

DECISION RECORD AND FINDING OF NO SIGNIFICANT IMPACT
Merit Energy Company
Atlantic Rim Natural Gas Project, Brown Cow Pod EA
EA No. WY-030-04-EA-067

INTRODUCTION

Merit Energy Company of Dallas, Texas has proposed to explore and potentially develop coalbed natural gas wells in the Brown Cow Pod Project Area (BCPA) of the Atlantic Rim Natural Gas Project Area (ARPA) located in Carbon County, Wyoming. The BCPA is located on federal surface estate administered by the Bureau of Land Management (BLM), Rawlins Field Office (RFO). The proposed project is part of the exploratory drilling activities under consideration for the acquisition of data necessary to prepare the ARPA Environmental Impact Statement (EIS).

Because of the length of time necessary to complete the EIS, and the relative lack of information regarding coalbed natural gas development in the vicinity, the operators asked the RFO to consider allowing some exploratory drilling within the ARPA. On June 1, 2001 an Interim Drilling Policy (IDP) was sent to all operators participating in the proposal to develop natural gas resources in the ARPA. The IDP was prepared by the RFO EIS Interdisciplinary Team, with recommendations from the Bureau of Land Management's Reservoir Management Group. The IDP was developed so that interim activities could be managed concurrently with EIS preparation, and so that data regarding the extent, feasibility, and operational strategies necessary for development of the ARPA could be gathered. These data will be crucial in preparation of the EIS. The IDP states that prior to the development of any exploration activity, an environmental assessment will be prepared for all pods developed on federal surface or minerals estate. Interim drilling activities will be monitored by the RFO to ensure that activities do not significantly affect the environment or prejudice decisions to be made as a result of the analysis to be conducted in the ARPA EIS.

The Brown Cow Pod project consists of the drilling, completing, and producing of a total of 12 exploratory coalbed natural gas wells, the use of up to three injection wells, construction, maintenance, and use of appurtenant access roads, pipeline and utility corridors, and a compressor station. The BCPA encompasses approximately 1,600 acres. The life of the project is estimated to be from 10 to 20 years.

The BCPA is located in Township 14 North, Range 91 West, in Carbon County, Wyoming. Access to the BCPA is provided by Highway 789 from Interstate I-80. The BCPA is located approximately 4 miles east from the junction of BLM Road 3309 and Highway 789.

ALTERNATIVES CONSIDERED

The Environmental Assessment (EA) for the ARPA, Brown Cow Pod considered two alternatives. The Proposed Action Alternative assessed and disclosed the projected effects of Merit's proposal as outlined above and detailed in the "Proposed Action" portion of the environmental assessment. The "No Action"

alternative assessed the effects of not implementing any portion of the proposal. Under the No Action Alternative, the RFO analyzed the effects of a denial of any further development associated with this project. This alternative provides a benchmark, enabling the decision-maker to compare the magnitude of the environmental effects of the alternatives.

No other alternatives were considered because the IDP limits the placement of interim exploratory activities within the ARPA to areas where sensitive resources do not exist. Exploration activities are centered where the best geologic and hydrologic information could be gathered outside of sensitive resource areas. The location of the BCPA was chosen, in part, due to the existing infrastructure and previous disturbance resulting from the development of the existing Browning Field, an oilfield development located both within and adjacent to the BCPA.

Decision

Based upon the analysis of the potential environmental impacts described in the EA, and in consideration of the public, agency, and industry comments received for the environmental assessment, the RFO has selected the Proposed Action alternative to be implemented. The decision incorporates the Project-Wide Mitigation Measures and Procedures identified in Appendix C, and the Conditions of Approval described in Appendix D.

APPROVED PROJECT COMPONENTS

The decision authorizes the permit approvals for the following project components within the BCPA, subject to the requirements identified in Appendices C and D.

- ∞ Development of 12 coalbed natural gas wells within the BCPA
- ∞ Completion of up to three existing wellbores for use as injection wells
- ∞ Construction of new access roads and facilities associated with coalbed natural gas development, including gas gathering pipelines, water discharge pipelines, and power lines buried parallel and adjacent (where possible) to access roads
- ∞ Upgrade of existing roads

RATIONALE FOR DECISION

The decision to approve the operator's proposed development was based upon the following factors:

1. Consistency with the Great Divide Resource Management Plan
2. National policy
3. Agency statutory requirements
4. Relevant resource and economic considerations
5. Application of measures to avoid or minimize environmental harm
6. Finding of no significant impact, and
7. Public comments
8. Consistency with the purpose and need for action

1. Consistency with Land Use and Resource Management Plans

The proposed action is in conformance with the planning direction developed for this area. The objective for oil and gas management decisions described in the Great Divide Resource Management Plan (1990) is to “provide for leasing, exploration, and development of oil and gas while protecting other resource values.”

2. National Policy

Private exploration and development of federal oil and gas leases is an integral part of the Bureau of Land Management’s oil and gas leasing program, under the authority of the *Mineral Leasing Act of 1920* and the *Federal Land Policy and Management Act of 1976*. The United States continues to rely heavily upon foreign energy sources. Oil and gas leasing encourages development of domestic oil and gas reserves, and reduces the United States’ dependence upon foreign energy supplies. Therefore, the decision is consistent with national policy.

3. Agency Statutory Requirements

The decision is consistent with all federal, state, and county authorizing actions required to implement the proposed action. All pertinent statutory requirements applicable to this proposal were considered.

4. Relevant Resource and Economic Considerations

Environmental impacts from the pilot project to resources identified in the EA are minor and all deemed acceptable. Positive economic benefits are expected from this proposal.

5. Application of Measures to Avoid or Minimize Environmental Harm

Federal environmental protection laws such as the *Clean Air Act*, the *Clean Water Act*, and *The Historic Preservation Act* apply to all lands and are included as part of the standard oil and gas lease terms. The adoption of the mitigation and monitoring measures identified in Chapters 2 and 4 of the project EA, and contained in Appendix C to this Decision Record, along with the Conditions of Approval found in Appendix D to the Decision Record, represent the best means to avoid or minimize environmental impacts.

6. Finding of No Significant Impact

Based upon review of the EA, the RFO has determined that the Proposed Action, with implementation of the protective measures identified in Appendix C and Conditions of Approval identified in Appendix D, would not cause a significant impact to the quality of the human environment. An Environmental Impact Statement is not necessary.

7. Public Comments

The BLM requested comments on this EA from the public, local landowners; and Federal, State, Local and County Agencies. The BLM released a press release with a brief summary of the proposed action, location of the project, and information about how the public could comment. A total of 14 copies of the EA were mailed out in response to requests by public, industries, or agencies via mail, phone, and walk-in visits. In addition, the EA and its appendices and reference documents were posted on the BLM Wyoming internet site for review and downloading. The comment period ran from November 7, 2003 to December 8, 2003. A total of six comments were received by the BLM. The summarized comments and BLM's responses are found in Appendix B of this document.

8. Purposes and Need for Action

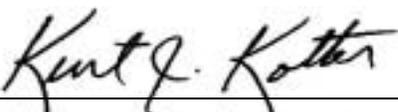
The purpose of the proposed development is to exercise the lease holders' rights within the project to drill for, extract, and market gas products. National mineral leasing policies and the regulations by which they are enforced recognize the statutory right of lease holders to develop federal mineral resources to meet continuing national needs and economic demands so long as undue and unnecessary environmental degradation is not incurred.

FINDING OF NO SIGNIFICANT IMPACT

Based on the analysis of potential environmental impacts contained in the EA, with implementation of the protective measures found in its appendices and the Brown Cow POD EA, this document, and comments received from public review, I have determined that the impacts from this project will not be significant and an environmental impact statement is not required.

APPEAL

Under BLM regulation this decision is subject to appeal. Under BLM regulation, this decision is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003 within 20 business days of the date this Decision Record is received or considered to have been received.



Field Manager, Rawlins Field Office

December 12, 2003
Date

APPENDIX A

ERRATA

MODIFICATIONS AND CORRECTIONS TO THE ATLANTIC RIM NATURAL GAS PROJECT, BROWN COW POD ENVIRONMENTAL ASSESSMENT

Chapter 2 –Proposed Action and Alternatives

Page 2-8, Section 2.1.3.3, add to the end of the last paragraph “Pipelines constructed for this project will not undergo hydrostatic testing prior to use.”

APPENDIX B

SUMMARY OF EA COMMENTS AND BLM RESPONSES

The EA was released for a 30-day public review period on November 7, 2003. A total of six comment letters were received. The letters have been reviewed to determine whether the information they provided would warrant a determination other than a Finding of No Significant Impact (FONSI). Substantive comments are summarized below, with BLM responses to the comments in italics. The RFO would like to thank all who commented for taking the time to review the EA and provide comments.

1. Dave Welch, Preservation Officer, Oregon-California Trails Association

- a. **“...to be properly implemented [protection to the Cherokee Trail by the ¼-mile buffer] there must be detailed mapping of the trail through the project area.”**

According to the 1883 General Land Office plat, the Cherokee Trail crosses the project area. However, investigations conducted by a contract archaeologist and the RFO archaeologist found no evidence of the Cherokee Trail within the project area. Intact segments were recorded adjacent to, but not within, the project area. There is no indication that any intact portion of the Trail remains within the project area. It is the recommendation of the contract archaeologist, the RFO archaeologist, and SHPO that no additional field work is required for this project.

- b. **“...as an eligible resource for the National Register for Historic Places, the Cherokee Trail is subject to the terms of the National Historic Preservation Act (NHPA) to include Sections 106 and 110. The NHPA introduces considerations in addition to the 0.25 mile buffer.”**

See response to SHPO below, #2a.

2. State of Wyoming, State Historic Preservation Office

- a. **“...this office has never agreed to the historic trails/transportation corridors policy stated on EA page 4-20 (Section 4.11.1.1): “Contributing segments of historic trails would be avoided by a ¼-mile buffer zone or outside the visual horizon, whichever is closer.” Accordingly, we request that this statement be corrected to be more in accord with the application of National Register “Adverse Effect” criteria, per 36 CFR 800.5, particularly (a)(2)(v).**

Per the Record of Decision for the Great Divide Resource Management Plan, the RFO’s current policy is to prohibit construction activities within ¼-mile of historic trails. As well, the RFO will conduct analysis for any project located within 2 miles of a proposed action to determine if any adverse effect would occur as defined under the National Register 36 CFR 800.5.

For this project, an analysis was conducted to determine if intact segments of the Cherokee Trail were present within the project area. Since no intact segments were identified in the field, there will be no adverse effects to the NRHP-eligible trail. Intact segments of the Cherokee Trail were located adjacent to, but outside of, the project area. An analysis was conducted to determine if the proposed project would adversely affect the Trail.

Project component-specific analysis has included consultation with SHPO, and in this consultation, concurrence was received on November 7, 2003. This consultation included disclosure and assessment of potential adverse effects to the Trail.

3. **State of Wyoming, Game and Fish Department**

- a. **“On Page 2-6, we recommend that pipelines, roads, culverts, and other related facilities be reclaimed at the end of the project, not just abandoned as specified in the EA.”**

The narrative on Page 2-6 refers to the abandonment of the well bore, in accordance with BLM standards and rules and regulations.

As described in the Master Surface Use Plan, Section 2.1.2.2, Section 2.1.6, and elsewhere in the EA, the disturbed areas resulting from the proposed action would be reclaimed and revegetated following operations, whether the drilling was non-productive or if the drilling results in production operations.

Specifically, “Merit proposes to completely reclaim all disturbed areas not needed for production activities. Reclamation would generally include: (1) complete cleanup of the disturbed areas (drill sites, access roads, etc.), (2) restoration of the disturbed areas to the ground contour that existed prior to construction, (3) replacement of topsoil over all disturbed areas, (4) ripping of disturbed areas to a depth of 12 to 18 inches, and (5) seeding of reclaimed areas with a BLM approved seed mixture. If the wells prove productive, all disturbed areas unnecessary for production operations would be reclaimed within 2 years after drilling operations cease. If the wells do not prove to be feasibly productive, or once production operations have ceased and the wells are plugged and abandoned, the entire disturbed area would be reclaimed within 2 years following the end of operations.” (Brown Cow Pod EA, Section 2.1.6)

- b. **“On Page 2-18, under “Project wide mitigation measures”, we recommend all compressors be special quiet engines with “hospital mufflers”...”**

To construct the compressor station, the operator would be required to submit a sundry notice to the BLM for approval. This would be reviewed, and Conditions of Approval attached. As a Condition of Approval for compressors adjacent to sage grouse habitat, the BLM would require that the compressor station be maintained and constructed/muffled so as to result in an acceptable noise level, based upon the best-available science and in consideration of technical feasibility and accessibility. This will, in the event additional compressor capacity is needed, adequately mitigate potential effects to sage grouse during the reproductive period.

- c. **“The project will remove 38 acres of big game winter range habitat during construction, and 7 acres will be lost long-term. We consider any loss of important winter range as significant since lost winter range cannot be created elsewhere or readily mitigated.”**

Total initial disturbance from this project is estimated to be 38.8 acres (2.4%) of the project area. The disturbance from this project will be dispersed throughout the entire project area, and will occur in various habitat types. A smaller area (approximately 18.6 acres, EA Page 4-13) of mule deer crucial winter range will be initially disturbed. Seasonal restrictions will prevent adverse effects to wintering mule deer from construction operations. This disturbance is occurring within an existing development; it has been predicted that the additional a cumulative impacts from the proposed action will not adversely effect crucial winter range for mule deer (see EA, Page 4-36). A low proportion (0.01%) of the entire Baggs Herd Unit would be affected long-term (EA, Page 4-36).

- d. **“On Page 4-12, it states that big game species will not be impacted by this project since they will eventually habituate to humans after the drilling stage is completed. However, in the Recreation Section, Page 4-18, the contrary point is stated: “Patterns of game use and population densities may change as a result of the project.”**

This portion of the recreational analysis (Page 4-18) referenced is focused on the construction and drilling phases of the project. During the construction and drilling operations, species that are most sensitive to indirect human disturbances would be impacted, but disturbance would be reduced during the production phase of operations, and it is likely that animals would then become accustomed to the equipment and facilities.

- e. **“While the well sites themselves may not disturb big game animals directly, the activities related to well maintenance could disturb big game species.”**

There may be some impact to big game animals from maintenance activities, but these activities are generally similar to casual uses. These impacts are expected to be similar to those resulting from use of the area by hunters and other recreationists.

- f. **“...within the Recreation Section, no data on recreation has [sic] been collected for current or past recreation use in the area. Thus, there has been no analysis.”**

Please refer to Page 3-43 of the EA: “Although data on non-consumptive recreational visitation are not available, overall use levels are generally low.” Analysis has considered known patterns of use (recreational uses tend to be dominated by hunting and cross-country travel on existing roads, at relatively low frequencies and densities). The presence of the existing development, and the relatively small additional change (with regard to aesthetic impacts) resulting from the proposed action, do not necessitate additional recreation-data collection for this project.

- g. **“Recreational pursuits including hunting provide significant economic benefits, and these may be reduced by this and other proposed projects in this area.”**

The proposed action is occurring within and adjacent to an existing oil field development. The proposed action is not likely to significantly alter the recreational attractiveness or experience within the project area.

- h. **“On Page 4-12, the analysis assumes that animals displaced from impacted habitats can move to adjacent habitats until construction is completed and then move back, eliminating an impact. This conclusion assumes adjacent habitats are suitable, available, and unoccupied.”**

See answer for #3c, above. Even when the disturbance from the Brown Cow Pod project is added to disturbance from other uses, it is unlikely that a considerable portion of available habitat will be utilized.

- i. **“...impacts to nongame and small mammals are predicted to be insignificant; however, we found no data included in the EA to support or disprove this claim... Impacts to populations should be determined through studies that measure wildlife abundance before and after development.”**

There is a large amount of available habitat for nongame and small mammals in the project area. The proposed action would result in a small proportional amount of disturbance. The effects of the proposed action on nongame and small mammals can be well-anticipated, as there are a large number of similar projects (with regard to well pad,

road, pipeline construction, etc.) in the region. Based upon past projects, there is no anticipated adverse effect from the proposed action. The proposed action is, also, occurring within an existing development. This, coupled with the low likelihood of adverse cumulative effects (see EA, Page 4-35), does not necessitate additional studies.

- j. **“The cumulative impacts section should include other habitat alterations such as fences, vegetation treatments, and roads in the analysis.”**

There are currently no reasonably foreseeable actions within the project area that include the above habitat alterations. There are no large fencing, vegetation treatment, or road construction activities currently proposed in this project area, aside from those road activities disclosed and analyzed in the proposed action. As is typical, the BLM will consult with the Department of Game and Fish, and additional NEPA analysis would occur, should any additional authorizations be considered.

- k. **“All water produced from CBM development should be re-injected, not discharged to the surface drainages.”**

No surface discharge of produced waters is proposed. Produced water will be injected into water disposal wells. See Page 2-8, Section 2.1.3.3.2: “...no produced water would be discharged to surface drainages within the project area.”

- l. **“Mitigation measures identified under the Water Resources section (2.1.8.2.6) must be followed strictly and should be included in the ROD [DR].”**

All mitigation measures shall be strictly followed, not just those in the Water Resources section. The BLM implements an inspection and enforcement strategy to ensure compliance with mitigation measures..

- m. **“Under section 2.1.8.2.6, Water Resources sub-section 3... If BLM is considering an exception to these mitigation measures, the Wyoming Game and Fish Department should be consulted prior to approving the exception.”**

No such exceptions are anticipated. The Game & Fish’s interest is noted.

- n. **“...it is critical that all best management practices be implemented to reduce erosion and prevent sediment from reaching the Muddy Creek drainage.”**

All such best management practices have been incorporated into the proposed action, or have been added as Conditions of Approval.

- o. **“All drilling fluid storage ponds should be lined to eliminate possible groundwater contamination.”**

The RFO relies upon the Wyoming Oil & Gas Conservation Commission rules and regulations regarding the lining of reserve pits (Section IV(401)(V)). The WOGCC requires that an application (Form 14b) for each reserve pit be submitted with each APD. This application contains a disclosure of pit capacity, freeboard, anticipated pit contents, and distance to the nearest surface drainage. It should be noted that reserve pit contents are not considered hazardous wastes.

The decision to line pits is made on a case-by-case basis, considering soil textures and depth to groundwater. This is considered at the onsite inspection, and appropriate recommendations are made.

- p. **“Drill pad drainage should be designed to provide for the removal of excess water while containing all toxic material within a proper sized pit. Adequate capacity should be provided in the pits to handle excess precipitation.**

See answer to #3o, above. The Project-Wide Mitigation Measures and Procedures provide that the operator shall “maintain two feet of freeboard on all reserve pits to ensure the reserve pits are not in danger of overflowing.” (EA, Page 2-17). In similar topography and soils, with an identical precipitation regime, this condition has proven adequate to prevent adverse effects.

- q. **“Release of hydrostatic test waters during pipeline construction could result in alterations of stream channels, increased sediment loads and additions of potentially toxic chemicals into drainages, thereby resulting in adverse impacts to aquatic biota. Consequently, the direct discharge of hydrostatic test waters to streams should be avoided...”**

The applicant has decided not to hydrostatically test the pipelines after construction, and thus this was not included in the Proposed Action alternative. Please see Appendix A, Chapter 2.

4. **National Wildlife Federation, Biodiversity Conservation Alliance, Wyoming Outdoor Council, and the Wyoming Wildlife Federation**

- a. **“The environmental assessment for the Brown Cow Pod Coalbed Methane [CBM] Project violates the National Environmental Policy Act [NEPA] because it relies on the BLM’s Interim Drilling Policy [IDP].”**

- 1) **“The IDP should have been subject to NEPA under BLM’s rules.”**

The Council on Environmental Quality (CEQ) regulations found at 40 CFR 1506.1 discuss the requirements that must be met to allow limited activities during the preparation of an EIS. The IDP was prepared to guide exploratory oil and gas activities and to notify the operators what requirements would be necessary to keep activities at a reasonable level during the preparation of the EIS, while allowing the gathering of data necessary for the completion of the environmental analysis. The IDP is neither a decision nor an action. No action will be authorized until a NEPA document and a Finding of No Significant Impact have been completed. The IDP is a policy to guide activity while collecting data to conduct an environmental analysis.

The IDP describes the “conditions and criteria” that will determine what and where exploration activities may be considered. Those exploration activities constitute the action and are subject to NEPA analysis. The IDP itself states, “Prior to initiating interim drilling, and environmental assessment, including a detailed Water Management Plan, will be prepared and approved for each individual pod.”

The policy falls under BLM Manual H-1790, Appendix 3, Categorical Exclusions, Part 1.10, which states, “Policies, directives, regulations and guidelines of an administrative, financial, legal, technical, or procedural nature; or the environmental effects of which are too broad, speculative, or conjectural to lend themselves to meaningful analysis and will be subject later to the NEPA process, either collectively or case-by-case.” The IDP meets the policy, guidelines, technical, and procedural categorical exclusion criteria.

IDPs have been generated for several exploratory drilling projects within the Rawlins Field Office and other BLM offices in Wyoming. For this reason alone, the Atlantic Rim IDP does not set precedence.

The Great Divide RMP specifically describes under the section discussing "Management Actions" relating to oil and gas development, "Surface-disturbing activities will be restricted and intensively managed to maintain important resource values in ACECs, the Baggs Elk Crucial Winter Range, and in overlapping crucial winter ranges for the various big game species." The conditions and criteria described in the IDP reflect protective measures described in the RMP that are designed to protect sensitive resources considered by the Interdisciplinary Team as likely to occur in the Atlantic Rim Natural Gas Project Area.

Regulations found at 40 CFR 1506.1 directly state that interim activities, within the limits described, are allowed during preparation of a project EIS. While the IDP document allows the BLM to better manage interim activities to meet CEQ requirements, clearly interim activities could proceed without an IDP.

- 2) **"...the IDP was exempt from categorical exclusion, and at least an EA should have been prepared for the IDP."**

The IDP is not precedent-setting, in that it is not a decision which would limit the scope or extent of a proposed action. It is a document which provides guidance to the operators for development of a proposed action which should not result in a significant impact. A proposed action which would not conform to the guidance in the IDP could still be considered by the RFO. However, the RFO likely develop an alternative consistent with the IDP guidance, analyze each alternative in the EA, and make a decision based upon that analysis of effects and NOT based upon compliance with the IDP. For this reason, the IDP is not precedent-setting and is not exempt from categorical exclusion.

- 3) **"The IDP makes numerous decisions which determine the location and extent of the environmental impacts of CBM drilling in the ARPA [Atlantic Rim Project Area]."**

The IDP establishes conditions and criteria to keep all activity at an insignificant and a reasonable level during completion of the EIS. The basis for the criteria described in the IDP document are decisions, management objectives and actions, and mitigation described for oil and gas operations and other surface-disturbing activities in the Great Divide RMP, oil and gas rules and regulations, and standard operating procedures. There are limitations on exploration drilling and location of activities described in the IDP, but no decisions are made, as it is not meant to be a decision document. The limitations are based on allowing exploration without having an adverse environmental impact or limiting the choice of reasonable alternatives while allowing the gathering of data necessary for the completion of the EIS. The operators are allowed to propose activities under the guidelines given, but can choose how many wells to drill, where to place facilities, locations, roads, and propose alternate methods of water disposal, as long as the activities fall within the conditions and criteria of the IDP. The operators can not exceed the number of wells described in the IDP but are not obligated to drill all 200 wells, nor a total of 24 wells in each pod. No proposal will be approved until an EA has been completed and then reviewed by the public. The BLM will review the EA and the public comments and will then make a decision as to whether the project as described will result in no significant environmental impacts.

- a) **“The IDP sets a maximum of 200 CBM wells “for research and exploratory purposes during the interim period.” How would the impacts have been different if the maximum number of wells were different? Were alternatives to a 200 well maximum ever considered?”**

Yes, other levels of drilling were considered. The first request by the operators was to consider 400 exploratory wells. After the BLM required the operators to propose an exploratory plan located outside of areas of known sensitive wildlife resources, the number of exploratory wells was revised to 228. Based on sound reservoir management principals, BLM determined that 200 wells was an appropriate level of research and exploration to allow during the preparation of the EIS. This was used to develop the proposed action for the Brown Cow Pod EA.

- b) **“The IDP allows wells “in the nine pods the operators have proposed.” Did BLM explore other pod areas or fewer pod locations? Would the impacts have been different had there been fewer or different pod locations?”**

Again, the level of exploratory activity was based on sound reservoir management principles. The intent of the IDP was to keep exploratory drilling outside of sensitive resources. Placement of the proposed exploratory drilling in different locations may have resulted in greater impacts to sensitive resources.

- c) **“The IDP sets “a maximum of only 24 CBM wells within any pod...” How would the environmental impacts have been different if a lower maximum number of wells in each pod had been used?”**

The maximum number of wells per pod was derived based on past experience within the Dixon Field and Drunkards Wash Unit (near Price, Utah). The best comparison to the geologic conditions known to exist in this area is the Dixon Field CBM development of the early 1990s, just south of Atlantic Rim along the Wyoming/Colorado border. The companies believe the Drunkards Wash Unit near Price, Utah, is also a good productive analogy to the situation present within the Atlantic Rim CBM Project Area. The data from these two fields indicate that somewhere between 11 and 30 wells might be needed in a pod to adequately determine its economic viability. The BLM believes the 24-well target would allow the operators to obtain an indication of economic viability in a reasonable period of time. Each pod must be evaluated with an environmental analysis. If, through this analysis, 24 wells were believed to cause significant impacts to the environment or prejudice decisions to be made a result of the Atlantic Rim Natural Gas Project EIS, a lower number of wells would be considered.

- d) **“The IDP specifies that “required injection and monitoring wells will not count toward the well limit”. Drilling and using injection and monitoring wells have environmental impacts; how would the overall assessment of impacts vary if injection and monitoring wells were counted toward the maximum number of wells in a pod?”**

Only three monitoring wells will be required, and each pod will likely have two reinjection wells (some outside of the Colorado River Basin may

have none). There is generally less than one acre of initial disturbance for each of these wells and a life- of-project disturbance of 0.005 acres for each well. This would result in an initial disturbance from all injection and monitoring wells of 23 acres (23 wells x 1 acre) and LOP of 0.115 acres (23 wells x 0.005). Disturbance from the one to three injection wells proposed for the Brown Cow Pod Project is described in the EA on page 2-8 and in Table 2-2. Even a slight increase in the number of injection or monitoring wells would only result in a minimal increase in disturbance; however, please note that all monitoring and injection wells will be subject to a NEPA analysis.

- e) **“The IDP specifies that “a ¼-mile buffer is required between surface-disturbing activities and the Overland Trail.” How would the impacts vary if this buffer were enlarged?”**

Page 11 of the Great Divide RMP discusses protection of the Overland Trail as a management objective. However, the Brown Cow Pod Project does not overlap the Overland Trail therefore, this requirement will not impact the decision for this project.

- f) **“The IDP specifies that prior to completion of the ARPA EIS, and with possible exceptions for Double Eagle’s existing and proposed wells, water produced from coalbed methane wells located in the Colorado River Basin will be disposed of by reinjection. What are the environmental benefits and costs of this broad disposal decision?”**

The requirement for reinjection for operations located within the Colorado River Basin is intended to allow CBM development without violating the requirements of the Clean Water Act. The environmental benefit would be to meet the objectives set forth by the Colorado River Basin Salinity Forum and the Management Objectives for Soil, Water, and Air described on page 39 of the Great Divide RMP. Reinjection will prevent salt loading in watersheds within the Colorado River Basin. Furthermore, the impacts to groundwater were projected to be minimal because the State of Wyoming requires all formations accepting reinjected water contain water of lower quality than the water placed in the formation as described in the EA.

- g) **“The IDP provides that when a pod contains a prairie dog town, a black-footed ferret survey “will clear the pod for a one-year period.” Operators also have the option to complete the survey for the whole EIS area, “which would clear the area for the life of the project. Would there be greater protection if the clearance period were shorter than a year? If the survey is done for the entire EIS area, why should the clearance be for the ten-to-twenty year life of the project, given that ferrets could move into a prairie dog town after the initial survey, but long before disturbance of their new habitat? Why does the IDP not consider the importance of prairie dog towns to other declining species such as the swift fox, mountain plover, and ferruginous hawk, all of which may be impacted by the proposed CBM development on the Atlantic Rim?”**

This requirement meets the USFWS guidance necessary to protect black-footed ferrets on public lands. As part of the project review and analysis, field reviews are conducted to ensure that, as possible, the

proposed disturbance will avoid prairie dog towns. The current proposed action successfully avoids prairie dog colonies. This being the case, no adverse effect to prairie dogs is anticipated from the proposed action, or corollary adverse effects upon obligate species.

- h) **“The IDP precludes drilling or disturbance “in areas where any two or more big game crucial winter ranges overlap.” What would be the environmental benefits of precluding disturbance where there was only a single species crucial winter range, particularly since under any timing stipulations that may apply, disturbance done in crucial winter range prior to the closure date need not be reclaimed before the next closure period?”**

On page 30 of the Great Divide RMP, Management Actions, the RMP specifically states that surface-disturbing activities will be restricted and intensively managed to maintain important resource values in overlapping crucial winter ranges for various big game species.

The Rawlins Field Office has determined that the timing stipulations adequately protect big game crucial winter range for a single species. If it was determined, through further analysis, that additional mitigation was necessary to protect single species crucial winter range, the BLM could afford this protection.

- i) **“The IDP provides the BLM must approve a drilling schedule “to ensure activities are limited within proven big game migration corridors at critical use times during the year.” Why did the BLM indicate that it would only limit activities, rather than preclude all activities in the corridors at critical use times?”**

The requirement was placed in the IDP to avoid simultaneous drilling in two adjacent pods if proven big game migration corridors were present.

- j) **“The IDP requires the installation of fish passage structures “for roads which cross drainages with fisheries concerns as identified by BLM.” Have these drainages already been identified? What criteria were used? Was the public allowed to evaluate these designations? Was any environmental analysis done on which drainages were designated? Given that “pipelines, power lines, and fiber optic lines will be buried and, where possible, will follow the road rights-of-way,” what is to prevent trenching for these lines from destroying fisheries that the passage structures were intended to save?”**

No roads within the Brown Cow Pod Project area are subject to this requirement. There are no specific drainage designations. If road construction must occur over a drainage with fisheries potential, the construction would be based on information gathered during the project onsite visit, and this information would be presented in the project EA.

- k) **“The IDP’s definition of Sensitive Resource Areas, which requires protection with stipulations or by mitigation, does not include areas important for recreational use, areas of important scenic value, areas of solitude and lack of noise, or areas of fragile soils. What would be the environmental benefits of including these other resource values as sensitive areas which must be protected by stipulations or mitigation?”**

The project area is managed for multiple uses. There are no areas set aside for special management of sensitive soils within the project area. All of the Atlantic Rim exploratory pods are located in Visual Resource Management Class III. None of the pod areas lie within any area identified in the RMP as a special recreation area or contained in designated recreation sites. The concerns you identify are addressed through project-wide mitigation measures and procedures described in the Brown Cow Pod EA on pages 2-13 through 2-20.

- 4) **“The Brown Cow Pod EA relies heavily on the Interim Drilling Policy.”**

The IDP is very important in providing guidance to the operators regarding exploration activities. The IDP identifies protective measures to meet 40 CFR 1506.1, but other authorities, rules, regulations, mitigation in the RMP, in addition to the IDP, played a role in determining where and what exploration activities would occur within the Brown Cow Pod Project .

Most of your discussion in this section appears to emphasize that the IDP restricts alternative formation. According to the H-1790-1, BLM NEPA Handbook, Chapter IV, Preparing Environmental Assessments, page IV-3, alternatives to the proposed action must be considered and assessed whenever there are unresolved conflicts involving alternative uses of available resources. Public controversy or concern about a proposal does not necessarily mean that alternatives must be analyzed The Handbook raises the question whether there are reasonable alternatives for satisfying the need for the proposed action, and will these alternatives have meaningful differences in environmental effects.

The Brown Cow Pod Project consists of the drilling of 12 CBM wells and associated facilities. As stated in response 4(a)(iii)(03) above, BLM believes the 24-well target is consistent with other CBM fields with similar geologic conditions, and would allow the operators to obtain an indication of economic viability in a reasonable period of time. Because the impacts from implementing this project were minimal, and no unresolved conflicts were apparent, no other reasonable alternatives were considered.

- b. **“The Brown Cow Pod EA violates the Federal Land Policy Management Act.”**

- 1) **“The Great Divide RMP does not contemplate CBM development or its associated environmental consequences.”**

The RMP states that the entire planning area is open to oil and gas leasing and does not make a distinction as to whether oil and gas development is conventional or otherwise. The minerals management program policy and goals described in the RMP are to provide the opportunity for leasing, exploration, and development of oil and gas while protecting other resource values. CBM-related activity is not unanticipated just because the RMP does not use the specific words “coalbed methane”. “Methane” and “natural gas” are used interchangeably regardless of the source. No specific formation, bed, or seam

was identified in the RMP as being suitable or unsuitable for oil and gas development. Natural gas production operations are very similar, and CBM development is no exception. Development and production sequence described in the Oil and Gas Appendix in the Draft Environmental Impact Statement for the Medicine Bow-Divide Resource Management Plan (later the Great Divide RMP) describes typical development operations, even to the point that water may need to be removed during natural gas production. Therefore, even if coalbed methane has not been specifically mentioned, the activity is clearly consistent with the terms, conditions, and decisions of the approved plan [43 CFR 1610.0-5(b)].

In the Interior Board of Land Appeals' (IBLA) order denying the request for stay by the Wyoming Outdoor Council (IBLA 2003-358), the IBLA stated that "We have scrutinized the Great Divide RMP/EIS and conclude that its analysis of oil and gas impacts adequately analyzed impacts associated with potential CBM exploration and development in the RFO area, which is located outside the Powder River Basin. Although the BLM did not flag CBM as a discrete topic in the draft and final EIS's, those documents did address the issues typically associated with natural gas production in general and CBM production in particular (e.g. water volume, quality, discharge/disposal, contamination of surface and groundwater, sodium adsorption ratio (SAR), and the uses to which produced water can be put)."

- 2) **"The BCPEA exceeds the reasonably foreseeable development scenario for the Great Divide Resource Area."**

The GDRMP recognizes development of oil and gas resources on two levels (not just one as you allege in your comments): 1) number of wells drilled and 2) amount of surface disturbance from the development of these resources. The DEIS analysis assumed that 40 acres of disturbance would occur from the development of each gas well brought into production (including ancillary facilities). Efficiencies within the oil and gas industry have resulted in the amount of surface disturbance necessary to develop oil and gas operations. The Continental Divide DEIS re-examined the amount of long-term disturbance associated with natural gas development and estimated it to be approximately 9 acres (CD/WII DEIS at 1-8). It is estimated that the surface disturbance associated with developing the Brown Cow pod would be much less per well, with an estimated short-term disturbance of 3.23 acres/well (12 wells requiring 38.82 acres) and long-term disturbance of 0.63 acres/well.

As elaborated upon in the Desolation Flats DEIS (Page 1-13, released April 2003) there are over 7,000 acres of long-term disturbance acreage available for future projects. Therefore, the reasonably foreseeable development estimate of the future oil and gas wells and associated long-term disturbance within the RFO would not be exceeded by this project.

- 3) **"The BCPEA departs from the Great Divide RMP in other respects that violate FLPMA."**

- a) **"The RMP specifies that access to the Atlantic Rim for recreation is of high importance. However, the Brown Cow Pod EA does not address how CBM drilling on the Brown Cow Pod (or the cumulative impacts of drilling in conjunction with other ARPA development) will affect access to the Atlantic Rim for recreation."**

There are no plans to restrict use on any county road or BLM resource road as a result of implementing the Brown Cow project.

- b) **“...the GDRMP states that “surface disturbance from oil and gas exploration and development would be restricted in certain areas with sage grouse leks and high priority habitat”, yet Figure 4-1 of the BCPEA shows mule deer winter range, potential mountain plover habitat, white-tailed prairie dog colonies, and sage-grouse lek buffers within the Brown Cow Pod Project Area. This is not consistent with the GDRMP and is, therefore, in violation of FLPMA.”**

No CBM drilling is allowed within any greater sage-grouse lek. In addition, drilling is restricted in these sensitive resource areas you describe under the terms described in lease stipulations, site specific COAs (Appendix D), and guidelines of the IDP.

- c. **“The Brown Cow Pod environmental assessment violates NEPA by failing to consider other reasonable alternatives, failing to adequately analyze reasonably foreseeable future actions, and failing to adequately disclose impacts of the proposed action.”**

- 1) **“The BCPEA violates NEPA by failing to consider other reasonable alternatives.”**

You have mis-quoted the Brown Cow Pod EA on page 13 of your comments, when you state “Indeed, not only did the IDP limit the alternatives considered for the DMPPA, but there is also no evidence that any other alternatives were evaluated during the development of the IDP. BCPEA at 2-28 (noting that “[t]wo other alternatives... were identified but were not analyzed in detail because they did not comply with the Interim Drilling Policy”).” This statement does not appear in the Brown Cow Pod EA. Also, refer to response #4(a)(ii.), above.

The CEQ states in its Forty Questions and Answers about NEPA Regulations (1981) that there are two distinct interpretations of the No Action Alternative. The first is that there is no change from the existing situation. This interpretation generally applies to planning decisions. The second interpretation is that the proposed activity (i.e., as described under the Proposed Action) would not take place. This does not mean, however, that activity associated with oil and gas development would never be allowed to occur in this area. Under the Mineral Leasing Act of 1920, as amended, the BLM cannot deny the lessee the right to develop somewhere within the leasehold. This right is supported by national mineral leasing policies and the regulations by which they are enforced, which recognize the statutory rights of lease holders to develop federal mineral resources to meet continuing national needs and economic demands as long as undue environmental degradation is not incurred.

However, this does not mean the “No Action Alternative” cannot be chosen by the decision-maker. If the components of the project described under the Proposed Action were such that the decision was made that environmental impacts were significant, either an environmental impact statement could be prepared, the project components could be changed, or additional mitigation proposed that would allow a determination of no significant impacts, or the decision-maker could choose the No Action Alternative and the project would not go forward as described.

2) **“The BCPEA violates NEPA by failing to consider directional drilling.”**

This alternative was determined by the operator to not be economically feasible for the exploratory phase. As well, it is not possible to adequately case and cement a directionally-drilled wellbore. For these reasons, directional drilling was not considered as a feasible alternative.

3) **“The BCPEA violates NEPA because its analysis of cumulative impacts fails to thoroughly consider reasonably foreseeable future actions.”**

At this point, the proposal to develop a 3,880 well field is not reasonably foreseeable. In general, two main factors determine whether other actions should be included as part of the cumulative impact analysis—location and timing of actions. The cumulative impact analysis must take into account the past, present, and future actions that overlap in time and location with the proposed action. At this time, there is no data available to confirm that CBM resources can be developed and produced in the entire ARPA. Implementation of the 200-well interim drilling program was designed to identify where areas of CBM drilling may be economic and the number of wells at which the program becomes economic. The only reasonably foreseeable activity at this time, other than conventional uses of oil and gas drilling and ranching, is the 200-well proposal.

4) **“The BCPEA fails to acknowledge limits on BLM’s ability to impose post-leasing mitigation measures.”**

All applicant-committed mitigation measures will be enforced, as will the Conditions of Approval. The mitigation measures, though proposed by the operator, are not negotiable in compliance. The operator shall follow those Project-Wide Mitigation Measures and Procedures as well as the Conditions of Approval, with requisite enforcement by the RFO.

The restrictions referred to in the EA that you were unable to find, are provided in Chapter 2, Page 2-18. “Construction” refers to all surface-disturbing activities. “Restriction” refers to the mitigation measures and conditions of approval associated with the authorization of an APD, which limit construction, drilling, reclamation, and other activities during the periods when seasonal restrictions are in effect. As described in other portions of this Appendix, routine maintenance and production operations will not be subject to these restrictions, as these activities are similar to other casual uses which occur on public lands.

In your footnote, you ask what the difference between “important” winter range and “crucial” winter range is. The BLM enforces mitigation measures within crucial winter ranges, but does not so in other winter ranges, although those ranges may, in fact, be “important” to a big game species. This serves to recognize that winter range is an important resource to be considered, although the BLM and Department of Game and Fish identify and protect only designated crucial winter range.

In essence, what you consider to be “voluntary” mitigation measures are, in fact, mitigation measures which the operator has volunteered, and is compelled, to comply with. The BLM will enforce such mitigation measures in the same manner as those prescribed by the BLM in authorizing the APDs.

5) **“Other specific problems in the BCPEA.”**

- a) **“The EA fails to disclose whether the proponents will be stimulating coal seams by hydraulic fracturing.”**

Hydraulic fracturing is not a component of the proposed action. However, should fracturing be later proposed, fracturing would be restricted to the coal seams. Because these seams are deep and isolated from those formations utilized for drinking water, no impacts are anticipated to drinking water supplies and/or surface waters.

- b) **“...The analysis assumes that the strata into which produced water is expected to be injected are sealed from adjacent aquifers. However, there is no discussion of alternate disposal of the waters should the strata not be sealed or if they lack adequate capacity to take the water. Nor is there any discussion of putting monitoring wells into the targeted aquifer for injection, the adjacent aquifers, or into aquifers adjacent to the coal seam. Cross-aquifer communication and contamination can occur through a variety of mechanisms. There is no background quality analysis of the water in the targeted injection strata, “but it is anticipated that the CBM-produced water that would be injected would be of equal or higher quality in regards to class of use as defined by WDEQ regulations.”**

It appears as if the formation into which produced water will occur is sealed. The Wyoming Oil and Gas Conservation Commission requested that another operator in the Atlantic Rim Natural Gas Project obtain data to show that the water injected into the permitted injector well at the Sun Dog Pod well, ARFed 1691 8I, is actually staying in the Deep Creek sand. This temperature survey is on file with the WOGCC. The WOGCC will require this test for injection wells in the Brown Cow Pod if it appears as if migration or reinjection into the Deep Creek sand zone could occur.

The letter regarding ground water monitoring (Appendix E of the DR) describes the requirements the BLM has developed.

- c) **“There were no mountain plovers located in the Project Area during surveys in 2001-2003, but several tracts of potential plover habitat were identified in the project area, and at least 2 wells would be built on these potential nesting habitats. In addition, the presence of prairie dog colonies indicates that additional plover habitat is present within the drilling area. The mountain plover was proposed for listing as threatened under the Endangered Species Act, and a lawsuit was recently filed to the USFWS to list the species. Will there be monitoring for the presence of mountain plovers throughout the lifetime of the project? There is no assessment of the cumulative impacts of roads on mountain plovers should they be present and roads are identified as a risk factor for them in the Proposed Rule to list the mountain plover as threatened under the Endangered Species Act as the plovers both nest and forage in the bare ground along road verges.”**

On September 8, 2003, the USFWS withdrew its proposal to list the mountain plover under the ESA. It is still considered a BLM Wyoming State Sensitive Species, and is afforded the same protection stipulations

as when it was a candidate to be listed under the ESA. One reason that the USFWS cited as justification to not list the plover was the effectiveness of the mitigation measures applied, as required in the Brown Cow Pod Proposed Action.

At this point, the operators are not required to survey for plovers in the pod areas, although potential habitat is noted during BLM onsite investigations and COAs will be placed on the APDs if habitat is found. The BLM has established survey routes through potential mountain plover habitat in the Atlantic Rim project area and has surveyed for the birds on the routes during the past three years, but no birds have yet been observed within the breeding season. Should exploration drilling prove economic reserves exist in the Atlantic Rim area, a wildlife monitoring plan will be prepared as part of the mitigation proposed in the EIS outlining the requirements for wildlife monitoring, including mountain plover.

The Brown Cow Pod can be accessed by county roads or BLM resource roads. New road construction during interim drilling activities is limited to the spur roads required to access each well site.

An increase in traffic would be seen on existing county roads, but stipulations restricting construction activities during nesting periods in areas identified as plover habitat would serve to keep traffic at a level consistent with normal activities that would occur without the project and would minimize the potential for encounters with mountain plover during critical times.

- d) **“The BCPEA states that no active raptor nests were found within the project area during the breeding season survey in 2001. But three ferruginous hawk nests are currently located within 1 mile of the proposed well sites of the Brown Cow Pod, two within substantially less than ½ mile. BLM notes, “The primary potential impact to raptors from the project activities is disturbance during nesting that might result in reproductive failure.” And yet the only mitigation measures would prohibit construction activities “near” raptor nests during the nesting season. How far away [sic] will the sites be located? Studies suggest that facilities should be located at least ½ mile away from raptor nests during periods of prey scarcity. Since the life of project is likely to exceed 20 years, there will certainly be periods of prey scarcity during which wells should be located substantially farther away than ½ mile from a raptor nest site. And because well sites cannot be moved once they are drilled, the BLM should elucidate its mitigation standard to require that wells be no closer than 1 mile from raptor nests found prior to the construction phase of activities. The proposed mitigation standards would allow well construction right on top of raptor nest sites, as long as construction occurs outside of the nesting season. This is an unacceptable state of affairs because raptors often return to one of several nest sites within a nesting home range year after year, and may return to nest at a site which was inactive the previous year but used in the more distant past. Such a nesting pair of raptors would be likely to suffer nest failure as a result of human disturbances associated with vehicle traffic inherent to production (post-construction) activity.**

The proximity of the proposed well sites to raptor nests may be seen on Figure 4-1 of the EA.

Surveys for raptors have been conducted by BLM in the Atlantic Rim project area. Should exploration drilling prove economic reserves do exist in the Atlantic Rim area, a wildlife monitoring plan will be prepared as part of the mitigation proposed in the EIS that would outline the requirements for wildlife monitoring, including those for raptor surveys. If new raptor nests are discovered, appropriate mitigation measures would be applied.

- e) **“One white-tailed prairie dog colony is present within the Brown Cow POD area. Well sites typically entail structures which can be used by raptors for roosting. The siting of such structures near the prairie dog colony could lead directly to the extirpation of the colony through elevated predation rates. This would in turn have deleterious effects on mountain plovers, burrowing owls, and swift fox, all BLM Sensitive Species likely to be found in the project area. A more detailed analysis is needed to determine the effects of the proposed development on prairie dogs, beyond the unsupported claim in the BCPEA that no effects are expected.”**

This proposed action successfully avoids prairie dog colonies. There are existing wells and facilities situated closer to the mapped prairie dog colony (see EA, Figure 4-1). No further effect is anticipated.

- f) **“No raptor nesting inventories are planned for the life of the project. If an active raptor nest happens to be found and reported by the operator, “appropriate avoidance and mitigation measures would be taken to avoid adverse impacts.” What exactly are these measures? Any measure that restricts only construction activities does nothing to reduce or mitigate for production-related disturbance (e.g., daily visits to the wellsite for monitoring, heavy truck traffic related to the disposal of condensate) that would be expected to continue long after the construction phase of development is completed. Even relatively “minor” disturbances such as the passage of a single vehicle have been shown to cause temporary nest abandonment, which can lead to overheating/cooling of eggs or dehydration of nestlings, resulting in nest failure.”**

If a raptor nest is discovered during the course of operations, the situation would be reviewed, and appropriate mitigation measures applied as necessary, using the best-available science. Mitigation measures applied will be based upon the specific conditions and circumstances for each location and resource.

- g) **“Consider that well-site facilities for productive wells will be in place for up to 20 years. These facilities will provide perch sites for raptors and corvids, and coupled with a nearby prairie dog colony and sage grouse lek sites, are likely to increase use of the area by raptors and corvids. The BCPEA fails to account for the potential impacts of creating new raptor perches near the crucial habitat of sensitive prey species.”**

See answer for #4(c)(v.)(05), above. No further effects are anticipated.

- h) **“Increased traffic on access roads will result in increased dust. The BCPEA states that dust abatement will occur only using water from state-approved sources, dust suppressants, or other measures. There is no discussion of the effect of chemical runoff if chemical suppressants are used on verge vegetation.”**

Based upon the well-known, previous effects of such intermittent operations, dust abatement is not anticipated to result in adverse effects. Use of water or other agents on project roadways requires a sundry notice submitted to the BLM. The proposal will be reviewed by BLM as the surface owner and also approved under the standards of the WOGCC. Water is the most likely source used for dust suppression; however, because of the limits set by the Colorado River Basin Salinity Forum, the chemical composition of the water used for this activity would be closely monitored.

- i) **“On the subject of the Wyoming big sagebrush community, BLM states that overall impacts would be “minor” and that the short- and long-term acreage of disturbance would have a “negligible impact” on sagebrush habitats. These are unsupported and unsupportable statements, as habitat fragmentation and direct disturbance will most certainly have negative impacts on the quality of this habitat type within the project area. Fragmentation of sagebrush steppe habitats is known to have deleterious effects on sagebrush obligate species such as sage sparrow, Brewer’s sparrow, and sage thrasher. Oil and gas development has specifically been shown to negatively impact these species in Wyoming. There is no discussion of the cumulative impacts of roads within and presumably connecting the nine exploratory pods to such species. Moreover, if the pods are connected then there will be a greater likelihood that after the CBM project ends (after roughly 20 years), ORV enthusiasts, hunters, and other recreational users will use the roads. Although several sagebrush obligates on the BLM Sensitive Species List are noted for the project area, the potential impact on sagebrush obligate species of public use after the project has not been evaluated. BLM also asserts that its “BMP” mitigation measures would “minimize effects on vegetation resources.”**

Page 4-35 of the EA states “The disturbance of wildlife habitat resulting from implementation of the interim drilling program of the nine pods would reduce habitat availability and effectiveness for a variety of common mammals, birds and their predators. Initial phases of surface disturbance would result in some direct mortality to small mammals, displacement of songbirds... Due to the relatively high production potential of these species and the relatively small amount of additional habitat disturbed (0.0003% of the Atlantic Rim project area), small mammal and songbird populations would quickly rebound to pre-disturbance levels following reclamation, and no long-term impacts to these populations are expected.” Because of the small amount of disturbance associated with the project (38.8 acres), their inherent mobility, and the availability of suitable habitats on undisturbed land, the effects on these species should be minimal.

Because the pod itself will be accessed by an existing road, and all other proposed roads are spur roads that will access the well, road use will

likely increase during project construction, but is anticipated to return to normal levels of use after the project is completed.

Transportation planning will be an integral part of the development of the Atlantic Rim project, and also a means of looking at access into pod areas. Currently, the majority of the interim drilling pods can be reached by using existing legal access, so the proliferation of several through roads as a result of these CBM exploration projects is not anticipated

- j) **“Oil and gas development has been shown to reduce the nesting rates of sage grouse, and its impacts include direct habitat loss from new construction, increased human activity and pumping noise causing displacement, increased legal and illegal harvest, direct mortality associated with reserve pits, and lowered water tables resulting in herbaceous vegetation loss. Experts agree that oil and gas facilities should be sited farther than 3.2 km (2 miles) from sage grouse leks to protect nesting that occurs on the lands surrounding the lek. All 12 of the proposed wells are scheduled to be constructed within 2 miles of a sage grouse lek, some within one mile. In addition, an ostensibly “inactive” lek is located within the POD. The mitigation measures proposed for the project, however, prohibit “construction activity” only within ¼ mile of lek sites. There is a seasonal prohibition on construction activities throughout the project area from March 1 to June 30 to reduce disturbance to sage grouse. But these measures fail to address the disturbance to nesting sage grouse from routine production-related traffic and activities that will continue throughout the life of the project along roads and well sites within the project area, as well as along the access route to the project area. Moreover, the speculative assertion that “the BLM may require that noise levels be limited to no more than 10 dBA above background levels at sage grouse leks,” hardly provides assurance that sage grouse reproductive behavior will not be disturbed.**

In addition, the BLM states that exceptions could be granted to this restriction if the impacts would occur outside suitable nesting habitat. And yet the BLM fails to identify criteria by which lands within 2 miles of a sage grouse lek would be classified as unsuitable for nesting. Until the BLM provides hard criteria for determining what constitutes suitable and unsuitable sage grouse nesting habitat, the agency is in no position to meet the criteria for the granting of a waiver. Because the BLM is incapable of meeting the criteria for granting a waiver to seasonal stipulations, the mitigation measures should state explicitly that waivers will not be granted under any circumstances. Furthermore, for the above reasons the Brown Cow facilities should be relocated so that no roads or well sites fall within 2 miles of a sage grouse lek site.”

The EA describes the mitigation measures that will be followed to protect sage grouse populations (see EA, Page 2-18) and analyzes potential impacts (see EA, Pages 4-13, 4-36).

- k) **“The BCPEA notes that half of the project wells will be constructed within designated mule deer crucial winter range and that all of the BCPA is pronghorn winter/yearlong range. The entire project area is also elk winter range. In western Wyoming, it has been found**

that oilfield developments caused game animals to abandon substantial tracts of winter range. Researchers have noted that densities of pronghorn are lowest in areas of severe oil and gas development. The BLM notes that the crucial winter/yearlong mule deer ranges in the project area will be “closed from November 15-April 30,” although exceptions may be made available. Does this mean closed to the public, closed to the proponent for construction purposes, closed to all vehicle and human traffic, including for production-related purposes, or all three? And if so, why does this closure not appear as a mitigation measure in the Wildlife section? These points need clarification before a decision can be issued. In addition, the BLM has failed to analyze the cumulative effects of the Brown Cow project together with the effects of the 3,880-well Atlantic Rim project on mule deer migration patterns and crucial winter habitats. This shortcoming must be addressed prior to the issuance of a Decision on this project.”

The seasonal restriction described in the EA refers to the closure of the project area for the construction, drilling, reclamation, or any other surface-disturbing activity on behalf of the operator, associated with the proposed action. Well maintenance activities, such as routine well site inspections, are considered a casual use, and would not be prohibited. Other uses, such as public recreation, and uses associated with maintenance of the existing oil field which overlays the proposed action, would continue.

With regard to the cumulative effects of the proposed action with other projects within ARPA, see answer #4(c)(iii.), above.

- l) **“The BCPEA does not adequately address the cumulative impacts of weed invasion into areas from which plant cover is removed though it does admit that the Project Area is vulnerable to infestations of invasive/noxious weeds, there are current infestations of Russian thistle, musk thistle, common cocklebur, and Canada Thistle, and 2003 was a heavy weed-seed production year. However, the BCPEA overlooks the fact that roads enhance exotic species invasions. Trail and road verges are notorious for their susceptibility to weed invasion and establishment. There is also a high potential for weed seeds/propagules to be introduced by construction equipment and by gravel used for roadbeds. Diffuse knapweed is known for its ability to swiftly invade disturbed areas, especially where soils have been augmented by sands or gravel, such as widened and extended roadbeds.**

An additional concern at this site is the presence of a white-tailed prairie dog colony. Such colony areas have areas of semi-bare to bare ground, especially around the burrows, that are susceptible to invasion by weeds. There do not appear to be any required mitigation measures for monitoring for and treating weeds in the construction area, and there is no discussion of monitoring the prairie dog colonies either. Weed control appears to be a discretionary activity that might or might not be undertaken by the project proponent, with no standardized methods for applying and/or dealing with herbicides which might also be detrimental to wildlife such as sage grouse. There is also no indication of who will

do monitoring and how often it will occur. The cumulative potential of all nine pods for weed invasion is high.”

The subject of weed invasion and establishment is addressed in several places in the EA. Page 4-8 states, “Surface-disturbing activities could increase the potential for infestation and spread of invasive plant species. Invasive species... often thrive on disturbed sites such as road and pipeline ROW’s and out-compete more desirable plant species.” Weed monitoring would occur during drilling, production, and reclamation activities and weeds found would be eradicated following county control procedures. The analysis on this page concludes that properly reclaimed areas and the application of mitigation measures summarized in Chapter 2 would minimize the introduction of weed species.

Weed invasion on prairie dog colonies is not known to be a problem. In general prairie dogs locate towns on heavier soils with a minimum of vegetation. The prairie dog generally keeps the area barren and forages for both grasses and weeds, so that not much vegetation is ever observed on a colony.

- m) **“In its discussions long-term effects on wildlife, the BCPEA concludes that they will be minimal over the long term. The EA assumes all species will habituate to disturbance, and that this will overcome the effects of displacement. But the EA provides no support for this contention except for pronghorn. Moreover, the research cited states that pronghorn habituation to traffic can occur provided the traffic moves in a predictable manner. However, since the project area is open to public use, traffic is likely to be unpredictable both as to type and timing.”**

The CD/WII DEIS summarized several studies that have occurred over the past 25 years which examined impacts from oil and gas activity on big game animals. It was concluded that of the three big game species, it appeared that pronghorn antelope exhibited the least amount of displacement due to oil and gas and mining development activities. Studies conducted in Wyoming, New Mexico, and Texas (Gusey 1986; Guenzel 1987; Easterly et al. 1991) found that pronghorn returned to these habitats once the source of disturbance left the areas. Segrestrom (1982) and Deblinger (1988) determined that a large population of pronghorn populations inhabiting surface mine sites in Wyoming were relatively unaffected by mining activities and habituated to the presence of personnel and vehicles.

Mule deer are generally less sensitive to human disturbance than elk and, in some cases, may be less sensitive than pronghorn (Easterly et al. 1991). In the Rattlesnake Hills of Wyoming, mule deer did not avoid oil fields and may have habituated to human activity associated with petroleum extraction. Other studies conducted found that wintering mule deer in Montana were minimally affected by low levels of oil and gas development (Irby et al. 1988), while a study of development on Crooks Mountain in Wyoming did not observe a mule deer within 0.5 miles from a well construction site.

Elk tend to react less to traffic along roads than to concentrated areas of noise and activity such as well sites. The CD/WII DEIS reviewed studies that examined the displacement of elk due to oil and gas development

activities and concluded that elk within that project area could be displaced an average of 1.5 miles from the well locations during construction, drilling, completion, and workover operations.

Because activities associated with the construction of this project are anticipated to be short in duration and would be restricted during critical times of the year, and with the implementation of measures described in Chapter 2 of the EA and COAs in Appendix D of the Decision Record, impacts to big game as a result of implementing the Brown Cow Pod project are anticipated to be minimal.

n) **“The BCPEA states:**

The direct disturbance to wildlife habitat in the BCPA and outside the pod under the proposed development would reduce habitat availability and effectiveness for a variety of common small mammals, birds, and their predators. The initial phases of surface disturbance would result in some direct mortality to small mammals and the displacement of songbirds from construction sites. In addition, a slight increase in mortality from increased vehicle use of roads in the project area is expected. Quantification of these losses is not possible; however, the impact is likely to be low over the short-term. Due to the relatively high production potential of these species and the relatively small amount of habitat disturbed, small mammal and songbird populations would quickly rebound to pre-disturbance levels following reclamation of pipelines, unused portions of roads, well pads, and wells that are no longer productive. No long-term impacts to populations of small mammals and songbirds are expected.

However, the combined effects of habitat conversion, displacement due to the effect of roads and traffic, and habitat fragmentation resulting from construction of infrastructure for CBM extraction is very likely to have long-term cumulative impacts by affecting abundance, distribution, community interactions and community composition (species richness). Roads fragment habitats, increasing the edge effect which can provide heterogeneity to the habitat in terms of food and cover resources. However, many native, non-game species require contiguous, undisturbed habitat. In addition, rare endemic species may suffer from creation of unnaturally high amounts of edge. Habitat is the single most important factor in the persistence of populations and species; its degradation either through loss of quality or quantity or both has been shown to negatively impact species persistence and increase vulnerability to stochastic events. In addition, the BCPEA fails to analyze the reasonably foreseeable development of 3,880 coalbed methane wells currently under analysis as the Atlantic Rim project; the habitat effects of this massive scale of development would scarcely leave any open habitat for wildlife to shift to during any construction phase, and would have substantial long-term impacts on the abundance and effectiveness of habitat for all native species of wildlife. By failing to consider the 3,880 CBM wells of the Atlantic Rim project, which are reasonably foreseeable to the extent that the BLM is currently considering their approval, the BCPEA fails to take a hard look at cumulative effects to wildlife habitat.”

See response to question #4(c)(v.)(9), above.

See response to question #4(c)(iii.), above.

5. **State of Wyoming, Department of Environmental Quality**

- a. **“There are three Water Quality Division permits that may apply to the project.”**

The BLM requires the operator to apply for and obtain all necessary federal, State, and local permits, as necessary (see Appendix D, Conditions of Approval).

- b. **“The DEQ would like to see the NEPA analysis and resulting project address any potential effects to surface water quality that may occur as a result of existing or proposed construction practices in riparian areas.”**

The EA addresses potential effects to surface water quality resulting from implementation of the project (see page 3-31, 4-5).

- c. **“Special attention should be given to the proposed water handling and disposal methods. Each handling and disposal method may have different regulatory requirements.”**

The EA describes in depth the proposed water disposal method (see EA Page 2-8) and the potential effects. The Conditions of Approval (Appendix D) require that the operator comply with all federal, State, and local rules and regulations. This also pertains to regulatory requirements for water disposal.

- d. **“...every effort to prevent erosion of any kind should be taken. Any sediment created by the project can enter and effect [sic] the water quality of the receiving water.”**

The Project-Wide Mitigation Measures and Procedures, the Conditions of Approval , and the pre-construction planning seek to minimize accelerated erosion associated with the implementation of this project.

6. **State of Wyoming, Office of State Lands and Investments**

- a. **“Because the Environmental Assessment indicates the proposed action will not preclude the State from developing its oil and gas interests in the area, our office has no specific concerns regarding the Brown Cow Pod.”**

APPENDIX C

PROJECT-WIDE MITIGATION MEASURES AND PROCEDURES

Project-Wide Mitigation Measures and Procedures

Merit proposes to implement the following mitigation measures, procedures, and management requirements on public lands to avoid or mitigate resource or other land use impacts. An exception to a mitigation measure and/or design feature may be approved on public land on a case-by-case basis when deemed appropriate by the BLM. An exception would be approved only after a thorough, site-specific analysis determined that the resource or land use for which the measure was put in place is not present or would not be significantly impacted.

Preconstruction Planning and Design Measures

1. Merit and the BLM have made on-site interdisciplinary (ID) team inspections of each proposed and staked facility site (e.g., well sites), new access road, access road reconstruction, and pipeline alignment projects so that site-specific recommendations and mitigation measures can be developed. Inspections were completed August 15, 2003.
2. New road construction and maintenance of existing roads in the BCPA would be accomplished in accordance with BLM Manual 9113 standards.
3. Merit would prepare and submit an APD for each drill site on federal leases to the BLM for approval prior to initiation of construction. Also, prior to construction, Merit or its contractors would submit Sundry Notices and/or ROW applications for pipelines and access road segments on federal leases. The APD would include a Surface Use Plan that would show the layout of the drill pad over the existing topography, dimensions of the pad, volumes and cross sections of cut and fill (when required), location and dimensions of reserve pit(s), and access road egress and ingress. The APD, Sundry Notice, and/or ROW application plan would also itemize project administration, time frame, and responsible parties.
4. Access road Plan & Profile drawings prepared by a licensed surveyor will be submitted to the BLM for review and approval prior to the approval of Brown Cow Federal #12-13 and Brown Cow Federal #32-13.

Resource-Specific Requirements

Merit proposes to implement the following resource-specific mitigation measures, procedures, and management requirements on public lands.

Range Resources and Other Land Uses

Mitigation requirements listed under Soils, Vegetation and Wetlands, and Wildlife also apply to Range Resources and Other Land Uses.

1. Merit would coordinate with the affected livestock operators to ensure that livestock control structures remain functional during drilling and production operations

Air Quality

1. All BLM conducted or authorized activities (including natural gas development alternatives) must comply with applicable local, state, tribal and Federal air quality regulations and standards. Merit would adhere to all applicable ambient air quality standards, permit requirements (including preconstruction, testing, and operating permits), motorized equipment and other regulations, as required by the State of Wyoming, Department of Environmental Quality, Air Quality Division (WDEQ-AQD).
2. Merit would not allow burning garbage or refuse at well locations or other facilities. Any open burning would be conducted under the permitting provisions of Section 13 of the Wyoming Air Quality Standards and Regulations (WDEQ-AQD 1989).
3. On Federal land, Merit will initiate immediate abatement of fugitive dust (by application of water, chemical dust suppressants, or other measures) during road construction operations and during subsequent use.. The BLM would approve the control measure, location, and application rates. If watering is the approved control measure, the operator must obtain the water from state-approved source(s).

Transportation

1. Existing roads should be used as collectors and local roads whenever possible. Standards for road design should be consistent with BLM Road Standards Manual Section 9113.
2. Roads not required for routine operation and maintenance of producing wells and ancillary facilities would be permanently blocked, reclaimed, and revegetated.
3. Areas with important resource values, steep slopes and fragile soils should be avoided where possible in planning for new roads.

Minerals/Paleontology

Mitigation measures presented in the Soils and Water Resources sections would avoid or minimize many of the potential impacts to the surface mineral resources. Protection of subsurface mineral resources from adverse impacts would be provided by the BLM casing and cementing policy.

Paleontological resource values would be protected through the following mitigation measure:

1. If recommended by the BLM, each proposed facility located in areas with known and potential vertebrate paleontological resource significance (Class II) would be surveyed by a BLM-approved paleontologist prior to surface disturbance (USDI-BLM 1987b; 1990a). Also, if paleontological resources are discovered at any time during construction, all construction activities would halt and BLM personnel would be immediately notified. Work would not proceed until paleontological materials are properly evaluated by a qualified paleontologist.

Soils

1. Reduce the area of disturbance to the absolute minimum necessary for construction and production operations while providing for the safety of the operation.
2. Where feasible, locate pipelines immediately adjacent to roads to avoid creating separate areas of disturbance and in order to reduce the total area of disturbance.
3. Avoid using frozen or saturated soils as construction material.

4. Minimize construction activities in areas of steep slopes (in excess of 25%).
5. Design cutslopes in a manner that would allow retention of topsoil, surface treatment such as mulch, and subsequent revegetation.
6. Selectively strip and salvage topsoil or the best suitable medium for plant growth from all disturbed areas to a minimum depth of 6 inches on all well pads.
7. Where possible, minimize disturbance to vegetated cuts and fills on existing roads that are improved.
8. Install runoff and erosion control measures such as water bars, berms, and interceptor ditches if needed.
9. Install culverts for ephemeral and intermittent drainage crossings. Design all drainage crossing structures to carry the 50-year discharge event, or as otherwise directed by the BLM.
10. Implement minor routing variations during access road layout to avoid steep slopes adjacent to ephemeral or intermittent drainage channels. Maintain a 100-foot wide buffer strip of natural vegetation where possible (not including wetland vegetation) between all construction activities and ephemeral and intermittent drainage channels.
11. Include adequate drainage control devices and measures in the road design (e.g., road berms and drainage ditches, diversion ditches, cross drains, culverts, out-sloping, and energy dissipators) at sufficient intervals and intensities to adequately control and direct surface runoff above, below, and within the road environment to avoid erosive concentrated flows. In conjunction with surface runoff or drainage control measures, use erosion control devices and measures such as temporary barriers, ditch blocks, erosion stops, mattes, mulches, and vegetative covers. Implement a revegetation program as soon as possible to re-establish the soil protection afforded by a vegetal cover.
12. Upon completion of construction activities, restore topography to near pre-existing contours at the well sites, along access roads and pipelines, and other facilities sites; replace up to 6 inches of topsoil or suitable plant growth material over all disturbed surfaces; apply fertilizer as required; seed; and mulch.

Water Resources

Other mitigation measures listed in the Soils, and Vegetation and Wetlands sections would also apply to Water Resources.

1. Limit construction of drainage crossings to no-flow periods.
2. Minimize the area of disturbance within perennial, ephemeral and intermittent drainage channel environments.
3. Prohibit construction of well sites, access roads, and pipelines within 500 feet of surface water and/or riparian areas. Possible exceptions to this would be granted by the BLM based on an environmental analysis and site-specific mitigation plans.
4. Design channel crossings to minimize changes in channel geometry and subsequent changes in flow hydraulics.

5. Maintain vegetation barriers occurring between construction activities and ephemeral and intermittent channels.
6. Design and construct interception ditches, sediment traps/silt fences, water bars, silt fences and revegetation and soil stabilization measures if needed.
7. Construct channel crossings by pipelines such that the pipe is buried a minimum of four feet below the channel bottom.
8. Regrade disturbed channel beds to the original geometric configuration and the same or very similar bed material replaced.
9. Case wells during drilling, and case and cement all wells in accordance with Onshore Order No. 2 to protect all high quality water aquifers. High quality water aquifers are aquifers with known water quality of 10,000 TDS or less. Include well casing and welding of sufficient integrity to contain all fluids under high pressure during drilling and well completion. Further, wells would adhere to the appropriate BLM cementing policy.
10. Construct the reserve pits in cut rather than fill materials or compact and stabilize fill. Inspect the subsoil material of the pit to be constructed in order to assess soil stability and permeability and whether reinforcement and/or lining are required. If lining is required, line the reserve pit with a reinforced synthetic liner at least 12 mils in thickness and a bursting strength of 175 x 175 pounds per inch (ASTMD 75179). Consideration should be given to use of closed or semi-closed drilling systems in situations where a liner may be required.
11. Maintain two feet of freeboard on all reserve pits to ensure the reserve pits are not in danger of overflowing. Shut down drilling operations until the problem is corrected if leakage is found outside the pit.
12. Extract all water used during construction activities from sources with sufficient quantities and through appropriation permits approved by the State of Wyoming.
13. Discharge all concentrated water flows within access road ROWs onto or through an energy dissipator structure (e.g., riprapped aprons and discharge points) and discharge into undisturbed vegetation.
14. Develop and implement a storm water pollution prevention plan (SWPPP) for storm water runoff at drill sites as required per Wyoming Department of Environmental Quality (WDEQ) storm water National Pollution Discharge Elimination System (NPDES) permit requirements. The WDEQ requires operators to obtain a field permit for fields of 20 wells or more.
15. Exercise stringent precautions against pipeline breaks and other potential accidental discharges of toxic chemicals into adjacent streams. If liquid petroleum products are stored on-site in sufficient quantities (per criteria contained in 40 CFR Part 112), a Spill Prevention Control and Countermeasures (SPCC) plan would be developed in accordance with 40 CFR Part 112, dated December 1973.
16. Coordinate all crossings or encroachments of waters of the U.S. with the U.S. Army Corps of Engineers (COE).

Fisheries

1. No fisheries mitigation is needed beyond that indicated under Water Resources (2.1.8.2.7) and Special Status Species Fish (2.1.8.2.10).

Vegetation and Wetlands

Other mitigation measures under Soils and Water Resources would also apply to vegetation and wetlands.

1. Evaluate all project facility sites for occurrence and distribution of waters of the U.S., special aquatic sites, and jurisdictional wetlands. All project facilities would be located out of these sensitive areas. If complete avoidance is not possible, minimize impacts through modification and minor relocations. Coordinate activities that involve dredge or fill into wetlands with the COE.

Wildlife

1. During reclamation, establish a variety of forage species that are useful to resident herbivores.
2. Prohibit unnecessary off-site activities of operational personnel in the vicinity of the drill sites. Inform all project employees of applicable wildlife laws and penalties associated with unlawful take and harassment.
3. Limit construction activities as per BLM authorizations within big game crucial winter range from November 15 to April 30.
4. Survey and clear well sites within one mile of raptor nests identified in the raptor survey prior to the commencement of drilling and construction during the raptor nesting period (February 1 through July 31).
5. When an 'active' raptor nest is within 0.75 to one mile (depending on species and line of sight) of a proposed well site, restrict construction during the critical nesting season for that species.
6. Do not perform construction activities within 0.25 mile of existing, active sage grouse leks..
7. Provide for sage grouse lek protection during the breeding, egg-laying and incubation period (March 1 - June 30) by restricting construction activities within a two-mile radius of active sage grouse leks. Exceptions may be granted if the activity would occur in unsuitable nesting habitat.

Special Status Species

Special Status Plants

1. Employ site-specific recommendations developed by the BLM IDT for staked facilities.
2. Minimize impacts due to clearing and soil handling.
3. Monitor and control noxious weeds.
4. Comply with Section 404(b)(1) guidelines of the federal Clean Water Act (CWA).
5. Perform clearance surveys for plant species of concern.

Special Status Animals

1. Implement measures discussed in Chapter 4 (Section 4.8.5) in compliance with the Endangered Species Act (ESA),

Visual Resources

1. Utilize existing topography to screen roads, pipeline corridors, drill rigs, well heads, and production facilities from view.
2. Paint well and central facilities site structures with flat colors (e.g., Carlsbad Canyon) as recommended by the BLM, that blend with the adjacent surrounding undisturbed terrain, except for structures that require safety coloration in accordance with Occupational Safety and Health Administration (OSHA) requirements.

Noise

1. Muffle and maintain all motorized equipment according to manufacturers' specifications.

Recreation

Measures under Wildlife, Transportation, Soils, Health and Safety, and Water Resources apply to Recreation.

1. Minimize conflicts between project vehicles and equipment and recreation traffic by posting appropriate warning signs, implementing operator safety training, and requiring project vehicles to adhere to low speed limits.

Socioeconomics

1. Implement hiring policies that would encourage the use of local or regional workers who would not have to relocate to the area.
2. Coordinate project activities with ranching operations to minimize conflicts involving livestock movement or other ranch operations. This would include scheduling of project activities to minimize potential disturbance of large-scale livestock movements. Establish effective and frequent communication with affected ranchers to monitor and correct problems and coordinate scheduling.
3. Merit and its subcontractors would obtain Carbon County sales and use tax licenses for purchases made in conjunction with the project so that project-related sales and use tax revenues would be distributed to Carbon County.

Cultural Resources

1. If a site is considered eligible for, or is already on the National Register of Historic Places (NRHP), avoidance is the preferred method for mitigating adverse effects to that property.
2. Mitigation of adverse effects to cultural/historical properties that cannot be avoided would be accomplished by the preparation of a cultural resources mitigation plan.
3. If cultural resources are discovered at any time during construction, all construction activities would halt and the BLM Authorized Officer (AO) would be immediately notified. Work would not resume until a Notice to Proceed is issued by the BLM AO.

Health and Safety

Measures listed under Air Quality and Water Quality also apply to Health and Safety.

1. Sanitation facilities installed on the drill sites would be approved by the WDEQ.
2. To minimize undue exposure to hazardous situations, require measures that would preclude the public from entering hazardous areas and place warning signs alerting the public of truck traffic.
3. Haul all garbage and rubbish from the drill site to a State-approved sanitary landfill for disposal. Collect and store any garbage or refuse materials on location prior to transport in containers approved by the BLM.
4. During construction and upon commencement of production operations, Merit would have a chemical or hazardous substance inventory for all such items that may be at the site. Merit would institute a Hazard Communication Program for its employees and would require subcontractor programs in accordance with OSHA 29 CFR 1910.1200. These programs are designed to educate and protect the employees and subcontractors with respect to any chemicals or hazardous substances that may be present in the work place. It would be required that as every chemical or hazardous material is brought on location, a Material Safety Data Sheet (MSDS) would accompany that material and would become part of the file kept at the field office as required by 29 CFR 1910.1200. All employees would receive the proper training in storage, handling, and disposal of hazardous substances.
5. Spill Prevention Control and Countermeasure Plans would be written and implemented as necessary in accordance with 40 CFR Part 112 to prevent discharge into navigable waters of the United States.
6. Chemical and hazardous materials would be inventoried and reported in accordance with the Superfund Amendments and Reauthorization Act (SARA) Title III. 40 CFR Part 335, if quantities exceeding 10,000 pounds or the threshold planning quantity (TPQ) are to be produced or stored in association with the Proposed Action. The appropriate Section 311 and 312 forms would be submitted at the required times to the State and County Emergency Management Coordinators and the local fire departments.
7. Any hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA), would be transported and/or disposed of in accordance with all applicable federal, state, and local regulations.
8. Merit plans to design operations to severely limit or eliminate the need for Extremely Hazardous substances. Merit also plans to avoid the creation of hazardous wastes as defined by RCRA wherever possible.

APPENDIX D

CONDITIONS OF APPROVAL

GOVERNMENT CONTACTS

USDI, BUREAU OF LAND MANAGEMENT

Field Office: Rawlins

Address: P.O. Box 2407

Rawlins, Wyoming 82301

Office Hours: 7:45 am to 4:30 pm

Authorized Officer's Designated Representatives:

Assistant Field Manager: Clare Miller Home Phone (307) 324-2372
(Minerals & Lands) Work Phone (307) 328-4245

Petroleum Engineer: Lloyd Chism Home Phone (307) 328-4441
Work Phone (307) 328-4227
Cell Phone (307) 320-8327

Pet. Engineer Tech.: Cole Thomas Home Phone (307) 328-1901
Work Phone (307) 328-4249
Cell Phone (307) 320-8594

Pet. Engineer Tech.: Chuck Ross Home Phone (307) 320-8339
Work Phone (307) 328-4230
Cell Phone (307) 320-7778

Pet. Engineer Tech.: Bill Ashline Home Phone (307) 324-6355
Work Phone (307) 328-4263
Cell Phone (307) 320-7777

Pet. Engineer Tech.: Bryan Hurst Home Phone (307) 324-5066
Office Phone (307) 328-4277
Cell Phone (307) 320-5414

Resource Specialist: Travis Bargsten Work Phone (307) 328-4387

In the event that the Petroleum Engineer named above is not available please contact the following:

Petroleum Engineer: Stuart Cerovski Home Phone (307) 332-2408
Work Phone (307) 332-8426

**A COPY OF THE APPLICATION FOR PERMIT TO DRILL AND THESE CONDITIONS OF APPROVAL
MUST BE FURNISHED TO YOUR FIELD REPRESENTATIVE AND BE AVAILABLE ON SITE.**

GENERAL PERMITTING REQUIREMENTS

1. All lease operations are subject to the terms of the lease and the lease stipulations, the regulations of 43 CFR Part 3100, Onshore Oil and Gas Orders, Notices to Lessees (NTL's), the approved APD and any written instructions or orders of the authorized officer. The following requirements are emphasized.

Abandonment: In the event abandonment of the hole is desired, oral approval may be granted by this office but must be followed within 5 days with a **Notice of Intention to Abandon (Form 3160-5)**. Unless the plugging is to take place immediately upon receipt of oral approval, the BLM Branch of Minerals must be notified at least 24 hours in advance of the plugging of the well in order that a representative can witness the plugging operation. The **Subsequent Report of Abandonment (Form 3160-5)** must be submitted within 30 days after the actual plugging of the wellbore, reporting where the plugs were placed and volumes of cement used, along with copies of the service company invoice and job log.

The operator shall promptly plug and abandon each newly completed, recompleted or producing well which is not capable of producing in paying quantities. No well may be temporarily abandoned for more than 30 days without prior approval of the authorized officer. When justified by the operator, the authorized officer may authorize additional delays, no one of which may exceed an additional 12 months. Upon removal of drilling or producing equipment from the site of a well, which is to be permanently abandoned, the surface of the lands disturbed shall be reclaimed in accordance with a plan first approved or prescribed by the authorized officer.

Completion Report: If the well is completed as a dryhole or as a producer, **Well Completion or Recompletion Report and Log (Form 3160-4)** must be submitted within 30 days after completion of the well or after completion of operations being performed, in accordance with **43 CFR 3160**. Copies of all logs, core descriptions, core analyses, well test data, geologic summaries, sample descriptions, daily drilling reports, daily completion reports, and all other surveys or data obtained and compiled during the drilling, completion, and/or workover operations, will be filed with **Form 3160-4**.

2. Approval of this APD does not warrant that any party holds equitable or legal lease title.
3. This permit is valid for a period of one year from the day of approval or until lease expiration/termination, whichever is shorter. If the permit terminates, any surface disturbance created under the application shall be reclaimed in accordance with the approved plan.
4. The spud date shall be reported to the BLM authorized officer's representative within 24 hours following spudding. A follow-up report on Form 3160-5 confirming the date of spud shall be promptly submitted to this office within 5 working days from date of spud.
5. Verbal notification shall be given to the BLM authorized officer's representative at least 24 hours in advance of pluggings, DST's and/or other formation tests, BOP tests, running and cementing casing (other than conductor casing), and drilling over lease expiration dates.
6. Verbal notification shall be given to the BLM's resource specialist at least 48 hours in advance of access road/well pad construction, seeding, and the initiation of any reclamation work.
7. Operations that deviate from the approved APD shall receive prior written approval from the authorized officer. Emergency approval may be obtained orally but such approval does not waive the written report requirement.

8. All lease exploration, development, production and construction operations shall be conducted in a manner which conforms with all applicable Federal, State, and local laws and regulations.

9. Historic, Cultural, and Paleontological Resources

The operator shall be responsible for informing all persons associated with this project that they shall be subject to prosecution for damaging, altering, excavating or removing any archaeological, historical, or vertebrate fossil objects or site. If archaeological, historical, or vertebrate fossil materials are discovered, the operator shall suspend all operations that further disturb such materials and immediately contact the authorized officer. Operations shall not resume until written authorization to proceed is issued by the authorized officer.

Within five (5) working days, the authorized officer will evaluate the discovery and inform the operator of actions that will be necessary to prevent loss of significant cultural or scientific values.

The operator shall be responsible for the cost of any mitigation required by the authorized officer. The authorized officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the authorized officer that the required mitigation has been completed, the operator shall be allowed to resume operations.

10. Hazardous Waste: Those wastes that qualify as **exempt**, under the Resource Conservation and Recovery Act (RCRA), Oil and Gas Exemption, may be disposed of in the reserve pit. *Generally, oil or gas wastes are exempt if they 1) have been sent downhole and then returned to the surface during oil/gas operations involving exploration, development, or production, or 2) have been generated during the removal of produced water or other contaminants from the oil/gas production stream.* The term hazardous waste, as referred to above, is defined as a listed (40 CFR 261.31-33) or characteristic (40 CFR 261.20-24) hazardous waste under RCRA.

ADDITIONAL PERMITTING REQUIREMENTS

DRILLING PLAN

BOP:

1. All BOPE shall meet minimum standards for well control requirements as set forth in Onshore Order No. 2.
2. The BOPE shall be tested to a minimum of 1000 psi.
3. A Sundry Notice (Form 3160-5), along with a copy of the BOP test report, shall be submitted to this office within 5 working days following the test. Test reports shall include time and pressure charts and accumulator tests.

Casing and Cementing:

1. The surface casing shall be cemented back to surface. In the event cement does not circulate to surface or fall back of the cement column occurs, remedial cementing shall be done to cement the casing back to surface.

Pea Gravel or other material shall not be used to fill up around the surface casing in the event cement fall back occurs.
2. A Sundry Notice (Form 3160-5), along with a copy of the service company's materials ticket and job log, shall be submitted to this office within 5 working days following the running and cementing of all casing strings.
3. All casing strings shall be tested, prior to drilling out the casing shoe, to 0.22 psi/ft of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the internal yield pressure of the casing.
4. Any change in the casing and cement design will be approved by the Authorized Officer prior to running casing and cementing.
5. No freshly hard banded rough carbide pipe/collars will be rotated in the surface casing.

Mud Programs:

1. Sufficient quantities of mud materials shall be maintained at the well site, at all times, for the purpose of assuring well control.

Other:

1. A summary of the drilling operation and/or completion operation shall be submitted on Sundry Notice (Form 3160-5), to this office, along with letter size copies of the daily drilling reports and/or daily completion reports, on a weekly basis.
2. Any permanent plug placed in the well during drilling and/or **completion** operations must have **prior** approval of the Authorized Officer.
3. A copy of all logs, formation test reports, stimulation reports, etc. shall be promptly submitted to this office.

4. Gas produced from this well may not be vented or flared beyond an initial test period, 30 days or 50 MMcf, whichever first occurs, without approval of the Authorized Officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue the venting or flaring as uneconomic is granted, and you shall be required to compensate the lessor for that portion of the gas vented or flared without approval which is determined to have been avoidably lost.

SURFACE USE PLAN OF OPERATIONS

Existing Roads:

1. The Operator shall enter into a maintenance agreement with other authorized users of the access road(s), if required by the BLM Authorized Officer. The Operator shall share the maintenance costs in dollars, equipment, materials, and/or labor proportionate to the Operator's use relative to other authorized users. Upon request, the BLM Authorized Officer shall be provided with executed copies of any maintenance agreement.

Roads to be Constructed or Reconstructed:

1. The sub-base of the proposed road shall be thoroughly compacted (to at least 85% maximum dry density), and surfaced with at least 4" (four inches) of gravel prior to drilling. A temporary variance to this condition of approval may be considered if the Operator requests such a variance, in advance and in writing, during periods when soil moisture is low.
2. Proposed roadway centerline stakes shall be placed intervisibly at no more than 100-foot intervals along the alignment of the proposed road.
3. No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support equipment. If equipment (including licensed highway vehicles) creates ruts in excess of 4 inches deep, the soil shall be deemed too wet to adequately support construction equipment.
4. Upon completion of the proposed access road(s), the roads shall be regularly maintained in a safe and usable condition. A regular maintenance program may include, but is not limited to, blading, ditching, culvert installation, and gravel surfacing.

Existing and/or Proposed Facilities If Productive:

1. The Operator shall comply with all federal, state, and local laws/regulations pertaining to disposal of produced water, including the use of properly permitted and authorized disposal sites.
2. Any changes in the location and/or method of disposal for produced water must have written approval from BLM Authorized Officer before the changes take place
3. A diagram showing the proposed production facilities, with accurate reference to their spatial orientation on the proposed well pad, shall be submitted using a Sundry Notice to the BLM Authorized Officer for review and approval prior to their construction.

Methods for Handling Waste Disposal:

1. The Operator shall comply with the Hazardous Materials Management Summary provided in the Continental Divide/Wamsutter II EIS for hazardous materials that may potentially be used, produced, transported, disposed of, or stored on the well location.

2. The Operator shall comply with all federal, state, and local laws and regulations pertaining to disposal of human and solid wastes.
3. Fluids containing any hydrocarbons (condensate, diesel, etc.) shall not enter the reserve pit or production pit.
4. Produced fluids and fracturing fluids shall be contained in test tanks during completion and testing. This fluid shall not be placed into the reserve pit without prior written approval from the BLM Authorized Officer.
5. Within 90 days of initial production start-up, the Operator shall submit to the BLM Authorized Officer an analysis of the produced water. In addition, facilities/pits used for the disposal of produced water shall be approved, as outlined in Onshore Oil and Gas Order No. 7, using a Sundry Notice.
6. No fluids containing hydrocarbons or hazardous substances shall be allowed to accumulate in the flare pits.

Well Site Layout:

1. For the protection of livestock and wildlife, all pits and open cellars shall be fenced. Fencing shall be in accordance with BLM specifications. Netting shall be placed over all open production pits to eliminate any hazard to migratory birds or other wildlife. Netting is also required over reserve pits which have been identified as containing oil or hazardous substances (CERCLA Section 101(14)). The mesh diameter of netting shall be no larger than one inch. The reserve pit shall be fenced on three sides during drilling, and the working side shall be fenced immediately after the drilling rig is moved. Fencing shall meet BLM specifications. The reserve pit shall remain fenced until reclamation is initiated.
2. If water is encountered within 50 feet of the surface, during construction of the rathole, reserve pit, or drilling of a water well, the Operator must contact the BLM Authorized Officer.

Surface Reclamation Plans:

1. Should the well become productive, all disturbed areas not needed for production operations shall be reclaimed (partial reclamation) as soon as possible, but no longer than within 2 years from the date production facilities are completed. The production pad shall be as small as possible but no larger than one and a half acres.
2. After the well is plugged and abandoned, the site shall be reclaimed as soon as possible, but no longer than within 2 years from the date of plugging.

Other:

1. Facilities approved by this APD and/or Sundry Notice that are no longer included within the lease, due to a change in the lease or unit boundary, shall be authorized with a right-of-way.
2. The Operator shall have a qualified individual to serve as Compliance Coordinator on-site during active operations. This individual will be responsible for ensuring that all requirements of the Surface Use Plan and appropriate Conditions of Approval are applied.

- The construction of the well pad and all roads constructed or reconstructed on public lands shall be monitored by a licensed professional engineer or a qualified inspector (not the dirt contractor) to ensure that the construction of the well pad and road meets Bureau of Land Management standards as outlined in the approved APD.

Resource Protection Measures

Wildlife Resource Protection¹:

The APD's and their associated pipelines for this project have the following wildlife resource protection measures:

	12-13	14-1	14-12	14-13	21-12	21-13	23-1	23-12	23-13	32-13	34-13	43-2
Raptor (1 & 2)	X	X	X	X	X	X	X	X	X	X	X	X
CWR (3)	X		X	X		X			X	X	X	
Sage Grouse (4)	X	X	X	X	X	X	X	X	X	X	X	X
Mountain plover (5)		X	X			X	X	X		X		X

All other components of the project must follow all of the following COAs.

- If a raptor tries to nest on or in any well buildings or facilities, the Operator shall immediately notify the BLM Authorized Officer.
- Construction, drilling and other activities potentially disruptive to nesting raptors are prohibited during the period of February 1 to July 31 for the protection of raptor nesting areas.
- Construction, drilling and other activities potentially disruptive to wintering wildlife are prohibited during the period of November 15 to April 30 for the protection of big game winter habitat.
- Construction, drilling and other activities potentially disruptive to strutting and nesting sage/sharp-tailed grouse are prohibited during the period of March 1 to June 30 for the protection of sage/sharp-tailed grouse nesting areas.
- Construction, drilling, reclamation and other activities are prohibited during the reproductive period of April 10 to July 10 for mountain plover.

¹ Please be advised that due to limits on the available time of qualified personnel, the unpredictability of wildlife, and inclement weather conditions, requests for exceptions to impending wildlife stipulations will only be considered in the event of extraordinary and unavoidable occurrences over which the requestor has little or no control. Additionally, wells must be spudded in a time frame which would allow for reasonably normal drilling and completion of the well prior to the beginning date of wildlife protection stipulations.

Miscellaneous Permitting Requirements

- All survey monuments found within the area of operations shall be protected. Survey monuments include, but are not limited to, (1) General Land Office and Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coast and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of

obliteration or disturbance of any survey monuments, the incident shall be reported in writing to the BLM Authorized Officer.

2. The Operator shall be held responsible for the prevention and suppression of fires on public lands caused by its employees, contractors, or subcontractors. During conditions of extreme fire danger, surface use operations may be either limited or suspended, or additional measures may be required by the BLM Authorized Officer. The occurrence of any wildland fire shall be reported immediately to the BLM Fire Dispatch, 1 (800) 295-9953.
3. No flaring of gas shall be allowed into the reserve pit without prior approval by the BLM Authorized Officer.
4. The Operator shall comply with all Federal, State, and local laws, rules, and regulations, including the acquisition of any necessary Federal, State, and/or local permits.

APPENDIX E
WATER MONITORING REQUIREMENTS

In Reply Refer To:
3181
Brown Cow (CBM)

APR 1 2003

Mr. John Stroud
Merit Energy Company
North Division Exploitation Manager
12222 Merit Drive, Suite 1500
Dallas, Texas 75251

Dear Mr. Stroud:

We are writing to clarify the responsibilities for data collection and ownership of equipment associated with groundwater monitoring in the Brown Cow Unit of the Atlantic Rim Coalbed Methane project. As you are aware, the monitoring well (Brown Cow Federal #12-12) has been completed by Merit. Prior to installing monitoring equipment and beginning monitoring efforts, we wish to clarify responsibilities and formalize agreements between us and your company. This letter details the planned equipping of the monitoring well, data gathering, and sampling from the well.

1. The Bureau of Land Management (BLM) will:

- Install and maintain monitoring equipment.
- Analyze WQ samples collected by BLM.
- Coordinate monitoring with Merit office in Baroil.
- Assume ownership and maintenance responsibility for the monitoring equipment purchased by Merit. This equipment will include the following:
 - Three pressure sensors, two to be deployed and one backup (range 0 - 900 psi)
 - Datalogger, with software for downloading information and all connection cables needed.
 - Power supply and solar cell for charging.
 - Any specialized equipment needed for installation.
- Store data associated with the continuous measurements from the monitoring well and will supply data to Merit on request.
- Coordinate all activities related to operating and servicing the groundwater monitoring well system with Merit Energy's field office in Baroil, Wyoming.
- Share with Merit Energy and the Reservoir Management Group (RMG) all data collected from the groundwater monitoring well.

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 Case File
 Carbon Copy
 Originator
 Missy's Copy

2. Merit Energy Company will:

- Provide pressure data and water samples as needed.
- Complete the well, provide and install a well housing.
- Purchase monitoring equipment and coordinate with BLM on installation.
- Coordinate with the BLM to obtain pressures and a water samples from all formations.
- Obtain initial water level (pressure) data and water samples for chemical analyses from the groundwater monitoring well from the three analysis zones. These analysis zones are the sandstone aquifer below the potentially productive coalbeds, the potentially productive coalbeds, and the sandstone aquifer above the potentially productive coalbeds.
- Purchase the monitors, pressure transducers, purchase and install a well head shelter, and will assist in water quality sampling at the RFO hydrologist's direction.
- Obtain pressure data from the sandstone aquifer below the coal seam periodically by shutting in the system. Each time these measurements are taken the well will be shut in for the same amount of time, a water quality sample will be taken and the data will be provided to the BLM.
- Submit to the Rawlins Field Office (RFO) and Reservoir Management Group (RMG) all data collected by Merit Energy during coring, logging, water level (pressures) measuring, and water sampling for chemical analyses.
- Collect a water sample from the coalbeds before production begins in order to measure the tritium content and determine if the water is "new water" and considered depletion according to the Upper Colorado River Basin Recovery Program.

3. The BLM and Merit Energy Company will:

- Provide data from sampling and technical information in a timely manner to each interested party.
- Determine frequency of water quality samples needed.
- Equip the wells with pressure measurement devices and data loggers to facilitate continuous groundwater monitoring in at least one of the two sandstone aquifers and the potentially productive coalbeds.
- Collect water quality samples from each analysis zone at least four times in the first year to determine the variability of the samples. Depending on the results of this initial analysis, the frequency of sampling needed in the future will be determined in conjunction with the BLM. If samples can be obtained in coordination with the BLM, the BLM will be responsible for sample analysis and data storage. If the operator collects samples independently, sample results will be provided to the RFO Hydrologist.
- Coordinate sampling with the RFO hydrologist. Water quality sampling will involve changing the sleeve settings every four months to get a pressure reading and removing three casing volumes of water from the well casing before a sample is taken. The producing coalbed and the sandstone aquifer above the coalbed will be sampled at least four times this year and a periodic sampling program will be determined based on the variability of these initial samples.

This letter documents an understanding between the BLM Rawlins Field Office and Merit Energy for data collection and management of the groundwater monitoring well at the Brown Cow Pod in the Atlantic Rim Development Area. If you sell or transfer your interests in the Brown Cow Pod, agreement to these responsibilities and conditions shall be included as an obligation for any new party with interest in the Brown Cow Pod. Data collection shall take place as long as there is active natural gas extraction from the coal seams located in the Atlantic Rim Area.

Please provide a written confirmation of Merit's acceptance of these responsibilities and conditions.

If there are any questions, please call Bob Lange, Hydrologist, at (307) 328-4268; or Travis Bargsten, Natural Resource Specialist, at (307) 328-4387.

Sincerely,

/s/ J. Clare Miller

Acting Field Manager

bcc: Clare Miller, RFO
Sandra Meyers, RFO
Lloyd Chism, RFO
Bob Lange, RFO
Dave Simons, RFO
Brown Cow Unit File, RFO