

DECISION RECORD AND FINDING OF NO SIGNIFICANT IMPACT
Warren Exploration and Production, Inc.
Double Eagle Petroleum Company
Anadarko Exploration and Production Company
Atlantic Rim Natural Gas Project
Doty Mountain Pod Environmental Assessment
No. WY-030-04-EA-027

INTRODUCTION

Warren Exploration and Production, Inc. (Warren), Double Eagle Petroleum Company (Double Eagle), and Anadarko Exploration and Production Company (AEPC), collective referred to as the Companies, have proposed to explore and potentially develop coalbed natural gas wells in the Doty Mountain Pod Project Area (DMPA) of the Atlantic Rim Natural Gas Project Area (ARPA) located in Carbon County, Wyoming. The DMPA is located, partly on federal surface estate with federal mineral estate administered by the Bureau of Land Management (BLM), Rawlins Field Office (RFO), and partly on private surface with private mineral estate. 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).

The Doty Mountain Pod project consists of the drilling, completing, and producing a total of 24 exploratory coalbed natural gas wells; the use of 2 deep injection wells; construction, maintenance, and use of appurtenant access roads, pipeline and utility corridors; and a compressor station. The DMPA encompasses approximately 1,920 acres. The life of the project is estimated to be from 10 to 20 years.

The DMPA is located in Township 17 North, Range 91 West, in Carbon County, Wyoming. Access to the DMPA is provided by Carbon County Road 608 (Wild Cow Road), from State Highway 789. The DMPA is located approximately 25 miles southwest of Rawlins and about 10 miles northeast of the intersection of State Highway 789 and Carbon County Road 608, near Doty Mountain.

ALTERNATIVES CONSIDERED

The environmental assessment (EA) for the ARPA, Doty Mountain Pod, considered two alternatives. The Proposed Action Alternative assessed and disclosed the projected effects of the Companies' 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, BLM would consider additional applications for permit to drill (APDs) and rights-of-way (ROWs) actions for federal lands on a case-by-case basis, consistent with the scope of existing environmental analysis. Additional gas development may occur on state and private land under APD approved by the Wyoming Oil and Gas Conservation Commission. This alternative provides a benchmark, enabling the decision-maker to compare the magnitude of the environmental effects of the alternatives.

Two other alternatives for access roads and market pipelines were considered but not analyzed. The Interim Drilling Policy (IDP) limits the placement of interim exploratory activities within the ARPA to areas where sensitive resources do not exist. The two alternatives did not comply with the IDP. These two alternatives may have affected, greater sage grouse leks and/or winter concentration areas, elk and mule deer crucial winter ranges, a prairie dog town, and possibly the Sands Hills ACEC. Further detail can be found in Chapter 2 of the EA.

Exploration activities are believed to be centered where the best geologic and hydrologic information could be gathered outside of sensitive resource areas.

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 Authorized Officer 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

- € development of 24 exploratory coalbed natural gas wells within the DMPA
- € completion of two deep water 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

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
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. This project will allow increased knowledge of geologic, natural gas, and environmental conditions.

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 Authorized Officer 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, county, and local 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 25 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 October 20, 2003 to November 30, 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. Corrections and supplemental data for the EA are found in Appendix A.

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 Doty Mountain 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

February 6, 2004

Date

Appendix A
ERRATA
Modifications and Corrections To The
Atlantic Rim Natural Gas Project, Doty Mountain Pod
Environmental Assessment

Chapter 2 – PROPOSED ACTION AND ALTERNATIVES

Page 2-23, Section 2.1.10.1.2. Wildlife - *The last sentence on the page has been changed to read “An exception would be approved only after a thorough, site-specific analysis concluded that no unacceptable impacts would occur.”*

Chapter 3 –AFFECTED ENVIRONMENT

Page 3-18, Section 3.5.1.2 Quality - The last paragraph on the page has been rewritten to read: “The confining beds stop movement of water and hence, movement of potential contamination between aquifers. This is very adequately demonstrated in the Atlantic Rim area where high pressures are encountered in the Mesa Verde Group and normal pressures are displayed in the Lewis Shale above the Mesa Verde Group and the Steele Shale below the Mesa Verde Group. The Steele Shale contains the Cherokee and Deep Creek Formations that will be the primary receiving aquifers for CBM water disposal.”

Page 3-32, Section 2.8.3.1.4 Amphibians - The last sentence of the section has been changed to read. “*The Great Basin spadefoot toad is present, the boreal toad, and northern leopard frog are likely to occur in the project area. (Michael Bower 2004)*

Page 3-32, Section 3.8.3.2 Fish Species - The first sentence of the section has been changed to read “*Four BLM Wyoming sensitive species are known to occur in Muddy Creek within and downstream of the Project Area. (Michael Bower 2004)*

Appendix E - The table has been changed:

Occurrence Potential for Roundtail chub, bluehead sucker, flannelmouth sucker, and Colorado River cutthroat trout is changed from Unlikely to Present. (Michael Bower 2004)

Occurrence Potential for Great Basin spadefoot toad is changed from Possible to Present. (Michael Bower 2004)

1.0 Wildlife Species			
2.0 Common Name	3.0 Scientific Name	Sensitivity Status ²	Occurrence Potential ³
Mammals			
Wyoming pocket gopher	<i>Thomomys clusius</i>	R2, G2/S1S2, NSS4	Possible
White-tailed prairie dog	<i>Cynomys leucurus</i>	G4/S2S3, NSS7	Present
Swift fox	<i>Vulpes velox</i>	R2, G2/S2S3, NSS3	Likely
Fringed myotis	<i>Myotis thysanodes</i>	R2, G5/S1B, S1N, NSS2	Possible
Long-eared myotis	<i>Myotis evotis</i>	G5/S1B, S1?N, NSS2	Possible
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	R2/R4, G4/S1B, S2N, NSS2	Possible
Birds			
Baird's sparrow	<i>Ammodramus bairdii</i>	G4/S1B, SZN, R2, NSS4	Unlikely
Sage sparrow	<i>Amphispiza belli</i>	G5/S3B, SZN	Present
Brewer's sparrow	<i>Spizella breweri</i>	G5/S3B, SZN	Likely
Long-billed curlew	<i>Numenius americanus</i>	G5/S3B, SZNR2, NSS3	Unlikely
Sage thrasher	<i>Oreoscoptes montanus</i>	G5/S3B, SZN	Present
Mountain Plover	<i>Charadrius montanus</i>	G2/S2B, SZN	Unlikely
Western burrowing owl	<i>Athene cunicularia</i>	R2, G4/S3B, SZN, NSS4	Possible
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	G5/S2B, SZN, R2, NSS2	Unlikely
Loggerhead shrike	<i>Lanius ludovicianus</i>	G5/S4B, SZN, R2	Present
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>	R2/R4, G4T3/S1	Possible
Greater sage-grouse	<i>Centrocercus urophasianus</i>	G5/S3	Present
White-faced ibis	<i>Plegadis chihi</i>	G5/S1B, SZN, R2, NSS3	Unlikely
Trumpeter swan	<i>Cygnus buccinator</i>	R2/R4, G4/S1B, S2N, NSS2	Unlikely
Peregrine falcon	<i>Falco peregrinus</i>	G4/T3/S1B, S2N, R2, NSS3	Possible
Ferruginous hawk	<i>Buteo regalis</i>	R2, G5/S23B, S4N, NSS3	Present
Northern goshawk	<i>Accipiter gentilis</i>	R2/R4, G5/S23B, S4N, NSS4	Possible

Fish			
Roundtail chub	<i>Gila robusta</i>	G2G3/S2,NSS1	Unlikely Present*
Bluehead sucker	<i>Catostomus discobolus</i>	G4/S2S3, NSS1	Unlikely Present*
Flannelmouth sucker	<i>Catostomus latipinnis</i>	G3G4/S3, NSS1	Unlikely Present*
Colorado River cutthroat trout	<i>Oncorhynchus clarki pleuriticus</i>	R2/R4, G4T2T3/S2, NSS2	Unlikely Present*
Amphibians			
Boreal toad	<i>Bufo boreas boreas</i>	G4T4/S2, R2, R4, NSS1	Unlikely
Great Basin spadefoot toad	<i>Spea intermontanus</i>	G5/S4, NSS4	Possible Present*
Northern leopard frog	<i>Rana pipiens</i>	G5/S3, R2, NSS4	Likely

* Michael Bower 2004

Appendix B

Summary of EA Comments and BLM Responses

The EA was released for a 30-day public review period on October 27, 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. **“While mention is made of historic trails in the project area (3.11.1), I was unable to locate any material on how impacts to these trails would be address.”**

Surface disturbance within ¼ mile either side of historic trails is prohibited according to the standard mitigation guidelines in the current RMP. However, appropriate exceptions must allow for other mitigation. Therefore, effects to the trails are evaluated on a case-by-case basis. Disturbance which is visible and located within ¼ mile of eligible Historic Trails is considered to be an adverse effect and, therefore, consultation with the Advisory Council on Historic Preservation is required according to the Wyoming State Protocol and 36 CFR 800.4 (d). As well, the RFO will conduct and has conducted analyses for any eligible historic trail located within two miles of a proposed action to determine if any adverse effects would occur as defined under 36 CFR 800.4 (b).

The Overland Trail and Rawlins-Baggs Stage Road are outside, but adjacent to, the project area. The two-mile area of effect was analyzed and SHPO has been consulted as required. There are no documented eligible historic trails that lie within the project boundaries.

- 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.”**

The Cherokee Trail is located, according to our records, approximately 12 miles south of the Doty Mountain Pod and is, therefore, considered to be well outside the Area of Potential Effect for this project.

2. State of Wyoming, Game and Fish Department

- a. **“On Page 2-8, 2.1.5, 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.”**

Section 2.1.5 states that facilities that are serving a beneficial use will continue to be used until they are no longer needed. This section also states that disturbed areas or facilities that are no longer needed would be reclaimed.

As described in Appendix B, Master Surface Use Plan, Section 2.1.3.1.2, Section 2.1.8, 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, "The Companies would 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" (Doty Mountain Pod EA, Section 2.1.8).

- b. **"On Page 2-27, 2.1.10, under "Project wide mitigation measures", we recommend all compressors be special quiet engines with 'hospital mufflers'."**

Under **Noise** on page 2-27, a standard is given for the noise reduction required for compressors. Placing compressors in buildings is also a requirement that is stated under this title. 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. **On page 3-25, 3.8.1.1, this document states that no major big game migration routes were documented; however, it is difficult to identify migration routes without using radio-telemetry. There may be significant animal movement between summer habitats on Atlantic Rim and the Sand Hills, through or near the project area, to habitats along Hwy 789. The Department would like to initiate a study with the BLM using GPS telemetry receivers on deer and antelope to identify potential corridors in and near the project area. This information will help direct appropriate mitigation measures to reduce impacts to big game populations.**

The narrative on 3-25, 3.8.1.1 says that no major big game routes were documented, its does not say that big game migration routes are not present. The BLM, through development of the wildlife monitoring plan for the EIS, in cooperation with the Wyoming Game and Fish Department and the University of Wyoming, would very much like to initiate a GPS telemetry study to analyze mule deer and antelope migration movement within the Atlantic RIM EIS area.

- d. **On page 4-13, under the section that defines environmental consequences, we do not consider a percentage of the total habitat that is being disturbed as a determining factor of significance. Significant impacts depend on the habitat function that has been disturbed. This project will remove 32 acres of sage grouse nesting habitat during construction and 6 acres will be lost long-term. We do not consider 32 acres of possible sage grouse nesting habitat insignificant if the disturbance occurs in the best nesting habitat. The 32 acres of sagebrush lost could have the highest density of nesting sage grouse within the project area compared to other areas. Although the acreage is insignificant, habitat loss could have significant results on sage grouse populations in the area. In addition, it may**

take 10-30 years for the 26 acres of sagebrush disturbed by construction to return to suitable nesting habitat.

Currently, the BLM RMP contains seasonal mitigating measures that would protect nesting greater sage-grouse from February 1 to July 31 out to two miles from a lek. The 32 acres of potential nesting habitat is not the best nesting habitat because these 32 acres of disturbance are for construction of a pipeline along an existing road. The same is true for the 6 acres that will be lost in the long term.

- e. **On page 4-14, the EA indicates that big game species will not be impacted long-term by this project because they will eventually habituate to humans after the drilling stage is completed. While the well sites themselves may not disturb big game animals directly, the activities related to well maintenance activities could disturb big game species. For example, recent unpublished research done near Pinedale, Wyoming, suggests that radio collared big game animals avoided gas well sites (Sawyer et al., Wyoming TWS meeting, 2003) and migration patterns by collared pronghorn were altered because of gas well activity.**

Long-term impacts on wildlife within the area are expected to be minimal, because only a small portion of the available wildlife habitat in the Project Area would be affected.

- f. **On page 4-14, 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. Also, impacts to non-game and small mammals are predicted to be insignificant; however, we found no data included in the EA to support or disprove this claim. The edge effect created by disturbance throughout the project area may increase some ground squirrel populations, not cause a decrease in their numbers. Impacts to populations should be determined through studies that measure wildlife abundance before and after development.**

On page 4-15 4.8.1.1 Wildlife, the EA states: Based on the relatively high production potential of these species and the relatively small amount of habitat disturbed, no long-term effects on populations of small mammals and songbirds would be expected. In the short-term impacts to populations will occur which can not be quantified. Total initial disturbance from this project is estimated to be 128.4 acres (6.8%) of the project area. The disturbance from this project will be dispersed throughout the entire project area, and will occur in various habitat types. Even when the disturbance from the Doty Mountain Pod project is added to disturbance from other uses, it is unlikely that a considerable portion of available habitat will be utilized. No studies are currently planned at this time.

- g. **On page 4-39, the document states, “prescribed fires are not expected to affect big game, as the burns do not alter the dominant forage.” The burning of mature sagebrush results in the loss of hiding cover for deer and does reduce sagebrush density (dominant winter forage). The cumulative impacts section should include other habitat alterations such as fences, vegetation treatments, and roads in the analysis. We encourage the operators and the BLM to mitigate beyond the regulatory requirements by assuring the funding of studies and habitat improvement projects.**

There are no additional prescribed burns planned for this area. A portion of the area had been part of a prescribed burn several years ago in which the Wyoming Game and Fish Department had opportunities to comment on the environmental assessment. Furthermore, there are no additional habitat alteration projects planned for this area to

analysis the cumulative impacts. Should additional habitat alterations be proposed, the cumulative impacts will be addressed.

When the wildlife monitoring plan for the Atlantic Rim EIS is developed there will be opportunities to propose studies for funding to analyze impacts from the EIS project.

- h. All water produced from CBM development should be re-injected, not discharged to the surface drainages. The BLM's decision to re-inject all CBM water should be included in the Record of Decision (ROD).**

As stated in Appendix A, Interim Drilling Policy, "Prior to completion of the EIS, water produced from coalbed methane wells located in the Colorado River Basin will be disposed of by re-injection." This decision will be included in the Decision Record.

- i. Appendix E: The following fish species are identified as unlikely to occur in or adjacent to the project area: roundtail chub, bluehead sucker, and flannelmouth sucker. All three species have been documented to be self-sustaining in the Muddy Creek drainage, which is adjacent to the project area and should be recognized as such in this EA (personal communication with Mike Bower, fish biologist, BLM, 25-Nov-03). The Department has categorized the flannelmouth sucker, the bluehead sucker, and the roundtail chub as Status 1 species. Status 1 species are physically isolated and/or exist at extremely low densities throughout their range and habitat conditions are declining or vulnerable. The Department has been directed by the Commission to recommend that no loss of habitat function occur. Some modification of the habitat may occur, provided that habitat function is maintained (i.e., the location, essential features, and species supported are unchanged). Therefore, it is critical that all best management practices be implemented to reduce erosion and prevent sediment from reaching the Muddy Creek drainage.**

The narrative in Chapter 3, as well as the table in Appendix E were changed to reflect the presence of these sensitive species in Muddy Creek both within and downstream of the project area. Project-wide mitigation measures identified in Chapter 2 are necessary to maintain the suitability of habitats for these fishes.

- j. Page 2-20, under Water Resources item #3. The Department should be given the opportunity to comment on specific exceptions. The BLM may not be aware if sensitive aquatic species are present, therefore, inadvertently causing an adverse impact.**

It is the policy of the Rawlins Field Office and the Authorized Officer to coordinate with the Wyoming Game and Fish Department on issues and specific exceptions that might affect wildlife. By using the best available information when considering exceptions to this stipulation the BLM will be able to make informed land management decisions in regard to sensitive fishes.

- k. Page 2-20, under Water Resources item #16. This mitigation measure is important and will provide protection to the fish population in the Muddy Creek drainage and should be included in the Record of Decision.**

We agree that the mitigation measure identified on Page 2-22, item 16, is necessary to protect sensitive fishes that reside in Muddy Creek both within and downstream of the project area. This mitigation measure will be included in the Decision Record.

- l. Page 4-20, section 4.8.1.3.2 Fish. This paragraph is good and identifies the importance of the mitigation measures identified in the EA to prevent introduction of sediments and fluid spills from entering the watershed. It is important to**

prevent introduction in both perennial and ephemeral waterways. Without implementation of all mitigation measures identified in this EA, harm to the sensitive fish populations in the Muddy Creek drainage adjacent to the project area may occur.

Mitigations identified throughout Chapter 2 to minimize the impact of the proposed project on sensitive fishes in Muddy Creek, are very important to the responsible development of gas resources in the Project Area. The Decision Record will reiterate the importance of implementation of these mitigation measures.

m. In addition to the comments provided, we recommend the following stipulations to prevent adverse impacts to the aquatic resources.

1) All drilling fluid storage ponds should be lined to eliminate possible groundwater contamination.

Item 10 on page 2-21 states, “The reserve pits would be constructed in cut rather than fill materials. Fill material must be compacted and stabilized, as needed. The subsoil material of the pit to be constructed should be inspected to assess stability and permeability and to evaluate whether reinforcement or lining is required. If lining is required, the reserve pit must be lined with a reinforced synthetic liner at least 12 mils thick and with a bursting strength of 175 by 175 pounds per inch [American Society for Testing and Materials (ASTM) Standard D 75179]. Use of closed or semi-closed drilling systems should be considered in situations where a liner may be required.” This requirement should prevent any possible groundwater contamination.

2) 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.

This subject is addressed in Section 2.1.10. Project-Wide Mitigation Measures and Procedures, page 2-12, item 11, and further detailed in Appendix B, Master Surface Use Plan, page 20, Well Site Layout.

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. Discharge should occur into a temporary sedimentation basin if total suspended solids concentrations are significantly higher in the test water than in the receiving water. Dewatering of temporary sedimentation basins should then be done in a manner that precludes erosion.

Item 13 on Page 2-21 states, “Hydrostatic test water would be injected into an authorized deep injection well, in compliance with all applicable requirements.” This requirement would eliminate the possibility of morphologic changes to stream channels, increased sedimentation, and addition of toxic chemicals into drainages resulting from the discharge of hydrostatic test waters. For this reason, it should not be necessary to consider the discharge of hydrostatic test waters into temporary sedimentary basins.

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

a. **“The environmental assessment for the Doty Mountain 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 would 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.

- b. **“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.

- 1) **“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 Doty Mountain Pod EA.

- 2) **“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.

- 3) **“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.

- 4) **“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 re-injection 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 Doty Mountain 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.

- 5) **“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?”**

The ½-mile corridor is a protection corridor that allows BLM to evaluate effects. It is not a guideline that prohibits surface disturbance within ¼ mile of either side of the trail. Disturbance which is visible and located within ¼ mile of the Trail is considered to be an adverse effect and, therefore, consultation with the Advisory Council on Historic Preservation is required according to the Wyoming State Protocol and 36 CFR 800.4 (d). The RFO will also conduct and has conducted

analyses for any eligible historic trail located within two miles of a proposed action to determine if any adverse effects would occur as defined under 36 CFR 800.4(b). Because each project is unique, impacts vary from case-to-case and would have to be evaluated on that basis.

The Cherokee Trail is located, according to our records, approximately 12 miles south of the Doty Mountain Pod and is, therefore, well outside the Area of Potential Effect for this project. The Overland Trail and the Rawlins-Baggs Stage Road are outside but adjacent to the project area. The two-mile area of effect was analyzed and SHPO has been consulted as required.

- 6) **“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 re-injection. What are the environmental benefits and costs of this broad disposal decision?”**

The requirement for re-injection 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. Re-injection 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 re-injected water to contain water of lower quality than the water placed in the formation as described in the EA.

- 7) **“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?”**

The IDP states (IDP Appendix A: Page A-3 #11) that drilling will be allowed in each individual pod containing prairie dog towns upon the completion of black-footed ferrets survey using methods approved by the Fish and Wildlife Service. These surveys will clear the pod for one year per service protocol requirements (Black-Footed Ferret Survey Guidelines for Compliance with the Endangered Species Act. U.S. Fish and Wildlife Service, Denver, Colorado, and Albuquerque, New Mexico, April 1989).

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, wherever 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 or other associated obligate species is anticipated from the proposed action.

As long as no construction occurs within the four-acre prairie dog colony, implementation of the project is not expected to affect black-footed ferrets (4.8.1.2 T&E Species: page 4-18 Black-Footed Ferret).

- 8) **“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 as 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 would afford this protection.

There are no big game crucial winter ranges within the Doty Mountain Pod.

- 9) **“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.

- 10) **“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?”**

The distribution of fishes in this portion of the Muddy Creek watershed has not been investigated to date. As streamflow in this lower portion of the Muddy Creek watershed is ephemeral, fishes present would be seasonal migrants originating from the Little Snake River. A research project has been funded through the University of Wyoming to investigate the movement patterns and distribution of migratory sensitive native fish species in this lower portion of the Muddy Creek watershed. The results of this effort will be used to identify drainages where roads crossings will be designed to simulate natural stream processes and allow for the passage of aquatic species. Prior to the completion of this research, the application of this requirement will be assessed through the NEPA process for specific road crossing projects and utilize on-site review and assessment of the habitat suitability of the target stream for sensitive native fishes. Within the Doty Mountain Pod, there is only one crossing proposed that has any potential to affect sensitive fishes. This crossing is on the main access road as it crosses a small tributary of Dry Cow Creek, an ephemeral stream that

itself has a low probability of supporting migratory fishes. Though it is extremely unlikely that this tributary of Dry Cow Creek supports migratory fishes, an on-site review will be conducted to assess its potential. If it is found that this tributary has some potential to support migratory fishes, the crossing will be designed to allow for fish passage. This would include the crossing of the channel by linear features such as pipelines, power lines, and fiber optic lines. As a point of clarification, fish passage structures would not be utilized. Rather, crossings would be designed to simulate stream processes that result in the natural movement of water and sediment through the

- 11) **“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 Doty Mountain Pod EA on pages 2-13 through 2-27.

- c. **“The Doty Mountain 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 Doty Mountain 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 Doty Mountain Pod Project consists of the drilling of 24 CBM wells and associated facilities. As stated in response 3.b.3) 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.

- d. **“The Doty Mountain 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 EISs, 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 DMPEA exceeds the reasonably foreseeable development scenario for the Great Divide Resource Area.”

The GDRMP recognizes development of oil and gas resources on two levels: 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 development 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 Doty Mountain 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 DMPEA departs from the Great Divide RMP in other respects that violate FLPMA.”**

a) **“The GDRMP specifies that access to the Atlantic Rim for recreation is of high importance. However, the Doty Mountain Pod EA does not address how CBM drilling on the Doty Mountain 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 Doty Mountain 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 2 of the DMPEA shows pronghorn winter range, potential mountain plover habitat, white-tailed prairie dog colonies, and sage-grouse lek buffers within the Doty Mountain Pod Project Area. This is not consistent with the GDRMP and is, therefore, in violation of FLPMA.”**

The whole Doty Mountain Project (2,080 acres) is in pronghorn winter/yearlong range not crucial winter/yearlong range. There is no crucial winter range with in the Doty Mountain Pod. Figure 3-1, the Wildlife and Sensitive Species Map shows the spatial representations of pronghorn crucial winter range in relation to the project.

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

e. **“The Doty Mountain 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 DMPEA violates NEPA because it fails to consider other reasonable alternatives.”**

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” can not 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 DMPEA violates NEPA by failing to consider directional drilling.”

This alternative is not considered to be economically feasible due to a number of factors. The primary factor is the shallow depth of the formation does not allow sufficient room to directionally place the wellbore in the established reserve recovery pattern without excessively high angles and the attendant costs. The coal zones are thin and scattered over a long interval so that an “S” type directional well (directional and then vertical through the productive zone) is absolutely not feasible due the shallow depth and the attendant extremely high angles required to place the well in the established reserve recovery pattern. An angled directional well (directional through the pay zone) is also not feasible because again the shallow depths would not allow sufficient distance to place the angled hole within the reserve recovery pattern. In this case the reserve recovery would be marginal for the upper zones due to interference by the closely spaced, high angle wellbores and could also be marginal for the lower zones due to lower drawdown of the widely spaced high angle wellbores. In addition, cementing casing in an angled directional well can be very difficult and this would be extremely detrimental to the required isolation of the coal reservoirs. Horizontal drilling is not feasible because the zones are thin and would not economically support single horizontal completions.

3) “The DMPEA 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 DMPEA 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.

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.

Applicant-committed 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. The applicant-committed mitigation measures are considered part of the Master Surface Use Plan which is part of the APD for each well

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

- a) **“The proponents will be stimulating coal seams by hydraulic fracturing. Fresh water, gelled water, and or foam fracturing techniques will be used. This falls within Class II of the UIC program under safe the Drinking Water Act and must be permitted by EPA, or in this instance WOGCC. The DMPEA does not include a detailed study of the impacts inherent to the types of fluids to be used, in which coal seams they will be used, the potential for cross contamination of aquifers, an analysis of all underground fractures and fissures between aquifers, or a full analysis and monitoring program established for ensuring that all known or potential drinking water supplies, hyporheic flows communicating with surface streams, and springs are protected.”**

Hydraulic fracturing is the process in which sand within a viscous fluid is injected into a reservoir in order to improve the reservoir productivity. The viscosity is required to carry the sand and to limit leak off into the formation permeability. Enzymes reduce the viscosity in the formation to that of water and the fluid is easily produced back. The primary fluid used for the hydraulic process is water and, in the case of a single-phase or water saturated system like coal, essentially all of the fracturing water is produced back during the initial dewatering phase. Therefore, there is a very low probability of any impact due to hydraulic fracturing. This conclusion is further verified by the Ground Water Protection Council's survey of 10,000 coalbed methane wells and the State of Alabama and the EPA analysis of the well in the LEAF vs. EPA lawsuit that showed no contamination (Testimony of the Independent Petroleum Association of America and the National Stripper Well Association before the Environmental Protection Agency regarding Underground Injection Control, August 25, 2000).

It is highly unlikely that cross aquifer communication and contamination will occur. The contamination question was answered above as the only probability of contamination is due to hydraulic fracturing and this has been shown to be very remote. The thick shales between the coals and the cement that is used to isolate the wellbore from the formations will eliminate communication between these aquifers.

Casing and cement have a long history of ability to isolate formations in the petroleum industry. This history includes isolation of very high-pressure gas from low or hydrostatic pressure gas in the Madden Deep Unit, Wyoming. A history of isolation of very dangerous poisonous H₂S gas from sweet gas in the Worland Field, Wyoming, and isolation of high-pressure water and CO₂ gas injection in the Lost Soldier Field, Wyoming, can be documented. This is a very short list of thousands of zonal isolation cases in Wyoming.

Wellbore control by the use of drilling muds will effectively isolate aquifers during the drilling process and this control will be effective until the casing is cemented in place. Communication outside the wellbore and within the formation is not within the scope of this assessment.

As stated on page 14 of Appendix D; Water management Plan, "three to six groundwater monitoring wells will be installed within the Atlantic Rim study area during the interim drilling project..The effects of interim drilling and development on the coal aquifer, including drawdown, will be monitored by these wells and they will provide data for a groundwater model to look at potential impacts from alternatives in the EIS."

Also, 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."**

The injection well will be between 3,800 and 4,600 feet in the Cherokee or Deep Creek formation and it is very unlikely to be used in the future as a water source or to be connected to surface waters in the Colorado River basin. The majority of groundwater wells used as water sources are at depths of 100-500 ft and very few greater than 1,000 ft. The produced water injected into the targeted formation will most likely be of sufficient quality to be used for these beneficial uses; however, the salinity would limit the surface disposal in the Colorado Basin

WOGCC and the Wyoming State Engineer regulate the placement of these wells and coordinate with the Wyoming DEQ to assure contamination of ground waters beyond their use designation does not occur. Re-injection is the primary method for handling produced water in the Colorado River Basin. The first well drilled with the pod will be used to test the water quality of the coal seam and will include an analysis of isotopes to estimate when water was deposited into the coal seams. When the injection well(s) are drilled, a water quality sample will be collected from the target formation for the injection well. Any additional data required by the Wyoming State agencies and the BLM would be collected at that time and a decision will be made, before the wells start production. In the unlikely event the injection well(s) will not be suitable, the operator would be required to drill suitable injection well(s) for water disposal.

During the life of the project, an EIS will be completed that will include more detailed analysis to answer if injection wells impacts on

groundwater could impact surface or groundwater resources, among other questions. Also, three monitoring wells will be established to continuously monitor pressures in the coal seams and the sandstone aquifers above and below. Additional data gathering will be done for wells and springs in the Atlantic Rim area. This data, modeling results and monitoring plan will be presented in the EIS in 2005. Some of the data needed for this comprehensive analysis is collected from these exploratory pods, and represents a critical step in evaluating impacts to groundwater resources.

It is important to keep in mind the variability of groundwater formations, the only reliable way to collect data is to drill wells into formations, and many of the questions can only be scientifically answered once a well is drilled. Experience with other pods in the Atlantic Rim would lead us to believe it is extremely unlikely to have cross-aquifer communication and contamination in the targeted zone for injection and, if data shows this to be a possibility after the well is drilled, it would not be used for the purposes of injection and another well would be drilled.

- c) **The DMPEA notes that confining beds may slow the movement of groundwater between aquifers, but acknowledge that some movement does occur (DMPEA at 3-18). “Although there is some downward movement of the water from the surface units, most of the groundwater movement, if any, is upward from the deeper aquifers to the shallower aquifers. Concerns have been raised for several gas field projects in southwest Wyoming over degradation of groundwater quality caused when confining layers are pierced and allow vertical and horizontal migration and mixing of water of varying qualities” (DMPEA at 3-18). Samples from wells in the project area indicate that produced waters will exceed standards for domestic use or irrigation for ammonia and cyanide, as well as sodium adsorption ratio (SAR) and residual sodium carbonate (DMPEA at 3-17 to 3-18, Table 30-8). Unfortunately, units of measure for these factors have not been provided in surface water quality data, and ambient surface water levels for some pollutants are not presented at all in the EA. See DMPEA at 3-20, Table 3-9. Thus, direct comparison of produced waters (which will be re-injected, but which may migrate upward and be discharged into surface waters via springs and hyporheic flows), cannot be made using the data presented in the EA.**

The referenced statement was made in error. The referenced paragraph has been removed and replaced with the following:

“The confining beds stop movement of water and hence, movement of potential contamination between aquifers. This is very adequately demonstrated in the Atlantic Rim area where high pressures are encountered in the Mesa Verde Group and normal pressures are displayed in the Lewis Shale above the Mesa Verde Group and the Steele Shale below the Mesa Verde Group. The Steele Shale contains the Cherokee and Deep Creek Formations that will be the primary receiving aquifers for CBM water disposal.”

- d) **“There were no mountain plovers located in the Project Area during surveys in 2001, but the presence of prairie dog colonies indicates that potential 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 Doty Mountain Pod Proposed Action.

Potential habitat was noted during BLM on-site 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; 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.

- e) **“How far way [*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. In addition, the proposed access road/pipeline corridor will be built immediately adjacent to two ferruginous hawk nest sites, and within one mile of at least five more. In addition, the BLM notes that 15 inactive ferruginous hawk nest sites and 2 inactive red-tail hawk nest sites have been found within one mile of the proposed access road**

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.

- f) **One white-tailed prairie dog colony is present within the Doty Mountain Pod area. Well sites typically entail structures which can be used by raptors for roosting. The sighting 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 DMPEA that no effects are expected.”**

There are facilities proposed near the colony that can provide roosting/perching opportunities. Facilities adjacent to prairie dog towns may increase raptor predation on prairie dogs. No adverse effects on prairie dog towns are expected (page 4-18 bff, Page 4.8.1.3.1 swift fox, Burrowing owl, page 4-20, no adverse effects are expected with mitigation).

- g) **“When active raptor nest are found, construction activities would be restricted within 0.75 to 1 mile of the project site. But this measure does nothing to reduce or mitigate for production-related disturbance 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.”**

Individual raptors (of the same species) have different tolerances for disturbance. Because production-related activities are expected to be constant and there is plenty of raptor habitat within the area for birds to nest, birds that can tolerate production-related activities will continue to establish nests outside the breeding season adjacent to the facilities while other will move to alternate nest locations to breed. 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.

- h) **“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**

See answer for g) above. No further effects are anticipated.

- i) **“Increased traffic on access roads will result in increased dust. The DMPEA states that dust abatement will occur only using water suitable for livestock use, chemical 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.

- j) **“On the subject of the Wyoming big sagebrush community, BLM states, ‘The short and long-term losses in acreage described above would not alter the overall abundance and quality of these habitats.’ This is an unsupported and unsupportable statement, 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. 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 4-38 of the EA states, “Some wildlife species may be temporarily displaced by construction at well sites, access roads, and pipeline routes, but should return once construction is complete. Extensive suitable habitats for many species exist on adjacent lands and would support individual animals that may be temporarily displaced during RFFAs. Cumulative long-term effects on wildlife also are expected to be minimal, as most species would become accustomed to routine operation and maintenance. Only a very small proportion of the amount of available wildlife habitats within the Atlantic Rim EIS study area would be affected. As a result, the capacity of the area to support various wildlife populations should remain essentially unchanged from current condition.” The CIA area varies with species, as indicated in the analyses. Disturbance of wildlife habitat that results from RFFAs, including the interim drilling program, would reduce the availability and effectiveness of habitat for a variety of common mammals, birds, and their predators. Initial phases of surface disturbance would result in some direct mortality to small mammals, would displace songbirds, and cause a slight increase in mortality from increased use of vehicles. However, populations of small mammals and songbirds would quickly rebound to pre-disturbance levels after reclamation is complete because of the relatively high production potential of these species and the relatively small amount of habitat disturbed (0.006 percent of the Atlantic Rim EIS study area). Therefore, no long-term impacts to these populations are expected. Because of the small amount of disturbance associated with the project (128.4 acres), their inherent mobility, and the availability of suitable habitats on undisturbed land, the effects on these species should be minimal.

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 all of the interim drilling pods, except the Doty Mountain Pod, 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

- k) **“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. Nine of the twenty-six proposed wells are scheduled to be constructed within 2 miles of a sage grouse lek; in addition, some 4.9 miles of road and pipeline will transverse lands within 2 miles of a lek site to provide access to the wells. However, the mitigation measures proposed for the project prohibit construction and surface occupancy only within ¼ mile of lek sites. While there is a seasonal prohibition on construction activities throughout the project area from March 1 to June 30 to reduce disturbance to sage grouse, 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 sole access route to the project area. As discusses above, even this mitigation measure may not be enforceable during the twenty-year production phase of development.**

In addition, the BLM states that exceptions could be granted to this restriction ‘after a thorough, site-specific analysis concluded that a negative impact would occur.’ Neither the BLM, nor any other authority or researcher, has the capacity to gather sufficient information to guarantee that negative impacts will not occur; to do so would require a perfect knowledge that does not exist. 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 Doty Mountain 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 2-23) and analyzes potential impacts (see EA, Pages 4-16, 4-39).

The word “negative” is not used properly on page 2-23 and has been removed. The last sentence on page 2-23 has be change to read, “An exception would be approved only after a through, site-specific analysis concluded that no unacceptable impact would occur.

- l) **“The project area has been identified as a likely migration route for pronghorn moving toward crucial winter range to the northwest. In addition, the BLM notes that 2,080 acres of the project area are**

designated as pronghorn crucial winter range, although spatial representations of pronghorn crucial ranges fail to show crucial winter range in the pod area (Table 3-1). Is pronghorn crucial winter range present in the Doty Mountain Pod area or not? In western Wyoming, it has been found that oilfield developments caused game animals to abandon portions of winter range. Researchers have noted that densities of pronghorn are lowest in areas of severe oil and gas development. The BLM has failed to analyze the cumulative effects of the Doty Mountain 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 whole Doty Mountain Project (2,080 acres) is in pronghorn winter/yearlong range not crucial winter. There is no crucial winter range with in the Doty Mountain Pod. Figure 3-1, the Wildlife and Sensitive Species Map shows the spatial representations of pronghorn crucial winter range in relation to the 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 3.e.5j), above.

- m) **“The DMPEA 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, and there is little weed impact at present. However, the DMPEA 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 4-12 states, "Surface disturbance could affect vegetation directly and indirectly by removal of existing vegetation and by introducing weeds. Weedy species...often thrive on disturbed sites such as road ROWs and out-compete more desirable plant species." Under Section 2.1.10 Project-Wide Mitigation Measures and Procedures, the Companies must implement a BLM-approved weed control and eradication program. Weed monitoring would occur during drilling, production, and reclamation activities and weeds found would be eradicated following BLM-approved control procedures. Properly reclaimed areas and the application of Project-Wide Mitigation Measures and Procedures in Chapter 2 and the Master Surface Use Plan 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.

- n) **"The plan for revegetation (DMPEA/Appendix B at 22) does not include replacement of lost sagebrush, nor does the DMPEA address the effect of loss of sagebrush on sage dependent species as sage sparrow or Brewer's sparrow...."**

The linear nature of the disturbance from road and pipeline disturbance and the small size of the disturbance from pad construction allow sage brush to come back naturally once the grasses and forbs, that were seeded, have created the needed microclimate. Chapter 4, page 4-11 and 4-15 of the DMPEA analyze the loss of sage brush and the effect on sage dependent species.

- o) **"In the chapter discussing long-term effects on wildlife, the DMPEA 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 Doty Mountain Pod project are anticipated to be minimal.

- p) **“The DMPEA states: ‘The direct disturbance to wildlife habitat that results from RFFAs including the interim drilling program, would reduce the availability and effectiveness of habitat for a variety of common mammals, birds, and their predators. Initial phases of surface disturbance would result in some direct mortality from increased use of vehicles. However, populations of small mammals and songbirds would quickly rebound to pre-disturbance levels after reclamation is complete because of the relatively high production potential of these species and the relatively small amount of habitat disturbed (0.006 percent of the Atlantic Rim EIS study area). Therefore 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 DMPEA 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 DMPEA fails to take a hard look at cumulative effects to wildlife habitat.”

See response to question 2.f above. See response to question 3.e.5)o), above.

4. State of Wyoming, Department of Environmental Quality

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

BLM Regulation at 43 CFR Part 3164.1 Onshore Oil and gas Order No. 1; Approval of Operation's on Onshore federal and Indian Oil and Gas Leases; section I. Accountability, stated in part, "Lessees and operators have the responsibility to see that there exploration, development, production, and construction operations...conforms with applicable federal laws and regulations and with State and local laws and regulations...."

The Master Surface Use Plan, Appendix B, of the EA on page 6, states, "All the Companies' operations and those of its contractors, will be conducted in accordance with all BLM and WOGCC rules and regulations.

This information is appreciated.

5. Petroleum Association of Wyoming

- a. The applicants have agreed to numerous "Applicant Committed Measures," which go beyond the required protective measures established in the current land management plan. The Applicants have demonstrated their willingness to work with the BLM in protecting the effects on the environment and as a result, PAW believes that the proposed project has provided sufficient mitigation to protect the environment.**

We agree that the Companies have shown their willingness in working with the BLM to protect the environment. The Project Wide Mitigation Measures and Procedures, found in Chapter 2, along with the Conditions of Approval that are added to the Decision Record provided sufficient mitigation to protect the environment.

- b. The "Applicant Committed Measures" are voluntary actions agreed to by the individual companies and should not establish the precedent for future projects that are similar in nature.**

The measures identified under Section 2.1.10, Project Wide Mitigation Measures and Procedures, and referred to as Best Management Practices throughout the EA, are actions or features which are included as part of the proposed action that would be taken to avoid or reduce project impacts or reflect standards operating procedures. Once the measures as described in Chapter 2 become part of the decision, they are considered enforceable actions that will be implemented, if applicable, to reduce impacts to the environment resulting from the project. Regardless if these measures are proposed by the BLM or the applicant, they will be applied if necessary.

- c. **Page 2-15 - It is unclear whether or not these BMP are voluntary Applicant Committed Measures, which are normally interpreted as Conditions of Approval, or required mitigation measures. PAW request a clarification regarding the intent of the phrase “Best management Practices.”**

See the answer for 5.b. above.

- d. **Page 2-15, Preconstruction Planning, Design, and Compliance Measures, #1 - “The Companies would designate a qualified Representative to serve as compliance coordinator.” BLM must recognize that individual contact persons may be required when site-specific operations occur that affect only one company’s operation.**

This comment is appreciated.

- e. **Page 22, Water Resources, #18 - “BLM must approve in writing any changes in the method or location for disposal of produced water.” BLM must remain flexible regarding other disposal methods such as surface discharge into off-channel reservoirs for beneficial use.**

Refer to Appendix A of the EA: INTERIM DRILLING POLICY page A-3. This explains BLM policy for water disposal while the Atlantic Rim Coalbed Natural gas project is being written.

- f. **Page 2-22, Vegetation, Wetlands, and Noxious Weeds, #1 - PAW believes that consultation between the operator, BLM, and County Weed and pest agencies should be encouraged to identify noxious weed outbreaks. Once identified, the appropriate control measures should be implemented.**

This comment is appreciated.

- g. **Page 2-23, Wildlife, #8 - BLM has significant flexibility in developing protective measures for BLM Sensitive Species...such as sage grouse. BLM has certain discretionary authority and should consider the effects of restrictions on the oil and gas operator as part of its adoption of reasonable and prudent mitigation measures necessary to minimize potential impacts on non-ESA listed Special Status Wildlife Species.**

The Great Divide Resource Management Plan prohibits surface disturbance on the strutting ground (lek) and within a ¼-mile radius from the center of the ground. The 2-mile area around the lek is protected from surface disturbance during the nesting season (page 204). Exceptions to this protection requirement may be approved in writing, after documented analysis.

- h. **Page 2-25, Transportation, #2 - “All roads on public lands that are not required for routine operation and maintenance of producing wells, would be permanently blocked, recontoured, reclaimed, and revegetated.” Operators have no authority over roads that they do not construct. Only those roads constructed pertinent to this project should be subject to this mitigation measure. BLM should consult the County before blocking and reclaiming roads.**

This office has a process for closing roads on public land. This process includes coordination with land owners, other users, and other government agencies. As stated on page 20 of the Master Use Plan (Appendix B), “roads, culverts, cattle guards, pipelines, stock water facilities, or other structures could be left in place at the end of the

project for any beneficial use.” BLM does not have the unilateral authority to close County roads.

- i. **Page 2-25, Cultural Resources, #3 - “...cultural resource mitigation plan. Mitigation plans would be developed as needed for eligible sites that would be impacted.” PAW request clarification from BLM regarding the need for a “cultural resources mitigation plan.”**

Mitigation plans are only required on those cultural or historical sites that cannot be avoided. As explained on page 2-25, Cultural Resources, #2 “Avoidance is the preferred method for mitigating adverse effects to a property that is considered eligible for the NRHP.” A mitigation plan is only required if an eligible site can not be avoided.

- j. **Page 2-27, noise, #3 - “In addition to other restrictions on activities near leks, BLM may require that noise levels be limited to no more than 10 decibels on the A-weighted (dBA) above background levels....” There is an ongoing effort with the BLM and Wyoming Game and Fish Department to monitor the possible effects noise may have on the species during seasonal times of the year. PAW recommends that the BLM insert language into the EA that recognizes the agency should remain flexible with noise mitigation while those studies are being conducted and the mitigation may be adjusted based on the results from those studies.**

Research on noise levels affecting greater sage-grouse is presently ongoing. The 10 dBA standard was established as mitigation in the Pinedale Anticline EIS. The analysis presented in the noise technical analysis report, prepared for the EIS, indicated that an oil and gas rig would have to be located a minimum of 800 feet away from a greater sage-grouse lek, and a typically-sized (26,000 horsepower) compressor station would have to be located approximately 2,500 feet away from the lek, unless mitigation is applied.

We are currently trying to obtain the latest research information available on this subject, but until further studies are complete, we will use the results from the studies conducted for the Pinedale EIS as a guide and will mitigate noise levels of authorized actions to increases to no more than 10 dBA above background levels at the edge of sage-grouse leks. Furthermore, the requirement that no construction activities would occur within 0.25 miles of a greater sage-grouse lek would help to reduce noise levels resulting from gas development at lek locations.

- k. **PAW recognizes that the social and economic opportunities generated from the project would continue to benefit the residents of Wyoming and the participating counties by directly creating new jobs and producing additional revenues. Socio-economics are an important component to this cumulative analysis and were appropriately incorporated into the EA.**

This comment is appreciated.

- l. **In a time of uncertainty and with the projection of natural gas production being unable to meet demand during certain times of the year, Wyoming has the opportunity to provide much needed natural resources to markets throughout the nation, and this proposal has the potential to assist in that effort. At the same time, industry recognizes the importance of protecting the environment and will work to adequately address those concerns during the appropriate level of NEPA analysis.**

This comment is appreciated.

6. **US Fish and Wildlife Service**

- a. **We believe that, in order to fully analyze cumulative effects, the Bureau of Land Management should analyze the effects of development of all nine Pods as well as full field development under one document.**

The Doty Mount Pod, along with other Pods associated with the Atlantic Rim project, is intended to provide exploratory information in support of development of the Atlantic Rim Environmental Impact Statement. The Atlantic Rim Pods have been proposed in order to develop information on the impacts of various actions that are envisioned occurring and to obtain baseline information on geologic and biologic conditions. There is no library where this information may be "checked out," it must be obtained by exploration in the field. In addition, the productivity of the coal formations targeted in producing natural gas is a critical piece of information. Experience has shown that there are a certain minimum number of wells necessary to successfully obtain such information. The Doty Mountain Pod is proposed for just such reasons. All the elements of a coal bed methane operation must be in place, (production wells, plumbing, disposal wells, roads, gas lines and compressor stations) in order to adequately develop this information. The Atlantic Rim EIS, concurrently in the process of development with the Atlantic Rim Pods, will provide the broad level of analysis you have requested, including cumulative effects within and around the Atlantic Rim area. An example of the utility of this process is the recent revision of the proposed action from 3,880 wells to 2,000 wells, based on the results obtained from exploratory drilling.

- b. **Page 2-23, Wildlife Items 4-7 and 10 - These items are similar and we believe may be simplified by stating that raptor surveys will be conducted annually, during the appropriate time of year, and within one mile of the project area.**

Thank you for your comment.

- c. **The Service recommends a 1-mile disturbance free, buffer zone for active bald eagle and ferruginous hawk nests and a 0.5-mile disturbance free, buffer zone for all other raptor nests, including burrowing owls.**

Project wide mitigation measures are detailed in 2.1.10, "Project Wide Mitigation Measures and Procedures." Page 2-23, items 4 through 7, describe mitigating measures to be taken with implementation of the project, including raptor surveys, construction restrictions, and annual surveys for nest locations.

- d. **Ground-disturbing activities within suitable habitat during the nesting season may deter birds (raptors) from preferred nest sites and result in nest initiation in marginal habitat and perhaps reduce nest success.**

A raptor survey will ensure that well sites are located away from potential conflict areas. When an active raptor nest is located within 0.75 to 1 mile of a well site (depending on species and line of sight), construction would be restricted during the critical nesting season for the species. This distance would be increased to within a mile of a proposed well site for listed and BLM sensitive species. Known raptor nests will be surveyed annually to evaluate potential nesting activity in areas where work may be occurring during the raptor nesting period of February 1 to July 31. Project-wide mitigation measures are detailed in 2.1.10, "Project Wide Mitigation Measures and Procedures." Page 2-23, items 4 through 7, describe mitigating measures to be taken with

implementation of the project, including raptor surveys, construction restrictions, and annual surveys for nest locations.

- e. **The EA does not indicate if sage-grouse populations within this area of Wyoming are migratory or not.**

Page 3-26 indicates that the area provides excellent year-round range for greater sage-grouse. Sage-grouse are not migratory in the Doty Mountain Pod area.

- f. **The Service recommends the following three habitat protection measures described by Connelly et al (2000),**

- (1) **All uniformly distributed habitat where non-migratory populations occur, habitat should be protected within 2 miles of an occupied lek.**
- (2) **Where sagebrush is not distributed uniformly, and non-migratory populations occur, habitat should be protected within 3 miles of an occupied lek.**
- (3) **For migratory populations, protection of breeding habitat within 11 miles of leks is recommended.**

Page 3-21 of the EA details that the primary vegetation cover type is big sagebrush. Page 2-23 details that construction and surface occupancy cannot occur at anytime within 0.25 miles of existing leks for greater sage-grouse. In addition construction, drilling, or other activities that could disrupt nesting greater sage-grouse are prohibited from March 1 through June 30 for the protection of nesting areas for this species. The sage grouse is a BLM sensitive species, listed as such on April 9, 2001. Because of this status, no actions that might jeopardize the future existence or viability of this species may occur.

Sage grouse populations have been declining for many years. Appendix I of the Great Divide Resource Management Plan (RMP) lists sage grouse in several areas of the Wildlife Mitigation Guidelines, including 2b and 2c. Guideline 2c provides for the prohibition of surface activities or use within important habitat areas for the purpose of protecting sage grouse breeding grounds and or habitat where timing stipulations are not appropriate. The purpose of the Guidelines are: 1) to reserve for the BLM, the right to modify the operations of all surface and other human presence disturbance activities as part of the statutory requirements for environmental protection; and 2) to inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered public lands. The Guidelines in the RMP are not specific as to the distance an action must be moved to mitigate impacts of a proposal on sage grouse. Literature reviews indicate that spacing requirements from a lek generally run in the 0.25 to 2 mile range; 0.25 miles is a minimum distance for spacing.

- g. **The Service is concerned that a 0.25 mile NSO is not adequate to protect breeding habitat adjacent to a lek. We recommend at minimum, a 2-mile NSO stipulation within adjacent breeding habitat.**

Please refer to our response to comment 6.f. above.

- h. **More importantly, we strongly encourage the Bureau to use its authority and not grant exceptions to stipulations that are meant to protect already declining populations of sage grouse.**

Exceptions are approved only after a thorough, site-specific analysis, including interdisciplinary and interagency consultation, leads to the conclusion by the BLM that an unacceptable impact to greater sage-grouse will not occur from the request.

- i. **Item #9 prohibits disruptive activities from March 1 to June 30 to protect strutting and nesting habitat. However, item 10 states that an exception would be approved after a site-specific analysis indicated no negative impact. These dates protect the sage grouse nesting period but may not protect the brood rearing period. The Service recommends that the Bureau contact the local Wyoming Game and Fish Biologist to determine local site-specific dates for lek activity, hatch dates, and brood rearing period.**

The BLM normally consults with and receives input from field biologists of the Wyoming Game and Fish Department when considering exception requests and in spring monitoring of greater sage-grouse lek activity (breeding).

- j. **Once again, we strongly encourage the Bureau to use its authority and not grant exceptions to stipulations that are meant to protect already declining populations of sage grouse.**

Please refer to our response to comment 6.h. above.

- k. **The EA should indicate that disturbance can increase the distance from leks to nest sites. According to Lyon et al. (2003), hen movement from disturbed leks (vehicular traffic) was greater than movement from undisturbed leks (hens from undisturbed leks moved approximately 1.3 miles while hens from disturbed leks move 2.5 miles). The Service recommends that site-specific buffers be implemented for each lek so that suitable nesting habitat within and greater than 2-miles is protected.**

Please refer to our response to comment 6.f. above.

- l. **This MOU outlined the participation of Federal and State wildlife agencies, including the Wyoming Game and Fish Department, in greater-sage grouse conservation, and these commitments should be considered in project planning in sage-grouse habitat.**

These commitments were considered in planning for this and other projects.

- m. **Additionally, unless site-specific information is available, greater sage-grouse habitat should be managed following the guidelines by Connelly et al., 2000.**

Please refer to our response to comment 6.f. above.

- n. **The Service strongly encourages the Bureau to relocate these facilities in order to reduce fragmentation to sage grouse habitat.**

Page 2-28 of the EA, in 2.3, "Alternatives Considered But Not Analyzed in Detail," discloses that the access route (and pipeline) was modified near winter concentration areas for greater sage-grouse and within the ¼-mile buffer for active leks, but could not be relocated to completely avoid important habitats. Facilities sited within the Doty

Mountain Pod will comply with the mitigations found in 2.1.10, "Project Wide Mitigation Measures and Procedures." Also please refer to our response to 3.e.5)k).

- o. The Bureau should ensure that compressors are sited where noise disturbance will be minimized.**

The BLM has ensured that the compressor location is where noise disturbance is minimized. Addition disclosure of effects related to noise is provided in 4.15 "Noise", page 4-30 of the EA.

- p. We recommend that an up-to-date raptor nest survey be conducted prior to commencement of this project and that protective buffers be applied to all active nests.**

Please refer to our response to comment 6.d.

- q. The Service recommends that an up to date black-footed ferret habitat survey be conducted to determine the current habitat availability.**

No disturbance activities are planned within the prairie dog town at Doty Mountain. If disturbance activities should be planned within a prairie dog colony, black-footed ferret surveys are required to avoid disturbance of black-footed ferrets.

- r. Please determine whether the 4-acre town is an isolated town or if additional towns are located within 4.3 miles.**

There is adequate amounts of prairie dog colonies present within the area to cause the four acres of habitat within Doty Mountain to be considered black-footed ferret habitat.

- s. Please clarify if an actual ferret survey was completed in the Doty Mountain Pod and if so, were there more prairie dog towns than the 4-acre town indicated in the EA.**

No black footed ferret surveys have occurred at Doty Mountain. Please see our responses to comment 6.q.

- t. Based on this review, the Service has determined that at least three lines of evidence may provide useful information in characterizing the relative date of ground water recharge and the potential for hydrological connection with active flow systems.**

The BLM will review geological and hydrologic information from wells on the Doty Mountain Pod and other pods, and draw a conclusion from that information on what effect the pod will have on water depletions within the Colorado River system. Depending upon what the information reveals, the BLM may initiate such surveys prior to consulting with U.S. Fish and Wildlife Service for your concurrence.

- u. The Service recommends the collection of surface and ground water samples from various sources in close proximity to the area of CBM development in order for us to begin understanding the hydrological consequences of CBM development.**

Thank you for your recommendation. Please refer to our response to Comment a. These surveys are planned and/or being conducted in conjunction with the Atlantic Rim Natural Gas Project Environmental Impact Analysis.

- v. **Tritium, stable isotopes, and water chemistry should be evaluated seasonally as CBM development continues, providing baseline information needed to understand the local and/or regional hydrological consequences of CBM development.**

These isotopes should not change seasonally if there is no connection to surface recharge sites. All evidence collected thus far from other pods in the area indicates that this water was deposited during the Pleistocene Epoch, which ended some 10,000 years ago. Isotopic information collected thus far supports the conclusion that these coal seam waters are not connected to Colorado River system waters and will not vary seasonally.

- w. **The data identified above will provide key information the Service needs for Section 7 consultation to evaluate the extent of hydrological connection in the basin between the deep coal bed aquifers and shallow aquifers and surface water flows.**

Section 7 consultation will be initiated if the BLM determines there is anything other than a "no effect" situation regarding depletions of Colorado River system waters. Stable isotopic analysis has been collected for one pod in the same formation (Blue Sky Pod) and the results support the data from tritium analysis from other pods in the same formation, in the area. All evidence to date from these information sources indicate this water was not recently recharged. This observation is also supported by geology information from the area. BLM is assessing the usefulness of gathering further information from the general water chemistry of the area. In addition, we will have three monitoring wells in the Atlantic Rim EIS area that will provide periodic water quality and composition data in support of the Atlantic Rim EIS. After well completion, the BLM will collect water quality samples to measure the tritium isotope levels for the Doty Mountain Pod. Until that time there is simply no direct way to know what is present, other than as detailed in our response to comment 6.v. For the reasons stated there the BLM expects the ground water sample to show there is no connectivity with surface waters associated with the Colorado River system.

- x. **Other information would be needed to address such questions. For example, the stratigraphic profile, composition of major geologic layers, proximity to surface water features, relative depth of deep and shallow aquifers, and regional geographic features such as confining layers and major faults.**

Please refer to our response to comment 6.a. Each exploratory pod for Atlantic Rim enables us to capture the information needed to address these questions, including the stratigraphic profile, composition of major geologic layers, proximity to surface water features, relative depth of deep and shallow aquifers, and regional geographic features such as confining layers and major faults. The Doty Mountain Pod is an important part of that process.

- y. **The Service recommends that the EA clarify whether or not habitat for plovers occurs within the project area. If even marginal habitat is available plovers may occur there.**

During on-sites for the wells and facilities within the pod, it was determined that potential mountain plover habitat did exist. Most of this habitat was created by a prescribed burn some time in the past. Construction, drilling, and other activities are prohibited during the reproductive period of April 10 to July 10. Because potential mountain plover habitat exists at the proposed project location, additional protection measures may be applied if this area is later determined to be part of a mountain plover concentration area. Additionally, the BLM has established survey routes through potential mountain plover

potential habitat in the Atlantic Rim project area and has surveyed for the birds on the routes during the past three years, no birds have yet been observed during the breeding season within the EIS area (page 3-31 supplement plover information).

- z. We do however, encourage the Bureau and their applicants to continue providing protection for this species as it remain protected under the Migratory Bird Treaty Act (16 U.S.C. 703) and as a sensitive species under Bureau policy (Bureau Manual 6840.06E Sensitive Species).**

Project-wide mitigation measures for mountain plover are detailed in 2.1.10, "Project Wide Mitigation Measures and Procedures." Page 2-24, item 13, describes mitigating measures to be taken with implementation of the project including prohibition of construction, drilling, and other activities during the reproductive period of April 10 to July 10.

- aa. We recommend that the Bureau consider cumulative impacts from potential full field development of the Atlantic Rim project.**

Please refer to our response to comment a. above.

- bb. The Service recommends that the Bureau clarify whether or not cumulative effects to wildlife, as a result of full field development, will occur. The Service is concerned that 96 existing oil and gas wells; 200 additional wells; a myriad of roads, pipelines, compressors stations, reserve pits, and power facilities; and increased vehicular traffic may change the area's ability to support certain wildlife species.**

Cumulative impacts for the Doty Mountain Pod are disclosed in Section 4.16, "Cumulative Impacts" in the Doty Mountain EA, page 4-30. Cumulative impacts to wildlife are found on pages 4-38 to 4-41 in the Section entitled 4.16.1.7, "Wildlife and Fisheries". For cumulative impacts outside of the Doty Mountain EA's scope, please refer to our response to comment a.

- cc. The EA should consider the long-term nature of sagebrush habitat reclamation and the effects the roads and well pads will have on wildlife movements.**

Sagebrush habitat reclamation effects are disclosed in part on page 4-11 and 4-14 of the EA in the Section entitled "Vegetation, Wetlands, and Noxious Weeds." The effects of increased access from road improvement and construction are discussed in the EA at 4.13 "Transportation." The effect of soil disturbance, including well pad construction, is discussed in Section 4.4 "Soils."

- dd. If the scope of the project is changed, or the project is modified, in a manner that you determine may affect a listed species, this office should be contacted to discuss consultation requirements pursuant to section 7(a)(2) of the Act.**

Your comment is noted.

APPENDIX C

PROJECT-WIDE MITIGATION MEASURES AND PROCEDURES

For this project, the Companies have voluntarily agreed to use and comply with the following measures and procedures to avoid or mitigate potential impacts to resources or other land uses, after consultation with BLM regarding agency requirements. These measures and procedures will be referred to as Best Management Practices (BMPs) throughout this document. These mitigation measures and procedures would be applied on privately-owned surface unless the private surface owners involved specifically require alternative actions while still in compliance with laws and regulations. An exception to a mitigation measure 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 had concluded that the resource or land use that the measure was intended to mitigate is not present or would not be significantly affected in the absence of mitigation measures.

PRECONSTRUCTION PLANNING, DESIGN, AND COMPLIANCE MEASURES

1. The Companies would designate a qualified representative to serve as compliance coordinator. This person will be responsible for ensuring that all requirements of the APD and Plan of Development (MSUP, MDP, WMP, and Conditions of Approval) are followed.
2. The Companies and the BLM would make on-site inspections of each proposed and staked facility site (such as drill locations and other facilities), new access road, access road upgrades (two-track roads), and pipeline alignment projects to develop site-specific recommendations and mitigation measures.
3. New roads would be constructed and existing roads maintained in the Project Area in accordance with standards in BLM Manual 9113 and applicable regulations for resource roads and construction details outlined in the MSUP and Conditions of Approval. These standards would be followed on BLM surface ownership lands.
4. Prior to construction, the Companies would submit an APD package to the BLM. This package would contain individual APDs for each drill site, as well as the MDP, MSUP, WMP, schematics of facilities, and ROW applications for pipelines, utilities, and access roads. APDs submitted by the Companies would show the layout of the drill pad over the existing topography, the dimensions of the pad, cross sections of the cuts and fills (when required), the location and dimensions of reserve pits, and locations of access roads.
5. The Companies would slope-stake construction when required by the BLM (for example, in steep or unstable slopes) and receive approval from the BLM before construction begins.
6. The BLM would require roads to be crowned with a 0.3- to 0.5-foot crown, and ditched. The topsoil would be graded over the cut slope so no berm is left at the top of the cut slope.
7. The BLM would require that culverts in roads be covered with a minimum of 12 inches of fill or one-half the diameter of the pipe, whichever is greater. The inlet and outlet will be set flush with existing ground and lined up in the center of the draw. Before the area is backfilled, the bottom of the pipe will be bedded on stable ground that does not contain expansive or clay soils, protruding rocks that would damage the pipe, or unevenly sized material that would not form a good seat for the pipe. The site would be backfilled with unfrozen material and rocks no larger than two inches in diameter. Care would be exercised to thoroughly compact the backfill under the haunches of the conduit. The backfill would be brought up evenly in six-inch layers on both sides of the conduit.
8. Additional culverts would be installed in the existing access road as needed or as directed by the BLM.

9. The access roads would be surfaced with an appropriate grade of aggregate or gravel to a depth of four inches before the drilling equipment or rig is moved onto the pad.
10. The BLM would require that access roads be maintained in a safe and usable condition. A regular maintenance program would include, but is not limited to, blading, ditching, installing or cleaning culverts, and surfacing.
11. Written approval of the authorized officer will be obtained before snow removal outside the new and existing roadways is undertaken. If approval is given, equipment used for snow removal operations outside the road ditches will be equipped with shoes to keep the blade off the ground surface. Special precautions will be taken where the surface of the ground is uneven to ensure that equipment blades do not destroy the vegetation.
12. The BLM would require that wing ditches be constructed, as necessary, to divert water from road ditches.
13. Trenches that are open for the installation of pipelines should have plugs placed no more than 1,000 feet apart to allow livestock and wildlife to cross the trench or walk out of it, if needed. Placement of plugs would be determined in consultation with the BLM and any affected landowner.
14. Procedures would be implemented to prevent livestock or wildlife from falling into open excavations. Procedures could include temporary covers, fencing, or other means acceptable to the BLM and any affected landowner.

RESOURCE-SPECIFIC REQUIREMENTS

The Companies propose to implement the following resource-specific mitigation measures, procedures, and BLM management requirements on public lands.

Geology, Minerals, and Paleontology

Mitigation measures presented in the sections of this EA on Soils and Water Resources would avoid or minimize many of the potential impacts to surface mineral resources. BLM and WOGCC policies on casing and cementing would protect subsurface mineral resources from adverse impacts.

Scientifically-significant paleontological resources that may occur would be protected through the following mitigation measures:

1. If recommended by the BLM, each proposed facility located in areas of known and potential vertebrate paleontological resources would be surveyed by a BLM-approved paleontologist before any surface disturbance is allowed (BLM 1987 and 1990).
2. Discovery. Project personnel would make contingency plans for the accidental discovery of significant fossils. If construction personnel discover fossils during implementation of the project, the BLM would be notified immediately. If the fossils could be adversely affected, construction would be redirected or halted until a qualified paleontologist had assessed the importance of the uncovered fossils, the extent of the fossiliferous deposits, and had made or implemented recommendations for further mitigation.
3. Field Survey. No specific data currently exist on deposits of high or undetermined paleontologic potential in Project Area. For that reason, field survey for paleontologic resources would be conducted on a case-by-case basis, as directed by the BLM. These resources would be surveyed in areas where surface exposures of the Browns Park, Green River, or Wasatch Formations occur.

A field survey may result in the identification of additional mitigation measures needed to reduce adverse impacts to fossil resources. This mitigation may include collection of additional data or representative samples of fossil material, monitoring excavation, or avoidance. In some cases, no action beyond the measures taken during the field survey may be necessary.

A report would be submitted to the BLM after each field survey is complete. The report will describe, in detail, the results of the survey with a list of fossils collected, if any, and may recommend additional mitigation measures. If scientifically-significant fossils are collected, the report must document the curation of specimens into the collection of an acceptable museum repository and must contain appropriate geologic records for the specimens.

Air Quality

1. All activities conducted or authorized by the BLM must comply with local, state, tribal, and federal air quality regulations and standards. The Companies would adhere to all applicable ambient air quality standards, permit requirements (including preconstruction, testing, and operating permits), standards for motorized equipment, and other regulations, as required by the WDEQ-AQD.
2. The Companies would not allow garbage or refuse to be burned at well locations or other facilities. Before any wells are vented or flared, WDEQ-AQD would be notified as required by Wyoming Air Quality Standards and Regulations, Chapter 1, Section 5, *Reporting Guidelines for Well Flaring and Venting*. Test periods longer than 15 days would require authorization by WOGCC, in accordance with Chapter 3, Section 40, *Authorization for Flaring and Venting of Gas*.
3. On federal land, the Companies would immediately abate fugitive dust (by application of water, chemical dust suppressants, or other measures) when air quality is impaired, soil is lost, or safety concerns are noticed by the Companies or identified by the BLM or the WDEQ-AQD. These concerns include, but are not limited to, actions that exceed applicable air quality standards. 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 sources in accordance with any applicable regulations.

Soils

1. The Companies would 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, the Companies would locate pipelines immediately adjacent to roads to avoid creating separate areas of disturbance and to reduce the total area of disturbance.
3. The Companies would avoid using frozen or saturated soils as construction material.
4. The Companies would minimize construction in areas of steep slopes.
5. Cut slopes would be designed in a manner that would retain topsoil, and facilitate use of surface treatment such as mulch and subsequent revegetation.
6. The Companies would selectively strip and salvage topsoil or the best suitable medium for plant growth from all disturbed areas. Topsoil would be removed and conserved to a minimum depth of 6 inches and a maximum of 12 inches from all drill locations, unless otherwise agreed by the BLM and the operator.
7. Where possible, disturbance to vegetated cuts and fills would be minimized on existing improved roads.

8. The Companies would install runoff and erosion control measures such as water bars, berms, and interceptor ditches if needed.
9. The Companies would install culverts for ephemeral and intermittent drainage crossings. In addition, drainage crossing structures would be designed to carry the 25-year discharge event, or as otherwise directed by the BLM.
10. Layout of the access roads may require minor variations in routing to avoid steep slopes adjacent to ephemeral or intermittent drainage channels. Where possible, the Companies would maintain a 100-foot wide buffer of natural vegetation (not including wetland vegetation) between construction and ephemeral and intermittent channels.
11. The Companies would include adequate drainage control devices and measures in the design of roads (for example, berms and drainage ditches, diversion ditches, cross drains, culverts, out-sloping, and energy dissipaters). These devices and measures would be located at sufficient intervals and intensities to adequately control and direct surface runoff above, below, and within the road to avoid erosive, concentrated flows. In conjunction with surface runoff or drainage control measures, the Companies would use erosion control devices and measures such as temporary barriers, ditch blocks, erosion stops, mattes, mulches, and vegetative covers. In addition, the Companies would implement a revegetation program as soon as possible to reestablish the soil protection afforded by vegetation.
12. When construction that is not specifically required for production operations is complete, the Companies would restore topography to near pre-existing contours at the well sites, along access roads and pipelines, and other facilities sites. The Companies also would scarify regraded surfaces and redistribute up to six inches of topsoil or suitable plant growth material, if available, over all disturbed surfaces; roughen the soil surface; apply fertilizer as required; seed; and mulch.

Water Resources

Other mitigation measures listed in the sections of this EA on Soils and Vegetation and Wetlands would apply to Water Resources.

1. The Companies would limit construction of all drainage crossings to no-flow or low-flow periods.
2. The area of disturbance would be minimized within perennial, ephemeral, and intermittent drainage channels.
3. The BLM would prohibit construction of well sites, access roads, and pipelines within 500 feet of surface water and riparian areas. Possible exceptions to this will be granted by the BLM based on an environmental analysis and site-specific mitigation plans.
4. The Companies would design channel crossings to minimize changes in channel geometry and subsequent alterations in flow hydraulics.
5. Layouts of the access roads may require minor variations in routing to avoid steep slopes adjacent to ephemeral or intermittent drainage channels. Where possible, a 100-foot wide buffer of natural vegetation (not including wetland vegetation) would be maintained between construction and ephemeral and intermittent channels.
6. Interceptor ditches, sediment traps, water bars, silt fences, and other revegetation and soil stabilization measures would be designed and constructed, as needed.

7. The Companies would construct channel crossings by pipelines such that the pipe is buried a minimum of four to six feet below the channel bottom, as specified by the BLM.
8. Disturbed channel beds would be regraded to the original geometric configuration and would contain the same or similar bed material.
9. Wells must be cased during drilling, and all wells cased and cemented in accordance with Onshore Order No. 2 to protect all high-quality aquifers. High-quality aquifers exhibit known water quality of 10,000 milligrams per liter total dissolved solids (TDS) or less. Well casing and welding must be of adequate integrity to contain all fluids under high pressure during drilling and well completion. Furthermore, wells would adhere to the appropriate BLM cementing policy.
10. The reserve pits would be constructed in cut rather than fill materials. Fill material must be compacted and stabilized, as needed. The subsoil material of the pit to be constructed should be inspected to assess stability and permeability and to evaluate whether reinforcement or lining is required. If lining is required, the reserve pit must be lined with a reinforced synthetic liner at least 12 mils thick and with a bursting strength of 175 by 175 pounds per inch [American Society for Testing and Materials (ASTM) Standard D 75179]. Use of closed or semi-closed drilling systems should be considered in situations where a liner may be required.
11. Two feet of freeboard must be maintained on all reserve pits to ensure they are not in danger of overflowing. Drilling operations must be shut down if leakage is found outside the pit until the problem is corrected.
12. Hydrostatic test water used in conjunction with pipeline testing, and all water used during construction or dust abatement must be extracted from sources that contain sufficient quantities and with appropriation permits approved by the State of Wyoming.
13. Hydrostatic test water would be injected into an authorized deep injection well, in compliance with all applicable requirements.
14. All concentrated water flows must be discharged within the ROW for an access road onto or through an energy dissipater structure (such as riprapped aprons and discharge points) and into undisturbed vegetation.
15. If required by the applicable regulations, the Companies would develop and implement a pollution prevention plan (PPP) for storm water runoff at drill sites as required per WDEQ permit requirements under NPDES. All required WDEQ permits would be in place before stormwater is discharged.
16. The Companies would exercise stringent precautions against pipeline breaks and other potential accidental discharges of oil or hazardous chemicals into adjacent streams. If liquid petroleum products are stored on site in sufficient quantities (per the criteria contained in Title 40 CFR Part 112), a Spill Prevention Control and Countermeasures (SPCC) plan would be developed in accordance with 40 CFR Part 112.
17. The Companies would coordinate all crossings or encroachments of waters of the U.S. with the U.S. Army Corps of Engineers (COE).
18. The BLM must approve, in writing, any changes in the method or location for disposal of produced water.

Vegetation, Wetlands, and Noxious Weeds

Other mitigation measures under the section on Soils and Water Resources of this EA would also apply to vegetation and wetlands.

1. The Companies must implement a BLM-approved weed control and eradication program.
2. The Companies would 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 outside these sensitive areas. If complete avoidance is not possible, the Companies would minimize impacts through modification and minor relocations. The Companies will comply with applicable regulations for any activities that involve dredge or fill or wetlands.
3. An approved Pesticide Use Proposal would be obtained before herbicides or other pesticides are applied on BLM surface ownership lands to control noxious weeds.
4. Disturbed areas would be seeded and stabilized in accordance with BLM-approved reclamation guidelines.

Range Resources and Other Land Uses

Mitigation requirements listed under sections of this analysis on Soils, Vegetation, Wetlands, Noxious Weeds, and Wildlife also apply to Range Resources and Other Land Uses.

1. The Companies would coordinate with the affected livestock operators to ensure that livestock control structures remain functional (as directed by the livestock operator) during drilling and production operations, and to coordinate timing of activities planned.
2. When necessary, traffic control and speed limits would be used to limit potential conflicts.

Wildlife

1. During reclamation, the Companies would establish a variety of forage species that would return the land to a condition that approximates or is equal to its state before disturbance.
2. The Companies would prohibit unnecessary off-site activities of operational personnel near the drill sites. The Companies also would inform all project employees of applicable wildlife laws and the potential penalties associated with unlawful take and harassment.
3. The Companies would limit construction within crucial winter range for big game timing stipulations unless an exception is authorized by the BLM.
4. A raptor survey would be completed before construction begins to ensure that well sites are located away from potential conflict areas.
5. The Companies would survey and clear well sites within one mile of raptor nests identified in the raptor survey before construction or drilling can begin during the raptor nesting period (February 1 through July 31).
6. When an "active" raptor nest is located within 0.75 to 1 mile of a proposed well site (depending on species and line of sight), the Companies must restrict construction during the critical nesting season for the species. The distance would be increased to within 1 mile of a proposed well site for listed and BLM sensitive species (Chapter 3).
7. Raptor nests must be inventoried annually to evaluate potential nesting activity in areas where work may be occurring during the raptor nesting period from February 1 to July 31.

8. Construction and surface occupancy cannot occur any time within 0.25 mile of existing leks for greater sage grouse.
9. Construction, drilling, and other activities potentially disruptive to strutting and nesting greater sage-grouse are prohibited during the period of March 1 to June 30 for the protection of strutting and nesting areas.
10. Construction, drilling, or other activities that could disrupt nesting raptors or greater sage-grouse are prohibited during the period from February 1 to July 31 (raptors) and from March 1 through June 30 (greater sage-grouse) for the protection of nesting areas for these species. An exception would be approved only after a thorough, site-specific analysis concluded that a negative impact would not occur.
11. Surface occupancy or use within 0.25 mile of a greater sage-grouse strutting or dancing ground will be restricted or prohibited unless the operator and BLM arrive at an acceptable plan for mitigation of anticipated impacts.
12. All pits and open cellars must be fenced for the protection of wildlife and livestock. Fencing must be in accordance with BLM specifications. Netting must be placed over all production pits to eliminate any hazard to migratory birds or other wildlife. Netting is also required over reserve pits that have been identified as containing oil or hazardous substances as these terms are defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 101 (14), as determined by visual observation or testing. The mesh diameter will be no larger than one inch.
13. Construction, drilling, and other activities are prohibited during the reproductive period of April 10 to July 10 for the protection of mountain plover.

Fisheries

1. No mitigation for fisheries is needed beyond the measures indicated under Water Resources and Special Status Species.

Special Status Species

Special Status Plants

1. Clearance surveys must be performed for plant species of concern.

Recreation

Measures under the section of the EA on Wildlife, Transportation, Soils, Health and Safety, and Water Resources apply to Recreation.

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

Visual Resources

1. Roads, pipeline corridors, drill rigs, wellheads, and production facilities must be screened to the extent possible, when specified by the BLM.

2. The Companies must paint structures at wells and central facilities with flat colors (such as Carlsbad Canyon) that blend with the adjacent undisturbed terrain. This measure does not apply to structures that require safety coloration in accordance with the requirements of the Occupational Safety and Health Administration (OSHA).

Cultural Resources

1. A Class III inventory for cultural resources has been done, but if the area of potential effect were to change, additional inventory would be required.
2. Avoidance is the preferred method for mitigating adverse effects to a property that is considered eligible for, or is already on, the NRHP.
3. Adverse effects to cultural or historical properties that cannot be avoided would be mitigated by preparing and implementing a cultural resources mitigation plan. Mitigation plans would be developed as needed for eligible sites that would be impacted.
4. If cultural resources are discovered at any time during construction, all construction would halt and the BLM would be immediately notified. Work would not resume until the BLM issues a Notice to Proceed.

Socioeconomics

1. Project activities must be coordinated with ranching operations to minimize conflicts that involve movement of livestock or other ranch operations. Coordination would include scheduling project activities to minimize potential disturbance of large-scale livestock movements. The Companies would establish effective and frequent communication with affected ranchers to monitor and correct problems and coordinate scheduling.

Transportation

1. Existing roads, if any, would be used as collectors and local roads whenever possible. Standards for road design would be consistent with BLM Road Standards Manual Section 9113. The proposed access road would be constructed to the BLM standard for a local road.
2. All roads on public lands that are not required for routine operation and maintenance of producing wells, ancillary facilities, or field production would be permanently blocked, recontoured, reclaimed, and revegetated.
3. Areas with important resource values, steep slopes, and fragile soils would be avoided, where possible, in planning for new roads.
4. Permits are required from Carbon County for any access to or across a county road or for any pipeline that crosses a county road. These permits would be acquired before additional roads are built. Roads on private lands would be reclaimed in a like manner to those on public lands, depending on the desires of the landowner.
5. The Companies would be responsible for preventive and corrective maintenance of roads in the Project Area throughout the duration of the project. Maintenance may include blading, surfacing, cleaning ditches and drainage facilities, abating dust, controlling noxious weeds, or other requirements as directed by the BLM or the Carbon County Road and Bridge Department.

6. Except in emergencies, access would be limited to drier conditions to prevent severe rutting of the road surface. No construction or routine maintenance activities would be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of four inches deep, the soil would be considered too wet to adequately support construction equipment. Culverts would be installed where needed to allow drainage in all draws and areas of natural drainage. Low water crossings would be used where applicable. Onsite reviews would be conducted with BLM personnel for approval of proposed access before any construction begins.

Health and Safety

Measures listed under the section of the EA on Air Quality and Water Quality also apply to Health and Safety.

1. Sanitation facilities installed on the drill sites and any resident camps would be approved by the WDEQ.
2. To minimize undue exposure to hazardous situations, the Companies would comply with all applicable rules and regulations (such as Onshore Orders and OSHA requirements) that would prevent the public from entering hazardous areas and would post warning signs to alert the public of truck traffic.
3. The Companies would haul all garbage from the drill site to a state-approved sanitary landfill for disposal. In addition, the Companies would collect and store any garbage or refuse on location in containers approved by the BLM until it can be transported.
4. During construction and when production operations begin, the Companies would maintain an inventory of chemicals or hazardous substances for all items that may be at the site. The Companies would institute a Hazard Communication Program for employees and would require subcontractors to establish programs in accordance with OSHA regulations at 29 CFR 1910.1200. These programs are designed to educate and protect employees and subcontractors with respect to any chemicals or hazardous substances that may be present in the work place. In addition, Material Safety Data Sheets (MSDS) would accompany every chemical or hazardous material that is brought on location and would become part of the file maintained at the Doty Mountain field office, as required by 29 CFR 1910.1200. All employees would receive proper training in storage, handling, and disposal of hazardous substances.
5. SPCC 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. If quantities that exceed 10,000 pounds or the threshold planning quantity (TPQ) as designated by the RFO are to be produced or stored in association with the project, chemical and hazardous materials would be inventoried and reported in accordance with the toxic release inventory (TRI) requirements set forth in Title III of the Superfund Amendments and Reauthorization Act (SARA) and codified at 40 CFR Part 335. The required Section 311 and 312 forms would be submitted at the specified 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 disposed of in accordance with all applicable federal, state, and local regulations.
8. All storage tanks and compressor facilities that are designed to contain oil, glycol, produced water, or other fluid that may constitute a hazard to public health or safety, must be surrounded by a

secondary means of containment for the entire contents of the largest single tank in use, plus one foot of freeboard. The Companies would use 3.5-foot berms around affected storage tanks and facilities. The containment or diversionary structure must be impervious to any oil, glycol, produced water, or other hazardous fluid for 72 hours. In addition, it would be constructed so that any discharge from a primary containment system would not drain, infiltrate, or otherwise escape to groundwater, surface water, or navigable waters before cleanup is completed.

Noise

1. The Companies would muffle and maintain all motorized equipment according to manufacturer's specifications.
2. In any area of operations (such as a drill site or compressor station) where noise levels may exceed safe limits specified by OSHA, the Companies would provide and require that employees use proper personal protective equipment.
3. In addition to other restrictions on activities near leks, the BLM will require that noise levels be limited to no more than 10 decibels on the A-weighted scale (dBA) above background levels at leks for greater sage grouse that are located on public lands. This scale simulates human hearing by placing less emphasis on lower frequency noise. The BLM will require that compressor engines located on public lands be enclosed in a building and located at least 600 feet away from sensitive receptors or sensitive resource areas to comply with these limits on noise levels.

Appendix D

Conditions of Approval Doty Mountain Pod

WYW116179 Anadarko E&P Company (AEPC)	AR Federal	17-91-9-14	T17N R91W Sec. 14 NESE
	AR Federal	17-91-11-14	T17N R91W Sec. 14 NESW
	AR Federal	17-91-13-14	T17N R91W Sec. 14 SWSW
	AR Federal	17-91-15-14	T17N R91W Sec. 14 SWSE
	AR Federal	17-91-9-22	T17N R91W Sec. 22 NESE
WYW137692 (AEPC)	AR Federal	17-91-1-22	T17N R91W Sec. 22 NENE
WYW141686 Double Eagle Petroleum Company (Double Eagle)	AR Federal	17-91-3-22	T17N R91W Sec. 22 NENW
	AR Federal	17-91-5-22	T17N R91W Sec. 22 SWNW
	AR Federal	17-91-7-22	T17N R91W Sec. 22 SWNE
	AR Federal	17-91-11-22	T17N R91W Sec. 22 NESW
	AR Federal	17-91-13-22	T17N R91W Sec. 22 SWSW
	AR Federal	17-91-15-22	T17N R91W Sec. 22 SWSE
WYW133658 (Double Eagle)	AR Federal	17-91-1-14	T17N R91W Sec. 14 NENE
	AR Federal	17-91-3-14	T17N R91W Sec. 14 NENW
	AR Federal	17-91-5-14	T17N R91W Sec. 14 SWNW
	AR Federal	17-91-7-14	T17N R91W Sec. 14 SWNE

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: Larry Jackson Work Phone (307) 328-4231

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 (NTLs), 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, DSTs 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 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 five 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 five 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

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.

The Companies shall have a copy of the, *Decision Record and Finding Of No Significant Impact* for the *Atlantic Rim Natural Gas Project, Doty Mountain Pod EA*, available at all construction and drilling projects.

All of the *Project-Wide Mitigation Measures and Procedures* as found in the *Atlantic Rim Natural Gas Project, Doty Mountain Pod EA* and this *Decision Record and Finding Of No Significant Impact* shall be followed.

Existing Roads

1. The Companies shall have permission the use (cross) the private land involved in this project. Upon request, the Authorized Officer shall be provided with copies of any agreement entered into.
2. 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 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. All road segments must be completed, including any required surfacing, before the drilling rig or other drilling equipment moves onto the pad. This includes surfacing the road with four inches of gravel and thoroughly compacting the road's sub-base to **85% maximum dry density**, this will allow the road to stand up to the heavy equipment used during the drilling of the well.
3. Topsoil and vegetation will be windrowed to the side of the road. After the road is crowned and ditched with a 0.03-0.05 ft/ft crown, the topsoil will be pulled back onto the cut slopes of the road right-of-way so there is no berm left at the top of the cut slope.
4. Wing ditches shall be placed in accordance with the chart on Illustration 9 in BLM's 9113 Road Manual. The 10 erosion index shall be used.
5. If any additional erosion occurs during the life of the project, additional wing ditches and culverts will be placed in the access roads as the need arises or as directed by BLM's Authorized Officer.
6. Maintenance work will be will done expeditiously after discovery.
7. Cattleguards will be installed perpendicular to the travelway and will be set on treated timber, precast concrete or cast in place concrete bases. Cattleguards shall be at least

as wide as the road travelway, in this case a minimum of 14 feet wide, and 8 feet long. The cattleguard must be deigned to minimum AASHTO H-20 standards.

8. Construction-related traffic shall be restricted to routes approved by the Authorized Officer. Cross-country vehicle travel will not be permitted unless prior written approval is given by the Authorized Officer.
9. Proposed roadway centerline stakes shall be placed intervisibly at no more than 100-foot intervals along the alignment of the proposed road.
10. 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 four inches deep, the soil shall be deemed too wet to adequately support construction equipment.

Existing and/or Proposed Facilities If Productive

1. All production facilities installed on location that have the potential to leak or spill oil, glycol, produced water, or other fluid, which may constitute a hazard to public health or safety, shall be placed within an appropriate containment or diversionary structure. The structure shall be sufficiently impervious to oil, glycol, produced water, or other toxic fluid. It shall be installed so that any spill or leakage would not drain, infiltrate, or otherwise escape to ground water, surface water, or navigable waters before cleanup is completed
2. 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.
3. All above-ground structures, production equipment, tanks, transformers, insulators, not subject to safety requirements shall be painted to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors." The color selected is Carlsbad Canyon (2.5Y 6/2).

WATER HANDLING AND DISPOSAL FACILITIES AND INJECTION WELLS

No livestock watering system is being approved with this proposal.

Pipeline Systems

1. The delivery pipeline proposal, the gas-gathering pipeline system, the water gathering system, and the electrical line system, will be submitted to the BLM Authorized Officer by right-of-way application for review and approval.
2. The pipeline system should be installed within 25 feet of the centerline of the adjacent road, where ever a pipe or electrical system follows a road.
3. The centerline and exterior limits of the delivery pipeline right-of-way shall be surveyed and clearly marked prior to any surface disturbing activities.
4. Pipeline trenches shall be compacted during backfilling.
5. Clearing along the gas-gathering pipeline system, the water gathering system, and the electrical line system route, shall be limited to removal of above ground vegetative parts.

6. Drainage crossings shall be constructed to prevent any blocking, diversion, or restriction of the existing channel. Material removed shall be stockpiled for use in reclamation of the crossing.
7. Construction-related traffic shall be restricted to approved routes. Cross-country vehicle travel shall not be allowed.

Compressor Station Facility

1. No more compression that is needed to produce the Doty Mountain Pod will be authorized.
2. Compressors shall be muffled using the best available methods. Noise levels shall be limited to no more than 10 decibels on the A-weighted scale (dBA) above background levels at leks for greater sage grouse. Compressor engines shall be enclosed in a building and located at least 1,320 feet away from sensitive receptors or sensitive resource areas to comply with these limits on noise levels.

Produced Water Storage Tanks

1. The tanks are not to be used for disposal of water from other sources without the prior approval of this office.
2. Any discharge from the tank will be reported to BLM as required by NTL-3A.

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.
7. All production facilities installed on location that have the potential to leak or spill oil, glycol, produced water, or other fluid, which may constitute a hazard to public health or safety, shall be placed within an appropriate containment or diversionary structure. The structure shall be sufficiently impervious to oil, glycol, produced water, or other toxic fluid. It shall be installed so that any spill or leakage would not drain, infiltrate, or otherwise escape to ground water, surface water, or navigable waters before cleanup is completed

8. All storage tanks and compressor facilities, designed to contain oil, glycol, produced water, or other fluid which may constitute a hazard to public health or safety, shall be surrounded by a secondary means of containment for the entire contents of the largest single tank in use, plus 1 foot of freeboard. The containment or diversionary structure shall be impervious to any oil, glycol, produced water, or other toxic fluid for 72 hours and would be constructed so that any discharge from a primary containment system would not drain, infiltrate, or otherwise escape to ground water, surface water, or navigable waters before cleanup is completed.

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.
3. No flaring of gas will be allowed into the reserve pit without prior approval

Surface Reclamation Plans

1. Prior to reclamation or abandonment of the well site, a joint inspection of the disturbed area will be held. This inspection will be held to review the existing plan
2. Pits containing drilling muds and fluids shall be allowed to dry. Fluids remaining after two years shall be moved to an approved site. Other options, if approved by the Authorized Officer, may include fly-ash solidification or sprinkler evaporation over the pit containing the fluid.

Producing Wells

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.
3. Seeding and other reclamations requirements are listed in the following section also apply.

Plugged and Abandoned Wells

1. Should the well be plugged and abandoned, fencing of the reseeded well site will be required to exclude grazing and to help vegetation success.
2. **After** recontouring the site, to the original contour that existed before the pad was constructed, final grading and replacement of topsoil, the entire surface of the well site and access road will be ripped to a depth of 18 to 24 inches on the 18 to 24 inch centers.
3. The holder shall seed all disturbed areas with the seed mixture(s) listed in the APD. The seed mixture(s) shall be planted in the amounts specified in pounds of pure live seed (PLS)/acre. There shall be no primary or secondary noxious weed seed in the seed mixture. Seed shall be tested and the viability testing of seed shall be done in accordance with State law(s) and within 9 months prior to purchase. Commercial seed shall be either certified or registered seed. The seed mixture container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer. If a drill is used the drill shall be equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop to the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Seed shall be broadcast if possible. When broadcasting the seed, the pounds per acre noted below are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth will not be made before completion of the second growing season after seeding. The Authorized Officer is to be notified a minimum of three days prior to seeding of the project.
4. The travelway of the access road to be rehabilitated shall be ripped to a depth of 18 inches, recontoured to approximately the original contour of the ground and seeded in accordance with reclamation portions of the APD and these COAs.

Waterbars will be constructed on all disturbed areas to: (1) simulate the imaginary contour lines of the slope with a grade of one or two percent; (2) drain away from the disturbed area; and (3) begin and end in undisturbed vegetation or soil.

Wildlife

1. Construction, drilling and other activities potentially disruptive to strutting and nesting greater sage grouse are prohibited during the period of March 1 to June 30 for the protection of greater sage grouse nesting areas. This condition shall be applied to the following wells: AR Federal 1791-3-22, AR Federal 1791-5-22, AR Federal 1791-7-22, AR Federal 1791-9-22, AR Federal 1791-11-22, AR Federal 1791-13-22, and AR Federal 1791-15-22. This also applies to the access road for the pod.
2. Construction, drilling, reclamation and other activities are prohibited during the reproductive period of April 10 to July 10 for mountain plover. This condition shall be applied to the following wells: AR Federal 1791-1-22, AR Federal 1791-5-22, and AR Federal 1791-13-22.
3. 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. This condition will be included in the Right-of-Way for the access road to the pod and the transportation gas pipeline for the pad.

4. If a raptor tries to nest on or in any well buildings or facilities, the Operator shall immediately notify the BLM Authorized Officer

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

Cultural

1. The operator shall have a BLM approved archaeologist on-site to monitor the access road, well pad, and pipeline(s) construction. This condition shall be applied to the following wells: AR Federal 1791-1-22, AR Federal 1791-5-22, AR Federal 1791-9-22, AR Federal 1791-11-22, AR Federal 1791-13-22, and AR Federal 1791-11-14.

Other

1. The Companies would muffle and maintain all motorized equipment using Best Management Practices
2. All stationary machinery that makes noise shall be muffled using the best available methods. Noise levels shall be limited to no more than 10 decibels on the A-weighted scale (dBA) above background levels at leks for greater sage grouse. Machinery shall be located at least 1320 feet away from sensitive receptors or sensitive resource areas to comply with these limits on noise levels
3. 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.
4. 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.
5. 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.

Miscellaneous Permitting Requirements

1. 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.