonconventional sources, including coalbed natural gas, from the Rocky Mountain region. Nonconventional production in the Rocky Mountain region (including Wyoming) is projected to increase by 0.7 TCF, from the 2000 level of 3.1 TCF to 3.8 TCF in 2020 (EIA 2001). In addition, the Report of the National Energy Policy Development Group states that 90 percent of electric power generation capacity additions between 1999 and 2020 are projected to be natural gas fueled. The quantity of natural gas consumed for power generation is expected to triple from 1999 to 2020 (NEP 2001). Production from the proposed Atlantic Rim Natural Gas Project could help meet this demand.

The purpose of, and need for, the proposed natural gas development is to exercise the lease holders' rights within the project area to drill for, extract, remove, and market gas products. Also included is the right of the lease holders within the project area to build and maintain necessary improvements, subject to renewal or extension of the lease or leases in accordance with the appropriate authority.

1.3 RELATIONSHIP TO POLICIES, PLANS, AND PROGRAMS

1.3.1 Conformance with the Great Divide Resource Area Management Plan EIS and Record of Decision

The document which directs management of the federal lands within the project area is the Record of Decision (ROD) and Approved Resource Management Plan (RMP) for the Great Divide Resource Area (USDI-BLM 1987, 1988, 1990). The BLM's Great Divide Resource Area RMP (USDI-BLM 1990) reviewed all public lands in the resource area and determined them to be suitable for oil and gas leasing and development, subject to certain stipulations. The proposed project is in conformance with management objectives and actions provided for in the

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ROD and RMP as detailed on pages 30 – 32 of that document. The Great Divide RMP is currently undergoing revision as the Rawlins Resource Management Plan.

1.3.1.1 Management Objectives

Management objectives applicable to the proposed action and include:

- To provide opportunity for leasing, exploration, and development of oil and gas while protecting other resource values.

1.3.1.2 Management Actions

Management actions applicable to the proposed action and alternatives include:

- The RMP states that the entire planning area is open to oil and gas leasing, subject to restrictions needed to protect resources. This action is in conformance with the Great Divide RMP.

1.3.2 Relationship to Other Plans and Documents

Other environmental analyses and plans completed or planned for completion in the immediate vicinity of the Atlantic Rim project area (Appendix M: Mineral Development Projects in the Vicinity) include the following documents:

- Little Snake River Conservation District (LSRCD) Watershed Management Plan.

The Proposed Action would be located within the LSRCD and pay ad valorem taxes to the district. The LSRCD is a subdivision of the State of Wyoming that receives its statutory authority from Title 11, Chapter 16 of the Wyoming Statutes. Statutory authorities and responsibilities of conservation districts include the development of comprehensive plans for range improvement and stabilization, soil and water conservation and flood control and the development of ordinances, rules and regulations to implement conservation plans. Conservation is defined as:

“... development, improvement, maintenance, preservation, protection and use of natural resources, and the control and prevention of flood water and sediment damages, and the disposal of excess waters” (WS 11-16-102 (iv)).

- Desolation Flats Natural Gas Field Development Project Environmental Impact Statement and Record of Decision (July, 2004). This natural gas development project area is generally located in Townships 13 through 16 North and Ranges 93 through 96 West in Carbon and Sweetwater counties. The total project area includes approximately 233,542 acres.

This EIS provides analysis of potential environmental impacts in the Desolation Flats project area, with development activities beginning in 2004 and surface disturbing activities continuing for 20 years. Natural gas production is estimated to span 30 to 50 years. Approved project components include 385 wells located on 361 locations with associated roads, pipelines, and ancillary facilities. Total new project related short-term disturbance is estimated at 4,923 acres. The ROD and EIS are available on the internet at <http://www.wy.blm.gov/nepa/rfodocs/desflats/desolationflats.htm>.

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- Continental Divide/Wamsutter II Natural Gas Development Environmental Impact Statement and Record of Decision. This natural gas development project includes the Continental Divide area combined with the Greater Wamsutter Area II and is referred to as the Continental Divide/Wamsutter II Project Area. The combined project area is generally located in Townships 15 through 23 North, Ranges 91 through 99 West, in Sweetwater and Carbon Counties, Wyoming. The total combined area encompasses approximately 1,061,200 acres.

This EIS provides an assessment of environmental impacts associated with development of natural gas resources in the Continental Divide/Wamsutter II natural gas producing area. The project entails the development of natural gas resources beginning in 1999 and continuing for approximately 20 years, with a project life of 30 to 50 years. Well defined predictions on the total number of wells and timing of drilling operations are not currently available due to the lack of natural gas exploration in much of the project area. The BLM and Continental Divide/Wamsutter II Operators estimate that up to 3,000 well locations may be developed on federal and private lands within the project area. Various associated facilities (e.g., roads, pipelines, power lines, water wells, disposal wells, evaporation ponds, compressor stations, etc.) would also be constructed. The Record of Decision is available for review on the internet at <http://www.wy.blm.gov/nepa/rfodocs/CDWRODEIS.pdf>.

- Creston/Blue Gap Natural Gas Project Environmental Impact Statement (USDI-BLM 1994). This EIS was approved on October 4, 1994, and provided an assessment of the environmental consequences of a proposed natural gas development located west of the Atlantic Rim area. The BLM's decision allowed a maximum of 275 wells on 250 locations on a 160-acre spacing pattern. Impacts associated with this proposed development will be included in the cumulative impacts analysis in the Atlantic Rim EIS.
- South Baggs Area Natural Gas Development Project Environmental Impact Statement (USDI-BLM 1999, 2000). This EIS was approved on August 8, 2000, and provided an analysis of the environmental consequences of a proposed natural gas development located south of the Atlantic Rim area. The BLM's decision allowed a maximum of 50 wells on 50 locations on a 160-acre spacing pattern. Impacts associated with this proposed development will be included in the cumulative impacts analysis in the Atlantic Rim EIS.

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DEPARTMENT OF THE ARMY	
U.S. Army Corps of Engineers	Issues (Section 404) permit(s) for placement of dredged or fill material in, or excavation of, waters of the U.S. and their adjacent wetlands.
WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY	
Water Quality Division	<p>National Pollution Discharge Elimination System (NPDES) permits for discharging waste water and storm water runoff.</p> <p>Conformance with all surface water standards; permit to construct and permit to operate.</p> <p>Permits to construct settling ponds and waste water systems, including ground water injection and disposal wells.</p> <p>Regulate disposal of drilling fluids from abandoned reserve pits.</p> <p>Administrative approval for discharge of hydrostatic test water.</p>
Air Quality Division	New Source Review (NSR) Permit: All pollution emission sources, including compressor engines and portable diesel and gas generators.
WYOMING STATE ENGINEER'S OFFICE	
	<p>Issues permits to appropriate groundwater and surface water.</p> <p>Issues temporary water rights for construction permits to appropriate surface water.</p>

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WYOMING STATE HISTORIC PRESERVATION OFFICE	
	Provides consultation concerning inventory of, and impacts to, cultural resources.
CARBON COUNTY	
	<p>Grants small wastewater system permits, where applicable.</p> <p>Issues driveway access permits where new roads intersect with county roads.</p> <p>Prepares road use agreements and/or oversize trip permits when traffic on county road exceeds established size and weight limits or where the potential for excessive road damage exists.</p> <p>Issues construction and conditional use permits for all new structures.</p> <p>Administers zoning changes where applicable.</p> <p>Control of noxious weeds.</p> <p>Permits to bore or trench county roads or for any crossing or access off a county road.</p>

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WYOMING OIL AND GAS COMMISSION	
	<p>Acts as primary authority for drilling on state and privately held mineral resources, and secondary authority for drilling on federal lands.</p> <p>Holds authority to allow or prohibit flaring or venting of gas on private or state owned minerals.</p> <p>Regulates drilling and plugging of wells on private or state owned minerals.</p> <p>Issues Aquifer Exemption Permit.</p> <p>Approves directional drilling.</p> <p>Administers rules and regulations governing drilling units.</p> <p>Water injection well permits</p> <p>Grants gas injection well permits.</p> <p>Administers drainage protection and protection of correlative rights on private/state mineral estate.</p>

1.5 PUBLIC PARTICIPATION

The Atlantic Rim Coal Bed Natural Gas scoping period commenced in June, 2001 and ended on July 25, 2001. Among those contacted were State and Federal agencies, State and local elected representatives, municipalities, Native American Tribes, grazing permittees, Lease and right-of-way holders, landowners within the ARPA, local media, and other agencies, industry representatives, individuals, and organizations. 57 comments in the form of letters, e-mails, and faxes were received from the public including citizens, interested federal, state, and local agencies, advocacy groups and various corporations. These comments were used in determining key issues, resource conflicts and concerns, alternatives and the scope of the analysis.

1.6 ISSUES AND CONCERNS

Key Issues:

- Issue 1. Increased traffic and the potential for associated impacts on existing county, state, and BLM roads.

Increased traffic on existing county, state and BLM roads can result in increased traffic hazards, higher maintenance costs, the need to upgrade roads and more intensive transportation planning.

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- Issue 2. Adverse socio-economic impacts to local communities. Impacts to local communities including demand for housing that might exceed local capabilities, demand for local services such as medical, retail and civic services beyond the capacity of the community to deliver, and the need to expand local government services and presence without corresponding revenue / compensation from increased development.
- Issue 3. Impacts to surface water resources, including an increased rate of delivery of sedimentation and salts to the Colorado River system.
 - Issue 3a. Impacts to surface water quality include increases in sediment and salt delivery to the Colorado River system.

Concerns relating to the production of large amounts of water from coal formations with corresponding discharges into the Colorado River system would effect water quality and affect local and non-local government agreements were expressed by commentors and the interdisciplinary team. Additional concerns relating to changes in water quality and the presence of sensitive fish species within Muddy Creek were expressed. Increased erosion associated with continuous surface water discharges into ephemeral and intermittent stream courses was expressed as a concern.

- Issue 3b. Impacts to surface hydrology including higher overland flow in response to increased road density.

Higher overland flows can increase erosion and correspondingly increase salt and sediment delivery within the Colorado River system and decrease water quality.

- Issue 4. Impacts to groundwater resources, including sedimentation/excess salts to the Colorado River system.

Impacts to groundwater include potential changes in groundwater aquifers due to the reduction of hydrostatic pressure in the coal seams and re-injection. Local wells, springs, and seeps provide water for livestock, wildlife, and unique vegetation communities within the ARPA. Decreasing or eliminating water flow can have a serious adverse effect on habitats and dependent populations of plants and wildlife.

- Issue 5. Potential impacts to sensitive soils within the project area.

Comments identified the need to provide for the maintenance and preservation of sensitive soils within the project area, including soils with difficult reclamation potential. Soils with high run-off potential, and soils with excess salt are examples.

- Issue 6. Impacts to air quality from drill rig emissions and production activities.

Several respondents indicated that regional haze and increased dust and emissions levels were a concern, particularly within Class I airsheds associated with wilderness areas nearby. Additional concern regarding reduced air quality from construction of gas production operations were also brought forward from commentors, air quality stakeholders, and the Interdisciplinary (ID) Team.

- Issue 7. The ability to successful reclaim disturbed areas, timely reclamation of disturbed areas and control of noxious weed invasions.

The need to assure successful reclamation including immediate soil stabilization, interim reclamation within the first growing season, weed control, and monitoring of reclamation success with adaptive management in difficult areas was expressed.

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- Issue 8. Potential conflicts with livestock management operations in the project area, including possible impacts to range improvement projects.

Concerns over conflicts with livestock management operations were identified by commentors. These include reduced forage availability, livestock disturbance and harassment, reduction of the viability of range improvement projects and compromised range / vegetation quality

- Issue 9. Potential impacts to cultural and historic values within the project area including historic trails, sites eligible for inclusion in the National Register of Historic Places, and other cultural resources.

The presence of Historic Trails and the resulting risk of the compromise or reduction in their contribution to the historic setting within the area was expressed by commentors and the ID Team.

- Issue 10. Potential impacts to wildlife habitats within the project area, including those supporting big game, greater sage-grouse, and raptors.

The risk of reductions in wildlife habitats and populations from the ARPA was brought forward by respondents and identified as a key concern. The need to protect and maintain crucial winter range for big game, critical winter habitat and nesting / brood rearing habitats and for sage-grouse was expressed. The need for maintenance and viability of leks for sage-grouse was identified along with the need to maintain raptor populations including timing and disturbance restrictions. In addition, the need for further information on big game migration corridors and for their maintenance as viable routes for big game was identified.

- Issue 11. Potential impacts to listed, or proposed for listing, threatened and endangered plant and animal species, including potential Colorado River depletions and effects on downstream listed threatened and endangered fish species.

The need to avoid adverse impacts upon threatened, endangered and sensitive species within the ARPA including maintenance of critical habitats and compliance with the Endangered Species Act was expressed.

- Issue 12. Potential impacts to sensitive plant and wildlife species including bluehead sucker, roundtail chub, and flannelmouth sucker. The presence of supporting habitat for sensitive fish species within Muddy Creek, and the need to preserve and / or improve supporting habitats including water flows and quality was expressed by respondents.

- Issue 13. Cumulative effects of drilling and development activities when combined with other ongoing and proposed developments on lands adjacent to the Atlantic Rim project area.

The cumulative effects of oil and gas development within the Rawlins Field Office, the Red Desert, and the Greater Green River Basin were identified by respondents as issues.

- Issue 14. Potential conflicts between mineral development activities and recreational opportunities.

The presence of local, regional and nationally important big game populations, the corresponding traditional land use of the areas for recreation including hunting and wildlife viewing was identified. Visual conflicts with oil and gas development with these uses was identified by respondents and the ID Team. Concerns relating to the risk of decreased recreational opportunity due to impacts to big game and other wildlife populations was expressed by respondents.