

APPENDIX B

**SUMMARY OF EA COMMENTS AND
BLM RESPONSES**

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The EA was released for a 30-day public review period on January 24, 2002. Thirteen comment letters were received on the EA. 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 with responses are summarized below (*in italics*) with BLM responses to each immediately following the comment. The BLM would like to thank all commentors for taking the time to review the EA and provide comments.

1. Wyoming Game and Fish Department (WGFD)

- a. *Concerning the Affected Environment section, Porter (1999, page 39) found that nearly all elk collared in the winter on Powder Rim moved to the Elkhead Mountains in Colorado during the summers. Only a few elk locations in Porter's study were recorded on Wyoming spring and fall ranges near Muddy Mountain and Brown's Hill.*

This information has been added to the text, please see Appendix A of this Decision Record.

- b. *Although we have not done specific studies to document mule deer migration routes in the project area, Porter (1999) presents data suggesting deer move through or near the project area. This information should be included in the EA.*

Based on current information, major mule deer migration routes are not known to pass through the project area (page 3-22 of the EA). However, it is likely that mule deer utilize areas in and surrounding the project area, and page 3-22 of the EA identifies the area as winter/yearlong range for mule deer. Porter's study indicates that mule deer migration corridors may potentially occur near the Blue Sky Pod; however, the study is not specific enough to determine the exact locations of these corridors and if they pass through the project area.

- c. *The Environmental Consequences section on page 4-11 assumes that animals displaced from impacted habitats can move to adjacent habitats and thus there is no impact. This conclusion assumes adjacent habitats are suitable, available, and unoccupied.*

Total initial disturbance from this project is projected at 78.5 (4%) acres of the available habitat within the 1,921-acre project area. Because this disturbance is dispersed throughout the project area, it is unlikely that all of one type of habitat would be removed. We don't know the use patterns of available habitat, or for that matter, the location of all occupied habitat. However, as stated on page 4-13 of the EA, the project area represents less than one-tenth of a percent of any species' winter or year long range. Even when the disturbance from the Blue Sky Pod project is added to disturbance from other uses, it is unlikely that a considerable portion of available habitat will be utilized.

- d. *The EA says wildlife mortality due to the construction of the well pad and traffic accidents would be expected but quantification of these forms of mortality is not possible. While mortality from the construction phase is not easily detected, animals killed by the increased traffic could be easily quantified with carcass counts along roads.*

The discussion on page 4-12 of the EA was meant to state that, at this time, we can make no prediction of actual numbers of mortality from project-related accidents. Counting the carcasses along project area roads would quantify wildlife mortality, but would not necessarily accurately reflect the amount of mortality related specifically to the construction of this project since there are other users in the area.

- e. *The EA explains that, due to the high reproductive potential of small bird and mammal species, populations in reclaimed areas would quickly rebound to predisturbance levels. The EA should note that this is not the case if the disturbed vegetation was a later seral stage vegetative community (e.g., sagebrush) that may take 20-30 years to re-establish to predisturbance levels.*

The species populations will likely rebound; however, vegetative disturbance may not. Because the 78.5 acres of vegetative disturbance is dispersed over a 1,921-acre project area, it is anticipated the implementation of this project is likely to have little effect on small birds and mammals which are relatively mobile and propagate quickly. See response to 1c above.

- f. *On page 4-13, the assumption is made that if seasonal closures are applied to this area it would reduce poaching and harassment of big game. While this is true, it should be noted that the addition of new roads into an area could also increase poaching and harassment on a big game winter range as the new road allows easy access to the location and seasonal closures are hard to enforce. Also, seasonal closures are only applicable during the development phase of a project and no protection is afforded to big game winter ranges while the field is in the **production phase**.*

Because County Road 608 provides direct access to the project area, the development of new roads are limited in general to spur roads used to access the well area. The lack of new through roads from this project would likely keep traffic levels near current use. After the project begins operations, stated on page 2-8 of the EA, each well location would be visited about every other day to check wells and roads. This is considered to be casual use and is no different than the recreationists who utilize the area. No noticeable effects are anticipated as long as the project-wide mitigation measures described in the EA and the Interim Drilling Policy are implemented.

It is incorrect to state that mitigation measures do not extend for the life of the project. All federal, state, and local laws, mitigation described in the RMP, Chapters 2 and 4 of the EA, and the COAs described in Appendices D and E of this Decision Record will be applied as necessary throughout the life-of-project. See response to 10o.

- g. *Statements in this document claim that only the drilling stage will displace hunters. However, some hunters will not hunt in an active gas field where activity disturbs animals and where there may be safety concerns with shooting in the presence of gas wells. This may alter the outdoor experience. An economic analysis of lost AUMs is presented on page 4-22 and, although difficult to quantify, the EA should at least qualitatively address the potential economic impact of displaced hunters and wildlife.*

As stated in the EA on page 4-37, there are no historical statistics of use by hunters and other recreationists in the area. There may be some impact to hunters who traditionally use the area for hunting purposes; however, the hunt area for all three big game species is quite large and implementation of the project is unlikely to stop hunters from utilizing the designated hunt area for all three species.

- h. *In the Cumulative Impacts section on page 4-33, the description of prescribed burns is vague. It lists 20,000 acres of prescribed burns and 4,000 acres of burns caused by wildfire in the past 15 years, out of a total of 500,000 acres around the project area. The burn patterns and stages of recovery are noted, but not quantified. Without quantification, this section is incomplete. Total acres listed in the affected area assume that all are of the same age class and species, which is not the case. The total amount of each habitat type burn should be compared to the total amount of like habitats in the area (e.g., greasewood). Roads and bare ground would not be treated with fire and should be removed from the total. This analysis should be clearly defined and include an area large enough to include seasonal ranges of big game animals and upland birds.*

The purpose of this section is to give the reader an idea about the types of activity in the area that might effect wildlife habitat. We are aware that the WGFD has concerns about the loss of habitat from prescribed burns. Analysis of the impact of prescribed burns is outside of the scope of this EA. The areas where prescribed burns have occurred are not barren, they contain vegetation and provide habitat for various species. This is different than oil and gas operations where the vegetation will be removed from the surface. Those areas of disturbance are described in the EA beginning on page 4-28. It is estimated that exploratory development in the Atlantic Rim area will have an initial disturbance of 650 acres, which includes new roads and water and gas flowlines. The purpose of the analysis is to determine the impacts that might result from the disturbance of 650 acres (reasonably foreseeable development) within the 310,000-acre Atlantic Rim area when added to past and current activities (oil and gas, ranching, and prescribed burns). The analysis in the EA, provided the implementation of mitigation measures described in Chapter 2 of the EA, RMP provisions, stipulations, interim drilling guidelines, seasonal closures, and reclamation measures specified by BLM are followed, indicates that no noticeable effects on wildlife populations are anticipated. Currently a study is proposed, "Cumulative Impact Analysis for Shrublands in Southeast and South Central Wyoming," the goal of which is to comprehensively catalogue impacts to shrub communities from all activities. This study, as well as those which will be completed while preparing the Atlantic Rim Coalbed Methane EIS, should help to understand the cumulative impacts resulting from various activities.

- i. *Page 4-34 stated that 95% of the prescribed burns occur in mountain and basin big sagebrush and lists Wyoming big sagebrush as the only type of sagebrush big game and sage grouse use as habitat. This is not accurate. Big game use the taller mountain and basin big sagebrush for hiding cover, and tall sagebrush is sometimes the only vegetation available for big game and greater sage-grouse during winters with deep snows.*

The discussion on page 4-34 states that the Wyoming big sagebrush is the "main" forage for big game and the "main" habitat for greater sage-grouse. It is acknowledged that species may utilize different vegetation at times.

- j. *On page 4-35 an incorrect statement is made about prescribed burns not impacting sage grouse as the fires are outside of the range typically used by nesting and brood rearing sage grouse. The EA also notes there is a vast amount of nesting habitat is available although the document indicates there are no figures on the exact amount of habitat available. Without adequate backup information this statement should be deleted.*

The analysis of prescribed burns is outside of the scope of this EA. The focus of the EA is to determine if impacts (individually or cumulatively) may occur from the implementation of this project. No active leks are located within the project area, although suitable habitat exists. Within the Atlantic Rim area, exact greater sage-grouse habitat figures have not been

identified; however, page 4-35 of the EA states that, within the Baggs Habitat Management Plan area, 160,500 acres of greater sage-grouse habitat were identified. The plan area was referenced because, in general, it overlaps the Atlantic Rim Coalbed Methane project area and was the best available information.

- k. *On page 4-35, big game species are said to not be impacted long-term as they will eventually habituate after the drilling stage is completed. While the well sites themselves will not permanently disturb elk, the activities related to well maintenance would continue to disturb elk and other big game species. Elk avoid human activities when they are hunted and research has revealed that elk will avoid roads and human activity.*

There may be some impact to elk from maintenance activities but, because these activities are generally of a casual use type, the impacts are anticipated to be similar to those resulting from use of the area by hunters and other recreationists.

- l *We are concerned with hydrostatic test water. The expected volumes and timing of release should be stated. The document does not mention potential contaminants which may be contained in this discharge. This would be critical if testing discharges were to ultimately end up in Muddy Creek. We suggest that hydrostatic discharge be monitored to detect pollutant levels and potential soil erosion.*

The EA states on page 2-15 that, prior to discharge, hydrostatic test water will be treated or filtered to reduce pollutant levels if necessary. Preceding discharge of this water, activities will be coordinated with BLM and WDEQ/WQD, and all necessary permits will be approved.

2. Wyoming State Engineer's Office

- a. *While the project proponents did not acknowledge the necessity of obtaining permits from the State of Engineer's Office to appropriate groundwater, a check of the records revealed that permits to appropriate groundwater for each of the proposed coalbed methane wells have been obtained from this office. However, none of the permits make any reference to beneficial use of this water. Permits may be required from this office for any use beneficial for any other project purposes such as hydrostatic testing of pipelines, well drilling, etc.*

Per page 2-15 of the EA, hydrostatic test water used in conjunction with pipeline tests and all water used during construction activities would have appropriation permits approved by the State of Wyoming.

- b. *The EA did not make it clear where water to drill the initial CBM well will be obtained.*

The operator intends to obtain water to drill the initial well from its Sun Dog Pod operation. All of these wells have been permitted through the State Engineer's Office.

3. Petroleum Association of Wyoming (PAW)

- a. *The applicant has agreed to numerous "Applicant-Committed Measures" which go beyond the required protective measures established in the current land management plan. These measures are voluntary actions agreed to by the individual company and should not establish the precedent for future projects that are similar in nature.*

The project-wide mitigation measures and procedures identified in the Blue Sky EA are actions or features which are included as part of the Proposed Action that could be taken to avoid or reduce projected impacts or reflect standard operating procedures identified by the BLM. Once the measures as described in Chapter 2 become part of the decision, they are considered enforceable actions that will be implemented, where applicable, to reduce impacts to the environment resulting from the project.

- b. *Page 2-10 states, "These measures and procedures will be referred to as Best Management Practices (BMPs) throughout this document." PAW requests clarification regarding the differences between "applicant-committed measures" and "Best Management Practices" and the reason for the change in terminology by the BLM.*

The term "applicant-committed measures" is not entirely correct. The project-wide mitigation measures and procedures discussed throughout the document consists of both applicant-committed and agency-required measures. The use of the term Best Management Practices was defined to reflect the description of both procedures.

- c. *Page 4-15 of the EA states that no mountain plover were found during the 2001 surveys; however, the presence of prairie dog towns indicates that plovers may use these areas at times. The status of the mountain plover as "proposed for listing" allows for a certain amount of flexibility in developing measures protective of the species. If mountain plover are identified in the project area, BLM has certain discretionary authority and should consider the effects on the oil and gas operator as part of its adoption of reasonable and prudent measures necessary to minimize the impact on the mountain plover.*

If drilling activities occur in areas identified as mountain plover habitat, the operator must adhere to any stipulations or conditions of approval placed on the Application for Permit to Drill.

- d. *Page 4-17 of the EA it states that the BLM may limit noise levels to no more than 10 dBA above background levels at greater sage-grouse leks and other sensitive resources. There is no mitigation in the RMP regarding noise and its effect on sage grouse leks; however, there is an ongoing effort between 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 BLM remain flexible with noise mitigation while those studies are being conducted and the mitigation should be adjusted based on 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 research 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 typical-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 but, until further studies are complete, we will use the results from the studies conducted for the Pinedale Anticline EIS as a guide and will mitigate noise levels of authorized actions to increases of more than 10 dBA above background levels at the edge of greater sage-grouse leks.

4. Rocky Mountain Energy (RME)

- a. *RME supports the BLM's treatment of private lands in this document. The BLM's statements that mitigation measures would be applied to privately-owned surface unless the involved private surface owners specifically require alternate actions, appropriately recognizes private property rights. Furthermore, the "Applicant-Committed Measures" are voluntary actions agreed to by PEDCO and BLM. They should not establish precedent for future actions that are similar in nature.*

Please refer to response 3a above.

- b. *Page 2-13 of the EA, requirement No. 2 states, "Any flaring would be conducted under the permitting provisions of Section 13 of the Wyoming Air Quality Standards and Regulations." The WDEQ-AQD does not issue permits for flaring. Under the AQD's "Reporting Guidelines for Well Flaring and Venting," all that is required is notification of events. Additionally, the correct citation for the AQD's notification requirements are found in Chapter 1, Section 5.*

The correction has been made, see Appendix A, of this Decision Record (DR).

- c. *Page 2-15, requirement No. 13, says the operator would be required to "treat or filter the water to reduce pollutant levels or to settle out suspended particles if necessary." RME would like to bring to the BLM's attention WDEQ's General Permit Authorization of Temporary Discharge under NPDES. This general permit authorizes disposal of hydrostatic test water and has established limits for various potential pollutant levels. The potential pollutant limits that are established in the general permit should guide the operator when discharge water is to be treated or filtered.*

This information has been added to the discussion. Please see Appendix A

- d. *Page 2-16 states that the operator is to coordinate all crossings or encroachments of water of the U.S. with the Army Corps of Engineers (COE). In 1998, the Wyoming Regulatory Office issued General Permit 98-08. The permit is for the discharge of fill material associated with oil and gas exploration and development activities. It allows for verification by the BLM of applicability of the general permit with subsequent notice to COE after completion of activities. RME suggests that this section be rewritten to acknowledge the existence of GP 98-08 and the BLM's role.*

The BLM acknowledges the presence of the GP 98-08 programmatic permit, and BLM has the authority to make decisions based on the permit on lands under its jurisdiction.

- e. *Page 2-17 states that the operator will eliminate any hazard to migratory birds or other wildlife by requiring netting over any pits identified as containing oil or toxic substances. RME suggests that the BLM provide a definition based upon applicable, existing law regarding what it will consider to be toxic substances.*

We agree that the term "toxic substance" may not be the appropriate term. As opposed to "toxic substances," for which a definition is hard to pin down, "hazardous substances [CERCLA Section 101(14)]" has a more definable and regulatory definition. The terminology has been amended from "toxic substances" to "hazardous substances." See Appendix A of this DR. Because the definition for "hazardous substances" does not include or entirely encompass oil specifically, the term "oil or" must be retained in the mitigation.

- f. *The discussion on page 3-17 regarding the Groundwater Suitability Standards is partially misconstrued. The purpose for establishing suitability limits for SAR of 8 and sodium carbonate of 41 meq/l is to protect the ambient conditions for that associated class of groundwater (Class II Agricultural). While DEQ has chosen to protect Class II groundwater at the stated standard, it has not stated that anything above the standards is unusable for agriculture. Irrigation can successfully take place with water that exceeds the stated standard. This is reflected in DEQ's Surface Water Quality Standards, Chapter 1. Numeric limits for irrigation suitability are not established, rather a narrative standard is used which takes into consideration multiple interactions such as soils, crops, and irrigation practices. Although it is understood that produced water will be reinjected and therefore the significance of irrigation suitability is moot, the BLM should more fully analyze existing DEQ water quality standards.*

Information presented on page 3-17 is not intended as an analysis of the potential impacts to soils from the discharge of groundwater containing a high SAR value. It is for information purposes only. The document correctly states that the calculated SAR and residual sodium carbonate exceeds the Wyoming Department of Environmental Quality standards as described under the *Water Quality Rules and Regulations: Chapter VIII: Quality Standards for Wyoming Groundwater*. High sodium water may produce harmful levels of exchangeable sodium in most soils and will require special management; however, because the groundwater will be re-injected and, due to the lack of irrigated lands in the area, the significance of elevated SAR values in this project area is not pertinent.

- g. *The mitigation outlined on page 4-4 for the protection of air quality includes the reduction of compression requirements and installation of electric compression. Should the BLM chose to impose either of these restrictions, the analysis needs to document impacts to the recovery of the resource from reduced compression and additional environmental impacts caused by the electrification of compressor stations.*

Although it is unlikely that a situation would exist where the BLM would require reduction in compression requirements to protect air quality values, the implementation of this mitigation would result in a reduction of impacts. If electrical compression were utilized, per the Interim Drilling Policy, all power lines to the station would need to be buried in existing ROWs. No additional impacts are anticipated.

- h. *The mitigation on page 4-17 states that the BLM may require noise levels be limited to no more than 10 dBA above the background levels at greater sage grouse leks. RME recommends that the BLM remain flexible with noise mitigation until the completion of noise studies between BLM and Wyoming Game and Fish. Mitigation should be adjusted based on the data resulting from those studies.*

Research on noise levels affecting greater sage grouse is presently ongoing. We are currently trying to obtain the latest research information available, 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 no more than 10 dBA above background levels at the edge of greater sage-grouse leks. See response to 3d above.

5. United States Geological Survey

- a. *The last paragraph on page 3-17 states, "Unless the water were mixed with an existing water source of lower sodium and bicarbonate and lower total salinity, irrigation would result in reduction in infiltration in the affected soil." The following paragraph states, "The confining beds slow the movement of water, and hence movement of potential contaminants between aquifers." Apparently, these sentences are unrelated and may be out of place. The USGS suggests that the text between pages 3-17 and 3-19 be re-examined for unity and coherence, and placed in the appropriate part of the EA.*

The first sentence describes the impact that produced water with a high SAR could have on soils and the ability to irrigate if it were discharged to the surface. The second sentence refers to any water discharged to the surface that percolates into the groundwater system. The discussion is purely informational as all of the produced water associated with this project will be reinjected.

6. Oregon-California Trails Association

- a. *From the documentation received, it does not appear that the proposed project impacts either the Overland or Cherokee Trails. However, it would be appreciated if you would confirm this by providing a BLM map on a scale of 1:100,000 with the location of the pod in relation to the trails designated.*

The information you requested is not available on a map of this scale, but neither trail is located near the project area.

7. United States Fish and Wildlife Service

- a. *We have received the letter from your office dated February 15, 2002, that included the Threatened & Endangered Conference/Consultation and Biological Evaluation on Other Wildlife Species data sheets for Blue Sky Pod. Based on that information, we concur that the project is not likely to jeopardize the continued existence of mountain plover. However, the specific stipulations being used for mountain plover, which are outlined on these data sheets, need to be stated in the final EA document as well.*

Site-specific stipulations designed to protect the mountain plover are listed as part of the Conditions of Approval found in the Master Surface Use Plan, Appendix D.

- b. *The location of the proposed Blue Sky Pod is about a mile from the Muddy Creek drainage, about a mile and a half from a major fault, and Cow Creek runs through the pod. Based on these geologic characteristics, we cannot concur with the determination that there will be no Colorado River depletions and recommend conducting an isotopic test in the Blue Sky Pod area.*

Water analysis is currently being completed to determine if the age of the water indicates that it is connected to surface waters in the area. The process for completing this procedure is described on page 2-18 of the EA. Please note that the BLM will not authorize the discharge of water from any CBM well in the Blue Sky Pod until the United States Fish and Wildlife Service (USFWS) has reviewed the data and made the determination that implementation of this project will not cause a depletion to the Colorado River System.

- c. *Appendix D states that the formations targeted for reinjection of the produced water will be the Cherokee Sandstone and Deep Creek Sandstone. These layers are not depicted in the geologic profile on page 3-15. To properly analyze whether the reinjected water will stay in the formations or migrate and eventually end up in the Colorado River System, we need to know the porosity, intrinsic permeability, and hydraulic conductivity of the layers.*

The Cherokee and Deep Creek Sandstones, which are currently targeted as water disposal zones, are located in the Steele Shale Formation. These two sandstones are found approximately two thousand feet below the coals which are targeted for gas production. Due to the additional depth of the Steel Shale member in relation to the Almond coals, the principles of basic geology infers that the sandstones in question are significantly older than the coals. The isotopic work completed in order to date the water in the coals for the Sun Dog pod indicated this water is at least ten thousand years old.

The Wyoming Oil and Gas Conservation Commission (WOGCC) requested PEDCO to obtain data to show that the water injected into the permitted injector well at the Sun Dog Pod well, ARFed 1691 8I, is actually staying in the Deep Creek formation at the permitted rate of injection. This was accomplished by running a temperature survey while injecting water at the permitted rate. The data proved, without a doubt, that the injected water was going into and remaining in the Deep Creek sand. This temperature survey is on file with the WOGCC. The WOGCC will require this test for injection wells in Blue Sky Pod if it appears migration or reinjection into this zone could occur.

- d. *Because of the declining numbers of sage grouse and the fact that the project area provides suitable sage grouse habitat, we encourage the Bureau to take all necessary measures allowable to protect sage grouse in the project area and ensure that this project does not exacerbate factors contributing to sage grouse decline and thus give support to a listing petition.*

No active greater sage-grouse leks occur within the project area; however, areas of suitable habitat exist. No noticeable effects on greater sage grouse are anticipated provided all project-wide mitigation measures described in Chapters 2 and 4 of the EA, the RMP, and the Interim Drilling Policy are implemented.

- e. *Appendix D states that CBM-produced water would be contained in the drilling reserve pit until the injection wells are completed. We could not find any information in the EA stating how long the CBM-produced water would be stored in the reserve pits. Any discharged CBM water with selenium content >2µg/L into reserve pits may present a risk to aquatic birds using these ponds if the produced water is left in the pits long enough for submerged aquatic vegetation or aquatic invertebrates to become established and provide a food source and avenue for selenium bioaccumulation for migratory birds. The EA should state the time period that CBM produced water will be temporarily stored in the reserve pits and should evaluate if submerged aquatic vegetation or aquatic invertebrates will become established during that time period.*

Because the reserve pits must be reclaimed within one year of well completion, it is unlikely that bioaccumulation would be seen within aquatic invertebrates due to the timing of their life cycle (one year). In addition, if it is known that metals or other hazardous substances are or could be present within the pond, the operator would be required to net the reserve pit to protect waterfowl and wildlife (see page 2-17 of the EA). Page 2-4 of the EA states PEDCO "estimates the reserve pit would be open two to eight weeks to allow for the evaporation of pit fluids."

- f. *The EA shows that the CBM produced water from the Mesaverde aquifer can have a calculated SAR of 47.3. Although the CBM-produced water will not be discharged into surface waters, it will be conveyed from the CBM wells to a tank battery for deep well injection via pipeline. The EA should address produced water spills and impacts to surface waters and soils.*

The impact of high SAR occurs when the sodium in the water reacts with certain soils types over a long period of time. Because accidental spills from any of the 400 bbl water tanks would likely result in only a small amount of water over a short period of time, no impacts are anticipated.

- g. *The EA should address the potential for methane seepage and coalbed fires and their impact on wildlife habitat.*

In the San Juan Basin of Colorado, the BLM San Juan Field Office has studied this issue and found that when water levels drop in confined aquifers during CBM production, ambient air is drawn into the coal beds that could supply the necessary oxygen to support spontaneous combustion or further oxidation of coal beds at the outcrop. However, its conclusion was that the downdip extraction of water from CBM production resulting in coal fires at the outcrop would only occur if these outcropping seams were hydraulically connected to the producing wells (BLM 1999). The nearest PEDCO well (1591-1-16) is four miles from the nearest Almond coalbed outcrop. As you move west from the outcrop, the dip is fairly flat for the first three miles, after which the dip steepens abruptly. Impacts from the removal of water during this exploration project is anticipated to be limited to the immediate vicinity of the wells in the project area. The potential exists that these coals may be hydrologically connected with the outcropping coals. However, the project is small and the amount of water that would need to be removed in order to reach these outcropping coals is enormous. This makes the possibility of any resulting coal seam fires from water extraction associated with the Blue Sky Pod exploration project exceedingly remote. Water-dating is also a required component of this project. This test will give an indication whether water from the seams being produced are isolated from surface recharge or are hydraulically connect to surface outcrops.

Methane migration can occur naturally anytime there is a gassy coal seam. Methane migration resulting from CBM development could occur in an inadequately cemented gas well. Cementing would isolate all other formations in the hole and would eliminate the possibility of contamination between hydrocarbon zones and/or water aquifers and other mineral resources.

- h. *Page 2-5 of the EA states that potassium salts may be added to the drilling mud. Page 10 of Appendix B states that reserve pits will be dewatered and backfilled. The EA should state the amount of potassium salts added to the drilling muds and evaluate the effect of these salts on soils and vegetation after they are buried during reserve pit reclamation. Additionally, the potential for these salts to reach groundwater and surface water should be evaluated.*

The text in the EA is not correct and has been amended in Appendix A. The proponent will be using freshwater, biodegradable polymer soap, bentonite clay, and non-toxic additives in the mud system.

8. United States Department of Agriculture, Bridger-Teton National Forest

- a. *Page 2-13 of the EA states, "On federal land, Pedco would initiate immediate abatement of fugitive dust when air quality or soil loss or safety concerns are identified by the BLM or WDEQ/AQD." I am assuming that this only relates to air quality problems associated with road traffic. Are the BLM or WDEQ/AQD actually funded for monitoring of air quality conditions?*

While BLM is not funded for air quality monitoring on a site-specific basis, compliance with the mitigation is expected. Because fugitive dust poses a safety issue, it will be to the advantage of the operator to water well pads and resource roads during construction and other times, when necessary to control emissions of fugitive particulate matter. Under the WDEQ/AQD "Wyoming Air Quality Standards and Regulations," sources operating within the State of Wyoming are required to control fugitive dust with the method approved by the Division Administrator. The amount of particulate matter shall be measured by source test methods specified by the Administrator and found in the WDEQ/AQD Air Quality regulations and in 40 CFR part 60.

- b. *Page 4-3 of the EA says, "The small number of wells and project facilities included in the project would only generate a small amount of air pollutants." Small is a relative term and the emissions should be quantified or defined relative to something that is known.*

Typically, emissions from one CBM well have been quantified. See response 8g below.

- c. *The last sentence on page 4-3, second paragraph, says, "Wind dispersion of the small quantity of air pollutants generated by project activities would likely eliminate the formation of regional haze or acid deposition." This may be true on-site, but how about down wind? Pollutants in the air have to settle out some place. Particulates in the air do contribute to regional haze and acid deposition.*

PM10 can contribute to the degradation of visibility; however, the nearest Class I area, Mount Zirkel PSD Class I Wilderness Area in Colorado, is approximately 55 miles from the Blue Sky Project Area. Over that distance, a portion of PM10 generated from the Blue Sky Pod would be deposited out of the atmosphere. Furthermore, AP-42 emission factors for fugitive dust from unpaved roads and western surface coal mining indicated that PM2.5 (particulate matter 2.5 microns and less, and the fraction with greater potential for entrainment over long distances) ranges from 10-15% of total PM10. Because the release of fugitive dust from unpaved roads is at ground-level and is non-buoyant, there is a greater potential for atmospheric deposition to occur.

- d. *Page 4-4 states that emissions generated from compressor operation would contain a negligible amount of SO2 and particulate matter due to the composition of coalbed methane gas. Define negligible or quantify emissions.*

As shown in response 8g below, no SO2 emissions are anticipated.

- e. *There is no mention of emissions related to the pumps being used to dewater the coalbeds and to pump the water to injection wells. Was this not considered for a reason?*

A down-hole pump would operate at each well site to pump produced water, and an average of eight pumps could be powered by one generator. The generator engines average 375 horsepower and would be temporarily powered by produced gas until underground electrical

power is installed in the field. One 375 horsepower generator engine fired with natural gas would emit 0.8 lb/hour (3.6 tpy) NO_x assuming the current Best Available Control Technology (BACT) of 1 g/hp-hr for this type of gas-fired generator currently applicable in northeast Wyoming was met. Based on AP-42 emission factors for an uncontrolled natural gas-fired engine, one engine would emit an estimated 1.2 lb/hour (5.4 tpy) CO and 0.4 lb/hr (1.6 tpy) volatile organic compounds (VOCs).

- f. *Page 4-4 of the EA states that emissions from the production wells would be negligible as the produced gas is nearly 100% methane and will require no ancillary production facilities at the well site. What about dehydrators and scrubbers located at the compressor stations? Are these CBM wells ever flared? Would that not be a source of emission not considered?*

Because the produced gas is nearly 100% pure methane, no dehydrators or scrubbers will be required for this project. Under the description of the Proposed Action on page 2-8 of the EA, there is no consideration for the venting or flaring of methane should commercial quantities of CBM gas be discovered. The Proposed Action states that the gas would be moved to an existing sales line located near the project area.

- g. *The EA discusses emissions resulting from this project would be similar to those found in oil and gas projects such as the Continental Divide, but on a much smaller scale. Is it reasonable to consider development of deep natural gas wells with condensate to be the same as coalbed methane wells? There is no real quantification of the differences in the document. I do not think they are very similar in the amounts or the types of emissions.*

Emissions from conventional natural gas drilling and CBM drilling are very similar. Air emissions generated from one well during both natural gas and methane gas production are summarized in the table below. Air emissions from a 1,000-horsepower compressor engine are also shown in this table. Emissions from well sites and compressor engines are similar for CO, NO_x, SO₂, and PM₁₀. VOC emissions from coalbed methane production are less than VOC emissions from natural gas production, due to the absence of non-methane hydrocarbons in the nearly 100% methane gas stream. Gas analyses performed for representative methane gas streams indicate no or negligible amounts of hazardous air pollutants (HAP) emissions in the methane gas stream.

In addition, because the dehydration of methane gas is not proposed for this project, no liquids are removed from which flashing of VOCs and HAPs will occur. Similarly, no gas processing facilities are proposed in the Blue Sky Pod. Air emissions from a representative gas processing plant in the CD/WII Project Area were calculated to be 3.5 tpy CO, 16.7 tpy NO_x, 21.6 tpy VOC, 7.3 tpy HAPs, and <0.1 tpy SO₂ and PM₁₀. The presence of fewer VOCs and HAPs in the natural gas stream than in natural gas, and the absence of dehydration and gas processing in the Blue Sky Pod, will result in lower VOC and HAP emissions for 24 wells (and associated equipment) than analyzed for 24 wells in the CD/WII study.

**Air Emissions from Production Operations in Tons per Year (tpy)
CD/WII Project (Natural Gas) and Atlantic Rim Project (Coalbed Methane)**

Pollutant	CD/WII (Natural Gas) ¹		Atlantic Rim (Coalbed Methane)	
	One Well Site ²	1000 hp Compression	One Well Site ⁴	1000 hp Compression
CO	0.02	19.28	0.02	19.28
NOx	0.08	19.28	0.11	19.28
SO2	<0.1	<0.1	0	0
PM10	<0.1	<0.1	0.013	1.74 ⁵
VOC	38	0.97	0.009	0.97
Formaldehyde	--	1.95	--	1.95
Total HAPs	6.64	³	--	³

¹ From: BLM, 1999. Air Quality Impact Assessment Technical Support Document, Continental Divide/Wamsutter II and South Baggs Natural Gas Development Projects – Environmental Impact Statements, Volume I – Emissions Inventory and Near-Field Analysis. U.S. Department of the Interior, Bureau of Land Management Rawlins and Rock Springs Field Offices, April 1999.

² Emissions from non-BACT well (maximum emissions scenario)

³ TRC, 2000. Draft emissions calculations for Atlantic Rim EA, TRC Environmental Corporation, Laramie, Wyoming, October 2000.

⁴ PM10 emissions differ from CD/WII due to use of PM10 emission factor of 0.000397 lb/hp-hr from EPA's AP-42 (CD/WII assumed PM emissions negligible).

⁵ PM10 emissions differ from CD/WII due to the use of PM10 emission factor of 0.000397 lb/hp-hr from EPA's AP-42 (CD/WII assumed PM emissions negligible).

- h. *Page 4-4 of the EA states, "The analysis for the Continental Divide EIS project included impacts to class I areas from oil and gas development in southern Wyoming. Based on the relative size of the project, when compared to the magnitude of those projects, no ambient air quality standards would be violated and no adverse air quality conditions would result from the project." This gives me the impression that, because the Continental Divide EIS did not show significant impacts in class I areas, this project will not either. This does not take into account other activities not analyzed by the Continental Divide EIS such as the 700 wells authorized in the Pinedale Anticline project. The Pinedale Anticline wells were not considered in the Continental Divide EIS.*

Because the wells proposed for drilling have been included as part of the 3,000-well model completed for CD/WII, the conclusions of the CD/WII cumulative air quality impact analysis for that project is applicable to the Proposed Action described for the Blue Sky Pod development as well. The Pinedale Anticline EIS conducted air quality modeling for the proposed project and looked at cumulative impacts associated with the development anticipated at that time.

- i. *Define the Cumulative Impact Analysis Area. Is it 100 miles or is it the area used for the Continental Divide EIS?*

For air quality concerns, the Cumulative Impact Analysis Area is the Laramie Air Basin (see page 4-28 of the EA).

9. Biodiversity Associates

- a. *The Blue Sky Pod Project, if implemented, would violate 40 CFR 1506.1 because the Interim Drilling Policy and associated activities will significantly adversely affect the environment, are inseparably linked to the Atlantic Rim Coalbed Methane Project, and would prejudice the outcome and alternatives of the subsequent EIS decision. For example, the No Action Alternative would not be available for the subsequent EIS prepared for the Atlantic Rim project if 200 wells were already drilled under the interim policy.*

Implementation of this project, as well as all of the other exploration pods proposed in the Interim Drilling Policy, would still allow a No Action Alternative to be considered in the Atlantic Rim Coalbed Methane EIS. The No Action Alternative does not mean no development. The No Action Alternative means that a particular project would not take place. It is highly unlikely that any type of development EIS would even be considered without first conducting exploration activities to obtain information to evaluate the potential for full development of the gas resource. This is the approach being taken in the Hanna Basin (Hanna Draw and Seminole Road projects). If exploration activities in both basins indicate that CBM is economically producible, full field development would not allow a "No Action Alternative" where no development exists at all. These exploration projects would become part of the cumulative impact analysis for each project EIS. A No Action Alternative would be denial of the proposal as described in the Proposed Action.

- b. *The exploratory project is intrinsically linked to the Atlantic Rim Coalbed Methane Project and the BLM is segmenting the proposed exploration project which is a clear violation of NEPA.*

The purpose of preparing the Blue Sky Pod EA is to allow for exploration drilling to gather data for the preparation of the Atlantic Rim Coalbed Methane EIS. This project, as well as others proposed, will help determine if and where commercial quantities of gas exist within the 310,335-acre project area. At this time, the proposal to develop a 3,880 well field is not reasonably foreseeable. No data are available to confirm that CBM resources can be economically-developed in the Atlantic Rim Coalbed Methane Project Area. To develop an EIS and go forward with full field development without some exploration drilling in an area that is data poor would be very risky, at best. Several responses received during scoping stated that full field CBM development should not go forward until some more information could be gathered. By allowing some exploratory wells to be drilled, the company will be able to confirm where, and if, methane gas exists in economic quantities and if production is economically feasible. This information will help in the development of alternatives as well as help in determining any mitigation that could be applied to reduce impacts should full field development become feasible. The 3,880 well number was used for the purpose of scoping and derived solely by dividing 80 acre spacing into the total number of acres in the project area. Companies involved with this project stated during the scoping meetings that this well number is not reasonably foreseeable. Given the variability in the geologic setting and the fact that CBM is an unproven commodity in this area, developing 3,880 wells is not reasonably foreseeable. Should economic quantities of methane exist, then the EIS will fully disclose impacts associated with the development of the Atlantic Rim Coalbed Methane Project.

- c. *The project violates the Federal Land Policy and Management Act because the project is outside the reasonably foreseeable development scenario of the Great Divide RMP. The EA states that the BLM considers existing oil and gas decisions to be adequate for CBM development; however, CBM development and production have dissimilar impacts to conventional drilling. Because CBM is not even mentioned in the RMP, this project violates NEPA.*

The RMP states 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. The 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 CBM development has not been specifically mentioned, the activity is clearly consistent with the terms, conditions, and decisions of the approved plan [43 CFR 1601.0-5(b)].

- d. *The Atlantic Rim Coalbed Methane Area contains undeveloped lands of roadless and undeveloped qualities. However, the BLM has never performed an adequate wilderness inventory. This is a violation of FLPMA and other laws and regulations. The BLM must conduct an adequate inventory of the entire area, before the project is considered.*

The BLM wilderness review program stems from Section 603 of FLPMA. The BLM was directed to prepare an inventory of public lands and their resources including the identification of areas having wilderness characteristics. Per Section 2(c) of the Wilderness Act of 1964, the BLM Rawlins District inventoried areas of at least five thousand acres of land for potential wilderness character. Within the Atlantic Rim Coalbed Methane Project Area, the northern portion dropped out because of the existence of the checkerboard land pattern; to be considered for a wilderness inventory unit the area must contain 5,000 acres of contiguous public lands. Lands south of this checkerboard to an existing road north of Muddy Mountain in Township 13 was included in the Wild Horse Basin Initial Wilderness Inventory Unit. The conclusion from this inventory was that human activity and permanent manmade improvements throughout the area precluded it from having wilderness quality. The land pattern changes to the south of this road and, although some federal lands exist, the majority of the land is privately or state-owned.

- e. *The Interim Drilling Policy is a violation of the Administrative Procedures Act. The policy constitutes a rule under 5 USC 551(4). The agency has the obligation to not only notify the public in the Federal Register of the a proposal to create a rule such as the Interim Drilling Policy, but also to solicit public comment under NEPA on the proposed rule.*

The definition of a rule according to the Administrative Procedures Act means “the whole or a part of an agency statement of general or particular applicability and future effect designed to implement, interpret, or prescribe law or policy or describing the organization, procedure, or practice requirements, of an agency and includes the approval or prescription for the future

of rates, wages, corporate or financial structures or reorganizations thereof, prices, facilities, appliances, services or allowances therefor or of valuations, cost, or accounting, or practices bearing on any of the foregoing.”

We do not feel that the Interim Drilling Policy meets any part of this definition. The Interim Drilling Policy was developed to provide guidance in managing exploration activities while the environmental impact statement is being prepared.

- f. *The EA violated NEPA by failing to evaluate a reasonable range of alternatives. NEPA requires the BLM to “rigorously explore and objectively evaluate” all reasonable alternatives to proposed federal actions. The EA, at page 2-22, states, “Only alternatives addressing allowable actions specified in the Interim Drilling Policy are considered in this analysis, outside the Atlantic Rim EIS analysis. All other alternatives would only be considered in the Atlantic Rim (sic) EIS analysis. As a result, no alternatives to the project, other than the No Action Alternative, were considered in this analysis.” Using the IDP as a means to restrict alternatives is invalid because the IDP itself is legally invalid. Even if the IDP were valid, it would not supersede the NEPA requirement to explore and evaluate a range of alternatives.*

The IDP is very important for providing guidance to the operators regarding exploration activities. The IDP identifies protective measures to comply with 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 could occur within the Blue Sky Pod Project area.

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 proposed action 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.

If there were other significant alternatives that the BLM did not consider, the public could have identified these in its comments. However, only one alternative was mentioned and that was the use of directional drilling to minimize the amount of surface disturbance. The rationale for not considering directional drilling in the Blue Sky Pod Project is discussed below in response 9z.

- g. *While the EA does address the cumulative impacts of all 200 interim wells, it does not address impacts from existing CBM development in the area or the impacts of the proposed Atlantic Rim Coalbed Methane Project. By failing to consider the effects of the Blue Sky Pod in conjunction with the effects of other proposed coalbed methane projects that are reasonably foreseeable, the BLM has violated NEPA.*

The matrix on page 4-28 of the EA, provided in the cumulative impact discussion, presents the cumulative impact areas for each resource impacted by the Blue Sky Pod Project. 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. So, for example, in the case of the Blue Sky Pod Project, the project area does not contain, and no project component would disturb, any crucial winter range for elk. In the event of implementing this project, the assumption is that no impacts will occur to crucial elk winter range and, therefore, implementation of this project would not

effect crucial elk winter range. Thus, a cumulative impact discussion for this resource is not required. We agree that development of the pods in the 200-well program may impact the elk crucial winter range, but impacts on crucial winter range for elk will not be addressed until a development of a proposed pod impacts this range. Table 4-1, pages 4-28 and 4-29 of the EA, takes this approach by breaking down what resources may be cumulatively affected by the implementation of the Blue Sky Pod Project. For example, the Laramie Air Basin is impacted by this project and is common to all pods, while water resources impacted by the Blue Sky Pod Project would occur only in the Muddy Creek watershed, Pods 5, 6, and 8.

The proposal to develop a 3,880 well field is not reasonably foreseeable. At this time, there is no data available to confirm that CBM resources can be developed and produced in the Atlantic Rim CBM area. 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 response to CBM drilling is likely to be much different throughout the 310,335-acre project area. It could be that only a small number of wells would be needed for full field development, that additional wells over and above the 3,880 well proposal would be required to economically develop the area, or that much of the area cannot be economically developed. The only reasonably foreseeable activity at this time, other than conventional uses of oil and gas drilling and ranching, is the 200-well proposal. See response 9b, above.

- h. *In a related matter, on page 4-12 of the EA, BLM admits “in addition to the direct loss of habitat due to construction...disturbances from human activity and traffic would lower wildlife utilization of habitat immediately adjacent to these areas.” The BLM admits species that are sensitive to human disturbance would be impacted the most by construction activities.*

The analysis concludes that human activity would lower wildlife utilization during construction activities, but concludes that no long-term impacts are anticipated. Page 4-11 of the analysis states, “Construction, operation, and maintenance of the proposed CBM wells and associated facilities are expected to have minimal short-term effects on wildlife in the project area.” It goes on to say, “Extensive suitable habitat for many species exist on lands adjacent to the project area and would support any individuals that may be temporarily displaced.” Only a very small proportion of the available wildlife habitat within the project area would be affected. After the construction phase is completed, the analysis on 4-12 states, “Many animals may become accustomed to equipment and facilities in the gas field and may once again use habitats adjacent to disturbance areas.”

- i. *On page 4-13, the EA makes the statement that “no noticeable effect on the greater sage grouse population is expected.” Any impact to individuals should be considered an impact to a population and, therefore, must be considered unacceptable. Stipulations under the Proposed Action would protect lands within ½-mile of a sage grouse lek, but the habitat located next to the lek contains most of the nesting habitat. A two-mile buffer must be maintained around sage grouse leks, within which surface-disturbing activities must not be allowed.*

Current policy is to protect the nesting activities of greater sage grouse from February 1 to June 30, including strutting grounds and habitat. The timing stipulation is applied to areas within a two-mile radius of an active lek. There are no plans to enforce a no surface occupancy stipulation within the two-mile radius of a sage grouse lek.

- j. *No population data was collected on burrowing owls and Wyoming pocket gophers. Without accurate information on populations within the project area, the EA cannot determine that the proposed level of development would not impact the burrowing owl and the pocket gopher. A complete Biological Assessment including a systematic inventory for these species and supplemental NEPA documentation is required.*

Wyoming pocket gophers are found in meadows with loose soil. The type of vegetation in this pod is dominated by sagebrush and saltbush. Therefore, there is no potential habitat located within the pod, even though the EA mentions the possibility of occurrence. Burrowing owls have the potential to occur within the project area; however, during prairie dog mapping, no burrowing owls were observed. BLM raptor timing stipulations would also protect areas where burrowing owls are observed. The BLM initiated informal consultation with the USFWS on the Blue Sky Pod project through letters dated December 20, 2001, and February 15, 2002. The USFWS responded, in a letter dated February 28, 2002, and concurred with the determination that the project would not likely affect the black-footed ferret nor jeopardize the continued existence of the mountain plover. The USFWS did not request that a biological assessment be completed for the Blue Sky Pod project.

- k. *The project area includes the potential for black-footed ferret habitat. The BLM must consult with U.S. Fish and Wildlife Service to determine the potential impacts of the project to black-footed ferrets before the project can legally go forward.*

A black-footed ferret survey was completed for the Blue Sky Pod in August 2001. No ferrets or sign were seen during these surveys. This information was submitted to the U.S. Fish and Wildlife Service and a response was received by BLM on December 31, 2001, stating that construction of the Blue Sky Pod will not adversely affect black-footed ferrets. The area is considered cleared for a twelve-month period, until August 16, 2002, at which time a new survey will be done if construction activities are not yet completed.

- l. *The project area includes important winter range for elk, mule deer, and antelope. Elk and mule deer are particularly sensitive to disturbance during winter months. Special provisions should be made to close roads and cease all activities associated with the project between November 15 and April 30.*

The only activities allowed in the area during this time period are maintenance activities. Again, this is generally considered a casual-use type of activity which is similar to those conducted by hunters and other recreationists and is not anticipated to result in an increase in impacts from those resulting from current users.

- m. *The EA states that produced water will be discharged for a short period of time during testing to determine if the wells are productive. The EA also states that one well can discharge up to 11,500 gallons of water per day. This period of time must be given to determine the potential impacts of this discharge. Depending on the timing of the discharge, impacts to fish, amphibians, and invertebrates could be significant. Several T&E species of fish are also downstream from the project area, and a high level of clarity is needed regarding this issue to determine whether the Proposed Action would violate the ESA.*

A tank will be constructed to contain produced water for testing as per the Conditions of Approval, Appendix D. All other produced water will be reinjected into one of the two injections wells as required by the Conditions of Approval. No other disposal is allowed without prior authorization and no other type of disposal, other than reinjection, is allowed in

the Colorado River Basin System per the Interim Drilling Policy. Because no uncontained, surface discharge will be allowed, no impacts to downstream T&E species are anticipated from the minimal water discharge.

- n. *We would like to point out, in our previous comments we stated that the bonytail chub is found in Muddy Creek itself according to Deputy Director of the Wyoming Game and Fish Department Bill Wichers (in the April 22, 2001, Casper Star Tribune). The possibility of the existence of this species was blatantly ignored by the BLM in preparing this EA. In addition, the BLM procrastinates by stating that, if T&E species are detected downstream, the Fish and Wildlife Service will be consulted and a protection plan will be developed at some later date. To meet its legal obligations under NEPA, the BLM must inventory for sensitive and T&E species downstream before the Decision Record is issued. Moreover, no specific plan for monitoring or surveying Muddy Creek or Little Snake is proposed.*

This question was asked in regard to the Sun Dog Pod and was answered in the Decision Record for that project issued December 21, 2001. The information presented in the newspaper was a misquote, and the species does not exist in the Muddy Creek drainage. Because this species is not present, no discussion was presented in the Blue Sky Pod EA.

- o. *Using the same sources as the BLM, we obtained a list of species of special concern. Upon comparing it to Appendix E in the EA, we noticed that the northern many-lined skink, the milk snake, Hooker wild buckwheat, and western phacelia were wrongfully excluded.*

The concerns you brought up regarding sensitive species you feel should be on, but not shown on the BLM sensitive species list, is outside of the scope of this project

- p. *Disturbance estimates presented in the EA are misleading. The total acreage disturbed is actually much greater because roads and pipeline are crisscrossed throughout the pod. The total effects of fragmentation and other indirect effects of this road/pipeline system must be included in the disturbance estimates. In particular, the effects of roads on wintering ungulates have been understated. Researchers have found that effects of roads on elk in similar habitats extend 2.5 km from each road.*

Our estimates are based on actual disturbance to the surface of the land from the project components. Page 4-11 of the EA states the project is expected to result in some direct loss of habitat and disturbance of big game species during the parturition period and on winter range which can increase stress and may influence species distribution. The actual acreage of habitat that becomes unusable as a result of this project on big game animals could only be determined after site-specific research has been conducted over a period of several years. These types of wildlife studies would be part of the NEPA analysis should full-field development prove feasible. Impacts to elk from roads associated with the Blue Sky Pod project are expected to be minimal given the small amount of disturbance and that undisturbed habitats are available.

- q. *The EA should include all possible measures to prevent adverse environmental impacts. For example, all reserve pits should be lined, regardless of soil permeability, and no construction should take place within 500 feet of surface water or riparian areas.*

Whether or not to line a reserve pit is examined on a case-by-case basis. If soils are gravelly or sandy, the pit will likely be lined. However, in clayey soils, pit lining may not be required. Soils in the Blue Sky Pod project area tend to be clayey, and no recommendation was made to line these pits.

While the requirement for a 500-ft buffer is standard mitigation found in the RMP, BLM realizes that some linear project components such as roads and pipelines may not be able to avoid all of these surface water features. Within the Blue Sky Pod project area, the access road through the project area will cross two ephemeral streams. In order to protect stream values, the COAs for the Blue Sky Pod project include requirements for culvert design for these crossings.

- r. *The EA does not provide adequate analysis of the possibility of subsidence and earthquakes due to ground water drawdown and degasification at the coal seam.*

It is highly unlikely that an exploratory CBM program would result in enough change to trigger the tectonic stresses required to create an earthquake. In CBM, the seam is not totally dewatered; the water is removed enough to reduce the pressures in the coal to allow gas to flow. Complete aquifer dewatering, not simply a reduction in the static water level, would be necessary to allow aquifer media compression to create subsidence.

- s. *The EA does not disclose the extent of hydraulic fracturing inherent to the project, nor the effects of toxic fracturing fluids on groundwater or other resources. It is well-known that fracturing is a common practice in CBM extraction and the fracturing fluids include a number of highly toxic substances.*

Hydraulic fracturing is a 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).

- t. *The EA fails to analyze the long-term effects of keeping wells active beyond the life of the project. The construction of new water sources in an arid environment almost guarantees the creation of severe cattle overgrazing in the immediate vicinity of the water development, with all of the attendant ecological impacts. Water wells should be abandoned and restored to a natural condition when the project is terminated.*

Depending on the proposed use of the water well, conversion of existing gas wells to water wells for livestock watering would require assigning the well to the grazing permittee, with BLM approval, after completing the appropriate NEPA documentation. Whether or not, or how many of these wells might be converted to other uses is unknown at this time and, therefore, cannot be adequately analyzed.

- u. *Will the area be reclaimed with native species?*

Reclamation of the surface will be conducted as described in Chapter 2 of the EA and the Master Surface Use Plan (Appendix D). The ultimate long-term goal of reclamation is to establish a plant community which approximates the surrounding, undisturbed area. The COAs state the type of seed mix the operator will be required to use (see Appendix D).

- v. *Page 2-14 of the EA mentions that a 100-foot buffer of vegetation will be maintained between surface-disturbances and drainage channels "where possible." It is always possible to maintain such a buffer; the BLM should eliminate all ambiguity and make this stipulation an ironclad requirement.*

This is a standard operating procedure that is evaluated and implemented by the BLM at the time of construction on a case-by-case basis. While BLM will attempt to implement this mitigation measure, in some cases there might be an advantage to constructing a road inside of the 100-ft buffer where locating the road outside of 100 feet may result in greater impacts to other resources that may be present (e.g., T& E habitat or cultural resources).

- w. *Reserve pits must always be lined with impermeable fabric because they will contain hazardous chemicals. It is not sufficient to assume that some soils and bedrocks will prevent leakage from reserve pits; the BLM has no way of guaranteeing that no leakage will occur.*

Page 2-15 of the EA states that subsoil material of the pit will be inspected to assess soil stability and permeability and, based on the results of this analysis, reinforcement or a lining may be required. The reserve pits will be constructed according to WOGCC and BLM requirements.

- x. *Muddy Creek already has unacceptably high levels of sodium and sediment due to human activities such as grazing, road building, and oil and gas development. The presence of sensitive warm water fisheries in this stream militates against any action that will increase the alkalinity and turbidity of the stream.*

The components of this project reflect Management Objectives described in the RMP to reduce salt loading in watersheds that lie within the Colorado River Basin. The requirement to inject produced CBM water for projects proposed by PEDCO and located in the Colorado River Basin System will reduce salt and sediment loading caused by the development of this exploration project that might have occurred if surface disposal was allowed. Implementation of the project-wide mitigation measures and procedures will further reduce the potential for sediment loading from the construction of this project.

The Muddy Creek Coordinated Resource Management Group has worked since 1990 to improve the Muddy Creek watershed using a variety of techniques, including such things as changes in season of use, pasture rotation, placement of in-stream structures, changes in road use, and planting along riparian corridors to improve water quality, reduce erosion and sedimentation, restore riparian habitats, and improve critical ranges for antelope, deer, and elk.

- y. *The EA has noted that most of the soils in the project area have a poor to fair potential for revegetation. Thus, it is crucial that surface disturbance be minimized in this area, resulting in the No Action Alternative being preferred.*

Page 4-6 states, "Revegetation potentials range from mostly fair to poor, with some areas rated as good." The EA recognizes that the duration of effects to vegetation and habitat would depend on the time required for natural succession to reestablish vegetation to predisturbance conditions is dependent on climate, edaphic (physical, chemical, and biological soil conditions), and would include the amount and quality of topsoil salvaged, stockpiled, and spread over disturbed areas (page 4-9 of the EA). As stated in the Master Surface Use Plan, revegetation efforts will comply with BLM specifications on all BLM surface

ownership lands (see Appendix B of the EA, page 10). The seed mixture, including fertilizer and mulching requirements, seeding depth, and seed drilling specifications, will be developed in consultation with BLM. With proper construction and reclamation techniques and implementation of mitigation described in Chapter 2, impacts to soil resources in the project area are anticipated to be minimal.

- z. *The BLM needs to evaluate a minimum footprint alternative that would require wells to be clustered and employ directional drilling techniques to minimize the creation of new roads, well pads, and other surface disturbances. Ecological advantages of clustered horizontal wells are well-documented. By requiring cluster development, the BLM can minimize the environmental damage that will occur if coalbed methane development is allowed to proceed. The economic feasibility of directional drilling is also well documented.*

There are several reasons why horizontal/directional drilling would be difficult to utilize for the Blue Sky Pod project.

First we need to look at the seams that will be produced. There are three major groups of coal being targeted for methane production in the project area. The Garden Gulch coals are quite thin and discontinuous. These consist of 8 to 12 coal seams per well ranging in thickness of 1 to 4 feet. These seams do not correlate over long distances. The Almond coals are made up of 3 subgroups of coals, with 8 to 12 seams ranging in thickness from 1 to 10 feet. Some Almond coal seams correlate between wells over long distances, but there are still a high number of seams or riders that do not correlate from well to well. Finally, the Allen Ridge coals are quite thin and discontinuous, with 6 to 10 seams per well, averaging 2 feet in thickness. Thin or discontinuous target zones are poor prospects for horizontal drilling.

In addition, horizontal drilling technology requires precise control of target locations in all three dimensions. Even the thickest coal seams in the project area are below the vertical resolution of current seismic technology, therefore yielding no target control for lateral drilling. This being the case, without the knowledge of where the coal seams pinch out or end, horizontal drilling would not produce the desired results. It would be impossible to stay in coal seams during lateral drilling due to the limited control and limited thickness of the coal seams.

It would not be economical to drill laterals in thinner seam coals. Potentially up to 24 coal seams would have to be developed per well (i.e., 24 laterals would need to be drilled to develop all seams). Also, horizontal laterals would not be economical in thin seams, even if adequate control was available, as the cost of each lateral would exceed the return on ultimate gas recovery. Thin, uneconomic zones would not be produced if horizontal techniques were required, this could lead to economic failure of the entire project because of the gas contribution available in the thin seams. In conventional drilling, these seams would contribute to overall production, therefore maximizing the recovery of the gas resource.

The coal seams are quite shallow for the use of this technology throughout most of this project area and would limit the distance that could be drilled from the surface location. In addition, there would not be adequate forces in a shallow well to drill the necessary lateral distance to gain desired advantage of increased drainage area. Short horizontal laterals would not significantly increase the drainage area compared to vertical well bores; horizontal drainage patterns would be on the order of only a quarter section or so.

The only economic horizontal coal programs currently active are used to vent methane in front of coal mining operations where it is required to drain coal seams of significant thickness (greater than 6 feet) as quickly as possible for the safety of miners.

The advantages in using vertical wells include maximizing the production of gas resources from all coal seams present in the well bore, regardless of the thickness or seam discontinuity of the coals. Vertical well bores may ultimately have the same drainage areas due to the true vertical depth of the coal seams' drainage areas.

10. National Wildlife Federation

- a. *The Environmental Assessment for the Blue Sky Pod CBM Project violates the National Environmental Policy Act because it relies on the BLM's Interim Drilling Policy. Under BLM Rules, the Interim Drilling Policy should have been subject to NEPA.*

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, an 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 a precedence because other IDPs have been prepared. Most recently, we used the IDP process to manage exploration activities while preparing the Continental Divide and Desolation Flats EISs. The basic criteria in establishing these IDPs was for exploration drilling to avoid, as much as possible, sensitive resource areas. These areas had been determined to include ACECs, crucial winter ranges, sage grouse leks, T&E species and their habitats, sensitive cultural resource areas, as well as other resources. Limited exploration activity has also been allowed, under defined conditions, by the BLM in the Powder River Basin outside of the Wyodak EIS area.

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 CBM 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.

- b. *The Interim Drilling Policy makes numerous decisions which determine the location and extent of the environmental impacts of coalbed methane drilling in the 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 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 cannot 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 were 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 Blue Sky 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 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 areas 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 CBM 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 reinjection wells (some outside of the Colorado River Basin may have none). There is generally less than one acre of initial disturbance for each of these wells and a life-of-project disturbance of 0.005 acres for each well. This would result in an initial disturbance from all injection and monitoring wells of 23 acres (23 wells x 1 acre) and LOP of 0.115 acres (23 wells x 0.005). Disturbance from the two injection wells proposed for the Blue Sky Pod Project is described in the EA on page 2-7 and in Table 2-3. 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?*

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

- 6) *The IDP specifies that prior to completion of the Atlantic Rim CBM Project EIS, and with possible exceptions for Double Eagle's existing and proposed wells, water produced from coalbed methane wells located in the Colorado River Basin will be disposed of by reinjection. What are the environmental benefits and cost of this broad disposal decision?*

The requirement for reinjection for operations located within the Colorado River Basin is intended to allow CBM development without violating the requirements of the Clean Water Act. The environmental benefit would be to meet the objectives set

forth by the Colorado River Basin Salinity Forum and the Management Objectives for Soil, Water, and Air described on page 39 of the Great Divide RMP. Reinjection will prevent salt loading in watersheds within the Colorado River Basin. Furthermore, the impacts to groundwater were projected to be minimal because the State of Wyoming requires all formations accepting reinjected water contain water of lower quality than the water placed in the formation as described in the EA.

- 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, clearing 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 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?*

This requirement meets the USFWS guidance necessary to protect black-footed ferrets on public lands. The Service has reviewed this criteria and requested the BLM to add the last paragraph (page A-4, Blue Sky Pod EA) which discusses actions that the operators should take if a black-footed ferret or its sign is found, even after the area has been cleared.

- 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 since under any timing stipulations that may apply, disturbance done in crucial winter range prior to the closure date need not be reclaimed before the next closure date.*

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

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

- 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. The EA on page 3-22 states that no known mule deer or elk migration routes exist in the Blue Sky Pod Project. However, there is potential that pronghorn antelope utilize routes both north and south of this pod to reach crucial winter range located west of the project area. Seasonal timing stipulations should adequately protect pronghorn antelope migrating into the project area. However, a schedule will be required if drilling should occur simultaneously in pods 6 & 7 during critical use times.

- 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?*

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

- 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 use. 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 Blue Sky EA on pages 2-13 and 2-18.

- c. *The Blue Sky Pod EA extensively relies on the provisions in the IDP for directing development, as well as for assessing and mitigating the impacts of the development.*

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 Blue Sky 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 Blue Sky Pod Project consists of the drilling of 24 CBM wells and associated facilities. As stated in response 10b3 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 Blue Sky Pod EA violates the Federal Land Policy and Management Act of 1976 (FLPMA) which requires that decisions, permits, and other authorizations conform to the approved resource management plan. The Blue Sky Pod EA purports to be in conformance with the Great Divide RMP as required under 43 CFR 1610.5, yet the RMP does not even mention CBM as a possible land use.*

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)].

- e. *The Blue Sky Pod EA departs from the RMP in other respects that violate FLPMA.*

- 1) *The RMP specifies that access to the Atlantic Rim for recreation is of high importance; however, the Blue Sky Pod EA does not address how CBM drilling will affect access to the Atlantic Rim for recreation.*

The Blue Sky Pod is over 18 miles from the southernmost portion of the area referred to as Atlantic Rim. There are no plans to restrict use on any county road or BLM resource road as a result of implementing the Blue Sky project.

- 2) *The RMP states that surface disturbance from oil and gas exploration and development would be restricted in certain areas such as sage grouse leks and high priority habitat, yet Figure 2 of the Blue Sky Pod EA shows crucial pronghorn winter range, potential mountain plover habitat, white-tailed prairie dog colonies, and greater sage-grouse lek buffers as existing within the project area. This is not consistent with the RMP and is, therefore, in violation of FLMPA.*

No CBM drilling is allowed in any greater sage-grouse lek. In addition, drilling is restricted in these sensitive resource areas you describe under the terms described in lease stipulations, site specific COAs (Appendix D), and guidelines of the IDP. See responses to 3c, 7a, 7d, 9i, 9k, 9l, 10b8, and 10b9.

- f. *The Blue Sky Pod EA violates NEPA by failing to consider other reasonable alternatives. By considering only a “No Action” Alternative to the proposed plan, the Blue Sky Pod EA effectively forces acceptance of the proposal as shaped by the IDP, so that the rights of leaseholders are not prejudiced. The EA only offers one choice, and that choice was shaped by BLM policy, in violation of NEPA and FLPMA.*

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

However, this does not mean the No Action Alternative cannot be chosen by the decision-maker. If the components of the project described under the Proposed Action were such that the decision was made that environmental impacts were significant, either an environmental impact statement could be prepared, the project components could be changed, or additional mitigation proposed that would allow a determination of no significant impacts, or the decision-maker could choose the No Action Alternative and the project would not go forward as described. See response to 10c above.

- g. Another problem with the leases authorizing development of the Blue Sky Pod EA, is that these leases were never subject themselves to NEPA. Accordingly, when BLM issued these leases it made an irretrievable commitment of resources without first having evaluated those commitments and consequences under NEPA, in violation of the law.*

The Great Divide Draft Environmental Impact Statement (DEIS), Final Environmental Impact Statement (FEIS), and Record of Decision (ROD) are the NEPA documents associated with the Great Divide Resource Management Plan (RMP). The DEIS and FEIS assessed and disclosed the effects of oil and gas leasing and coal bed mining (Coal Appendix, Oil and Gas Appendix, Environmental Consequences) and evaluated alternatives. The RMP, page 30, under "Oil and Gas, Management Actions" states, in part, that the entire planning area is open to oil and gas leasing. The Blue Sky Pod leases were issued under the authority of the Great Divide Resource Management Plan and its associated NEPA documents and decisions.

The BLM's ability to limit environmental harm within the Blue Sky Pod Project area is not impaired under the proposal, nor by the existing leases. Before disturbing the land, the operator must contact the BLM and provide a formal application for permit to drill (APD) detailing the proposed actions. The operator cannot proceed without approval by BLM of actions, including any necessary environmental analysis. FLPMA directs the BLM to manage the public lands in a manner that will protect the quality of the environment. BLM will not approve an APD that does not comply with this direction. With the use of lease terms, stipulations, and conditions of approval, operator proposals can normally be implemented in some form to accomplish their objectives. Under the terms of the lease, the operator has the right to drill and extract the oil and gas resources present within the lease area, while the BLM has the right, the ability, and the obligation to ensure environmental harm does not occur.

- h. The Blue Sky Pod EA violates NEPA because its analysis of cumulative impacts fails to thoroughly consider reasonably foreseeable future actions. The EA inappropriately narrows its assessment of cumulative impact by disregarding the pending proposal to permit up to*

3,880 CBM wells in the Atlantic Rim Project Area. Instead, the EA's cumulative impact analysis is limited to the maximum 200 CBM wells in the nine pods that the IDP allows. Segmentation of the cumulative impact analysis improperly ignores what are reasonably foreseeable actions.

At this point, the proposal to develop a 3,880 well field is not reasonably foreseeable. See response to 9g.

- j. *PEDCO will be stimulating coal seams by hydraulic fracturing. This falls within Class II of the Underground Injection Control (UIC) program under the Safe Drinking Water Act and must be permitted by WOGCC. The EA does not include a detailed study of the types of fluids to be used in the 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 are protected.*

Because PEDCO is currently seeing good results in the Sun Dog Pod, there are no immediate plans to fracture coal seams. However, it feels that if the seams need to be fractured, no matter what type of fluid is used for fracturing, the number one priority is to stay in the coal seam. Should fracturing occur in the sands surrounding the coal seam and water from these seams invade the coals, this could prove detrimental to the ability to remove water from these seams. Because fracturing will be isolated to coal seams, and because these seams are deep and isolated from those utilized for drinking water, no impacts are anticipated to drinking water supplies.

A groundwater monitoring program has been established as part of the Interim Drilling Policy, Attachment A, under the heading "Water Assessment/Monitoring Needs." There have been some recent changes to the data submission requirements. Attachment A and the letter relaying the approved changes to the water monitoring program can be seen in Appendix F of this Decision Record.

- k. *On page 4-32 of the Blue Sky Pod EA, cumulative impacts of interim drilling activities on water resources assume that the strata into which produced water will 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 will not take the water. Nor is there any discussion of putting water monitoring wells into the target 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 CBM produced water would be of equal or higher quality with regard to the class used defined by WDEQ" (page 4-7 of the EA).*

It appears as if the formation into which produced water injection will occur is sealed. The Wyoming Oil and Gas Commission requested that PEDCO obtain data to show that the water injected into the permitted injector well at the Sun Dog Pod well, ARFed 1691 8I, is actually staying in the Deep Creek formation at the permitted rate of injection. This was accomplished by running a temperature survey while injecting water at the permitted rate. The data proved without a doubt that the injected water was going into and remaining in the Deep Creek sand. This temperature survey is on file with the Oil and Gas Commission. The Oil and Gas Commission will require this test for injection wells in Blue Sky Pod if it appears as if migration or reinjection into the Deep Creek sand zone could occur.

The requirements for water monitoring during interim drilling (Appendix F of the DR) states that "an initial, properly collected and preserved, water-quality sample shall be obtained from each perforated interval for chemical analysis."

- i. *According to the EA, on pages 3-24 and 4-15, no mountain plovers were located in the project area during a survey conducted in May of 2001, but the EA states on pages 3-24 and 4-15 that there is high quality mountain plover habitat. Since this species is proposed for listing as threatened under the Endangered Species Act, will there be monitoring for the presence of plovers throughout the lifetime of the project? There is no cumulative assessment of the impacts of roads on mountain plovers should they be present, and roads are identified as a risk factor as the plovers nest and forage in the bare ground along road verges.*

At this point, the operators are not required to survey for plovers in the pod areas, although potential habitat is noted during BLM onsite investigations and COAs will be placed on the APDs if habitat is found. The BLM has established survey routes through potential mountain plover habitat in the Atlantic Rim project area and has surveyed for the birds on the routes during the past two years, but no birds have yet been observed. 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.

With the exception of Pod 5, all of the pods can be accessed by existing county roads or BLM resource roads. New road construction during interim drilling activities would, in general, be limited to the spur roads required to access each well site.

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

The USFWS concurred that the project is not likely to jeopardize the continued existence of the mountain plover. See the USFWS statement in 7a.

- m. *The EA states that no raptor nests were found during breeding season surveys in 2001. Will surveys occur through the life of the project? Considering 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, coupled with a nearby prairie dog complex, are likely to increase the use of the area by raptors.*

Surveys for raptors have been conducted by BLM in the Atlantic Rim project area for the past two years. 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.

- n. *Increased traffic on access roads will result in dust. The Blue Sky Pod EA states that dust abatement may be by use of water (but does not identify the water source), chemical dust suppressants, or other measures. However, there is no discussion of the effect of chemical runoff if chemical suppressants are used on verge vegetation.*

Use of water or other agents on project roadways requires a sundry notice submitted to the BLM. This requirement is a COA attached to the Master Surface Use Plan (see Appendix D). 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.

- o. 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 pods to such species. Moreover, if the pods are connected, there will be a greater likelihood that after the CBM project ends, ORV enthusiasts, hunters, and other recreational users will use the roads. The potential impact on sagebrush-obligate species by public use after the project is completed has not been evaluated.*

Page 4-17 of the EA acknowledges that sage sparrow and Brewer's sparrow may be present in the project area but, "Because of the small amount of disturbance associated with the project (78.5 acres), their inherent mobility, and the availability of suitable habitats on undisturbed land, the effects on these species should be minimal."

Because the pod itself will be accessed by the existing county road (CR 608), and all other proposed roads are spur roads that will access the well, road use will likely increase during project construction, but is anticipated to return to normal levels of use after the project is completed.

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

- p. The project area includes crucial pronghorn winter range. In western Wyoming it has been found that oilfield developments caused game animals to abandon portions of their winter range. However, the wildlife stipulations apply only during exploration and development, even though the harmful effects on wildlife would continue into production phase.*

Studies referenced in the *CD/WII DEIS* concluded that pronghorn in the Rattlesnake Hills area of Wyoming avoided areas within 0.6 miles of drilling or well maintenance operations. Studies in Texas and New Mexico found this distance to be 0.5 miles. However, other studies cited in the document indicated that, although some level of habitat displacement was noted in pronghorn due to oil and gas development, pronghorn returned to these habitats once the source of displacement left the area.

The analysis presented on page 4-13 of the Blue Sky Pod EA concludes pronghorn acclimated to increased traffic volumes and machinery as long as the traffic moved in a predictable manner. It is anticipated that each well location would be visited about every other day to ensure operations are proceeding in an efficient and safe manner. Most of the maintenance activity would be considered casual use and would likely occur at similar times of the day; increase in vehicle traffic from this activity is anticipated to be limited to one or two vehicles per day.

The position presented is that seasonal closures to protect wildlife do not extend after the exploration and development phases are complete. It is also stated that the ability of the BLM to invoke seasonal closures expires once the production phase begins. This can be addressed by looking in Appendix I of the Great Divide RMP (p. 47). Some seasonal restrictions in the oil and gas lease stipulations contain the statement, "This limitation does not apply to maintenance and operation of producing wells." This statement was included because the stipulations were developed specifically for application to oil and gas leases at the time of issuance, not for activities associated with producing wells. At lease issuance, the only action that can be generally contemplated is that exploratory drilling may occur

somewhere on the lease. Unfortunately, the provision has been interpreted by some people to mean seasonal restrictions disappear at the operational stage (i.e, if a producing well is obtained). It goes on to state that it must be understood that, at both the oil and gas exploration stage and the operation or development stages, additional site-specific development environmental analyses are conducted and any needed restrictions or mitigation identified become part of the operational or development plan. In the case of the Blue Sky Pod, these are described as COAs and are included as part of this Decision Record (see Appendix D). These COAs take into consideration site-specific needs, including pertinent lease stipulations. For example, if a well proposed for drilling is located within a leasehold that has a big game stip attached to it, but the actual operation is located two miles from designated crucial winter range, activities associated with drilling will not impact the range, and the crucial winter range stip will not be a COA for that particular well, although it remains on the lease. Conversely, if the project could affect the range, the stipulation would be a COA for the development of that well.

During the production phase, an operator is allowed to perform routine maintenance and monitoring, much the same as the general public (rancher, recreationists, hunters) would be allowed to use the area.

- q. *The Blue Sky Pod EA 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 EA 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 to be introduced by construction equipment and by gravel used for roadbeds. An additional concern would be the presence of the white-tailed prairie dog colonies and the semi-bare ground surrounding the burrows. These are susceptible to weed invasion. There is a discussion of monitoring and treating weeds in the construction area, but no discussion of monitoring the prairie dog colonies as well. There is no indication of who will do monitoring and how often it will occur.*

The subject of weed invasion and establishment is addressed in several places in the EA. Page 4-9 states, "Surface-disturbing activities could affect vegetation directly and indirectly by destroying individuals or their habitat and introducing weeds. Weedy species often thrive on disturbed sites such as road ROW's and out-compete more desirable plant species. Increased weed invasion may render a site less productive as a source of forage for wildlife and livestock." Weed monitoring would occur during drilling, production, and reclamation activities and weeds found would be eradicated following county control procedures. The analysis on this page concludes that properly reclaimed areas and the application of mitigation measures summarized in Chapter 2 would minimize the introduction of weed species.

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

- r. *The surface use plan (Appendix B of the EA) for revegetation does not include replacement of lost sagebrush, nor does the EA address the effect of loss of sagebrush on sage-dependent species such as sage sparrow or Brewer's sparrow.*

Because of the small amount of disturbance associated with the project (78.5 acres), the fact that disturbance is dispersed over 1,921 acres, the inherent mobility of these species, and the availability of suitable habitats on adjacent, undisturbed land, the effects on these species should be minimal. See response to 10n.

- s. *In the chapter of the EA discussing Environmental Consequences, it 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, research cited states that pronghorn habituation to traffic can occur provided the traffic moves in a predictable manner. 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 Blue Sky Pod project are anticipated to be minimal. See responses to 9h, 9p, 10o.

- t. *The EA concludes on page 4-34 that, "Only a very small proportion of the amount of available wildlife habitats within the Atlantic Rim Project Area would be affected. The capacity of the area to support various wildlife populations should remain essentially unchanged from current conditions." However, the combined effects of habitat conversion, displacement due to the effects of roads and traffic, and habitat fragmentation resulting from construction of CBM infrastructure, is likely to have long-term cumulative impacts by affecting abundance, distribution, community interactions, and community composition. Roads fragment habitats, increasing edge effect, which can provide heterogeneity to the habitat in terms of food and*

cover resources. Many native, non-game species require contiguous, undisturbed habitat. Habitat is the single most important factor in the persistence of species populations and degradation, either through loss of quality or quantity, have been shown to negatively impact species persistence.

Cumulative, long-term effects on wildlife, in general, are discussed on page 4-34 and 4-35 of the EA. The cumulative long-term effects are expected to be minimal, as most species are expected to become accustomed to routine operations and maintenance activities. Approximately 101 acres of long-term disturbance within the ARPA are projected to result from these exploration projects. Another 350 acres of long-term disturbance are estimated to exist from past and current oil and gas related activities (0.01 percent of the ARPA). Displacement of wildlife due to road traffic is expected to be short-term. The 99.98 percent of the project area that is not proposed for disturbance from exploratory activities is expected to accommodate the long-term habitat needs of wildlife in the area. The abundance and distribution of habitat following the project disturbance is expected to support various wildlife populations at levels essentially unchanged from current conditions. Any fragmentation of the remaining, undisturbed habitat is not expected to have a cumulative, long-term effect (page 4-34 of the EA).