

January 30, 2006

Rawlins Field Office  
1300 North Third  
PO Box 2407  
Rawlins, WY 82301

RE: The Atlantic Rim Environmental Impact Statement

To Whom It May Concern,

I am stictly opposed to the BLM's preferred alternatives for the Atlantic Rim. In all due respect to your office and many fine professionals, I feel very compelled to tell you that I think you would be making a serious mistake for Wyoming and for the United States if you were to implement either of your two preferred alternatives.

Here's why:

- 1. Livestock quality water should be made available by the agency to ranchers, not limited to only 4 wells per section.
- 2. Seasonal restrictions should be lifted. 135 days per year in the area to develop is illogical. Anadarko has offered a logical phased development proposal anyway.
- 3. BLM has misapplied the WGFD Recommendations for Oil and Gas. Four drilled wells per section of land is simply misguided. This is not a minimum, but a suggestion for mitigation standard.

Thank you,

Kathy Staman  
Box 335  
Baggs Wyoming

FEB 17 2006

January 30, 2006

Dear Rawlins Bureau of Land Management:

620-1

I would like to tell you that I am strongly opposed to the Draft Environmental Impact Statement Alternative that your staff seems to be supporting right now. I am opposed for several reasons. My first reason is because you have proposed seasonal restrictions that will allow for as little as a 135 day window over much of the area in which all activities can be conducted. When I say activities, I mean every activity imaginable that would produce the natural gas that our country is currently longing for. These include wildlife studies, cultural studies, reclamation, weed control, pit closures, road construction, well site construction, pipeline construction, work over rigs, completion rigs, and drilling rigs, centralized facilities construction – the list goes on and on. One-hundred and 35 days is simply not a long enough time to accomplish anything. Seasonal restrictions lead to strange employment cycles and it is hard on the environment because production is rushed and concentrated.

My second reason for concern is that you are only allowing 4 water wells to be drilled per section. This is not a reasonable enough amount in order to successfully abate the dust on dirt roads leading into the gas wells. As a resident of the area, I would like to ask that you allow Anadarko to drill more water wells for quality production. It is a testament to Anadarko as a company that they are thinking about the residents of the area when they offer to abate the dust on the roads. I think it would be a real shame if you did not allow them to follow through on that offer. It would also be a huge inconvenience for the people inhabiting the area. I hope you read my concerns and will seriously consider them. Anadarko's Proposed Alternative is both reasonable and worthy of adoption. Thank you for listening.

Sincerely,



Rowe Anderson  
Box 157  
Dixon, WY 82323

FEB 17 2006

**MOUNTAIN ENERGY, LLC**  
**P. O. BOX 1499**  
**PEBBLE BEACH, CA 93953-1499**  
**(0) (831) 620-1565**  
**FAX (831) 620-1564**



February 14, 2006

David Simmons, Project Lead  
Bureau of Land Management (BLM)  
Rawlins Field Office (RFO)  
P. O. Box 2407  
Rawlins, WY 82301

Re: Draft Environmental Impact Statement (DEIS)  
Atlantic Rim Natural Gas Development Project (ARPA)  
Carbon County, Wyoming

Dear Mr. Simmons:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the Atlantic Rim Natural Gas Development Project (ARPA) in Carbon County, Wyoming. I also appreciate your time in responding to a couple of inquiries I made by telephone. Having not heard from you regarding one Freedom of Information matter, I took other action.

Mountain Energy, LLC is a privately owned oil and gas exploration and producing company with a leasehold position in the ARPA. We are a non-operating working interest owner in both the Sun Dog Unit operated by Anadarko and in the Catalina Unit operated by Double Eagle.

632-1 | We strongly support **The Proposed Action**. **The Proposed Action** provides for the orderly and responsible development of the energy resources believed to be present in the ARPA under existing NEPA regulations and Federal and State procedures for the approval of well drilling and completion operations and associated production and pipeline equipment. Ample mitigation measures are in place to provide for environmentally responsible development of the subject energy resources.

632-2 | Proceeding with development under **The Proposed Action** will permit the spacing of wells to accommodate the technical knowledge gained as wells are drilled, and also to be guided by the economic situation determined by the then current development cost and gas price situation. Proposed well spacing is 80-acres, but **The Proposed Action** recognizes that if it turns out that 160-acre spacing is technically feasible and economically attractive, then there is the provision for 160-acre spacing.

We oppose **Alternative A – No Action**.

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632-3-2

We oppose **Alternative B**. The proposal is for subsequently permitted operations to be in three phases, one for each of three geographic areas. Phases are defined as periods of 6 to 7 years, and the first phase is in the central area, the second in the northern area, and the third in the southern area. In considering this proposal we have made the assumption that Federal mineral ownership combined with Federal control over access issues to non-Federal lands, would make it possible for the BLM to effectively control this phase concept. This proposed alternative is blatantly unfair to the owners of mineral rights and lessees of any type of mineral interest, fee, Federal or State, in phases 2 and 3. Mention is made of granting Suspension of Operations and Production (SOP) on impacted Federal lands. That would be some modest mitigation of potential damages on Federal lands, but no mitigation on State and fee lands. At my age of 75 years, and if we had acreage in phase two or three, a twelve to fourteen year delay would not sound very interesting. Further, we do not believe the persons that proposed and approved this idea as an alternative gave it very sincere consideration, nor have those persons ever tried to obtain the equivalent of an SOP from the State of Wyoming or many ranch owners.

632-4

We oppose **Alternative C**. We believe the present combination of Best Management Practices, lease stipulations and COA's provide adequate provisions for environmental protection, and yet another layer of provisions is not necessary.

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Thank you for clarifying the intention of the incomplete sentence in the second paragraph of 2.4 **Features Unique to Action Alternatives** to be that **Alternative C** "would limit pad locations to 4 or less per section across broad expanses of the ARPA." **Alternative C** appears to be a proposal for 160-acre spacing, or a somewhat shrouded requirement for deviated or horizontal drilling. Well spacing and drilling techniques have been and will continue to be evaluated by operators drilling wells in the ARPA. To date, it appears to industry participants that 80-acre spacing with vertical bore holes is the best management approach from a reservoir performance point of view. With time and the gaining of new information, perhaps 160-acre spacing will be proper in some areas.

The drainage, or well spacing issue, and the matter of deviated and horizontal drilling were considered in a thorough evaluation of these matters made by the BLM's Reservoir Management Group (RMG) at the Wyoming State BLM Office in Casper, Wyoming in response to inquiries from the RFO. Briefly, the RMG stated the following:

"160-acre well spacing for CBNG development in the Atlantic Rim Area (AR Area) is possible only under very special geologic conditions. As a general rule, existing production data suggests that 80-acre well spacing is the best standard well spacing."

"Directional drilling does not appear to be a viable technical or economic alternative."

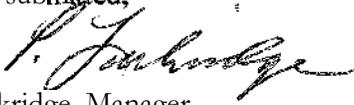
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Perhaps additional reports or advice were provided to the RFO from the RMG that we have been unable to obtain. If not, it appears to us the inclusion of a 160-acre spacing for drilling pads in a preferred alternative selected by the RFO is a contradiction of the conclusions of the BLM's own technical staff. **A specific answer to and explanation of this situation is requested.**

Page 3.

In conclusion, we again state our strong support for **The Proposed Action**.

Respectfully submitted,

SA4" 

John P. Lockridge, Manager  
Mountain Energy, LLC

atlanticrimcbm.doc

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*Laurie Milford and Jeff Rickerl  
904 S. 8<sup>th</sup> St.  
Laramie, WY 82070*

February 16, 2006

David Simons  
Rawlins BLM  
P.O. Box 2407  
Rawlins, WY 82301

We're writing to request that the BLM protect wildlife habitat, wildlands, and historical resources as it develops the Atlantic Rim area of the Red Desert. We also request that you protect the Wild Cow Creek citizens' proposed wilderness.

636-1

Specifically, please keep roads and drilling pads away from sage grouse leks (3 mile buffer), sharp-tailed grouse leks (1 mile), ferruginous hawk nests (2 miles), other raptor nests (1 mile), mountain plover nesting areas, 100-year floodplains, and prairie dog colonies. These species need as much protection as we can give them. We also urge the BLM to require the strongest protective measures for streams including underground injection of salty wastewater and preventing saline runoff from roads and soils. Please use directional drilling to cluster well facilities and minimize the footprint of drilling. Allow only a small proportion of the project area in an industrial state at any one time. Keep roads and drilling at least 3 miles away from the historic Overland and Cherokee Trails. And finally, we urge you to remove the Wild Cow Creek proposed wilderness from the project and prevent all industrial uses there.

Wyoming is being developed far too quickly. The BLM needs to take responsibility for protecting the wildlife, world-class hunting opportunities, clean water, clean air, and wide open spaces that define this state.

Thank you for considering these requests.

Sincerely,



Laurie Milford and Jeff Rickerl





**P.O. BOX 69**  
**SAVERY, WY 82332**  
**Phone: 970-583-2258 Fax: 970-583-2286**

Dear Sirs:

February 15, 2006

This letter is in response to the Atlantic Rim Oil and Gas HS.

642-1 | Being a part of the livestock industry that operates in the Atlantic Rim area, I am appalled at the drastic reductions you are proposing for the livestock operators in this area. This **BLM** land is part of our management plan year in and year out. Our **budgets** are put together with a set number of cows. It takes years to put together a good set of cows and we have to have grass for them each year. **if** you take a huge grazing resource away from us because of this **CBM development, where** are we supposed to graze these cows?? We won't have a place to graze them, they will get sold, we will not be able to make a living, and our base property will get subdivided.

642-2 | If our livelihoods are going to be disrupted so that the oil industry can get fat, rich and happy; we should be compensated for the loss of these BLM's. There should be an annual payment to each grazing lessee for the loss of these BLM AUM's. This would allow these livestock producers to ship their cattle outside the valley to other grazing areas. It would allow them the opportunity to hold the herds together that they have spent a lifetime putting together.

642-3 | Increased management, death loss and outright loss of AUM's should be paid for by the oil and gas companies to the livestock operations that are sustaining the loss.

Jay Linderman  
General Manager  
Three Forks Ranch



# BJORK ♦ LINDLEY ♦ LITTLE ♦ PC

LAWYERS

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<sup>\*</sup>Special Counsel  
<sup>\*</sup>Also admitted in Wyoming  
<sup>\*</sup>Also admitted in the District of Columbia

February 16, 2006

VIA FEDERAL EXPRESS AND ELECTRONIC MAIL: ATLANTIC\_RIM\_EIS\_WYMAIL@BLM.GOV

David Simons, Project Lead  
Bureau of Land Management  
Rawlins Field Office  
1300 N. 3rd  
Rawlins, Wyoming 82301



Re: Redwine Resources, Inc. Comments on the Draft Environmental Impact Statement for the Atlantic Rim Natural Gas Field Development Project

Dear Mr. Simons:

We are submitting these comments on behalf of our client, Redwine Resources, Inc. (Redwine). Redwine owns working interests in federal, fee and state leases within the boundaries of the Atlantic Rim Natural Gas Field Development Project Area (ARPA). Redwine submits these comments on the Draft Environmental Impact Statement (DEIS) for the Atlantic Rim Natural Gas Field Development Project (ARDP). For the reasons stated herein, Redwine supports the Operators' Proposed Action and encourages the BLM to approve the Operators' Proposed Action rather than the BLM's poorly defined and impractical Preferred Alternative.

## SUMMARY OF COMMENTS AND RECOMMENDATIONS

In the event the BLM selects the Preferred Alternative rather than the Operators' Proposed Action, the BLM must significantly redraft the Preferred Alternative in order to meet the purpose and need of the project. Because the Preferred Alternative is described only as a "combination" of Alternatives B and C, we can only guess at its actual provisions. That combination of alternatives is vague and ambiguous, overly burdensome, and unnecessarily restrictive. Excessive mandated requirements will not enhance environmental protection, but will stifle development, increase the risk of administrative or legal challenges, and potentially lead to fewer jobs, less royalty and tax revenue, and decreased energy supplies. In addition to the unjustified restrictions on development, the BLM's Preferred Alternative severely limits development in the ARPA by unreasonably restricting surface disturbance. Although not clearly disclosed in the BLM's description of the alternatives, the BLM's Preferred Alternative would reduce surface disturbance by 64% compared to the Proposed Action. Presumably, the BLM

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would only authorize 5,688 acres of initial disturbance of the 15,800 acres of initial surface disturbance required for the Proposed Action. The Preferred Alternative does not authorize sufficient surface disturbance and will prevent the responsible recovery of this natural gas resource. As discussed in more detail below, the BLM greatly underestimated the amount of surface disturbance necessary to effectively recover the natural gas present in the ARPA and the BLM must authorize significantly more surface disturbance. Further, the BLM's Preferred Alternative would either require significant directional drilling or severely curtail the recovery of natural gas from the ARPA by limiting surface spacing to 4 wellpads per section or 160-acre surface spacing across the vast majority (95%) of the ARPA. *See* ARDP DEIS, pg. 4-51. Notably, the BLM's own Reservoir Management Group (RMG) determined that "extensive directional drilling does not appear to be a viable technical or economic alternative for natural gas extraction in the Atlantic Rim EIS area." ARDP DEIS, pg. 2-8. The BLM must reconsider its decision to limit surface spacing in the ARPA. The BLM inappropriately relied upon flawed recovery assumptions in order to assume that the BLM's Preferred Alternative would not result in significant waste of the resource, and in turn have a profoundly negative effect on the socioeconomic impacts of the project (fewer wells, less production, fewer jobs, less taxes, etc.). Finally, and most importantly, there is no analysis of the impacts (positive and negative) of BLM's Preferred Alternative, so no basis for a rational comparison of alternatives.

## **CHAPTER ONE – PURPOSE AND NEED**

### **Section 1.2.1 – Purpose and Need for the Proposed Action**

The BLM has properly expressed the purpose and need for the ARPA which is to "exercise the lease holders' rights within the project area to drill for, extract, remove, and market [natural] gas products." *See* ARDP DEIS, pg. 1-5. The BLM has also properly recognized that natural gas production and development are an integral part of the BLM's responsibilities under the Mineral Leasing Act, the Federal Land Policy and Management Act, and the Energy Policy Act of 2005. Under these laws, the BLM has a mandate to encourage, not just tolerate, mineral development on federal lands in order to provide much needed energy supplies for our nation. It is important for the BLM to properly express the purpose and need of the proposed development because the stated goal or purpose of the project necessarily defines the range of reasonable alternatives. *See City of Carmel-by-the-Sea v. United States Dept. of Transp.*, 123 F.3d 1142, 1155 (9th Cir. 1997). Where the action subject to review under the National Environmental Policy Act (NEPA) is triggered by a proposal from a private party, the BLM is required to give "substantial weight to the goals and objectives of that private actor." *Citizens' Committee to Save Our Canyons v. United States Forest Service*, 297 F.3d 1012, 1030 (10th Cir. 2002); *Fuel Safe Washington v. Federal Energy Regulatory Comm'n*, 389 F.3d 1313, 1324 (10th Cir. 2004); 40 C.F.R. § 1502.16 (2005) (noting that the agencies are only required to "specify the underlying purpose and need to which the agency is responding").

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Finally, the Purpose and Need section of the ARPA DEIS properly recognizes that leaseholders within the ARPA have specific rights as a result of the BLM's decision to issue oil and gas leases. As the BLM is aware, once federal oil and gas leases are issued without no surface occupancy stipulations, and in the absence of a nondiscretionary statutory prohibition against development, the BLM cannot completely deny development on the leasehold. *See, e.g., National Wildlife Federation, et al.*, 150 IBLA 385, 403 (1999). Only Congress has the right to completely prohibit development once a lease has been issued. *Western Colorado Congress*, 130 IBLA 244, 248 (1994). Thus, in the ARDP EIS the BLM's decision is limited to developing mitigation measures designed to reduce or eliminate adverse environmental impacts. *See National Wildlife Federation, et al.*, 150 IBLA at 403 (1999). In the Final EIS, the BLM should discuss the fact that an oil and gas lease is a contract between the federal government and the lessee, and that the lessee has certain rights thereunder. *See Mobil Oil Exploration & Producing Southeast, Inc. v. United States*, 530 U.S. 604, 620 (2000) (recognizing that lease contracts under the Outer Continental Shelf Lands Act give lessees the right to explore for and develop oil and gas); *Oxy USA, Inc. v. Babbitt*, 268 F.3d 1001, 1006-7 (10th Cir. 2001) (noting that the Tenth Circuit has long held that federal oil and gas leases are contracts). The BLM made the decision to make lands within the ARPA available for leasing in the Resource Management Plan for the Great Divide Resource Area and previously elected to issue the subject leases within the ARPA. The BLM should disclose this information in the Final EIS in order to avoid potential confusion for the public.

## CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES

### **Development of Alternatives**

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Several of the alternatives analyzed by the BLM do not meet the purpose and need of the proposal because they would necessarily result in the waste of significant natural gas resources, or would otherwise be impractical or ineffective. "Alternatives that do not accomplish the purpose of an action are not reasonable and need not be studied in detail by the agency." *Citizens' Comm. to Save our Canyons v. United States Forest Service*, 297 F.3d 1012, 1030 (10th Cir. 2002) (citations and internal punctuation omitted). NEPA does not require agencies to analyze the environmental consequences of alternatives it has in good faith rejected as too remote, speculative, or impractical or ineffective. *Fuel Safe Washington v. Federal Energy Regulatory Comm'n*, 389 F.3d 1313, 1323 (10th Cir. 2004). The Council on Environmental Quality (CEQ) has described reasonable alternatives as "those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable." *CEQ's Forty Most Asked Questions*, Question 2a, 46 Fed. Reg. 18028, 18027 (March 23, 1981) (emphasis added). Alternative A, Alternative B, Alternative C, and the Preferred Alternative are impractical and uneconomic and do not meet the purpose of the proposal. Therefore, these alternatives should not have been analyzed in detail in the FEIS and should not be selected in the Record of Decision for the ARDP.

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The alternatives described in the DEIS fail to comply with the guidance contained in Washington Office Instruction Memo No. 2005-247 (Sept. 30, 2005) which provides guidance on developing the range of alternatives for NEPA documents on oil and gas development. It directs that, because of the new statutory categorical exclusions (CXs) enacted in the Energy Policy Act of 2005, "alternatives that analyze the impacts of higher well density and development levels beyond what is proposed should be considered. Including such analysis will facilitate the use of the statutory CXs in the future should development require well densities greater than what is currently proposed." Redwine Resources believes that its leases, which are near the coal outcrop and will require shallower wells than in other parts of the ARPA, may need to be developed on 40-acre spacing in order to efficiently produce the gas. Not only does the DEIS fail to consider that alternative as recommended by the guidance in the Instruction Memo, but the DEIS suggests in Alternative C that development in most of the ARPA will not even be allowed on 80-acre spacing. Each of the alternatives is discussed in more detail below.

#### **Section 2.2.1 – The Proposed Action**

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Redwine supports the Operators' Proposed Action and strongly encourages the BLM to adopt the Proposed Action in the Record of Decision for the ARDP. The Proposed Action is the only reasonable alternative because it alone will maximize the production of clean-burning natural gas from the ARPA and lead to significant direct and indirect economic benefits to the local, state, and national economies through jobs, increased spending, and increased tax and royalty revenues. The BLM must authorize development in the ARPA as set forth in the Operators' Proposed Action.

#### **Section 2.2.2. – Alternative A – No Action**

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Although the BLM is required to include the No Action Alternative by NEPA, and although the No Action Alternative is a useful comparative tool, the BLM should clearly inform the public that selection of the No Action Alternative would not meet the purpose and need of the proposed action, would be inconsistent with the BLM's mandate to encourage natural gas production from federal lands, and would be contrary to the National Energy Policy, the Energy Policy Act of 2005, and Executive Order 13211, 66 Fed. Reg. 28355 (May 18, 2001).

#### **The BLM Preferred Alternative**

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The BLM has not adequately described the nature of the potential impacts of the BLM's Preferred Alternative. The ARDP DEIS does not explain how Alternatives B and C would be combined, or whether such an approach is practical, feasible, or economic. In fact, the only place the BLM's Preferred Alternative is even described in the ARDP DEIS is in the Executive Summary where the BLM laconically suggests the BLM Preferred Alternative "is a combination of alternatives B and C." See ARDP DEIS, pg. 4-7. The BLM has failed to provide the public

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with even the most basic information regarding the agency's Preferred Alternative including the total surface disturbance authorized, or how surface disturbance will be allocated among roads, pads, and pipeline rights-of-way. More importantly, the BLM has failed to disclose the quantity of the natural gas resource that will be left unrecovered under this alternative, or how the wasted resource will negatively impact the socioeconomics for this project. The BLM's description of the Preferred Alternative is woefully inadequate and the BLM must eliminate this alternative from detailed consideration in the Final EIS for the ARDP.

### Section 2.2.3 – Alternative B

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The so-called "temporal" alternative would limit the Operators' ability to effectively and efficiently recover natural gas resources in the ARPA by limiting development operations to certain portions of the Project Area at any one time. The BLM's "phased development" alternative does not meet the purpose and need of the proposed action because it unfairly limits the Operators' ability to plan development in the ARPA. Such an approach necessarily penalizes leaseholders whose ownership interests are concentrated in one section of the ARPA. For example, several operators, such as Redwine whose ownership interests are located primarily within the southern portion of the ARPA near the Brown Cow POD, would not be able to exercise their lease rights for 14 years or more, thus depriving them of their lease rights and the time value of money. Such a lengthy delay in allowing drilling is not consistent with 43 C.F.R. §3101.1-2. More importantly, this alternative clearly discriminates against some operators in favor of others. The BLM has failed to address the potential negative impact on lessees from the loss of revenue, and the impact of having their leases in suspense for significant periods of time (7 – 14 years). Many of the lease owners in the ARPA are small, independent operators that cannot afford to delay the return on their investment in their federal leases for a significant period of time.

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The DEIS completely fails to consider the effects of Alternative B in areas like the southern portion east of the Brown Cow POD (where Redwine's acreage is located) where there are significant fee and state lands intermingled with federal lands. Just because BLM decides to suspend Redwine's federal leases for 14 years or more does not mean Redwine's fee and state leases will be suspended. Therefore, several outcomes are possible. First, in areas where the fee and state acreage cannot be developed independently of the federal acreage, Redwine's fee and state leases will terminate. In that case, BLM's actions will have deprived Redwine not only of its federal leases, but also of the value of the intermingled fee and state leases. Second, where development of the fee and state leasehold can proceed without the federal acreage, the federal lands will be drained, resulting in a permanent loss to the State and U.S. treasuries just as happened in the Powder River Basin when fee lands were drilled while BLM prepared an environmental impact statement. Where a different operator than Redwine owns the fee or state acreage, Redwine's federal leases will be drained while it waits helplessly for its turn under BLM's ill-considered phased development plan. BLM must address whether Alternative B is

647-8-3 | 647-8 | technically or economically viable and it must disclose the economic impact on the operators, the federal and state treasuries and the community.

647-9-1 | 647-9-2 | 647-9-3 | 647-9-4 | 647-9-5 | 647-9 | Moreover, many of the “benefits” supposedly associated with Alternative B are not supported by the BLM’s analysis. Many of the alleged benefits of phased development could occur under any of the alternatives if the operators, working in conjunction with the BLM, submit development plans in logical and well developed plans of development (PODs) as has been the practice in the ARPA. The “benefits” of phased development, *i.e.*, learning over time, can be achieved as development naturally progresses over the next fifteen to twenty years. The BLM has not demonstrated how or why phased development will decrease potential air quality impacts (ARDP DEIS pg. 4-16), lessen the impacts to soil resources (ARDP DEIS pg. 4-19), or reduce impacts to surface water resources (ARDP DEIS pg. 4-41). In fact, the BLM’s analysis actually indicates that the impacts to crucial resources such as ground water (ARDP DEIS pg. 4-42), vegetation (ARDP DEIS pg. 4-51), and wildlife (ARDP DEIS pgs. 4-56, 4-58), will be approximately the same as those under the Proposed Action. Further, as noted briefly above, given the intermingled fee and State of Wyoming leases within the ARPA, and the leaseholders’ obligations to develop those leases in a timely manner, the alleged benefits of phased development are unlikely to occur. This development may in turn lead to development on federal lands in order to avoid drainage of federal minerals. *See* 43 C.F.R. subpart 3162.2 (2005). The BLM must not adopt Alternative B in the ROD for the ARDP, or in any way incorporate phased development into the Preferred Alternative.

#### Section 2.2.4 – Alternative C

647-10-1 | 647-10-2 | 647-10-3 | 647-10-4 | 647-10-5 | 647-10 | Alternative C is also unreasonable and fails to meet the purpose and need of the proposed project. The BLM’s “spacial” alternative is incredibly vague and is little more than a list of potential mitigation measures for certain resources within the ARPA. The BLM has failed to indicate how these proposed mitigation measures would be implemented or exactly what measures will be required to satisfy the BLM under this alternative. The sheer number of the BLM’s unclear and unreasonable mitigation requirements will make it virtually impossible for the Operators to economically develop the natural gas resources in the ARPA. In addition to the fact that many of the mitigation measures incorporated into Alternative C, as described in Appendix L, are unclear and unreasonable, the BLM has failed to analyze how these mitigation measures will appreciably reduce potential impacts in the ARPA or why these are necessary. For example, the BLM’s analysis of potential impacts to surface waters under Alternative C is merely a list of potential mitigation measures; the BLM has not analyzed how, or even if, such measures will actually reduce potential impacts. *See* ARDP DEIS pgs. 4-42 – 4-43. Because the BLM has not analyzed the efficacy of the mitigation measures incorporated into Alternative C, the BLM cannot accurately assert that the potential impacts of Alternative C will not be significant. *See* ARDP DEIS pgs. 2-10 – 2-23.

Perhaps the most concerning aspect of Alternative C is the fact the BLM will significantly limit surface spacing across the vast majority (95%) of the ARPA. See ARPA DEIS pg. 4-51. The Rawlins Field Office of the BLM has inappropriately imposed 160-acre spacing across the ARPA despite the fact that the BLM's own analysis from the RMG demonstrates that 80-acre spacing is necessary to effectively and efficiently recover the natural gas resources present within the ARPA. The BLM's decision to limit surface spacing to four pads or locations per section will either require significant directional drilling, which the RMG has specifically determined is not viable or economic in the ARPA, or will lead to significant wasted resources because the natural gas resources within the ARPA cannot be effectively recovered on less than 80-acre spacing. The BLM's decision to unjustifiably elevate the protection of other resources over the recovery of natural gas is not consistent with the BLM's mandate under the Mineral Leasing Act, the National Energy Policy, the Energy Policy Act of 2005, or Executive Order 13211, and is contrary to the interests of the nation. Limiting development to one location per 160 acres is unreasonable especially in light of the RMG's analysis which determined that 80-acre spacing is necessary to efficiently recover natural gas within the ARPA, and the RMG's analysis demonstrating that directional drilling is not practical in the ARPA.

In the event the BLM incorporates aspects of the mitigation measures located in Appendix L into the ROD for the ARDP, the BLM must provide the Operators with significant more detail than is contained in the ARDP DEIS. In addition to the fact that many of the proposed mitigation measures are unreasonable, the BLM's description of the proposed mitigation measures is so vague it will be impossible for the Operators to design development plans or submit applications for permits to drill (ADPs) that comply with all of the BLM's requirements. Rather than attempting to develop a list of proposed mitigation measures to handle any situation, the BLM should work with the Operators to apply appropriate conditions of approval on a site-specific basis, based upon the resources present in a particular area, when APDs or PODs are actually submitted.

### CONCLUSION

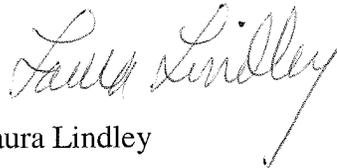
Redwine Resources, Inc. strongly urges the BLM to adopt the proposed action rather than the BLM's poorly defined and unreasonable Preferred Alternative. Of the alternatives discussed in the ARDP DEIS, only the Operators' Proposed Action actually meets the purpose and need of the project which is to efficiently and effectively develop natural gas resources from the ARPA. The BLM's Preferred Alternative, Alternative B, and Alternative C, fail to meet the purpose and need of the proposed action because they are impractical and unnecessarily restrictive. The BLM must significantly revise its Preferred Alternative, or adopt the Operators' Proposed Action, in the Final EIS for the ARDP.

Atlantic Rim Development Project DEIS Comments  
February 16, 2006  
Page 8 of 8

Please do not hesitate to contact me with any questions you have regarding these comments.

Very truly yours,

BJORK LINDLEY LITTLE PC

A handwritten signature in cursive script that reads "Laura Lindley". The signature is written in black ink and is positioned above the printed name.

Laura Lindley

LL/df1  
cc: Gary Redwine

# SPEAR BROTHERS GROUP

648

SPEAR BROTHERS SHEEP AND CATTLE CO., LLC

SOUTHERN ONSHORE EXPLORATION, LLC

GULF COAST OIL AND GAS COMPANY

CONQUISTADOR PETROLEUM, LLC

LOS CINCO PICADORES, LLC

RODEO OIL COMPANY, LLC

REBEL OIL COMPANY, LLC

SUN-WEST OIL & GAS, INC.

BAR NND RANCHES, LLC

INEZ INVESTMENTS, INC.

PRIME-AIR FUELS, LLC

HOWELL SPEAR ESTATE

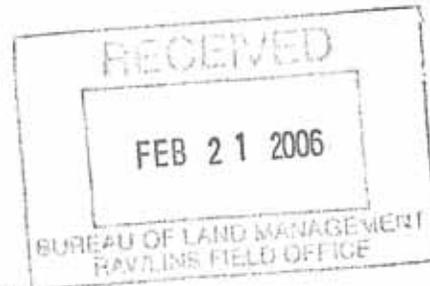
(432) 683-8420  
(432) 683-8424 (f)

PO Box 1684  
MIDLAND, TX 79702

February 17, 2006

Mr. David Simons  
Project Manager  
Bureau of Land Management  
Rawlins Office  
P. O. Box 2407  
Rawlins, WY 82301

Email [Atlantic\\_Rim\\_EIS\\_WYMail@blm.gov](mailto:Atlantic_Rim_EIS_WYMail@blm.gov)



RE: Draft EIS Atlantic Rim

Ladies and Gentlemen:

The Atlantic Rim Natural Gas Field Development Project (Atlantic Rim Project) has been in process for five years. Finally, the draft EIS has been released for comment. The BLM has seen fit to develop their own "Alternatives" in conflict with the Operators' (Anadarko and Double Eagle) plan of development. The delay has cost millions of dollars and is preventing the development of necessary gas resources critical to the United States energy supply

The Draft EIA is flawed in many respects including typographical errors, unfinished sentences, misplaced figures and tables and inconsistent descriptions of alternatives and their potential impacts. It is also based on unsubstantiated bias against development of the coalbed methane resource.

The "Alternatives" proposed by the BLM do not mimic those of the Proponent, Anadarko and other operators, and are fabricated with arbitrary and capricious requirements. The Phased (Alternative B) is unrealistic and will cause the resources to be developed in an unworkable pattern. Alternative C forces unnecessary mitigation that is already covered by lease stipulations and existing NEPA requirements and requires spacing regulations that have been proved to be uneconomical to the production of methane gas reserves.

Your proposals are clearly in conflict policies set forth in the Energy Policy Act of 2005. The technological and economic viability of the project is in jeopardy under your plans. Those with interests in the area both economic and sociologic will be deprived of their fortunes and well-being. The federal government will suffer from loss in revenues, drainage, and from potential liability for takings claims.

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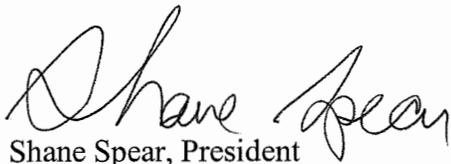
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You must allow the Operators, Anadarko and others, to develop the resources as their expertise and experience will allow.

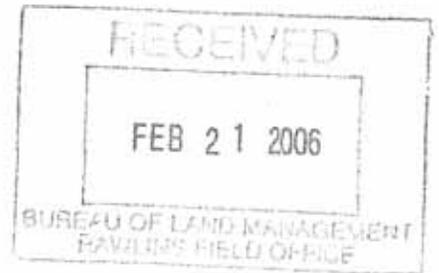
Thank you,

A handwritten signature in cursive script that reads "Shane Spear". The signature is written in black ink and is positioned above the printed name and title.

Shane Spear, President  
Sun-West Oil & Gas, Inc.

652

**Lane Lasrich**  
**2597 East Bridger Blvd.**  
**Sandy, Utah 84093**  
**801-942-0525**



Originally sent via email 2/16/06

February 17, 2006

Re: Comments on the Draft Atlantic Rim  
Environmental Impact Statement

Mr. David Simons  
Rawlins Field Office  
P. O. Box 2407  
Rawlins, Wyoming 82301

Dear Mr. Simons

The Rawlins Field Office of the Bureau of Land Management has requested comments on the Draft Atlantic Rim Environmental Impact Statement. The final decision issued by the Bureau of Land Management will affect the development of this prolific oil and natural gas producing area for the next two decades. I urge you to modify your plan to allow the orderly development of these resources above all else.

People rely on natural resources within the planning area for their livelihoods. Probably the most dominant natural resource in this area is oil and natural gas, specifically coalbed methane. The current alternatives listed by the BLM impose unrealistic requirements on the developers' ability to utilize and maximize the resources and related economic benefits for this desolate area of south central Wyoming.

652-1-1

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The estimated recovery of more than 1.5 trillion cubic feet of coalbed methane natural gas will create economic benefits stretching from Green River to Rawlins and beyond. Jobs, the tax base, severance tax, income tax, and royalties will bolster the local, state, and federal economies. Failure to allow development under your "Alternatives" will create pockets of prosperity on fee and state lands benefitting the few rather than the whole. Even creating an unorganized, unregulated, and unmanageable pattern of development. Wyoming has always been a probusiness and development state, let that continue as it is the American Way.

652-2

The BLM must realize that many of the existing oil and gas leases were issued with stipulations that preclude development during mating, nesting, brooding, calving, critical habitat seasons as to additional imposed regulations. Most, if not all, those stipulations may be waived for cause by the field office, but it provides more that adequate protection against endangerment of wildlife. Furthermore, data used by your office may be flawed by mixing historic, current, and projected information. These avenues should be used to control and regulate activity, but not prohibit development activities.

652-3

Future wildlife monitoring should be done in cooperation with Fish and Wildlife, Animal Control, ranching, hunting, and oil & gas explorationists, as all will benefit in the long run. But, the costs must be

652-3 shared by all; and not solely borne by oil & gas companies.

652-4-1 652-4 The BLM has set forth their preferred alternatives for the project. Anadarko and the other operators within the Atlantic Rim envisioned a plan that they proposed to the BLM. However, it appears the BLM has formulated direct and distinctive alternatives that do not match that of the Proponents. The Proponents proposed and continue to propose orderly technical and economic development in their own form of phased development. The BLM's phased development alternative will waste millions. Let's allow full development at the operator's pace to get in, exploit the resource, and reclaim the area in the shortest time, not prolong development for the next quarter century or more.

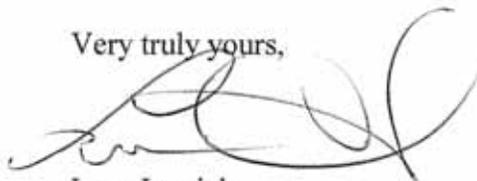
652-5 Alternative "C" is unworkable in that it effectively calls for 160-acre spacing in the project area. The original development of the Blue Sky pod clearly shows 160-acre spacing will not allow the coals to properly de-water to economically maximize the methane recovery. The SunDog and Doty Mountain pods clearly show that 80-acre spacing, at the least, is the most viable, technical and economic development plan.

652-6 The mitigation measures further stated in the Alternatives are arbitrary and onerous. Again, it does not realistically address the economic impacts; nor does it acknowledge that existing regulations are in place to govern the drilling and reclamation of the project area.

652-7-1 652-7 Water disposal is a prime consideration. Re-injection of water will probably remain as the main disposal option. However, surface disposal of produced water must be considered. Surface disposal at the Cow Creek field demonstrates the usefulness of this water to wildlife and livestock. Finally, the BLM must recognize the state and local authority to control and govern the project at the most grass roots level. Water disposal must conform to existing EPA standards, but barring EPA violations, the Wyoming Department of Environmental Quality must be the final authority (See Onshore Order Number 7, Section G).

652-8 The Proponents have spent millions in investigations, studies, and scenarios to propose the most workable, technically feasible, economically viable, and ultimately unintrusive development plan possible. The BLM has a congressionally mandated multiple-use mission. This mandate must consider the aspect of a future self-sufficient energy supply and economic well-being of the areas affected by this development as well as the nation as a whole. I urge the Bureau of Land Management to accept the Proponents proposed action rather than those proposed by your agency.

Very truly yours,



Lane Lasrich

653

**Michel E. Curry**  
P. O. Box 2776  
Midland, Texas 79702

February 17, 2006

Via Email: Atlantic\_Rim\_EIS\_WYMail@blm.gov

Mr. David Simons, Project Manager  
Bureau of Land Management  
Rawlins Office  
P. O. Box 2407  
Rawlins, WY 82301

RE: Draft EIS Atlantic Rim

Ladies and Gentlemen:

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The Draft EIA is flawed in many respects including typographical errors, unfinished sentences, misplaced figures and tables and inconsistent descriptions of alternatives and potential impacts. It is also based on unsubstantiated bias against development of the coalbed methane resource.

The "Alternatives" proposed by the BLM do not mimic those of the Proponent, Anadarko and other operators, and are fabricated with unworkable requirements. The Phased Alternative B is unrealistic and will cause the resources to be developed in an unworkable pattern. Alternative C forces unnecessary mitigation that is already covered by lease stipulations and existing NEPA requirements, and requires spacing regulations that have been proved uneconomical to the production of methane gas reserves.

653-1-1  
653-1

The BLM proposals are clearly in conflict policies set forth in the Energy Policy Act of 2005. The technical and economic viability of the project appears to be in jeopardy under your plans. Those with economic and sociologic interests in the area will be deprived of their fortunes and well-being. The federal government will suffer from loss in revenues, drainage, and from potential liability for takings claims.

You must allow the Operators, Anadarko and others, to develop the resources as their expertise and experience will allow.

Very truly yours,  
*Michel E. Curry*  
Michel E. Curry



664



# State Engineer's Office

DAVE FREUDENTHAL  
GOVERNOR

HERSCHLER BUILDING, 4-E CHEYENNE, WYOMING 82002  
(307) 777-7354 FAX (307) 777-5451

PATRICK T. TYRRELL  
STATE ENGINEER

[seoieg@state.wy.us](mailto:seoieg@state.wy.us)

February 16, 2006

To: David Simons, Project Lead  
Bureau of Land Management  
Rawlins Field Office  
P.O. Box 2407  
Rawlins, 82301



From: Water Planning Coordinator  
For Patrick T. Tyrrell, Wyoming State Engineer

RE: Atlantic Rim Natural Gas Development Project Draft Environmental Impact Statement

The State Engineer's Office appreciates the opportunity to comment on the above referenced project. The role of the Wyoming State Engineer's Office and Board of Control is to provide for the general supervision of the waters of the state, and of its appropriation, distribution, and application to beneficial use as provided under the prior appropriation doctrine.

One of our comments on the draft Environmental Impact Statement is of a general nature that pertains to the entire document and two are of a specific nature that pertain to information on specific pages. The general comment will be given first.

664-1

Throughout the it is stated that one of the methods of disposal of the produced water is sub-surface re-injection. It is also mentioned that the State Engineer's Office (SEO) has permitting authority concerning this type of action. Please be aware that the SEO has no involvement in the permitting of re-injection wells unless the wells are to be used to re-inject and store the water in an aquifer with the intent of retrieving that water at a later time and putting that water to beneficial use. Traditional re-injection wells are permitted by the Wyoming Oil and Gas Conservation Commission and/or the Wyoming Department of Environmental Quality/Water Quality Division.

The specific comments are given below:

664-2

On page 2-8, section the second sentence of the second paragraph begins, "For example, under the Colorado River Salinity Pact, .. This sentence should read, "For example, under a policy adopted on October 30, 2002 by the Colorado River Basin Salinity Control Forum, entitled "Policy For Implementation of Colorado River Salinity Standards Through the NPDES Permit Program ', water discharged within the

Surface Water  
(307) 777-7354

Ground Water  
(307) 777-6163

Interstate Streams  
(307) 777-6150

Board of Control  
(307) 777-6178

February 16, 2006

Page 2

664-2

watershed must not add more than 1 ton per day or 366 tons per year of salts to the Colorado River system."

664-3

On page 2-9, the first and second paragraphs are exactly the same. One should be deleted.

Please contact me at 777-7803 concerning any questions or concerns on the above comments.

Thank you again for the opportunity to review this document.

Cc: Mary Flanderka, State Planning Coordinator



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**REGION 8**

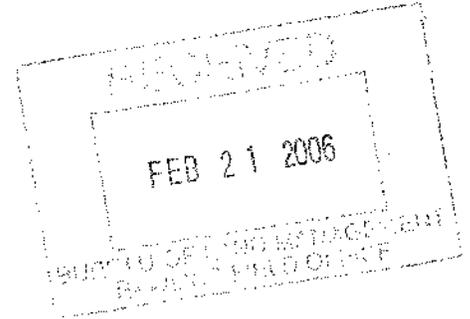
**999 18<sup>TH</sup> STREET - SUITE 300**

**DENVER, CO 80202-2466**

**Phone 800-227-8917**

**<http://www.epa.gov/region08>**

4.006



Ref: 8EPR-N

David Simons, Project Lead  
Bureau of Land Management  
Rawlins Field Office  
P.O. Box 2407  
Rawlins, Wyoming 82301-2407

RE: Atlantic Rim Natural Gas Field Development Project  
Draft Environmental Impact Statement CEQ# 20050518

Dear Mr. Simons:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4321, et. seq., and Section 309 of the Clean Air Act, 42 U.S.C. Section 7609, the Region 8 office of the Environmental Protection Agency (EPA) has reviewed the referenced Draft Environmental Impact Statement (DEIS) for the Bureau of Land Management's (BLM) proposed coalbed and conventional natural gas development and operation known as the Atlantic Rim Natural Gas Field Development (Atlantic Rim) Project.

The area under consideration in the Atlantic Rim DEIS is located approximately twenty (20) miles southwest of the city of Rawlins, in Carbon County, Wyoming. Anadarko Petroleum Corporation of Houston, Texas, is the lead project proponent of a group that includes Resources, Inc., and Double Eagle Petroleum and Mining Company (Operators). The project includes the drilling and development of 1,800 coalbed natural gas wells, and 200 conventional natural gas wells. The 270,080 acre project area is comprised of approximately 173,672 acres of federal surface, 14,060 acres belonging to the State of Wyoming, and 82,348 acres of private lands. Corresponding mineral ownership is 179,438 federal, 12,384 State, and 78,258 private. Associated facilities would include access roads, gas and produced water collection systems and pipelines, produced water injection facilities, compressor stations, several power generating stations, and an electric power distribution system. The anticipated life of the project is thirty (30) to fifty (50) years, with the drilling phase occurring in the first twenty (20) years.

The current land use in the Atlantic Rim project area (ARPA) is primarily rangeland for cattle and sheep operations and wildlife habitat. The area also includes recreation activities related to fishing and big game hunting, and there has been historic oil and gas development and production in the ARPA. We understand that this project has the potential to significantly impact surface waters through sediment in storm water runoff as eighty-five percent (85%) of the ARPA contains soils with the potential for severe water erosion. There are also concerns related to project impacts on vegetation and wildlife. Nineteen (19) species listed under the Endangered

10/10/10

Species Act (ESA) as either threatened or endangered or as proposed or candidate species are potentially present within or in the vicinity of the ARPA. Some thirty-six (36) species (7 plants, 6 mammals, 16 birds, 3 amphibians, and 4 fish) found on the BLM Sensitive Species List may occur on or near the ARPA. Finally, there are concerns associated with impacts to big game crucial winter range, as well as recreational fishing and hunting.

The Atlantic Rim DEIS analyzed four alternatives. These are: the Proposed Action, a "No Action" alternative (Alternative A), and two action alternatives, Alternative B and Alternative C. The Proposed Action is for the drilling and development of approximately 2,000 wells. Approximately 1,800 wells would be drilled to Mesaverde formations to develop coalbed natural gas resources, and 200 wells would be drilled to deeper formations to access conventional natural gas deposits. The proposed well pad spacing is one well pad site every eighty (80) acres. The Proposed Action will create an initial disturbance of 15,800 acres (5.9 percent of the project area), and an eventual operational disturbance area of 6,241 acres (2.3 percent of the project area). Alternative B proposes the same number and spacing of wells as the Proposed Action, but the drilling and development would occur in three phases. The phases would be separated geographically and temporally. The project area would be divided into three sections (central, northern and southern), to be developed in that order for six (6) to seven (7) years each. Alternative C involves the same mode of development as the Proposed Action, but the development would be conditioned with the implementation of Development Protection Measures (DPMs) applicable to those areas with sensitive or crucial resource values (as defined in Appendix L of the DEIS).

Both short and long-term surface disturbance will be similar for the Proposed Action and Alternative B, and the final well build-out will be similar for all three action alternatives. However, surface disturbance may be up to sixty-four percent (64%) less with Alternative C, and well spacing in some areas could increase to one well pad site every 160 acres. While wildlife, vegetation, and other environmental impacts will be similar and significant for the Proposed Action and Alternative B, the impacts may be slightly reduced with Alternative B due to the geographic phasing allowing nearby "safe havens" for some impacted wildlife, and potentially more rapid reclamation of some vegetation. Environmental impacts would be greatly reduced with Alternative C due to DPM restrictions. For all action alternatives, the majority of the water produced from the drilling and production operations would be re-injected into underground aquifers via an estimated 66 injection wells. A small portion of the produced water would be used in a closed system with limited use of livestock and wildlife watering systems, and a small amount of surface discharge under existing State water discharge permits.

The BLM's Preferred Alternative is a combination of Alternatives B and C. This would combine the three phase development approach of B with the DPM conditioning requirements of C. The phased approach of Alternative B may provide some nearby "safe haven" relief for some of the area habitat, and allow feed back in the form of surface water monitoring data to help better plan future development in the next phases. Additionally, the design and development of all wells, roads, pipelines and associated facilities at the same time in one phase, may result in better planning and reduced acreage of vegetation disturbance. A phased approach to development would allow BLM to monitor current conditions and technologies, and allow the

use of less intrusive methods of gas extraction as such methods are developed by industry. Experience and knowledge gained from each development phase will be used to better plan and implement the subsequent phases. The application of required DPMs with Alternative C focuses on surface disturbance limits, modification of drilling and construction practices and locations, enhanced Best Management Practices (BMPs), limited operating periods, and, in some cases, no surface occupancy. Important resources protected by the DPMs include crucial winter range, sage grouse nest and brood rearing habitat, and areas of sensitive visual and cultural resources. The Preferred Alternative provides significant reductions in environmental effects compared to the Proposed Action, while potentially still allowing oil and gas resource development near or equal to the Proposed Action. Some costs may be incurred by the Operators associated with the increased environmental protection (though positive economic effects could be realized for area recreational resources), but the result should create/maintain conditions conducive to helping people and nature exist in productive harmony. The EPA commends the BLM for their well considered and progressive approach to this goal of the NEPA process. Additionally, with this DEIS, the Bureau of Land Management (BLM) properly analyzed and disclosed to the public the potential environmental impacts of the project, which are significantly greater with the Proposed Action versus BLM's Preferred Alternative.

Overall, EPA favors BLM's Preferred Alternative combination. In our opinion, it would provide the best balance between protecting environmental resources while allowing extraction of natural gas, a needed energy resource. We do recommend that BLM sequentially and individually review all engineering/development plans for each phase, including performing site-specific environmental reviews that conform to NEPA regulations and guidelines. We also recommend that at each yearly review and planning activity, the issues of site specific directional drilling (see detailed comments) and the potential of full build-out electrification utilizing the power grid be considered. Finally, monitoring of operations and mitigation activities from initial drilling through post project monitoring of reclamation effectiveness, with accountability, is critical, and additional disclosure is suggested. Based on the procedures EPA uses to evaluate the potential effects of proposed actions and the adequacy of the information in the DEIS, the Preferred Alternative identified by the BLM for the Atlantic Rim project has been rated EC-2. The EPA review has identified environmental impacts that could be analyzed and potentially avoided, and plans that require the presentation of further details, in order to protect the environment. The enclosed detailed comments discuss impacts associated with air discharges, wildlife area fragmentation, and other issues. We believe that some impacts may be reduced by requiring, and/or modifying, the mitigation measures identified in the analysis. I have enclosed a copy of the EPA Rating System for Draft Environmental Impact Statements for additional information.

We are available to work with you on all areas of the Atlantic DEIS, including the evaluation of the future specific engineering/development plans for each phase of the project

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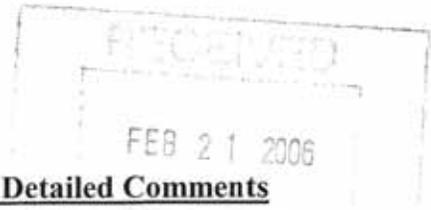
development. BLM has done a good job with this EIS analysis to reduce the environmental impact of the project, and we can assist BLM in addressing further environmental impact reductions, where practicable. Please call Steven Pratt of my staff at (303) 312-6575, or me at (303) 312-6004 with any questions you may have concerning these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Larry Spoboda". The signature is fluid and cursive, with a large initial "L" and "S".

Larry Spoboda  
Director, NEPA Program  
Ecosystems Protection and Remediation

Enclosures



**Atlantic Rim Natural Gas Field Development Project DEIS Detailed Comments**

**Phased Development and Review of Development Plans.** The BLM's Preferred Alternative is a combination of Alternatives B and C. The phased approach of Alternative B is combined with the application of required DPMs of Alternative C. EPA agrees with the suggested phased approach. Phasing may provide some nearby "safe haven" relief for some of the area habitat, and allow feed-back in the form of surface water monitoring data to help better plan future development in the next phases. Additionally, the design and development of all wells, roads, pipelines and associated facilities at the same time in one phase, may result in better planning and reduced acreage of vegetation disturbance. A phased approach to development would also allow BLM to monitor current conditions and technologies, and allow the gas industry to develop less intrusive methods of gas extraction, especially in the more sensitive areas. Experience and knowledge gained from each development phase will be used to better plan and implement the subsequent phases. We recommend that BLM sequentially and individually review all engineering/development plans for each phase, including performing site-specific environmental reviews that conform to NEPA regulations and guidelines. This review should be performed in conjunction with the yearly review and planning activity planned by the BLM on this project (the Operators have proposed annual work plans for each developing or operational POD), and should include on-site inspection of operations to date. Issues for consideration in the evaluations include: advancement in drilling techniques; engine technologies providing lower emissions; the development of improved BMPs that may be applicable to this project; the need for altering development approaches to prevent apparent impacts not anticipated earlier; performance of mitigation efforts to date; and, changes in development plans in other areas that adversely impact the current or cumulative effects. We also recommend that BLM provide public disclosure of each phase review. EPA extends an offer to assist BLM in the evaluation of the future specific engineering/development plans for this project.

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**Directional Drilling.** The DEIS Preferred Alternative combination does not, nor do any of the three action alternatives, explicitly include directional drilling as an option to further reduce surface impacts. Many of the surface disturbance impacts may be reduced by employing directional drilling to consolidate production facilities above what is suggested in the DEIS. Chapter 2, Section 2.5.2 addresses directional drilling. Discussed is a June 2005 memorandum from the Wyoming BLM's Reservoir Management Group, stating "... extensive directional drilling does not appear to be a viable technical or economic alternative for natural gas extraction in the Atlantic Rim EIS area." The discussion concludes that "Requiring the operators to use directional drilling for all wells regardless of surface conditions, topography, or subsurface geology would not be reasonable. Using such a technique without regard for local conditions may deter or preclude an operator from maximizing the recovery of the gas resource in the most economical and efficient manner." Recognizing these considerations, directional drilling may still be reasonable for some applications. We recommend that directional drilling be considered on a case-by-case basis for specific drilling locations during each yearly review and planning activity planned by the BLM on this project. Experience and knowledge will be gained from each development phase, and there will be continued advancements in this technology. The information gained may enable better planning and implementation of subsequent phases, and

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may indicate that directional drilling is appropriate in some of the more sensitive areas. We suggest revising the DEIS to include commitments for evaluation of directional drilling at the development of each phase, or at each yearly review and planning activity.

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**Electric Power.** Currently, electric power for field development and operation is proposed to be provided by natural gas or propane fueled generators located at each compressor station, delivered to the users via buried lines. Section 2.5.4 indicates that centralization, and presumably utilization of the existing grid, would not be practical or economically feasible at this time. Sited was the lack of knowledge of exactly what lines and facilities would be needed and the “exorbitant cost of construction of the infrastructure (powerlines, substations, etc.) to centralize facilities ...” As a result, the alternative was eliminated from detailed study. This is also addressed in Appendix K. Understanding that this may be true at this time, we suggest that the potential of full build-out electrification utilizing the power grid be considered at the development of each phase, or at each yearly review and planning activity. As the project is implemented, details on what lines and facilities are required will come into focus. This knowledge, coupled with the potential for rising natural gas costs, may make such centralization, potentially utilizing the existing grid, feasible. Commitments to periodic re-evaluation of this issue could be made in the Final EIS (FEIS).

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665-5

**Drilling Operations.** The DEIS states that conventional drilling equipment will be utilized, and the air quality modeling was performed assuming diesel engines. We suggest that the proponent reconsider the use of diesel engines for the drilling of wells, or utilize diesel engine systems with Tier II equivalent emissions. Such utilization will reduce particulate, VOC and other toxic emissions. Please utilize the engines with the lowest emissions for these applications, and provide the data supporting the lower emissions in the FEIS. The project includes a good approach towards saving valuable water resources by employing water hauling trucks to allow reusing test waters in conjunction with other drilling, construction and/or production operations. To potentially further reduce water use impacts, we suggest adding a component to the phased approach that specifies coordination during annual work plan reviews with the U.S. Fish and Wildlife Service, and other appropriate entities, on the source of water for construction and drilling.

665-5-2

665-6

**Road Construction/Transportation.** The Preferred Alternative contains a number of procedures and mitigations applicable to road construction and transportation, including low impact road design and special dust control requirements, as part of its development protection measures (DPMs). EPA agrees that the low impact road construction techniques such as 95% base compaction prior to placement of gravel, culverts for water drainage, steep slope construction measures to prevent erosion, and appropriate dust control methods (such as placement of a non-chlorine based dust abatement chemical treatment), are an important component of the Preferred Alternative, and a significant improvement over the Proposed Action. Dust particulates from construction, and ongoing operation of roadways are important concerns, and entities and citizens have often complained of dust problems resulting from the construction and use of oil & gas project roads. The airborne dust may not only be a visual nuisance, but can be potentially dangerous to asthma sufferers. The additional dust control

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measures of the Preferred Alternative are important. The EIS should provide detailed road construction drawings for the low-impact design. Additional measures should be addressed ensuring that other road/transportation related mitigations are put in place. These include: road location and design approval by BLM prior to construction; discouraging small and short road loops to reduce fragmentation and other wildlife impacts; and, travel management and enforcement aspects (such as the use of fencing, signage and locked gates to minimize public use of project roads). Proper implementation and management of road construction and maintenance BMPs will be important to prevent degradation of wildlife habitat from run-off of sediments. This is especially important in the protection of Muddy Creek, which may be the habitat of some rare native fish species, and because soils with the potential for severe water erosion reportedly comprise about 85% of the ARPA. Studies show that new roads can become a pathway for the spread of invasive plants; therefore, we suggest that the EIS address control of such plant intrusions via the new roads during the yearly review and planning activity. This would include evaluation of effectiveness to date. Finally, it is suggested that a trade-off for new road construction, providing reclamation of existing roads (including two-track) at a two-to-one ratio, be included in the project requirements. See EPA comment titled "Management, Mitigation and Monitoring" for further relevant comments.

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665-7

**Wildlife.** The DEIS indicates that reserve pits or other project-related impoundments will be fenced to prevent wildlife access. These features should also be netted to further ensure protection of migratory birds and other wildlife. Further details should be provided on how inspections will be conducted and netting or other BMPs be maintained. Also, the Preferred Alternative provides a number of mitigation requirements to lesson environmental impact to wildlife through the DPMs. As implementation of these mitigation requirements will be critical, please see our comment below titled "Management, Mitigation and Monitoring." Concerning the Greater Sage-grouse, please detail the project's adherence to BLM's "National Sage-Grouse Habitat Conservation Strategy" - November 2004, and the State's own criteria. As a minimum, the mitigation plans detailed in the DEIS should be in compliance with those requirements. Additionally, please add a component to the phased approach that specifies coordination with the U.S. Fish and Wildlife Service on migratory bird management at each specific phase review, or during annual work plan reviews. Finally, a number of the DPMs address areas where no disturbance is allowed (e.g., severe winter relief habitats for greater sage-grouse). To effectively lessen impact to some wildlife, it may be necessary to provide additional "buffer zones" around the specific critical areas. For example, a recent study done at University of Wyoming indicates decline in breeding males at leks located within approximately 3 miles of drilling rigs in the Pinedale Anticline and Jonah natural gas fields in western Wyoming. Please provide additional information on how much buffer zone will be provided, as applicable.

665-8

**Soils.** In Section 4.3 it is stated that a large portion of the project area would be difficult to re-vegetate due to high erosion potentials and poor topsoil, and that soils with the potential for severe water erosion reportedly comprise about 85% of the ARPA. The Preferred Alternative with its associated DPMs will reportedly greatly decrease surface disturbance by up to 64% short-term (and 77% long-term), and has a number of other mitigation measures such as development restrictions, mulch enhancements, soil enhancements, and rapid timeframes for

FEB 21 2006

665-8  
beginning reclamation activities. However, the section also states that the reclaimed areas within the interim drilling PODs have not shown much success to date, and that many disturbed areas currently show increased erosion, weed infestations, and low native vegetation cover. This indicates that current mitigations are perhaps not sufficient, implemented, and/or monitored well. While the Preferred Alternative indicates the implementation of these and other improved requirements to the project, it can be seen that management, mitigation, and monitoring aspects will be very important to successful environmental protection. These aspects must be properly implemented and accountability needs to exist. Detailed comments addressing these issues are provided in the comment titled "Management, Mitigation and Monitoring."

665-9  
**Fragmentation of Wildlife Habitat.** The Atlantic Rim project is proposed on land that contains many critical ecologies and habitats. Some fragmentation of wildlife habitat will occur, and the actual extent/effect of the fragmentation can be difficult to ascertain. We commend the general commitments expressed in the DEIS to protect a number of big game, waterfowl, birds, and other flora/fauna and associated habitats, specifically sensitive wildlife including the Greater Sage-grouse. However, the DEIS details the drilling and development of some 2,000 gas wells, throughout a 270,080 acre area, with an initial disturbance of 15,800 acres (5.9 percent of the project area), and an eventual operational disturbance area of 6,241 acres (2.3 percent of the project area). Nineteen (19) species listed under the Endangered Species Act (ESA) as either threatened or endangered, or as proposed or candidate species, are potentially present within or in the vicinity of the ARPA. Some thirty-six (36) species (7 plants, 6 mammals, 16 birds, 3 amphibians, and 4 fish) found on the BLM Sensitive Species List may occur on or near the ARPA. There are also concerns associated with impacts to big game crucial winter range, as well as recreational fishing and hunting, and several migration routes (e.g., pronghorn antelope, mule deer, and elk) are known or suspected to traverse the ARPA. Studies have indicated that due to infrastructure effect zones (e.g., a particular animal may not come closer than a quarter mile of a road), transecting of migratory routes, elimination of sufficiently large habitat core areas, and other effects, the "actual" effect of disturbing 5.9 percent of an area can be to eliminate 20%, 40% or more of the area to some wildlife. We recommend the consideration of the following suggestions to address some of these concerns for this project:

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665-9-2  
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- Fragmentation models are available which could be utilized to evaluate potential fragmentation of habitat effects, or at least scenarios, for this project. Such evaluation could be critical to decisions on well, facility, and road placement.
  - There are already a number of development protection measures (DMPs) discussed in the DEIS for consideration in making decisions on this project. These include surface disturbance limits, modification of drilling and construction practices, and in some cases, no surface occupancy, and are tied to specific areas of sensitive wildlife and fish habitat, and areas with sensitive soils. It is intended that this information be supplied to the Operators as geographic information system (GIS) layers to help them develop site specific proposals for planning of the annual program of work. This is an excellent approach to enhancing environmental protection, and EPA applauds BLMs efforts. This approach can be taken further with the inclusion of buffer zones of avoidance for wildlife and water bodies. Additionally, they can be coupled with ARPA and surrounding vicinity data representing wildlife habitat and migration routes, locations of wetlands and

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665-9-3

sensitive soils, protected areas, areas sensitive to visual impairment, recreation areas, proposed road and facility locations, effectiveness of BMP types, and other metrics important to specific cases. Fragmentation layers (related to the fragmentation models discussed above) could also be included. This data, provided as GIS layers, could be incorporated in an enhanced GIS data analysis program (a "GIS Tool") able to process the data to generate maps indicating ideal locations (or areas of less impact) for roads, wells, facilities, etc. The "Tool" could potentially couple the layer data with weighting values for the relative importance of the different metrics, and allow the input of data specific to the areas being evaluated (e.g., different sizes of avoidance buffer zones or drill pad sizes). As the project matures, information on gas production and location, and technological advancements in development/production, may also represent additional layers for the "Tool," potentially enabling a productivity component to assist operators.

665-9

665-9-4

- A combination of reclamation of existing roads at a two-to-one ratio for new road construction, reuse of appropriate existing roads, and discouraging small and short road loops, may lessen fragmentation increases.

The above suggestions can be implemented prior to the review of the first phase of development, then updated and used on a continuous basis for each of the remaining stages. This may maximize environmental protection, as well as the productivity of the development and production activities within the environmental constraints. In any case, EPA recommends close coordination with the U.S. Fish and Wildlife Service on these and all other wildlife related issues.

665-9-5

**Wetland and Riparian Vegetation.** As discussed in the DEIS, impact to wetland and riparian areas will potentially occur for this project. Executive Order 11990, "Protection of Wetlands," signed in 1978 and amended in 1988, addresses potential long and short-term adverse impacts associated with the destruction or modification of wetlands. In accordance with the intent of this order, EPA suggests a mitigation commitment that indirect draining of, or direct disturbance of, wetland areas will be avoided if possible, and a commitment to replace in kind such unavoidably impacted wetlands. As studies indicate that traditional mitigation is generally not successful in fully restoring wetland function, it is suggested that the BLM require a two-to-one mitigation of wetland disturbance. We understand that the intent of this project is to reclaim disturbed wetlands at the end of the project. Due to the time it can take to adequately reclaim some disturbed wetlands, and the potential 50 year life of this project, it is suggested that BLM require mitigation of wetland disturbance *during* the project operating time, and that mitigation for any particular wetland or riparian area begin concurrent with the disturbance. EPA also suggests that the BLM require complete avoidance of disturbance to any fen wetland (a Category I resource).

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665-10

665-10-2

665-10-3

665-11-1

665-11

**Visual Resources.** The DEIS discusses the scale and type of impacts to visual resources, and the Preferred Alternative requires specific approaches to help limit the impacts. EPA suggests requiring all mitigation/planning of structures, roads, etc., to be reviewed and approved by BLM on a case-by-case basis at each yearly review and planning activity and associated environmental review. Any applicable mitigation should be initiated concurrent with each development phase as opposed to at the end of the project life. The EIS should also address the issue of light pollution. Poorly designed lighting can waste energy and impact the view of the night sky.

665-11-2

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665-11  
These problems can be addressed with efficient lighting systems designed to illuminate the ground or work area for safety and utility without causing glare, upward shine, or wasting energy. EPA suggests that the EIS address these issues and detail mitigation requirements, consistent with OSHA or other applicable safety requirements, for implementation by the proponent.

665-12-1  
665-12  
665-12-3  
665-12-2  
665-12-4  
**Water Quality Protection & Accidents and Spills.** In Appendix C – Hazardous Materials Management Plan - of the DEIS it is stated that prior to project start-up, the Operators will prepare detailed plans, including: spill prevention and control countermeasure plans; stormwater pollution prevention plans; liquid hydrocarbon spill response plans; inventories of hazardous chemical categories; and, emergency response plans. EPA suggests ensuring that plans for development areas with the potential to impact waterways leading to potential drinking water sources, be evaluated for compatibility with the State's Source water Protection plans. This also applies for potential impacts to watersheds that currently, or in the future, may lead to drinking water supplies. BMPs that are utilized for drilling, pumping, compression, injection, and associated facilities, should address all potential runoff from these areas, including storm water, to preclude unmonitored or contaminated runoff from entering these waterways. Please ensure that the preparation of these and related plans are coordinated with the BLM. It is also suggested that the plans be coordinated with the WDEQ (especially for Source Water Protection requirements). The above precautions may be important in protecting the Colorado River watershed. For example, under the Colorado River Salinity Pact, water discharged within the watershed must not add more than one ton per day of salts to the Colorado River system. In addition, we suggest that the plans be updated for each phase and specifically address uniqueness of each site or area, where applicable. In more sensitive areas (i.e., for source water and wildlife habitats protection) it may be appropriate for additional site specific protection requirements (that may be outside of the general plan requirements) to be addressed and implemented.

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665-13  
**Greenhouse gas emissions.** The Atlantic Rim project will generate greenhouse gases, including methane and CO<sub>2</sub>. The EIS should include an evaluation of project greenhouse emissions and their potential control technologies to provide public disclosure of this environmental impact. Analysis of the CO<sub>2</sub> emissions is consistent with the Administration's policies to reduce U.S. greenhouse gas emissions over the next 10 years without sacrificing economic growth. (See the Council on Environmental Quality's Climate VISION web site). An analysis of this reduction of CO<sub>2</sub> emissions, covering the expected design life of the project, would seem appropriate. Addressing CO<sub>2</sub> emissions in proposed federal actions subject to NEPA is consistent with the 2005 decision from the 8th Circuit Court of Appeals on the proposed DM&E Railroad as analyzed in the Final EIS prepared by the Surface Transportation Board (Mid States Coalition For Progress, et al. v. Surface Transportation Board, 345 F.3d 520 (8th Cir. 2003)).

665-14-2  
665-14  
665-14-1  
**Air Quality Impacts.** Table 3-6 (on page 3-18) presents background air monitoring data, but does not explain the data presented. For example, it would be helpful to know whether the 24-hour PM<sub>10</sub> and PM<sub>2.5</sub> concentrations are maximum daily averages or second-highest concentrations and whether the eight-hour ozone average is a maximum or the fourth highest daily average observed during the reporting period. Please explain the data in more detail. Table 3-7 (page 3-19) shows standard visual range in kilometers for four locations. The data generally

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665-14

fall within the ranges given for the same locations in BLM's recent Preliminary Draft EIS for the Black Butte Pit 14 project in the Rock Springs planning area. However, the standard visual ranges given for Brooklyn Lake are slightly lower than the corresponding data in the Black Butte Document, both in the average and in the twentieth percentile of days with the best visibility. The document refers to CIRA 2004 as the source of the data; however, the References Cited section omits this reference. Please add this reference to the document.

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665-15-1  
665-15-3  
665-15

**Air Quality Impacts - Technical Support Document and its Appendices.** The remaining comments related to air quality address the technical support document (TSD) and its appendix F. The TSD is dated October 2005 but some errors remain from the October 2004 version. We concentrate these comments on the Atlantic Rim project; however, we recommend revising errors consistent with the comments of EPA and other reviewers submitted in November 2004.

- The last line of table 3.3 of the TSD shows the impacts of PM<sub>2.5</sub> from the Atlantic Rim project for the modeling period (annual). The values of the background and total predicted concentrations (six and five  $\mu\text{g}/\text{m}^3$ ) are reversed; please revise the table.
- The beginning of section 3.5.2 of the TSD is missing, leaving only a portion of the section dealing with the SO<sub>2</sub> assessment on page 54. In preparing the FEIS, please restore the missing text to the TSD.
- In appendix F1, Atlantic Rim Far-Field Modeling Results, tables displaying predicted impacts at Class I and sensitive Class II areas have inverted concentrations of short-term standards and long term standards. For example, table F1.2.1 shows the annual NAAQS for SO<sub>2</sub> as 1,300  $\mu\text{g}/\text{m}^3$ , which is actually the three-hour standard, and it shows the three-hour standard as 80  $\mu\text{g}/\text{m}^3$ , which is actually the annual standard. Please check and edit the following tables: F1.2.1, F1.2.2, F1.2.3, F1.3.1, F1.3.2, F1.3.3, F1.4.1, F1.4.2, and F1.4.3. Similar errors remain in appendix F2, Seminole Road Far-Field Modeling Results.

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665-16-1  
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**Management, Mitigation and Monitoring.** Throughout the DEIS there are many activities requiring management, mitigation, and monitoring of construction and operational project impacts, as well as reclamation status and effectiveness. BMPs are used during construction and operation, water quality is monitored, road access control methods and devices are utilized and monitored, weeding and seeding operations are performed and monitored, drill pad and facility maintenance and decommissioning activities occur, livestock grazing management is performed, and other activities important to environmental protection are implemented. Appendix J – BMPs for reducing Non-point Source Pollution – provides a good listing of basic BMP requirements for the project, and the DPMs are a vital component of the Preferred Alternative. The DEIS specifically mentions the importance of proper BMP and DPM implementation and maintenance, and that various impacts can be minimized, or there will be no adverse effects, “assuming” mitigation measures are properly implemented. However, details will be required for accomplishing these activities in each annual work plan, and it is important to specifically designate what entity (e.g., BLM, the Operators, resource organizations, or some combination) will be in charge of which activities, and who will have specific enforceable accountability. In addition, the BMPs, DPMs and other related activities will require inspection, documentation and record keeping. A “paper” documentation trail must exist to determine what was monitored, inspected, maintained, and completed. All management, mitigation, and monitoring should be

665-16-2

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verifiable, and an agency/entity needs to be held accountable for performance oversight, both throughout the project life and after the project has been decommissioned. Please provide additional detail on the issues discussed above in the FEIS. It may be appropriate to have commitment for these activities placed in the ROD.

665-17

**General.** The second paragraph on page 2-9 is a repeat of the previous paragraph. Suggest specifying the map page number when referencing the map in the DEIS text.



U.S. Environmental Protection Agency Rating System for Draft Environmental Impact  
Statements  
Definitions and Follow-Up Action\*

Environmental Impact of the Action

**LO - - Lack of Objections:** The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

**EC - - Environmental Concerns:** The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

**EO - - Environmental Objections:** The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

**EU - - Environmentally Unsatisfactory:** The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

**Category 1 - - Adequate:** EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

**Category 2 - - Insufficient Information:** The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

**Category 3 - - Inadequate:** EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

\* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment, February, 1987.



alldredge@tctwest.net  
02/16/2006 01:42 PM

To Atlantic\_Rim\_EIS\_WYMail@blm.gov  
cc  
bcc  
Subject Expert Comments

To Mr. David Simons:

Attached, please find my comments regarding the Atlantic Rim DEIs for coal bed natural gas. I am also submitting a hard copy of these comments that will be mailed to your office today.

Thank you in advance for considering my comments.  
Sincerely, Bill Alldredge

The following section of this message contains a file attachment prepared for transmission using the Internet MIME message format. If you are using Pegasus Mail, or any another MIME-compliant system, you should be able to save it or view it from within your mailer. If you cannot, please ask your system administrator for assistance.

----- File information -----  
File: Atlantic Rim Final Comments.doc  
Date: 16 Feb 2006, 13:29  
Size: 90112 bytes.  
Type: Unknown



Atlantic Rim Final Comments.doc

A. William Alldredge, Ph.D.  
2518 Owl Creek Road  
Thermopolis, Wyoming 82443  
(307) 867-2518

3 February 2006

Mr. David Simons, Project Manager  
Atlantic Rim Natural Gas Field Development Project  
Rawlins Field Office  
P. O. Box 2407  
Rawlins, Wyoming 82301-2407

Dear Mr. Simons:

My name is A. William Alldredge, I am a Wyoming resident concerned about management of our natural resources. I have been a professional wildlife biologist all my adult life, spent much of my career conducting research on big game populations, and taught university level courses in big game management and integrated ecosystems management. I conducted research on pronghorn populations in the Great Divide Basin and more recently completed an analysis of big game populations in the Rawlins Resource Management Area for the National Wildlife Federation (Alldredge and Alldredge 2003). My brief "CV" is provided with this letter. At the request of The National Wildlife Federation and the Wyoming Wildlife Federation, I offer the following comments on the Draft Environmental Impact Statement (DEIS) for the Atlantic Rim Natural Gas Field Development Project (ARPA), in hopes that they will be interpreted constructively and be useful in drafting the final management plan. My comments are restricted to big game populations (pronghorn, deer, elk), and consider the following:

- **Affected Environment – Baseline conditions**
- **Environmental Consequences**
- **Cumulative Impact Analysis**
- **Monitoring**
- **Mitigation**

**Affected Environment – Baseline conditions** - The DEIS has done a reasonable job of describing acreages of some of the big game habitats in the planning area and acknowledged uncertainties regarding migration areas. There is a problem here in that numbers of acres, or percentages of the area, do not necessarily reflect habitat importance; quite simply, all acres of habitat are not created equally. On page 3-69, the BLM indicates that they are aware of this situation, but does not address it further. To adequately assess impacts to big game populations from inferences regarding habitat, we need to know which acres are going to experience impacts. The DEIS reports that there is considerable uncertainty regarding exact locations of well sites. Good stewardship would suggest that if there is that much uncertainty, maybe we should not go forth with a development plan until we know more about well locations in relation to critical habitats and migration areas. With the current technology available to the gas/oil industry, I am confident that the Operators do know where resources are located; geophone seismology tells them that. The DEIS indicates that a newly initiated study will provide much needed information on habitat use and migration corridors for mule deer. Studies should include pronghorn and elk and development should be curtailed until study results are available for planning purposes.

The DEIS mentions transition ranges (3-69), but the discussion of these and summer and

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parturition habitats provides an inadequate basis from which to assess impacts. Transition ranges are important for big game animals (Alldredge and Alldredge 2003). Current thinking by many big game biologists is that transition ranges may be at least as important as winter habitats. Transition ranges are generally the place where big game animals are able to build body reserves essential for winter survival and these are also the ranges where animals immediately move at winter's end to replenish vital energy stores. It is essential for animals have access to these ranges and that they are not disturbed while residing in these areas. Energy development activities certainly have the potential to alter and fragment these habitats and disturb resident big game animals. WGFD data are available for the locations and acreages of transition and summer ranges and the BLM should have expanded their impact evaluation to consider these areas. Conclusions from this evaluation would result in admission of far greater impacts to big game populations in the ARPA than currently exist in the DEIS.

Based upon the extent of energy development, both existing and proposed, for the planning area and in adjacent areas, I am concerned that summer habitat could become limiting for pronghorn and do not believe that the BLM should simply assume this habitat is not limiting or could not become limiting. Boyle (1981) and Boyle and Alldredge (1984) discuss characteristics of high use summer habitats for pronghorn in the Great Divide Basin. My experience in the Great Divide Basin indicated that much of what might be termed transition range occurred in areas of summer habitat. Parturition areas, critical for pronghorn (Sundstrom et al. 1973 and Barrett 1981) and all big game animals (Powell 2003), often occur on, or near, summer habitats (Deblinger 1988 and Alldredge and Deblinger 1988). For pronghorn, these habitats are generally characterized by water availability, a significant component of forbs in the understory and sagebrush cover (Boyle 1981, Boyle and Alldredge 1984 and Alldredge et al. 1991). Furthermore, Deblinger (1988), Alldredge and Deblinger (1988) and Alldredge et al. 1991 all reported that pronghorn in the Great Divide Basin illustrated strong fidelity to fawning habitats. Loss of these habitats, whether summer, parturition or transition, would significantly impact pronghorn populations. If data for pronghorn parturition and summer habitats are not available, the BLM could have obtained these from field observations or by using GIS technology and published literature that describe characteristics of these habitats. The same approach could have been applied to ascertain potential fawning habitats for mule deer and calving habitats for elk. Based upon the potential consequences for big game populations, I do not believe that the cost of obtaining this essential information would be unreasonable. There is some indication in the DEIS that the BLM at least thinks they have these data, (2-2). Discussion of Alternative C says, "Resource data, in the form of GIS layers would be used to identify specific areas of resource concern." And a following sentence says that these areas could be sensitive wildlife habitat. If these data are available, the BLM should have used them in their analysis.

The DEIS contains population estimates for big game animals at only one point in time, 2003. This representation is misleading at best. There is no statistical confidence in a point estimate and such an estimate provides no insights into population trends. Furthermore, this point estimate has no value in assessing impacts from energy development based on the monitoring plan that is suggested in Appendix E. Appendix E, page 5, indicates that the BLM will obtain data for animal numbers in crucial wintering habitats from WGFD in order to assess impacts and make recommendations for mitigation. If this is the case, we need baseline numbers in those same areas prior to development. Our analysis of big game populations in the planning area (Alldredge and Alldredge 2003) provided a multi-year look at population trends and concluded that, through 2001, Mule deer and pronghorn antelope populations had a downward trend despite efforts to increase their populations with restrictive hunting seasons. Elk populations have illustrated an increasing trend until recently when the Wyoming Game and Fish Department (WGFD) has used liberal hunting seasons in an attempt to bring populations to herd unit objectives. If population estimates are going to be used as a baseline measure, then the BLM must supply more than one point estimate. It is my professional opinion that population estimates from herd units with boundaries that do

666-1-9

not coincide with planning area boundaries are not adequate baseline information. The BLM should use data for survival, production, and/or density estimates for big game populations residing in the planning area. Admittedly there is great variability associated with population and density estimates that render conclusions regarding future impacts tenuous at best. Impacts to pronghorn deer and elk populations resulting from implementation of any management alternatives can be more credibly evaluated from survival and production data. These sorts of data integrate the impacts to individuals in a population with the population consequences of those impacts. White and Bartmann (1988), Bowden et al. (2000), Sawyer and Lindzey (2003), and Sawyer et al. (2004a) all support measurement of these vital population parameters for adequate assessment of impacts to big game populations. As currently written, the "Affected Environment" section of the DEIS does not provide adequate information from which to evaluate impacts to big game animals resulting from implementation of any alternatives presented and is incongruent with the proposed monitoring plan in Appendix E.

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The DEIS recognizes that migration routes for deer, elk and pronghorn occur in the planning area, but admits that the location and importance of these areas is largely unknown. The newly initiated study may elucidate some uncertainties for mule deer, but information will be unavailable because the study was just begun and development is slated to start in 2006. Furthermore, there is no indication in the DEIS as to how this information will be used. The BMP listed in Appendix H indicates that surface disturbance within identified migration corridors will be avoided. There are at least two problems with this BMP as it relates to the situation in the ARPA: By the BLM's own admission, they do not know where these migrations routes are located. What will be done if there is already surface disturbance in an area that, from study results, is identified as a migration corridor? The DEIS must address this situation if we are to put any credence in this BMP.

666-1

Garrott et al. (1987) and Sawyer et al. (2004a) report that mule deer illustrated strong fidelity to migration pathways. Fidelity of mule deer and pronghorn to migration corridors in Wyoming has been documented by Sawyer et al. (2004b) and Deblinger (1988) and Alldredge and Deblinger (1988) discuss pronghorn migration and fences in the Red Desert. Merrill et al. (1994) provide a cogent argument for maintaining access to migration corridors in the face of human-built obstacles. Limiting the ability of migrating big game animals to access critical habitats reduces their options for coping with environmental conditions such as forage availability, snow depth, wind and human disturbances (Tessmann et al. 2004) and can lead to increased mortality and subsequent reductions in populations. Albeit restrictions to migration caused by fences and mineral resource development are briefly discussed in the DEIS, the BLM must consider big game access to essential habitats that could be impacted by implementation of any of their alternatives. The extent of development projected for the Atlantic Rim Project Area has, in my opinion, an extremely high probability of fragmenting habitats both from surface disturbance and impacts to migration areas. The lack of information regarding migration areas and the emphasis of their importance by the BLM would suggest that additional energy development projects should not be approved until both the location and importance of migration areas are ascertained.

666-1-12

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A common problem emphasized in Wyoming Game and Fish Job Completion Reports was that the BLM had no comprehensive vegetation treatment plan or a travel management plan, nor had there been much enforcement of existing travel management restrictions (Alldredge and Alldredge 2003). The DEIS does not address this problem and does not provide estimates for road densities, acreages affected by existing gas/oil and mineral activities or acreages of vegetation treatments that have occurred in the project area. Without these figures it is not possible to evaluate current habitat availability or quality and it is certainly incorrect to assume that surface disturbances in the planning area have not already affected big game populations. The DEIS does mention the fence along Highway 789 as interfering with pronghorn migration, but there are other fences in the planning area that do not meet BLM standards that are

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hindering free movement by big game animals. The DEIS must also consider these fences when discussing the “affected environment.” Wyoming Game and Fish Job Completion Reports frequently mentioned areas where problem fences occur (Alldredge and Alldredge 2003).

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We were unable to obtain data from the BLM for acreages currently impacted by gas/oil and mineral development or acres of vegetation treatments and concluded that the BLM simply did not have this information and thus had not monitored results of past management activities (Alldredge and Alldredge 2003). Data are available through the BLM’s LR 2000 database, The Environmental Working Group website and the Geo Communicator website (<http://www.blm.gov/lr2000/>, [http://ww.ewg.org/oil\\_and\\_gas/](http://ww.ewg.org/oil_and_gas/), and <http://www.geocommunicator.gov/GeoComm/landmin/home/index.html>.) There are also a number of acres of sagebrush habitat in the planning area that have been altered by natural fire, prescribed fire and herbicides with the result of lowering habitat suitability for big game animals (Alldredge and Alldredge 2003). To adequately describe the affected environment for big game animals, the BLM must include a discussion of the acreages currently disturbed by roads, energy development, vegetation treatments and fire within the project area. The bottom line is that there have already been extensive habitat alterations in the Atlantic Rim Project Area that impact big game animals and these need to be described in the DEIS. Management actions proposed in the DEIS will be “on top” of considerable disturbance that has already occurred. On pages 3-48 and 3-49 (Section 3.4.5.4) the BLM generically describes erosion and reclamation problems that occur on almost all PODs in the ARPA. The extent and locations of these problems need to be identified in the DEIS. If such problems are currently so extensive, it would seem prudent to halt additional development until these problems can be remedied and industry can prove reclamation potential.

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666-1-17

The Atlantic Rim DEIS does include more relevant literature than did the Rawlins RNP DEIS, but some relevant studies are still omitted. References to many can be found in Guenzel (1986), Ryder and Irwin (1987), Nelson et al. (1994) DeBolt (2000), Ayers (2000) and Alldredge and Alldredge (2003). The BLM failed to consider this literature in their description of the affected environment or in evaluating environmental consequences. Inclusion of these references would provide a better description of the affected environment and at least a general idea of some important big game habitats and migration areas.

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**Environmental Consequences** – Albeit the approach taken in assessing environmental consequences from management alternatives presented in the Atlantic Rim Project DEIS is conservative, conclusions reached seem valid. Page 4-59 states that if “habitat function” for big game animals is lost, then significant impacts will occur. The BLM fails to define “habitat function” and how this will be measured. Impacts resulting from the Preferred Alternative and Alternatives B, and C, will exceed the “significance criteria” for big game animals except for pronghorn under Alternative C. It is not clear how the BLM arrived at this conclusion for pronghorn. The only statements made regarding this conclusion are that mitigation will occur on 12% of the project area and that reduced impacts to transition range would help maintain the health of crucial winter range. There is no clarification as to what sorts of mitigation actions would be employed nor is there indication as to why impacts to transition ranges would be reduced under this alternative. I disagree with this conclusion and suggest, instead, that impacts to pronghorn will exceed significance criteria under all alternatives (excluding the No Action Alternative). It is my professional opinion that had the BLM considered impacts to transition and summer ranges and used additional scientific literature available for estimating disturbance distances they would have reported an even far greater impact from development of coal bed natural gas in the Atlantic Rim Project Area.

666-2-2

Sawyer et al. (2004a), using field data and a modeling approach, concluded that on winter range, predicted probabilities of deer use were lowest in areas of the range where well pads and associated road networks were developed. Those authors also stated that areas with the highest probability of use

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included, among other things, a distance of 2.3 km (about 1.4 miles) from the nearest well pad. Powell (2003, cited by Lamb 2005) studying elk in the Jack Morrow Hills indicated that elk avoided using areas within 1.2 miles of active gas and oil wells and were typically found using habitats more than 2.5 miles from wells. That study also found that elk stayed at least a mile from major roads and more often selected habitats 1.9 miles away. The DEIS cites Easterly et al. (1991) as a reference for pronghorn displacement of 0.5 miles when actually those researchers concluded that pronghorn were displaced at least 0.625 mi (1 km). A difference of some 220 yards may not seem critical, but I submit that an additional area extending 220 yards around each well site and road would result in a sizeable increase in unavailable habitat for pronghorn. Additionally, the BLM posits that there may be some habituation by big game animals to disturbance. Sawyer (2004b) working in the Pinedale area found no indication of habituation by mule deer. Although Deblinger (1988) did report some habituation by pronghorn to disturbance from an open pit mine, comparing the impact Deblinger monitored to that expected to result from CBNG development is invalid. The area around the mine that Deblinger studied was closed to hunting; pronghorn (and all big game for that matter) are heavily hunted throughout the ARPA and as such will remain quite wary of human presence. Additionally, disturbance from the mine Deblinger studied was a "point source" and much of the activity associated with daily mining was below ground level and out of view by pronghorn. Disturbance from CBNG will be scattered throughout the ARPA, be highly visible and will have a far greater impact to big game animals than that resulting from a point source. Clearly, big game animals will illustrate avoidance behavior when encountering human disturbance and habitat alteration such as will be associated with gas and oil development in the ARPA. The BLM must do a more responsible and credible job of evaluating these impacts to big game animals.

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Simply calculating direct and effective habitat loss using acreages associated with estimated miles of roads and numbers of well pads does not accurately estimate habitat loss for big game animals. As pointed out by Rowland et al. (2000) a spatially explicit road variable may be more appropriate than road density in evaluating elk responses to roads. In my opinion, this statement also applies to deer and pronghorn. Simply put, without knowing where roads, well pads and pipeline corridors will be located with respect to big game habitats it is not feasible to assess impacts to pronghorn, deer and elk populations. This is especially true when assessing impacts to important habitats (crucial winter range, parturition ranges and transition ranges) and habitat fragmentation. For example, loss of one third of a critical habitat would result in far different population impacts if the loss was concentrated in one corner of the range next to existing development as compared to the same acreage scattered throughout the range. Furthermore, all habitat is not created equal, thus the impact of habitat loss on big game populations would vary depending upon which acres were lost. A more accurate portrayal of impacts to big game habitats would be an assessment of acreages affected by vegetation type. Critical habitats and important vegetation types are often discussed in Wyoming Game and Fish Job Completion Reports (Alldredge and Alldredge 2003) but the BLM has not considered this information in their analysis. Admittedly, locations of future development may not be known with certainty, but the BLM has databases (see above website references) that would allow more realistic predictions at a reasonable cost and current technology certainly has provided energy companies with fairly accurate locations of coal bed natural gas deposits .

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The DEIS indicates that considerable acreages of private lands constituting big game habitat will also be developed. The spatial and temporal relation of development on these lands needs to be evaluated with that on public lands to accurately portray the magnitude of lost habitat. The DEIS also states that habitats on these private lands will be not subject to timing stipulations and mitigations actions that may occur on public lands. This becomes extremely important when we consider that quite often some of the better big game wintering habitats occur on private lands. If development activities on crucial winter ranges located on public lands are curtailed during winter, this action may result in more intensive activity on private lands during that critical time period. The end result is that stipulations put in place to protect big

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game on public lands may, in fact, cause a greater impact to populations by increasing human activity and surface disturbance on some of the better winter range located on private lands. Potential for this situation to arise and associated impacts to big game animals must be considered in the DEIS. I do not imply that seasonal stipulations should not be considered, but these should be evaluated on a case-by-case basis in consultation with WGFD biologists. Additional measures such as bussing employees to work sites and daily timing stipulations could help reduce impacts to big game animals.

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Impacts to big game populations presented in the DEIS do not consider increased inter-specific and intra-specific competition resulting from displacement of big game animals into what is assumed to be more marginal habitats. Johnson et al. (2000:695) reported that in the Blue Mountains of Oregon, mule deer habitat selection “appears to be explained in large part as a result of avoiding areas used by elk.” Reduction of habitat availability suggested in this DEIS could increase big game populations and livestock (increasing inter- and intra-specific competition) on remaining ranges, which would reduce forage availability, carrying capacity and could reduce juvenile survival. White et al. (1987) and Bartmann et al. (1992) concluded that over-winter deer fawn survival decreases as densities approach carrying capacity and that low over-winter fawn survival is a form of density-dependent population regulation. Sawyer et al. (2004) observed lower over-winter fawn survival in areas of gas and oil development compared to those measured in relatively undisturbed habitats. Phillips (1998) and Phillips and Alldredge (2000), studying elk in a forested ecosystem, demonstrated a 22.5% decrease in the calf:cow ratio following simulated recreational hiking disturbance imposed on elk during the calving season. Those researchers concluded from a population model that, had elk in their field study been subjected to 10 additional disturbances per cow above an unknown ambient level, the population would have ceased to grow. Certainly pronghorn, deer, and elk populations will experience impacts and possibly population reduction resulting from human activity and habitat disturbance associated with gas development activities. The DEIS makes no attempt to accurately portray these impacts but does allude to an awareness of the problem especially on winter ranges for mule deer and pronghorn along Muddy Creek. It is erroneous to assume that when disturbed, big game animals can simply move to some new area (Tessmann et al. 2004). Because of habitat limitations and social behavior of these animals, there generally are no new places for displaced animals to move. The consequences of displacement of big game animals are not adequately considered in the DEIS. The BLM should provide information regarding the locations of habitats where big game animals might move, the current conditions of these habitats including forage availability and big game population levels and some indication about the accessibility of these habitats for displaced animals.

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Water is the driver of life and this driver is often a limiting factor in the arid environments characteristic of the Atlantic Rim Project Area. Development of coal bed natural gas resources will also impact water resources, both above and below ground. The DEIS fails to consider the consequences of these impacts to big game populations. Reduction in water availability, or conversely, increased availability can have major influences on wildlife populations and these consequences must be considered in the DEIS.

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The BLM has reached an appropriate conclusion that implementation of any of their alternatives, other than the No Action Alternative, will almost always result in impacts to big game animals that will exceed significance criteria. This conclusion was reached from a very conservative approach of estimating impacts from future coal bed natural gas development and was also influenced by current, moderate to heavy use of many crucial winter and transition ranges. Had the BLM used information presented above, the magnitude of impacts they estimated would have significantly increased. What is missing from the DEIS is any estimation of the actual reduction in population sizes for big game animals that may result from implementation of proposed alternatives. The importance of specific acres of big game habitat, including acres of summer and transition ranges, slated for development and population consequences must be

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addressed in the DEIS.

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**Cumulative Impact Analysis** - I applaud the BLM for at least making a token attempt to assess the cumulative impact resulting from alternatives proposed in the Atlantic Rim Project Area DEIS and existing energy development activities on, and adjacent to the project area. This token attempt rightfully concluded that cumulative impacts could be far greater than those resulting from alternatives proposed in the DEIS. The problem is that the BLM did not go far enough in estimating cumulative impacts. There is no consideration of impacts potentially resulting from the combined activities associated with development of oil and gas, livestock grazing, increased recreation demands including traffic, and vegetation treatment in the project area or in adjacent areas where big game might be move after being displaced from the project area. Additionally, the combined effects from activities occurring on both public and private lands have not been considered. As presented, the reader cannot evaluate the cumulative impacts for any alternatives. The statement is made that elk may be displaced outside the project area as a result of cumulative impacts, but there is no indication as to where these displaced elk might go. Table 5.2 provides estimates for additional acreages of disturbed habitat, but these figures are misleading because of assumptions made about reclamation. Reclamation in arid habitats found in the ARPA is uncertain and replacing sagebrush and shrublands with grasses will not replace winter range for most big game animals, especially mule deer and pronghorn antelope. Application of past experience, GIS technology and the scientific literature would result in a cost-effective and more realistic portrayal of cumulative impacts potentially resulting from alternatives suggested in the Atlantic Rim Project Area DEIS. Johnson et al. (2005) using resource selection models and GIS technology, provide a more scientifically credible approach to assessing cumulative impacts and this approach that merits consideration by the BLM.

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**Monitoring** –Monitoring suggested in the Atlantic Rim Project Area DEIS is unacceptable and will not provide any information valuable in assessing impacts from development of the coal bed natural gas resource. In fact, the reader is misled (page 4-59) by a statement that says “the Wildlife Monitoring/Protection Plan will be followed to prevent, reduce and detect impacts to wildlife....” There is absolutely no way that the information provided in Appendix E (Wildlife Monitoring/Protection Plan) can begin to accomplish this goal for big game animals. The only mention of monitoring for big game was on page E-5: “Data on big game use of crucial winter ranges on the project area and an adjacent one mile buffer will be requested annually by the BLM from the WGFD as deemed necessary by the BLM.” It is not exactly clear what this sentence implies, but I believe it puts the responsibility of collecting monitoring data with the WGFD. The WGFD data collection program is not designed to collect these data at the level of resolution necessary to ascertain impacts. Furthermore, it is irresponsible to expect the State of Wyoming to use their limited funds to collect this information to be used to assess impacts resulting from federal decision making on federal lands. I suspect that the implication is to use changes in observational trends as an indicator of impacts. Anderson (2001) discusses the fallacy of using trend data in wildlife studies. A larger problem is that by the time a downward trend in animal numbers is detected, it may already be too late to remedy the problem. The DEIS fails to elucidate what actions would be taken if a downward trend were detected.

White and Bartmann (1998), Bowden et al. (2000), Sawyer and Lindzey (2003) and Sawyer et al. (2004) all recommend that at a minimum the following population parameters should be monitored when assessing impacts to big game populations: 1. adult female survival; 2. over-winter juvenile survival; 3. reproduction; and 4. density. They further recommend that these parameters be monitored at least every other year. Sawyer and Lindzey (2003) and Sawyer et al. (2004) provide an excellent discussion for a scientifically credible approach to evaluating impacts to big game animals resulting from energy development projects. Admittedly their approach costs money, but after more than 30 years of NEPA requirements for monitoring we know very little about the impacts to big game animals resulting from any

anthropogenic actions. In my opinion, only by adopting the approach outlined in the above references can we begin to fully assess the magnitude of human impacts to wildlife populations. To date, much of the scant monitoring that has been done simply looks at acres of habitat disturbed with no estimation of resulting impacts to big game populations. Evaluation of population responses, which include habitat use, survival and production, portrays the true impact of anthropogenic activities.

Mitigation is almost always linked to monitoring as is suggested on page E-5 of the DEIS. The potential for significant, long-term impacts to big game populations from alternatives presented in the DEIS is so great that adequate monitoring must be put in place. Monitoring should be designed to not only “trigger” mitigation actions, but also such that something can be learned about impacts to populations. Study design methodology and technology are both available for the BLM to do a better job monitoring impacts to big game populations from coal bed natural gas development on the Atlantic Rim Project Area, but they have not been considered in the DEIS.

**Mitigation** –There is almost no mention of mitigation in the Atlantic Rim Project Area DEIS and what is there is insufficient. Seasonal stipulations, wildlife friendly fencing, advising project personnel to not harass wildlife and to make these persons aware of wildlife regulations are all acceptable activities, but will do little or nothing to mitigate impacts from the proposed actions in this document. The BMPs suggested in the document add little else and, as indicated above, are somewhat misleading.

A common mitigation approach by the BLM has been to require seasonal limitations and timing restrictions on recreation and mineral resource activities in wildlife habitats. There are at least three problems with this approach. First, as pointed out by Tessmann et al. (2004:6) “Seasonal stipulations are only effective if actually applied on the ground. To date, these stipulations have been inconsistently applied among BLM resource areas and they are frequently modified or waived for inappropriate reasons.” We need assurance that the BLM will actually apply and enforce stipulations. Secondly, and maybe more importantly, the seasonal limitations apply only during the development phase and not during the production phase. Albeit human activity may be reduced during the production phase, there is still enough activity to disturb resident wildlife. This would be especially true if petroleum products were being trucked from producing wells. Lastly, and as pointed out by the BLM on page 4-60, seasonal limitations do nothing to protect wildlife from the loss or alteration of habitats outside these periods.

It is my professional opinion that seasonal limitations as recommended in this DEIS will do little to mitigate impacts of gas and oil development on big game populations. If seasonal limitations are to be used as effective mitigation, they must be applied throughout the life of the project and enforced. As discussed above, seasonal limitations should also consider resulting impacts to big game using habitats on private lands where limitations do not apply. A better approach to protect critical big game habitats would be to give them a NSO or no ground disturbance designation. Because site specific data for big game habitat are currently not included in the DEIS, it would seem prudent that the BLM consult with WGFD biologists and utilize their best estimates for habitats that should be off-limits to energy development. The BLM has an obligation to demand limits on development sufficient to prevent unacceptable impacts to wildlife populations and those limits are a cost of development for energy companies.

The potential for impacts to big game populations resulting from implementation of any of the alternatives in this DEIS is so large that mitigating these impacts to big game animals may be problematic if not impossible. As currently presented, I see little difference between the Preferred Alternative and Alternative B. Alternative B leads the reader to believe that energy extraction will occur in a phased development approach over 20 years. This little different that the Preferred Alternative and when one considers the time necessary for reclamation, probably greater than 60-80 years, the surface disturbance

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impacts resulting in Alternative B would not be reclaimed and would not afford the “safe haven” for wildlife as the reader is led to believe. Alternative C, although sketchy in detail and lacking clarity, is a better starting point from which to limit impacts from energy development to wildlife. In my professional opinion, the best approach to mitigate impacts to wildlife and specifically big game animals would be a marriage of some of the thought in both Alternative B and C. If, indeed, the intent of Alternative C is to define critical wildlife habitats and protect these with NSO designations, then limit surface disturbance in development areas to less than 80 acres per section (20 acres per site and 4 sites per section) we would have a good starting place. The next step would be to use the phased development plan suggested in Alternative B, but to absolutely not allow development to proceed to another POD before successful reclamation is achieved. By successful reclamation I imply returning sagebrush and shrubland habitats to conditions resembling those of pre-development. If this approach was mandated, displaced animals might have alternative habitats. Additionally, and I have never been a supporter of offsite mitigation, but because of the magnitude of impacts that could result from implementation of alternatives in this DEIS, offsite mitigation might be valuable. Such mitigation would include increasing carrying capacities on adjacent habitats by improving forage quality and quantity and water availability. Without an adequate cumulative impact analysis, suggesting offsite mitigation is speculative at best. It may well be, that considering the magnitude of habitat alterations in the planning area and in adjacent areas, that there simply are no habitats that would afford offsite mitigation opportunities.

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**Conclusion** - My professional opinion is that the Atlantic Rim Project Area DEIS does not meet the “spirit” of the National Environmental Policy Act. There are critical omissions in the affected environment including vital parameters regarding big game populations and their habitats. The environmental consequences depicted in the document arrive at a logical conclusion but the approach taken is far too conservative. Calculation of habitat loss and impacts to big game populations are unrealistic and do not accurately represent probable impacts. Furthermore, the BLM has failed to apply any of their past experience and has sparing used existing scientific literature to estimate impacts. Cumulative impacts have not provided an adequate representation of impacts from the proposed project and conventional gas and oil development and hardly mention combined effects of impacts resulting from other management activities such as livestock grazing, recreation or vegetation treatments including fire management. Albeit some mitigation is suggested, the majority of actions discussed will not mitigate impacts to big game animals. Lastly, monitoring big game animals as suggested in this DEIS is essentially useless in assessing impacts to those populations from implementation of any of the alternatives. Ascribing a cause-effect relationship to a trend is meaningless and by the time such a trend could be detected it might well be too late to remedy the situation.

I appreciate your consideration of my comments and the privilege to participate in the NEPA process.

Sincerely,

A. William Alldredge, Ph.D.  
 Professor Emeritus, Wildlife Biology

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## APPENDIX I

### Brief Vitae for A. W. Alldredge

#### **EDUCATION**

B. S. 1969 Wildlife Biology, Colorado State University  
M. S. 1971 Radiation Ecology, Colorado State University  
Ph.D. 1977 Earth Resources, Colorado State University

**MILITARY SERVICE:** Honorable Discharge  
US Army 1968

#### **EXPERIENCE**

2001 - Professor Emeritus - Retired.  
1999-2001 Chairman of Wildlife Biology Major, Colorado State University  
1992 -94 Director, CSU Center for Ecological Risk Assessment and Management  
1987-2001 Professor, Department of Fishery and Wildlife Biology, Colorado State University.  
Responsibilities as listed below.  
1982-87 Tenured Associate Professor, Department of Fishery and Wildlife Biology, Colorado State University. Responsibility for teaching ecology, resource management, big game management and other courses at the graduate and undergraduate levels, and conducting research in ungulate trophic and population dynamics. Direction of masters and doctoral students, and advise undergraduates in wildlife biology.  
1980-82 Assistant Professor, Departments of Fishery and Wildlife Biology and Radiology and Radiation Biology, Colorado State University. In addition to the above I also taught courses in radiation ecology and nuclear technology and conducted radioecological research. Graduate student supervision.  
1978-80 Assistant Professor, Department of Radiology and Radiation Biology, Colorado State University. Teaching, research and administrative responsibilities in the area of wildlife and radiation ecology. Graduate student supervision.  
1971-78 Research Associate, Department of Radiology and Radiation Biology, Colorado State University. Conducted and supervised research projects in wildlife and radiation ecology. Member of the graduate faculty. Teaching experience in radiation ecology and radioisotope techniques, developed and taught a course entitled, "Nuclear Technology and Society."  
1974-86 Lecturer in Wildlife Ecology Alpine Ecology for The National Wildlife Federation.  
1976-86 Lecturer in Wildlife Ecology and Alpine Ecology for The Rocky Mountain Nature Association.  
1976-89 Wildlife Consultant for Union Oil/Minerals Exploration Company, Rawlins, Wyoming.  
1980 Wildlife Consultant for Union Oil/Molycorp Inc., Los Angeles, CA.  
1975-76 Consultant, E.G.&G. Environmental Consultants, Denver, Colorado. Conducted an environmental inventory for a portion of Wyoming's Red Desert that was being considered for uranium mining development.  
1973-76 Consultant, El Paso Natural Gas Company, El Paso, Texas. Wildlife inventory and analysis of environmental impacts for a nuclear fracturing experiment in Wyoming, and a biotic inventory for a coal lease on the Kaiparowits Plateau of Utah.  
1973 Consultant, CER Geonuclear Corporation, Las Vegas, Nevada. Conducted studies on the immediate environmental effects resulting from the Rio Blanco nuclear fracturing experiment in Colorado.  
1967-71 Research Technician, Department of Radiology and Radiation Biology, Colorado State University. Worked on radioecological research associated with plants, mammals and aquatic systems. Chief responsibility for care and maintenance of a mule deer research facility.  
1986 Expert witness testimony, National Wildlife Federation. Testified in Federal District

Court, Cheyenne, Wyoming.  
1987 Expert opinion for National Wildlife Federation in cases against the US Forest Service over issuance of permits for ski area development.  
1988-92 Wildlife Consultant - O. R. Goltra Sheep Mountain Quarry Project  
1988-Present Consultant on wildlife and ski areas for Vail Associates Inc. Vail, Colorado.

## **COURSES TAUGHT**

Introductory Ecology  
Integrated Ecosystems Management  
Conservation and Management of Large Mammals  
Alpine Ecology

## **PROFESSIONAL MEMBERSHIPS AND HONORARY SOCIETIES**

American Society of Mammalogists  
The Wildlife Society (National, Sectional and State Chapters)  
Faculty Adviser to Colo State Univ. Student Chapter 1982-2000

## **AWARDS AND SPECIAL RECOGNITION**

Colorado Chapter of The Wildlife Society, Special Recognition in Education, 1982  
Phi Kappa Phi Faculty Honor Initiate, Colorado State University 1982  
Alumni Association Award for Outstanding Faculty Member College of Forestry and Natural Resources, Colorado State University 1983.  
Harry E. Troxell Award for Outstanding Educator, College of Forestry and Natural Resources, Colorado State University, 1987.  
College of Forestry and Natural Resources Top Student Adviser Award, Colorado State University, 1987.  
College of Forestry and Natural Resources Mortar Board Rose Award Recipient for Outstanding Educator, Fall 1987, Colorado State University.  
Colorado State University Tau Iota Omega Chapter Mortar Board Rose Award Recipient for Outstanding Professor, 1989-1990.  
State Board of Land Commissioners - CSU Superior Performance Award 1989 for Integrated Resource Management (NR-420) Class.  
Colorado State University College of Natural Resources Outstanding Faculty Member 1997-1998  
Colorado State University College of Natural Resources 1999 Winter Graduation Commencement Speaker  
Colorado State University Cermak Award- Outstanding Adviser College of Natural Resources 2000  
Harry E. Troxell Award -Outstanding Educator, College of Natural Resources, Colorado State University, 2000  
College of Natural Resources, Department of Fishery and Wildlife Biology Favorite Professor, 2000  
  
CSU Student Chapter of The Wildlife Society - Most Dedicated Advisor Award 2000  
Colorado Chapter of The Wildlife Society - Honorary Membership 2001  
Colorado State University, Dept. of Fishery and Wildlife Biology Favorite Professor 2001  
Colorado Chapter of The Wildlife Society - Douglas L. Gilbert Award for Professional Excellence 2002

## **PUBLICATIONS:**

Author or coauthor of over 35 peer reviewed publications and numerous additional reports and presentations.