

Appendix O

Comment / Response Report

Appendix O - Comments and Responses

Purpose of Appendix

Appendix O provides a paraphrased summary of, and Forest Service responses to substantive comments received during the 51-day public comment period for the Big Porcupine Draft Environmental Assessment. All of the comments received were considered prior to the preparation of the Decision for this analysis. These comments have been identified by **COMMENTER** and listed by concerns disseminated from their letters.

The Public Comment Period

On December 26, 2003, a notice was printed in the Laramie Daily Boomerang (Paper of Record) notifying the public of the availability of the Draft Environmental Assessment for the Big Porcupine Coal Bed Methane Project. Copies of the Draft EA were also mailed to 11 individuals and a postcard was sent to 96 individuals or groups from the master mailing list for the project.

It was determined by Mary Peterson, the Forest Supervisor, that a revised notice would be issued correcting errors to the original notification, resulting in an extension of the comment period to February 13, 2004. This notice was published in the same paper of record on January 13, 2004.

Comments and Analysis

Telephone calls were received confirming the extension period for the comments and asking for information regarding future appeals to the Project Decision. A total of six (6) written responses were received and are detailed below. This information is available for review at the Medicine Bow-Routt National Forests Supervisor's Office, Laramie, Wyoming.

This Appendix contains all of the substantive comments that were received during the comment period on the DEIS. Forest and Region Resource Specialists and staff reviewed the comments received during the comment period, and the appropriate resource specialists generated responses to the comments.

How to Find Your Comments

The list of commenters is sorted alphabetically by name of individual, agency or organization.

Commenter List

**United States Environmental Protection Agency
Region 8
999 18th Street, Suite 300
Denver, Colorado 80202-2466**

**Biodiversity Conservation Alliance
P.O. Box 1512
Laramie, Wyoming 82073**

**United States Fish and Wildlife Service
Ecological Services
4000 Airport Parkway
Cheyenne, Wyoming 82001**

**Wendell Funk
31846 Park Road
Palmyra, Illinois 62674**

**Powder River Basin Resource Council
23 North Scott, Suite 19
Sheridan, Wyoming 82801**

**Triton Coal Company. LLC
North Rochelle Mine
510 Reno Road
Gillette, Wyoming 82718**

United States Environmental Protection Agency
Region 8
999 18th Street, Suite 300
Denver, Colorado 80202-2466

01: General Points from Cover Letter

Comment: This analysis should include a more detailed description of the direct and cumulative impacts that water management from the project could have on the receiving aquatic and terrestrial systems, and how produced water will be managed to avoid impacts downstream.

Response:

The Draft EA (print version pg. 24) and its associated Water Management Plan (pg. 6 and Appendix A) discuss the amounts and timing of water releases and anticipated volumes arriving at the North Antelope/Rochelle Complex (NARC) coal mine. Produced water would pass through the mine's settlement ponds and/or be consumed in industrial operations. Volumes and quality of water released from the mine to Porcupine Creek would be consistent with the mine's NPDES permit.

Comment: Air quality dispersion modeling should be considered because of monitored exceedances of air quality standards in the South Powder River Basin (PRB) area.

Response: The amount of average daily PM₁₀ emissions was estimated for Big Porcupine Project activities using the AP-42 methodology used for the PRB O&G FEIS (Appendix F, pg. F-11). The estimated emissions were determined to be a small amount after the implementation of control technologies, such as road watering. The applicant committed to the use of control technologies to limit the generation of fugitive dust. Therefore, air quality dispersion modeling was not considered necessary to determine the effects of PM₁₀ generated by the project because the incremental amount generated by well construction would be small and temporary and consistent with estimates taken from the PRB O&G FEIS. An expanded discussion of near-field particulate emissions has been added to Section 3.4.3.1 of the Final EA.

Monitored exceedances, as reported by the EPA AirData web site, are associated with locations near coal mining activities and are subject to quality assurance procedures. Values reported on the site as exceedances may be withdrawn subject to subsequent review of natural conditions. No exceedances for PM₁₀ were reported for the year 2003 (EPA AirData, 2004).

REFERENCE: U.S. Environmental Protection Agency, EPA AirData. 2004. "Monitor Vales Report, Campbell County, Wyoming, 2003."

Retrieved from: <http://oaspub.epa.gov/pls/airdata/adaqs> query site.

02: Water Management

Comment: It would be helpful if the Water Management Plan was attached to the EA.

Response: Thank you for the suggestion. The Project Water Management Plan has been provided on the Medicine Bow-Routt National Forests website with the Project Final EA.

Comment: Are there any irrigation withdrawals between the project's discharge points and the mine reservoirs? If so, how will the CBM produced water directly effect any downstream irrigated crops?

Response: There are no irrigation withdrawals immediately downstream of this Project or between the Project Area and the coal mine, which is the end source.

Comment: Has NARC (Peabody) raised any water handling concerns regarding the use of their water storage reservoirs to receive produced waters from the project? How have these concerns, if any, been addressed in the EA? How have the water handling concerns raised by Triton Coal Company (North Rochelle Mine) been addressed in the EA?

Response: The Proponent and the NARC mine (Peabody) have negotiated an agreement and plan to cooperatively manage produced CBM water as indicated in the Projects Water Management Plan. The mine will use the water for industrial and reclamation operations. Produced water will not be discharged to stream channels which would cause impacts to the North Rochelle Mine storage reservoirs and no concerns along these lines have been expressed by Triton Coal Company.

Comment: The conveyance losses that were used in the Powder River Basin FEIS were much less than the values used in the EA. Many discussions led to the values that were used in the Powder River Basin technical documents and FEIS. Previous studies usually have determined conveyance losses near 1%.

Response: The final PRB FEIS conveyance loss factor was approximately 20% (PRB FEIS pg. 4-3). It would have been helpful to understand the significant change between the PRB DEIS figure (more than 80%) had a citation for the change been included. Previous studies specific to the eastern Powder River Basin cited in the Draft EA have indicated very high conveyance loss rates. The estimates used in the Draft EA were based upon those studies and specific studies conducted in support of the EIS (see Meyer, Joe. 2000. Belle Fourche River Basin 1993 to 1999. Memo to File dated November 2, 2000. Bureau of Land Management. Casper, Wyoming; and Applied Hydrology Associates. 2001. Powder River Basin Environmental Impact Statement. Stream Channel Characterization and Conveyance Loss Studies. Unpublished report, Denver, Colorado).

Comment: It appears that the use of the term conveyance loss in the EA is more appropriately described as a channel loss.

Response: The use of "conveyance loss" in the Draft EA (p. 3-23 print version) includes infiltration and evapotranspiration. Studies cited in the PRB FEIS (see references cited in response to previous comment) indicate approximately 80% of conveyance loss is the result of infiltration and approximately 20% is the result of evapotranspiration (PRB FEIS pgs. 4-3 to 4-4). Exclusion of this information has been corrected in the Final EA (Section 3.3.4.1).

03: Air Quality

Comment: EPA's main air quality concern in the South Powder River Basin (PRB) area is ambient particulate matter (PM) concentrations approaching or exceeding the National Ambient Air Quality Standards (NAAQS). Fugitive dust from concentrations and roadways from CBM development will contribute to particulate matter emissions and, along with coal mines, would be part of many sources in the South PRB contributing to air quality degradation

Response: An expanded discussion of cumulative impacts from PM emissions has been included in Section 4.4 and Table 4.6 of the Final EA.

Comment: The Big Porcupine’s project ranged from 0.2 percent on a basis of area (acreage) to 2.7 percent on the basis of number of first-stage compressor stations. Estimated project impacts should be allocated by source category rather than by the generic factor of 0.5 percent. The impacts of the modeled emissions and resulting ambient concentrations of air pollutants from the Big Porcupine project might differ substantially from the impacts shown in table 4-4, which depend upon the assumptions made for the Argonne analysis. We recommend that dispersion modeling be conducted for this EA.

Response: An expanded discussion of cumulative impacts from criteria pollutants has been included in Section 4.4 and tables 4.5 and 4.6 of the Final EA. EPA recommends the use of dispersion modeling as a result of uncertainties in well density and timing. Project timing with respect to other CBM development in the Basin is speculative, although well density is not expected to vary significantly from that indicated in the Draft EA. The Project analysis has been tiered to the analysis completed for the PRB FEIS and has been developed to be consistent with that analysis.

04: Critical Comments by page #

Pages 2-52 & 2-53, Table 2-9 Potential Alternatives Suggested in Public Scoping

Comment: We are unclear what the basis is for the statement that “injection has been found to be technically and economically unfeasible for most coal bed natural gas production”.

Response: The cited Eastern Research Group study (Draft EA Table 2-9) prepared for the EPA discussed the difficulties associated with injection of produced water. Deep horizons suitable for receiving re-injected produced water have yet to be located in the eastern Powder River Basin. Existing deep aquifers are saturated and porosity and permeability constraints have resulted in, at best, only short term injection success. Re-injection into the target coal seam would also result in an inability to produce CBM, thus running counter to the purpose and need of the Project, since such an operation would counter the effects of coal seam dewatering necessary to lower formation pressure and allow movement of the gas to the surface. Injection into previously depleted coal reservoirs would require either extensive piping or trucking of water with associated deleterious economic and environmental effects.

Comment: The Powder River Basin EIS shows that because of the Ayers-Westcott SAR/EC relationship there can be a problem with decreasing the sodium absorption ratio (SAR) and/or the electroconductivity (EC), thereby potentially causing soil irrigated with such water to become less permeable.

Response: There are no irrigation withdrawals from Porcupine Creek or tributaries immediately downstream of this Project or between the Project Area and the NARC coal mine water capture (holding ponds), storage, and distribution system (pipelines to use facilities). The mine water management facilities will be the receiving entity for all proposed produced CBM water discharged upstream to the Porcupine Creek watershed. In the event of potential future irrigation withdrawals, produced water from the Project Area meets WDEQ agricultural standards (Draft EA, print version pg. 3-21).

Comment: This table also states that the produced water “Sodium Absorption Ratios are similar to those in the Porcupine Creek.” Table 3-1 lists mean SAR values of approximately 3 for Porcupine Creek. Table 3-2 lists a median SAR value of 7 from the Fort Union coal aquifers. EPA would not consider these values similar.

Response: Table 3-2 discusses *regional* values for various water quality parameters, including SAR values. SAR values for the Wyodak coal aquifer in the Project Area average approximately 5.8, as indicated in the Water Management Plan and the Draft EA (print version pg. 3-21). These values are considered to be "similar" in the sense that both are low and meet WDEQ agricultural use criteria.

Page 3-25-27 Surface Water Quality

Comment: These graphs seem to indicate that 60% of the production water will be lost to conveyance. Please add some narrative to further explain the purpose of these graphs.

Response: The graphs illustrate the basis for the narrative discussion on Draft EA page 3-24 (print version) concerning "Distribution of Produced Water." As indicated in the discussion, two water production scenarios, a "typical" case (wells randomly come into production over 16 months) and a "maximum flow" case (highest producing wells preferentially come into production initially) were analyzed to determine the amounts of discharged water which would reach the NARC mine collection reservoir. The analyses applied a conveyance loss factor of 30%/mile, as discussed in the same section, for ephemeral drainages tributary to Porcupine Creek. The purpose of the discussion was to demonstrate the capability of the NARC mine water management system to handle Project produced water. Additional narrative has also been added to the Final EA (Section 3.3.4.1).

Comment: What are the expected selenium concentrations for the produced water? The drinking water standard (50 ug/l) referenced on this page is not protective of aquatic and avian life and should not be the only standard used to determine if production water is causing impacts. Filed cases of selenium poisoning in fish and birds have been documented for water averaging 1-10 ug/l.

Response: The Draft EA indicates (print version, pg. 3-26) that analyses from the Wyodak coal aquifer in the vicinity of the Project Area detected less than 5 ug/l dissolved selenium, less than 10% of the drinking water standard.

Comment: The EA could state that the projected SAR value of 7 meets the numerical standard of 10 for the South Dakota standards, but in order to meet the Wyoming narrative standard, further discussion of the Ayers-Westcott relationship needs to be provided. The EA should be able to approximately determine if the appropriate production volumes reaching irrigation diversion structures would be a problem for irrigation or at what volumes and concentration irrigation soils would be adversely affected.

Response: There are no irrigation withdrawals immediately downstream of this Project or between the Project Area and the coal mine water management system, which is the end source.

Page 3-35 – 41 Air Quality and Table 3-4

Comment: The EA should cite representative data from nearby air monitoring stations.

Response: Data describing reported exceedances of air quality standards at nearby air monitoring stations are included in Section 3.4.1.2 of the Draft EA. The values reported by the monitoring stations are subject to change after the values are subjected to quality assurance procedures implemented by the EPA AirData web site from which the values were obtained. The change in the reported data can reflect the consideration of natural conditions that may account for apparent exceedances, resulting in the subsequent withdrawal of the reported exceedance from the data presented on the site. An example of a natural condition that may cause an exceedance would be the occurrence of high winds at a monitoring station that is located near to and downwind from an unpaved road.

Comment: For purposes of reporting exceedances in a NEPA document such as the Big Porcupine Creek EA, we recommend retrieving data that includes all exceedances, whether flagged or not, from the AQS data base instead of from the AirData web site. The narrative in the EA can explain the reasons for any flagged exceedances presented. The proponents or their consultants can get information on retrieving data from the AQS from EPA or WDEQ/AQD.

Response: Presentation of all values, including flagged values as included in the AQS database, could serve to misrepresent the air quality of a particular area. The disclaimer in the EPA AirData web site explains that the data obtained from the web site represents “the best information available to EPA from state agencies on that date. However, some values may be absent due to incomplete reporting, and some values subsequently may be changed due to quality assurance activities.”

The values reported by the monitoring stations are subject to quality assurance procedures that consider natural conditions that may result in exceedances. The subsequent withdrawal of the reported exceedances from the data presented on the EPA AirData web site represents an attempt to more accurately depict air quality representative of typical conditions. An example of a natural condition that may cause an exceedance would be the occurrence of high winds at a monitoring station that is located near to and downwind from an unpaved road.

As qualified on the EPA AirData web site, the data represent the “best information available.” To include additional data, which could change following review by the EPA, could be misleading to the public.

REFERENCE: U.S. Environmental Protection Agency, EPA AirData. 2004. “Monitor Values Report, Campbell County, Wyoming, 2003.” Retrieved from:
<http://www.epa.gov/air/data/monvals.html?co~56005~Campbell%20Co%2C%20Wyoming>

Comment: The EA discloses that project operations will add to the PM₁₀ emissions but does not adequately address area-wide mitigation that has become necessary to deal with the increasing PM₁₀ impacts. The EA should address this category of mitigation by discussing ongoing compliance efforts on the part of WDEQ/AQD. The final South Powder River Basin Coal EIS, BLM, December 2003, contained an expanded discussion of WDEQ/AQD’s efforts to mitigate particulate impacts in the South Powder River Basin.

Response: A discussion of area-wide fugitive dust control measures has been added to the Final EA in Chapter 4, Section 4.4.

Comment: Devils Tower National Monument is not a PDS Class I and Class II receptor, as it is described here but a sensitive Class I area. The area round the project including Devils Tower is Class II.

Response: We appreciate the correction and will make note of these changes in the Final EA (Section 4.4)

Comment: Please delete the references to NAAQS as absolute upper limits. Alternative wording could be “Wyoming Ambient Air Quality Standards (WAAQSD) and National Ambient Air Quality Standards (NAAQS) are health-based criteria for the maximum acceptable concentrations of air pollutants at all locations to which the public has access”.

Response: Noted and corrected.

Comment: page 3-41 Fugitive Dust Emissions

If 70 percent control efficiency is actually planned for this project, then we recommend that the controls necessary to achieve this efficiency be added to Table 2-8 as a mitigation measure.

Response: Dust mitigation has been clarified in Table 2-8 in the Final EA. During construction, emissions of particulate matter from well sites and resource road construction would be minimized by application of water with at least 50% control efficiency.

Comment: reference to the Devils Tower National Monument as a Class I area should be corrected.

Response: Noted and corrected.

SUMMARY OF ACTIONS

The following changes and corrections have been made to the Final EA:

- The Project Water Management Plan has been added to the USFS website.
- Narrative has been added to clarify certain issues relating to conveyance loss and the use of produced water by the NARC coal mine.
- Additional narrative relating to criteria pollutants has been added to Chapter 3, Section 3.4.3.1 and to Chapter 4, Tables 4.5 and 4.6.
- Additional discussion of fugitive dust control measures has been added to Section 4.4.
- Corrections have been made to miss-identified Class-I airsheds and to the discussion on NAAQS limitations.
- Clarification to Project dust control measures have been added to Table 2-8.

Biodiversity Conservation Alliance
P.O. Box 1512
Laramie, Wyoming 82073

01: Reclamation of Well Sites

Comment: concerns that the proponent will not adequately reclaim well sites and use not only native grasses but also native shrubs where appropriate.

Response: The Decision Notice will require that a monitoring and reclamation plan be developed by the Proponent for the Project with a schedule of planned events and obligations, prior to activity commencing. The USFS routinely monitors activity on projects or can assign a USFS resource specialist specifically for the monitoring process either within it's own budget or at the expense of the proponent. Rehabilitation and reclamation measures already identified in appendices C and H of the EA will be required by the Decision and will be incorporated into the monitoring and reclamation plan.

02: Road Infrastructure

Comment: We concur with 'Access is to be overland with no surface blading except for roads needing a higher standard to allow for large equipment.' "We support this alternative to gravel road construction wherever it is necessary to create new roads."

Response: The proposal provided for as little construction as was necessary to meet the purpose and need of the Proponent. We appreciate your support of this portion of the proposal.

Comment: The EA states that roads built for the purpose of ... project...would be reclaimed unless requested otherwise by the landowner." Commenter states " We would like to have clarification that landowners and/or counties should not have the unilateral discretion to retain roads on USFS surface."

Response: Specifically, roads on USFS surface are held under the jurisdiction of the USFS (generally known as the landowner) therefore no other entity would make decisions on USFS jurisdictional surface lands. We hope this addresses Commenter's concern and confirms that other 'landowners and/or counties' would not be making decisions on USFS jurisdiction.

03: Drilling Muds and Reserve Pits

Comment: disclose the ingredients of 'toxic drilling muds' and analyze impacts if they are to be buried on site

Response:

No toxic drilling muds are planned for use by the Proposed Action. As indicated in the Draft EA (print version pg. 2-11), drilling muds planned for use typically consist of non-toxic native mud and bentonite. At the completion of drilling, the hole is typically cleaned with addition of approximately 3 gallons of non-toxic polymer additive such as EZ-Mud. A clarification on this point has been added to the Final EA (Section 2.1.1.3). The reference to "certain downhole conditions" implies the normal drilling operations discussed in the subsequent paragraphs. No oil-based muds will be used. On-site burial of drilling mud is a normal disposal method

authorized by WOGCC and the BLM/USFS Surface Operating Standards for Oil and Gas Exploration and Development ("Gold Book"). No impacts to groundwater, surface water, soils, plants, or wildlife are expected.

Comment: Discussion of potential effects of waterfowl and shorebirds landing in or drinking from reserve pits containing toxins from compounds found in drilling mud. Mitigation measures do not provide requirements for netting reserve pits to prevent access by birds.

Response: Drilling muds used will not contain toxins. The Proposed Action is in conformance with WOGCC regulations and the standards and guidelines from the 2001 Revision of the TBNG LRMP. Industry standards do not require netting reserve pits.

Comment: Closed-loop mud systems should be studied as an alternative to reserve pits. Non-toxic drilling muds should be used.

Response: Toxic and oil-based drilling muds will not be used. Use of conventional mud systems are in conformance with WOGCC and BLM regulations.

04: Overhead and Buried Power Lines

Comment: Some wells will be equipped with electrically-powered blower compressors. Will this necessitate stringing aboveground powerlines? BCA is concerned about the impact of overhead power lines and impacts associated with creating 'raptor perches'.

Response: Blower compressors would be powered by buried electrical cables to service electric downhole pumps. Overhead power lines, if installed, would be installed with raptor perch inhibitors in compliance with the TBNG LRMP (pg. 1-29 and EA Appendix N, Consistency with TBNG Standards and Guidelines) and supported by consultation with USFWS, (the Biological Opinion/Biological Evaluation is part of the Project Record). In addition, this mitigation is identified in the Designs Features / Mitigation Measures for Protection of Resources, Appendix C.

Comment: USFS should approve an alternative which does not require electrically powered downhole pumps. All powerlines should be buried, not just spur lines from the meter drops.

Response: Electrically-powered downhole pumps, with buried electrical supply cables placed in common utility corridors, provide the least intrusive alternative available to satisfy the purpose and need of the Project. Gas-powered surface pump facilities would be much more visually intrusive and increase air emissions. Buried primary power lines would present an unnecessary risk to human life in an area characterized by frequent digging activities associated with coal mining operations and oil and gas development.

- Two applications have been submitted for power to the site by Powder River Energy Corporation. Those proposals were analyzed in the Project EA and will be approved as 'buried-line' in the Decision. If additional applications are received for this project, they must meet the NEPA analysis already accomplished in this Project EA, or additional analysis will be required. In addition, subsequent applications must meet the Standards and Guidelines provided in the TBNG Plan or satisfy the exceptions as outlined in that Plan. Within the Hilight Bill Geographic Area of the TBNG, LRMP guidelines require the burial of powerlines of 33 KV or less. Exceptions can be applied where:

- Scenic integrity objectives of the area can be met using an overhead line
- Burial is not feasible due to geologic hazard or unfavorable geologic conditions
- It is not reasonable as determined by a cost-effectiveness analysis
- Greater long-term site disturbance would result.
- It is not technically feasible.

An expanded discussion of buried power lines has been included in Section 2.1.1.9 of the Final EA.

Comment: What are the impacts of in-place abandonment of buried electrical cables?

Response: No deleterious effects to the human environment resulting from in-place abandonment of buried electrical cables were identified in the environmental analysis. Re-opening utility corridor trenches to physically remove the cables would involve unnecessary disruption of previously reclaimed surface.

05: NEPA Document and Level of Analysis

Comment: “The very size of the EA document is an indictment of its failure to live up to CEQ guidance for EAs. Under what circumstances is a lengthy EA appropriate?”

Response: The size of the document does not dictate the level of environmental analysis required to accomplish the process under 40 CFR 1500-1508, (specifically Sec. 1501.3 and 1501.4). The level of document required is dictated by anticipated significant or non-significant impacts proposed for the project. Although the potential level of environmental impacts were initially uncertain, following two years of analysis, the Draft EA determined a finding of no significant impact to resources and area values and this determination will be applied to the Decision.

The NEPA Task Force Report acknowledged that large EAs are associated with more controversial or high profile projects and that they are usually associated with mitigated FONSI. *See* Modernizing NEPA Implementation, NEPA Task Force Report to the Council on Environmental Quality at 65-66 (Sept. 2003); *see also* *Glacier-Two Medicine Alliance*, 88 IBLA at 143-44 (noting that an action is not “highly controversial” simply because appellants oppose the action; rather ‘controversial’ refers to cases “where a substantial dispute exists as to the size, nature, or effect of the major federal action”) (quoting *Rucker v. Willis*, 484 F.2d 158, 162 (4th Cir. 1973))

06: Scope of document is Inadequate

Comment: “The total size of the project is 232 wells, yet the total number of federal wells considered by this EA is 188.This is a very irregular state of affairs, and the various passages from the EA are inherently in conflict with each other.”

Response: An expanded discussion of the reduction in size of the Proposed Action has been added to Sections 1.6 and 2.1 of the Final EA.

07: Impacts on Global Warming

Comment: “The cumulative effects of global warming are beginning to be felt in Wyoming... This agency must analyze the cumulative effects from emissions of greenhouse gas that result from permitted activities under the Big Porcupine Project. According to the Forest Service, some methane gas (“small amounts”) produced would be flared into the atmosphere. EA at 2-13. methane gas is known to be a greenhouse gas, and accelerates the phenomenon of global warming. And yet there is not discussion at all of the direct or cumulative oil and gas projects in the region on global warming.”

Response: Minor amounts of gas may be vented during initial depressuring of the coal seam in accordance with Proponent's rights to develop its mineral resources and as regulated by WOGCC (Regulations Chapter 3, Section 40) and BLM (Onshore Order 5). Production of CBM gas from the Project Area will reduce venting of the gas to the atmosphere through ongoing expansion into the Project Area of neighboring surface coal mines, as discussed in more detail under the No Action Alternative. The PRB FEIS (pg. S-245) indicates that combustion of methane produces twice the equivalent amount of methane, but with only 5% of the global warming potential, so that combustion lowers the warming potential by an order of magnitude. Development of CBM wells may actually reduce natural methane leakage (PRB FEIS pg. S-245). Finally, as indicated by the term, "global warming" is a phenomenon inherently beyond the scope of a project-specific NEPA analysis, as specified under 40 CFR 1502.14 and beyond the authority of USFS to regulate.

08: Range of Alternatives

Comment: The EA has failed to identify all of the important issues of concern and has failed to adopt appropriate mitigation measures particularly for sensitive wildlife species such as the black-tailed prairie dog and northern leopard frog. The USFS should have considered alternatives mandating aerial misting for wastewater disposal, reinjection for wastewater disposal, and directional drilling to reduce habitat fragmentation and surface disturbance.

Response: The USFS has attempted to respond to all issues identified by the scoping process. As indicated in Appendix H to the EA, numerous changes to the Proposed Action that protect various sensitive status species have been incorporated following onsite inspections. With respect to the species listed above:

- Disturbance to black-tailed prairie dog towns in the Project Area would be limited to a maximum total of 7 acres (short term) and 0.7 acres (long term). This represents a total disturbance of 2.2% (short-term) and 0.2% (long-term) of identified prairie dog towns (EA print version pg. 3-86). The analysis determined that no adverse impacts to black-tailed prairie dogs will occur. Additional protective measures could be attached as COAs to APDs.
- Northern leopard frogs have not been identified within the Project Area. The principal impact to the species would likely be an expansion of suitable species habitat (EA print version pg. 3-86).

With respect to the suggested alternatives:

- While aerial misting has been used in some areas of CBM development, its use for the Proposed Action would seem unnecessary. Misting has typically been used to dispose of water not meeting WDEQ agricultural standards. Project water meets this standard. Enhanced evaporation of good quality water through misting would seem to be an unnecessary waste of a valuable resource which is actively sought by the NARC mine, the ultimate downstream consumer.
- Injection of produced water was considered but not analyzed as a possible alternative (Table 2-9, EA print version pg. 2-52). The cited Eastern Research Group study, done for EPA, discussed the difficulties associated with injection of produced water. Suitable deep horizons to receive re-injected produced water have yet to be located in the eastern Powder River Basin. Existing deep aquifers are saturated and porosity and permeability constraints have resulted in, at best, only short term injection success for the volumes resulting from CBM development. Injection into deep (i.e., below existing domestic, agricultural, or industrial aquifers) aquifers would remove good quality water because it would be mixed with waters of much higher salinity. Such injected water cannot simply be pumped back to the surface and used. The WSEO has objected to such proposals on the grounds of loss of a productive resource. In addition, re-injecting water back into the coal seam would not alleviate part of the purpose and need of this project, which is to remove water from the seam in advance of the coal mine operations.” Re-injecting into the same coal seam would be counter to mining operations process and the intent of dewatering. Re-injection into the target coal seam would also result in an inability to produce CBM, thus running counter to the purpose and need of the Project, since such an operation would counter the effects of coal seam dewatering necessary to lower formation pressure and allow movement of the gas to the surface. Feasible use of shallow injection is probably limited to previously depleted aquifers (PRB FEIS pg. 3-55) Injection into previously depleted coal reservoirs would require either extensive piping or trucking of water with associated extensive deleterious economic and environmental effects. Therefore, contrary to Commenter's assertion, USFS has provided numerous reasons for the decision to reject re-injection as a viable alternative.

Directional drilling was considered but not analyzed as a potential alternative (Table 2-9, EA print version pg. 2-53). Commenter's citations apply to situations which are not similar to the Proposed Action or which involved a research project not repeated on a commercial venture. Even for 40 acre spacing drainage from a central well location, lateral displacement of nearly 1,000' would be required. Where directional drilling has been used to reach horizontal displacements adequate to achieve the purpose and need of the proposal, the target formations are at greater depths. The friable nature of the Wyodak coal seam renders long distance horizontal boreholes impractical due to eventual collapse of the coal and failure to pay out the well. The very shallow nature of the target Wyodak coal seam (less than 650 ft.) and physical properties of the coal make directional drilling both technically and economically unfeasible. Alternatives must be economically and technically viable and achieve the purpose and need of the project (CEQ 40 Questions, 2a). Finally, as discussed in more detail in the revised No Action Alternative section, expansion of adjacent coal mines into the Project Area over the next 10 to 20 years will disrupt the existing surface. See www.epa.gov/coalbed/pdf/dir-drilling.pdf and www.colorado.edu/law/centers/nrlc/workshop/DD-Conference-Notes.doc.

09: Surface Waters and Disposal Methods

Comment: Discharge of Project wastewater would cause substantial degradation of the aquatic ecosystem of the Upper Cheyenne River which is well known for its fauna of rare native fishes. The discharge into local ephemeral channels would turn them into perennial streams for the life of the project, 5-7 years.

Response: Commenter does not specify the manner in which Project produced water would harm aquatic life in the Upper Cheyenne River. The maximum flow expected to reach the NARC mine collection reservoirs is approximately 1.51 cfs, considerably less than naturally occurring storm flows. Much of the produced water reaching the mine would be consumed by industrial processes with the remainder passed through mine settling ponds for discharge into Porcupine Creek in compliance with the mine's NPDES permit. From the mine, the water would pass through the Porcupine Reservoir and finally Antelope Creek, a class 3B stream, before reaching the Cheyenne River, approximately 26 miles below the mine collection reservoir. Quality of the produced water would meet WDEQ domestic or agricultural standards. It was determined that neither the quality nor quantity of produced water from the Project would have significant impacts on Upper Cheyenne biota.

Discharge of produced water may result in temporarily transforming some ephemeral streams to a perennial flow state. This would principally be true of main drainages, such as Porcupine Creek. It is incorrect to attribute perennial flow to the life of the Project. As indicated in the EA (print version pg. 2-24), water production is expected to decline rapidly, 35%-50% in the first year.

Comment: Median SAR and SC values for Fort Union Formation coal aquifers indicate that the formation waters represent a medium sodium hazard. Such water will represent an appreciable hazard in fine-textured soils having high cation-exchange capacity, especially under low leaching conditions, unless gypsum is present in the soil. Water quality may be even poorer in poorly-drained clinker deposits. The potential impacts of sodium deposition on stream channels have not been addressed in the EA.

Response: The figures cited by Commenter are from a regional study which includes data obtained at considerable distance from the Project Area. As indicated in the EA (print version pg. 3-21), water samples from the Wyoak coal aquifer taken on opposite sides of the Project Area indicated TDS values of 435 mg/L to 812 mg/L with an average of 569 mg/L. SAR values ranged from 5.2 to 6.4. The Water Management Plan (Appendix B) indicated average sodium concentration of 143 mg/L. The lower TDS values make the water suitable for domestic consumption, while the higher values and SAR values indicate suitability for agricultural use. Negative sodium impacts to Project Area soils from discharged water are not anticipated.

Comment: The EA does not distinguish between channel infiltration and evapotranspiration in the discussion on conveyance losses.

Response: Thank you for pointing out this exclusion, which has been corrected in the Final EA (Section 3.3.4.1). Studies done in support of the PRB FEIS suggest that approximately 82% of conveyance losses were a result of infiltration, approximately 18% a result of evapotranspiration (PRB FEIS pgs. 4-3 to 4-4; Water Management Plan, pg. 15).

Comment: The EA fails to model the changing concentrations of salts, heavy metals, and other pollutants as they travel downstream from the Project Area. This deficiency must be corrected prior to issuance of a Decision.

Response: The PRB FEIS (pgs. 4-75 to 4-76) notes that, because of leaching of salts from soils in ephemeral drainages, SAR values of discharged water tend to decrease while salinity values tend to increase downstream. As indicated in the EA (print version pg. 3-21), water produced from the Wyodak coal in the Project Area exhibits very low salinity (average TDS 569 mg/L) and is within WDEQ domestic consumption standards. Heavy metal toxicity, in particular elevated values of barium and selenium, has been noted in produced waters associated with some PRB coals. However, the Wyodak coal water from the Project Area is well within WDEQ domestic consumption standards on these and other metals (Project Water Management Plan, Appendix B).

Evaporative concentration of salts and heavy metals has been considered in the PRB FEIS (pg. 4-120) in discussions of containment reservoirs. The Proposed Action does not provide for containment reservoirs. Minor evaporative concentration of dissolved components would occur during discharge conveyance losses, however, as noted in the response above, only about 18% of conveyance losses would be expected to result from evapotranspiration. The remaining loss would occur from infiltration into near-surface aquifers. The initial very low values of potential pollutants and absence of potentially evaporative reservoirs indicates that conveyance loss-associated concentration of pollutants would not reach levels in violation of WDEQ agricultural standards and therefore modeling is not required.

As noted in the PRB FEIS (pg. 4-72), ultimate regulation of water quality of discharged water will be the responsibility of WDEQ. All discharge must meet the requirement's of the Project's NPDES permit. The permit will apply project-specific water quality requirements and will be monitored through ongoing discharge monitoring reports.

10: Coal Seam Fires

Comment: Dewatering of the Ft. Union Formation coal seams and other target formations (i.e., Pierre, Niobrara, Newcastle-Muddy, and Fall River-Dakota fms.) associated with CBM production could reduce the moisture content of outcrop coals and increase the potential for lightning strike or prairie fire ignition and subsequent underground fires.

Response: As discussed in the Draft EA (print version, pgs. 3-10 to 3-11), the target coal seams are not dewatered during CBM production. Water is pumped sufficiently to lower head pressure above the coals which allows escape of contained gas. The other formations mentioned by Commenter all occur below the Ft. Union coals, some at considerable depth below, and are not penetrated by CBM wells. As noted in the Draft EA (print version pg. 3-11), the Wyoming State Geological Survey has studied the probability of increased risk of subterranean coal fires resulting from CBM development and has rated it as "extremely remote." (Lyman and Volkmer, 2001, Pyrophoricity of Powder River Basin Coals - Considerations for CBM Development, Wyoming State Geological Survey Coal Report CR 01-1.

11: Sensitive Species, Habitat, Wetlands, and Streamflow

Comment: EA makes no attempt to provide predictions or even speculations of population trend and viability as a result of CBM production. It also does not discuss numerous species included on the R2 or BLM sensitive species listing. NEPA requires a complete analysis

Response: The Draft EA consistently states that, following analysis, negative impacts to various sensitive species are considered to be unlikely for the reasons indicated (print version, pgs. 3-85 to 3-87). The species described are those on the R2 or BLM *Regional* lists which are considered by the USFS to be known or probable inhabitants of the Project Area. Species on the lists which were not known or suspected to occur within the Project Area were not discussed. The BA/BE (A. Allen, December 2003, February 2004) cites population trend data and viability of species as a result of CBM production. NEPA does not require discussion of species which, based upon 'best science' are not suspected of occurring within the Project Area.

Comment: Ferruginous hawk nests are the most numerous raptor nests identified in the vicinity of the Project Area. Ferruginous hawks are among the most sensitive of all raptor species and prone to nest abandonment if disturbed. They are particularly sensitive to walking and vehicular disturbance. The timing stipulations proposed are woefully inadequate to protect this species.

Response: The timing limitations adopted by the Proponent are in conformance with those standards and guidelines incorporated within the 2001 Revision of the TBNG LRMP (pg. 1-21, Final EA Appendix N). They are based upon 'best science' and are considered adequate to protect the species. (Biological Assessment is available in the Project Record).

Comment: Bald eagles are considered to nest rarely in the TBNG. To protect rare nesting activity, special precautions should be put into place to avoid impacts from Project development.

Response: No bald eagle nests are known to occur within or near the Project Area. It is unreasonable to impose special restrictions on Project development in the absence of known or suspected occurrences of a species. Conformance of the Proposed Action to existing raptor management guidelines and standards contained in the 2001 Revision of the TBNG LRMP (pgs. 1-20 to 1-22 and Final EA, Appendix N) would work to the benefit of bald eagles, as well.

Comment: The full CBM development of the Porcupine Creek watershed suggests that the ability of sagebrush obligate passerines to survive temporary displacement during construction activities is unlikely. Fragmentation of shrubsteppe will significantly and negatively impact these species.

Response: The full development of the Porcupine Creek watershed is expected to occur over a period of approximately five years. The development of the Project itself is likely to occur over a period of approximately 16 months. Much of the area surrounding the Project Area has already been developed and is thus available as temporary substitute habitat. Total short-term disturbance of the Project Area will amount to approximately 6% of the total Project Area. Long-term disturbance will amount to less than 1% of the Project Area (Table 2-7, Draft EA print version, pg. 2-33). During onsite inspections held by USFS and BLM personnel, well locations and utility corridors were moved to avoid disturbance to prime sage habitat. The level of disturbance and mitigation measures imposed on the Proposed Action should minimize impacts to sagebrush habitat-dependent species.

Comment: How much of the Project Area is within 2 miles of a sage grouse lek? By ignoring the spatial distribution and proximity of sage grouse leks outside the planning area, the EA fails to meet NEPA's requirements to analyze direct and cumulative impacts to lek sites within 2 miles of the boundary.

Response: There is one known lek located within two miles of the Project Area. Approximately 2,664 acres of the Project Area fall within a two mile radius of this lek. As indicated in Draft EA Appendix H, all facilities within that radius have had site-specific timing limitation Conditions of Approval applied to prevent surface use during sage grouse display and breeding periods.

Comment: The EA fails to discuss potential indirect impacts to prairie dogs resulting from overhead power lines serving as raptor perches. How many acres of prairie dog colonies are located within 1/4 mile of overhead power lines? How many prairie dogs will be killed by motor traffic or shooting along routes newly created by the Proposed Action? What will be the effects of compressor noise on prairie dog colonies. The EA fails to present the spatial distribution of prairie dog colonies. For all of these reasons, the EA fails the NEPA "hard look" test.

Response: Approximately 45 acres of the prairie dog town in Sec. 3, T41N, R71W and approximately 12 acres of the prairie dog town in Sec. 18, T42N, R70W are located within 1/4 mile of above ground power lines. As indicated in the Draft EA (print version pg. 2-26), power line poles will be fitted with perch inhibitors to discourage raptor roosting and eliminate this predation threat to nearby prairie dog colonies. The USFS has no way of predicting how many prairie dogs might be killed by vehicular traffic or illegal shooting. It is not the policy of the USFS to provide maps of the locations of sensitive species in publicly-available documents, such as this EA. Such maps are provided in the Project Biological Evaluation.

Comment: The EA makes no attempt to detail which species will be positively and negatively affected by the discharge of produced water to wetlands nor the magnitude of those negative impacts. Failure to provide such information in the EA is a violation of NEPA.

Response: An expanded discussion of impacts to wetlands has been added to the Final EA (Section 3.6.1.2).

Comment: Executive Order 11990 commits federal agencies to take action to minimize the destruction, loss, or degradation of wetlands. The Big Porcupine Project violates this Order through the discharge of excessive amounts of highly sodic wastewater to local drainages rather than through the use of such alternative measures as misting or injection.

Response: EO 11990, Sec. 2 (a) states, in part, that agencies "shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding the head of the agency may take into account economic, environmental and other pertinent factors." Furthermore, alternatives must be "reasonable" from technical and economic standpoints (CEQ 40 Questions 2a) and must accomplish the purpose and need of the Project. As indicated in the Draft EA (print version, pgs. 3-63 to 3-64), surface disturbance to wetlands is limited to road and pipeline crossings of existing ephemeral streams. A total of 17.1 acres of wetlands would be disturbed, however only 2% of this acreage (0.37 acre) would be long-term disturbance associated with roads. Project design has been modified to avoid, where possible, wetlands surface disturbance consistent with exploiting the Proponent's mineral development rights. As discussed in responses above, under no criteria can the produced water

be described as "highly sodic." Aerial misting and injection of produced water have been discussed in responses above.

Comment: Recharge to local streams occurs where the streams cross coal outcrops. Thus, current flows in Porcupine and Antelope creeks are partially dependent upon recharge from underlying coal seams. Dewatering of these seams will negatively affect these flows.

Response: The Project is located in areas several miles to the west of outcrops of the target Wyodak coal seam and the Porcupine Creek channel is perched above this seam. The coals themselves are not dewatered during CBM production. Ongoing surface coal mining will eventually require complete dewatering of the coal prior to mining.

SUMMARY OF ACTIONS

The following additions and changes have been made to the final EA:

- An expanded discussion of the changes in size of the Project has been added.
- An expanded discussion of the composition of drilling fluids has been added.
- An expanded discussion of overhead power lines has been added.
- Clarification of the respective amount of conveyance loss evapotranspiration and infiltration has been added.
- The discussion on coal seam fires has been duplicated in the affected environment section.
- An expanded discussion on possible impacts to wetlands has been added.

**United States Fish and Wildlife Service
Ecological Services
4000 Airport Parkway
Cheyenne, Wyoming 82001**

01: General Comments

Comment: USFWS recommends a 0.5 mile buffer around active raptor nests with the exception of a 1.0 mile buffer around active ferruginous hawk and bald eagle nests. Reduction of these buffers to line-of-sight buffer distances, in the absence of USFWS approved site-specific monitoring, is not recommended and may not remove the obligation of the USFS to protect many species of migratory birds.

Response: As indicated in Draft EA Appendix N, the standards and guidelines accepted by the Proponent are in conformance with the 2001 Revision of the TBNG LRMP (pg. 1-21). They are based upon "best science" and are adequate protection for the species indicated.

Comment: The EA should clearly identify those areas where well densities will be greater than 8 wells per section. Well densities above 80 acre spacing can modify or degrade suitable habitat for a host of threatened, endangered, or sensitive species. The USFS should address the direct, indirect, and cumulative effects to wildlife.

Response: The locations of those areas where well densities will be greater than 8 wells per section are clearly indicated on the project facilities map, Figure 2-2. Analysis for this Draft EA considered the effects on wildlife of greater well densities in those areas indicated.

Comment: The EA assumes that during construction, wildlife can temporarily occupy alternate locations of similar habitat without regard to whether such habitat is available or already occupied by the same or competing species. The USFWS does not believe that such a displacement approach is valid and suggests a more thorough analysis of effects based upon species status and requirements.

Response: As indicated in Table 2-7 (EA print version pg. 2-33), maximum short-term disturbance would approximate 5.2% (938 acres) of the Project Area (17,940 acres), long-term disturbance would approximate 0.6% of the Project Area. Vegetative cover is broadly similar across the extent of the Project Area. Construction would not occur simultaneously everywhere, but be staged over a period estimated to be approximately 16 months. Site-specific COAs have been incorporated into the Proposed Action, where necessary, to protect critical habitat, such as prime sagebrush stands (Appendix B of the Decision).

Comment: Directional drilling and/or multiple wells per pad should be used to avoid well densities exceeding 8 wells per section.

Response: Directional drilling was considered but not analyzed as a potential alternative (Table 2-9, Draft EA print version pg. 2-53). Even for 40 acre spacing drainage from a central well location, lateral displacement of nearly 1,000' would be required. Where directional drilling has been used to achieve horizontal displacements adequate to achieve the purpose and need of the proposal, the target formations are at greater depths. The friable nature of the Wyodak coal seam renders long distance horizontal boreholes economically impractical due to eventual collapse of

the coal and failure to pay out the well. The very shallow nature of the target Wyodak coal seam (less than 650 ft.) and physical property of the coal makes directional drilling both technically and economically unfeasible. Alternatives must be economically and technically viable and achieve the purpose and need of the project (CEQ 40 Questions, 2a). Finally, expansion of adjacent coal mines into the Project Area over the next 10 to 20 years will completely disrupt the existing surface.

Multiple wells per pad may be used to access multiple, vertically stacked, coal seams. The single target of the Proposed Action is the Wyodak coal seam.

Comment: USFWS is concerned that USFS, a cooperating agency in development of the PRB FEIS, has not adopted the conservation measures proposed in that document.

Response: Draft EA Table 2-3 (print version pgs. 2-42 through 2-50) lists numerous mitigation measures incorporated into the Proposed Action (EA, Appendix A&B, Appendix C of the Decision) which are similar or identical to mitigation measures incorporated into the PRB FEIS (see Record of Decision Section A.4 - Standard Conditions of Approval). In addition, as the Surface Management Agency, USFS has determined that the Proposed Action is in conformance with the 2001 Revision of the TBNG LRMP. A consistency determination is available in the Project Record.

Comment: ESA Section 7 consultation is reserved for federal agencies or their designated non-federal representatives. USFWS has not received documentation appointing Bill Barrett Corp. the non-federal representative of the USFS, nor has Bill Barrett Corp. coordinated with the Service's Wyoming Field Office on mitigation measures.

Response: Comment appears to be in response to statement in the Draft EA (pg. 3-79) that "USFWS was informally consulted..." Reference is to a request from Proponent's consultant to obtain listing of USFWS species of concern that might occur within the Project Area. USFS agrees that it has not designated Bill Barrett Corp. or its contractors as representatives for formal consultation with USFWS.

Comment: The EA states that approximately 100 raptor nests have been located within 1 mile of the Project Area, however only 64 of these nests have been identified to species level. USFWS recommends that all nests be identified to species level prior to any ground-breaking activities to avoid potential violations of ESA, MBTA, or BGEPA.

Response: Many of the identified nests are historical, in poor condition, or unoccupied for many years. Attempts to identify all nests to species level in the absence of occupation is highly speculative, at best. Therefore, a total of 64 nests were inventoried to the species level.

Comment: USFWS recommends that the Bald and Golden Eagle Protection Act be added to the list of relevant environmental laws and regulations.

Response: The Bald and Golden Eagle Protection Act is indicated in the listing of relevant environmental laws and regulations regarding special status species, Draft EA (print version) pg. 3-84.

Comment: EA Table 3-14 indicates raptor nests located within 0.5 mile of the sites of three proposed compressor stations. This appears to be a violation of the operator-committed mitigation measures identified in Table 1-3.

Response: Site-specific timing limitations on surface use have been applied in each of these cases. Timing limitations are a method of complying with the provisions of the 2001 Revision of the TBNG LRMP so the Proponent will not be in violation of the mitigation measures identified in the Draft EA Table 1-3.

Comment: The USFWS advised the USFS of the possible presence of the Ute ladies' tresses orchid within the Project Area, in contradiction to the assertion in the EA that USFWS did not identify this plant as a species of concern.

Response: It has been determined that the Ute Ladies' Tresses is not a "species of concern". This conclusion was reached as a result of an intensive review of the existing conditions in the area. Although Mr. Long's letter indicated that the species "may be present in the project area", a thorough examination of field conditions did not support this suggestion. The history of the environmental analysis techniques that were used to arrive at this conclusion are listed below:

- In response to the Project Scoping Notice, USFS received a letter from USFWS dated March 19, 2002 and signed by Michael Long, Wyoming Field Office Supervisor. In this letter, Mr. Long indicated listed species which "may be present in the project area." This listing contained four species, including Ute ladies'-tresses.
- In response to a request from Proponent's environmental consultant, O&G Environmental Consulting, Michael Long submitted a list of ESA proposed or listed species that "may be encountered on your proposed project site." The letter is dated September 10, 2002, and the listing contained three species (bald eagle, black-footed ferret, and mountain plover) which had also been included in the March 19, 2002 letter. Ute ladies'-tresses was not addressed as a species which would be expected within the Project Area, and it is this letter which is referenced in the Draft EA with respect to the orchid not being identified as a species of concern (pg. 3-80).
- In May of 2003, Proponent's environmental consultant conducted habitat surveys of the Project Area, including surveys of identified or suspected wetlands. Habitat for Ute ladies'-tresses was not identified during these surveys. The principal determining factors in excluding habitat, based upon the 2003 surveys and earlier examinations of the Project Area were a) dominance of upland vegetation, and b) ephemeral drainages which dry out by mid-July with water table more than 12 inches below the surface. These factors are in conformance with USFWS protocol for this species issued June 1, 1995.
- A Biological Assessment was prepared by a USFS Biologist in December, 2003, and Revised in February 2004, in which a "no effect" determination was made for Ute ladies'-tresses based upon the absence of suitable habitat within the Project area.

Comment: The 70,000 wells projected in Wyoming from CBM development represent a serious threat to wildlife habitat. Please provide an adequate analysis of the potential effects, including cumulative effects.

Response: The Commenter's request is outside of the scope of the requirements or purpose of a project-specific NEPA analysis. The analysis requested has been accomplished in the PRB FEIS.

Comment: EA's analysis of the effects of the Proposed Action on threatened and endangered species is inadequate. USFS should work with USFWS in developing impact minimization measures for all federally listed species. If the Project may affect a listed species, consultation with USFWS is required.

Response: As indicated in the Draft EA (print version pg. 3-79), ten consecutive years of surveys for black-footed ferrets in accordance with USFWS protocol have failed to establish evidence of the species within the Project Area or the TBNG. Known occurrences of bald eagle nests in the area have been restricted to two sites on Little Thunder and Antelope creeks (USFS GIS data). Surveys conducted by the Proponent and the adjacent surface coal mines have not discovered bald eagle nesting within the Project Area. Colonies of black-tailed prairie dogs occur within the Project Area. Habitat for Ute ladies' tresses orchid is non-existent within the Project Area.

General raptor protection measures adopted by the Proponent would also serve to protect nesting bald eagles. Direct short-term disturbance to prairie dog colonies would approximate 2.2%, reduced to 0.2% long-term disturbance. Raptor perch inhibitors would be placed on overhead power lines located near prairie dog colonies to reduce the probability of increased predation from Project development. Downstream impacts to potential Ute ladies'-tresses habitat from produced water discharge would be mitigated by consumption of most of the water within the NARC mine for industrial purposes, by the requirements imposed on the mine under the terms of its NPDES permit, and by the inherent quality of CBM water from the Project Area. The USFS consulted closely with the USFWS in developing the Standards and Guidelines in the TBNG LRMP and USFS, in compliance with its responsibilities under ESA, has formally consulted USFWS regarding this Proposed Action.

SUMMARY OF ACTIONS

No actions in response to, or resulting from, the comments above are anticipated. No additional analysis will be incorporated into the environmental analysis in response to these comments.

Wendell Funk
31846 Park Road
Palmyra, Illinois 62674

01: Energy Needs and Leased Lands

Comment: Energy Conservation, not greater energy production, is the nations' greatest need.

Response: It is not within the scope of this project to analyze energy conservation. It is the duty of this agency to analyze the proposal and determine if a selected alternative meets the purpose and need of the applicant while maintaining compliance with the Management Plan. 'Energy Conservation' would not meet the purpose and need of the proponent and therefore was not proposed, nor would it be entertained, as an alternative in this project..

Comment: "The national public, sole owners of national forests and grasslands, is not well served by the sale of federal leases between private parties (talk about revenue loss) or by the Wyodak CBM Project and its expansion (supply maintenance by exhaustion – again!)". Page 2, paragraph 2.

Response: It is not within the scope of this project to analyze the sale of federal leases. These lands were made available by the USFS and the leases were offered for sale by the BLM, see EA Appendix A, (page A-1) Summary of Federal Leases in Project Area, for a list of lease numbers, acreage, and sale dates. If the Commenter is referring to the Final EIS for the Wyodak Coal Bed Methane Project, it is not within the scope of this project to analyze a decision made by the BLM in 1999.

02: Mitigation / Multiple Use

Comment: "...rights of lessees to develop federal mineral resources to meet continuing national needs and economic demands so long as undue and unnecessary environmental degradation is avoided" Why not the rights of the national public be given first consideration?"

Response: The Draft EA document has identified impacts to the resources and determined that no undue or unnecessary environmental impacts would take place that could not be satisfactorily mitigated. It is not within the scope of this project to address or analyze the 'right' of the 'national public'.

Comment: "Why not give the environment the highest consideration, allowing no degradation for alleged national needs or economic demands?"

Response: It was determined during the environmental analysis that no significant, unmitigatable impacts would be incurred to the existing resources by the action alternative.

03: Miscellaneous

Comment: It is a lie to contend that methane, or any hydrocarbon, is a clean-burning fuel.

Response: Methane, i.e., "natural gas," is described as a clean-burning fuel in comparison to alternative fuels such as gasoline, other liquid hydrocarbons, or coal. Chemical energy

production, such as through fuel combustion, invariably results in some form of waste byproduct. According to the U.S. Department of Energy's Alternative Fuels Data Center, combustion of methane or natural gas results in much lower levels of such waste products than do alternative combustible fuels.

Comment: If theft of resources (i.e. methane) by adjacent non-federal wells is a problem, are there not laws to prevent such thievery?

Response: There are no laws to govern this type of drainage to another subsurface outlet within the same formation but outside of a surface ownership pattern. Drainage is a natural consequence of subsurface gas movement to areas of lowered pressure, i.e., areas from which production has already occurred. Failure to produce gas resources located beneath USFS surface would result in ultimate loss of these resources, and accompanying federal royalties, to producers on non-federal lands. Withdrawal of gas resources in this manner does not meet any legal definition of "theft." It is to prevent such loss of royalty revenue from the Treasury that the federal government has the right to issue oil and gas leases allowing the holders to drill for and extract oil and gas from the federal mineral estate.

Comment: Millions of gallons of **toxic** ground water released onto the surface – where is shown concern for the environment?

Response: As stated in Chapter 3, pages 3-21, the water anticipated from the wells have proven to meet Wyoming Department of Environmental Quality standards for domestic or agricultural uses. This water does not meet any definition of 'toxic'.

Comment: Untold quantities of methane extracted in 4 to 7 years – where is shown the concern for the interests of future generations?

Response: This Project is charged with developing alternatives that would meet the current needs of our Nation, while protecting other resources for the interest of future generations. Saving fossil fuels for use by future generations would not meet that purpose and need of this proposal.

SUMMARY OF ACTIONS

No actions in response to, or resulting from, the comments above are anticipated. No additional analysis will be incorporated into the environmental analysis in response to these comments.

**Powder River Basin Resource Council
23 North Scott, Suite 19
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01: Range of Alternatives

Comment: The Big Porcupine CBM EA examines only one alternative, other than the required “no action” alternative that the government must analyze. The failure to examine more than one reasonable alternative fails to meet the requirements of 40 CFR 1500.2(e) and (f). While the Forest Service rejected several alternatives that were proposed they fail to pursue both reasonable and probable alternatives that are also technically and economically feasible for the development of CBM resources in this area that would minimize the impacts to the environment.

- **40CFR1500.2(e)**, ‘Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.
- **40CFR1500.2(f)** ‘Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment’.

Response: It was determined early in this process, following scoping and consultations between the USFS and the Proponent, that there were no other reasonable alternatives that would meet the purpose and need of the proposal. The analysis in the Draft EA identifies possible adverse effects to the human environment and presents numerous applicant-committed and agency-required measures that would either mitigate environmental impacts to non-significant levels or avoid impacts altogether. The provisions of the Proposed Action are in compliance with mitigation measures approved in the PRB FEIS and are in conformance with the 2001 Revision of the TBNG LRMP.

Comment: The viable alternatives the Forest Service failed to pursue are:

Staged development of the CBM resources, using 160 acre spacing, which may include unitization of the project area to prevent loss of federal revenue from drainage, this could be combined with injection of produced water to recharge nearby aquifers depleted by CBM production. Injection could also take place into one coal seam already depleted through multiple seam completion now being utilized in CBM drilling.

Directional drilling – directional drilling is being utilized in Colorado and is also being proposed for new CBM projects in Colorado. The Forest Service rejects these alternatives without an adequate demonstration that they are not reasonable or economically feasible.

In this analysis the Forest Service fails to account for the cost of the loss of groundwater, the loss of habitat and impacts to wildlife and the cost of reclamation

Response 1: As indicated in the Draft EA (Table 2-9), staged development is not an option in the case of the Proposed Action because drainage is occurring not solely to surrounding

producers on non-federal lands but, more importantly, through the headwalls of immediately adjacent surface coal mines. This drainage represents a continuing and irretrievable loss of resources from the federal mineral estate. Staged development would not satisfy the purpose and need of the project, as required by NEPA. Well spacing of 160 acres at the depth and pressures of the target seam and under drainage conditions would not adequately or efficiently recover the CBM in violation of the purpose and need of the Project. As indicated in the Draft EA (Table 2-9), injection of produced water into depleted coal seams is not an option in the case of the Proposed Action since there is only a single seam of the Wyodak coal in the Project Area. This seam must be depressurized in order to produce contained gas. Injection of produced water would conflict with the efforts to depressurize the target coal.

Response 2: Directional drilling was considered but not analyzed as a potential alternative (Table 2-9, Draft EA print version pg. 2-53). Even for 40 acre spacing drainage from a central well location, lateral displacement of nearly 1,000' would be required. Where directional drilling has been used to achieve horizontal displacements adequate to achieve the purpose and need of the proposal, the target formations are at greater depths. The friable nature of the coal seam renders long distance horizontal boreholes impractical due to eventual collapse of the coal and failure to pay out the well. The very shallow nature of the target Wyodak coal seam (less than 650 ft.) and physical property of the coal makes directional drilling both technically and economically unfeasible. Alternatives must be economically and technically viable and achieve the purpose and need of the project (CEQ 40 Questions, 2a). Finally, expansion of adjacent coal mines into the Project Area over the next 10 to 20 years will disrupt the existing surface.

See www.epa.gov/coalbed/pdf/dir-drilling.pdf and www.colorado.edu/law/centers/nrlc/workshop/DD-Conference-Notes.doc.

Response 3: As indicated in the Draft EA (Section 3.3.4.1) and the Water Management Plan (pgs. 11 to 12), CBM produced water will be used for stock and wildlife watering in addition to its principal use for various industrial and reclamation purposes within the NARC coal mine. The water is actively sought by the mine to offset current groundwater withdrawals from the Ft. Union and Fox Hills formations. The CBM water will therefore partially replace the need to pump potable groundwater from the Ft. Union and is an economic benefit to the mine. Significant amounts of the produced water (approximately 82% of flow lost through conveyance in ephemeral drainages) will reinfiltrate into shallow aquifers. Project impacts to habitat and wildlife have been rigorously analyzed in appropriate sections of the Draft EA and these analyses have been used to impose site-specific COAs and timing stipulations for further protection. All costs of reclamation will be borne by the Proponent and are discussed in a response to another comment below. Finally, as discussed in the expanded Final EA section dealing with the No Action Alternative, much or all of the Project Area is expected to be mined through by the adjacent coal mines during the next 10 to 20 years, a process which will result in the dewatering and loss of the target coals, loss of any untapped CBM, and complete transformation of the land.

02: Air Quality

Comment: The Big Porcupine EA fails to analyze the extensive and serious cumulative air quality impacts in this area. There have already been several PM₁₀ violations associated with coal mining. Expanded CBM development and new roads will add to the air quality problems.

Response: A detailed analysis of particulate matter emissions expected in conjunction with construction and operation of the Proposed Action is discussed in Draft EA Section 3.4.3.1. Cumulative impacts are discussed in Draft EA Section 4.4. During construction, and using road watering mitigation, control of approximately 70% of PM₁₀ emissions is expected, or approximately 74 lbs. per day over the Project Area. Long-term particulate emissions are expected to be minimal. Almost all of the road mileage which will be constructed or used during the Project will be native surface with low vehicle traffic needs as a result of remote facility monitoring. Cumulative analysis for the Project Area has been included in the analysis done for the PRB FEIS. Particulate emissions from the Proposed Action would approximate between 0.2% and 0.6% of the cumulative impacts analyzed in that document.

Comment: EA at 3-36 discusses measures utilized to control dust including the use of “Tank bottom crude hydrocarbons to area roads”

Response: This paragraph merely explains some measures generally taken by operators to control fugitive dust emission from dirt roads. “In order to mitigate adverse impacts of excessive PM₁₀ emissions, a group of coal mines and CBM operators in the Powder River Basin initiated a program to control dust by developing a dust control plan for the Basin (PAW, 2003). Measures taken by operators include the application of diverse products, including tank-bottom crude hydrocarbons” The use of ‘tank-bottom hydrocarbons’ for control of dust has not been proposed by the proponent, is not requested in their surface use plan of operations (SUPO), and has not been proposed in their APDs. Because this use is not part of the proposal, it was not analyzed and will not be allowed.

Comment: The EA also fails to look at the cumulative air quality impacts and the potential for the Powder River Basin to become a non-attainment area for PM₁₀ particulate matter. Additionally, we did not see an analysis of threats from increased air pollution to affect downwind Class 1 air sheds.

Response: Discussion of the potential for the Powder River Basin to become a PM₁₀ non-attainment area is a topic beyond the scope of this project-specific NEPA analysis. As indicated in the response above, a discussion of Project contributions to cumulative PM₁₀ impacts has been included with this Draft EA. The nearest Class I airsheds are the Wind Cave and Badlands national parks, located approximately 100 and 125 miles, respectively, to the east of the Project Area. Prevailing southeasterly and northwesterly winds blow away from these areas. Along prevailing wind directions, there is no Class I airshed closer than the tribal federal Class I Northern Cheyenne Reservation, approximately 150 miles to the north northwest. This analysis indicates no anticipated impacts to Class I airsheds from construction of the Proposed Action.

03: Soil and Vegetation

Comment: discharge of CBM water will change ephemeral drainages to perennial drainages, resulting in the loss of native grasses and vegetation to salt loading and replacement with wetland species not palatable to livestock and wildlife. Will the stream channels be reclaimed?

Response: The low salinity levels of produced water expected within the Project Area suggests that "salt loading" of local drainages is unlikely. Salinity values of water from the Wyodak coal in the vicinity of the Project Area meet WDEQ domestic consumption standards (EA, print version pg. 3-21). Possible expansion of wetlands along, principally, Porcupine Creek would affect extremely small amounts of existing range grassland. Compared to the existing acreage of range grassland, such losses would have no significant impact on livestock or wildlife foraging. Damage to stream channels or other resources would be monitored by USFS and the Proponent and would require reclamation by the Proponent.

04: Wildlife

Comment: 15 pages of approval on specific wells related to wildlife impacts. How will the Forest Service enforce these requirements? Who will monitor whether these conditions are taking place? What is the impact if the conditions are not enforced or adhered to? How will the contractors and sub-contractors know about the stipulations? What are the consequences for not adhering to the stipulations?

Response: It is the responsibility of the USFS, as the Surface Management Agency, to monitor and enforce COAs associated with surface disturbance on the TBNG. Monitoring would be performed by USFS employees or third-party contractors at the expense of the Proponent. Failure to comply with COAs can lead to loss of operating rights on the TBNG, among other possible penalties. Compliance with all conditions and stipulations associated with the Proposed Action is ultimately the responsibility of the Proponent. That responsibility is not relieved by the use of third-party contractors. It is the Proponent's obligation to ensure that any such contractors are apprised of the conditions associated with development on the TBNG. The Proponent has indicated repeatedly in the Draft EA (Table 2-8) its intention to inform subcontractors of appropriate operational requirements.

Comment: The Forest Service has violated NEPA in this EA and decision record

Response: The commenter has not stated how a NEPA violation has occurred. This comment was made following issuance of a Draft EA. There has been no decision record issued or signed for this project.

Comment: The EA and the approval of the APDs does not comply with section 6 of the federal mineral leases issued in this case, which states:

Conduct of operations - Lessee shall conduct operations in a manner that minimizes adverse impacts of the land and water to cultural, biological, visual and other resources, and to other land users: Lessee shall take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with lease rights granted, such measures, may include but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim or final reclamation measures..."

Response: The conditions of approval on specific wells and the avoidance measures that were developed during the on-site process of this project have rendered the anticipated operations within a reasonable level of impact. The Draft EA concluded that no significant impacts would be sustained to the resources. In addition, the narrative cited above from section 6 is written to hold the lessee to a certain level of conduct during operations of his/her project. This conduct cannot be judged until it commences and all reasonable measures deemed necessary will be enforced.

05: Reclamation Requirements and Costs

Comment: No analysis has been provided for the cost of reclamation for this project. What is the cost for reclamation? Will it be successful? Does the Forest Service require a reclamation bond and will it cover the costs of reclamation? What is the value of the bond and what components are covered? This EA provides no analysis of reclamation costs or assurance that an adequate bond will be required? (Please see the comments of mining engineer. Jim Kuipers) that we submitted with our comments on the Draft and Final PRB EIS)

Response: An expanded discussion of reclamation costs and bonding has been added to the Final EA (Section 2.1.3.6).

Cost figures provided by the Proponent (March 2004) and in consultation with BLM (April 2004) indicate average surface reclamation costs for Powder River Basin CBM facilities are approximately:

- reclamation of well sites (156) - \$1,500 per surface site
- reclamation of two-track roads - \$400 per mile
- reclamation of utility corridors - \$150 per acre
- reclamation of water discharge outfalls - \$1,000 per outfall
- reclamation of compressor sites - \$1,000 per site

Using these figures and information from various tables in Chapter 2 of the EA, reclamation costs for federal surface for the Proposed Action would be approximately:

- well sites - @156 wells \$234,000
- roads @ 24 miles of new and improved \$9,600
- utility corridors - @ 504 acres \$75,600
- water discharge features - @ 6 points \$6,000
- compressor sites - @ 5 sites \$5,000
- TOTAL - \$330,200

Prior to commencement of surface-disturbing activities on federal lands or in split estate areas with private surface and federal minerals, the Proponent is required to post and maintain in good standing a federal bond (under BLM regulations at 43 CFR 3104) in the amount of \$150,000 for nationwide coverage. No activities, for example, issuance of APDs by the BLM, may be authorized in the absence of a valid federal bond. The bond must be maintained, i.e., in the event there is a draw against the bond, the Proponent is required to restore the bond to its original amount to continue operating on federal lands or minerals. In the event a demand against a federal bond has occurred within the five years prior to request for issuance of APDs, the

Authorized Officer may increase the amount of the required bond, up to an amount sufficient to cover all costs associated with plugging all wells and reclaiming all lands covered by the bond. In addition, the amount of the bond may be increased at the discretion of the Authorized Officer in the event there has been a history of various types of violations (43 CFR 3104.5) by the bonded party.

The Bond Holder currently operates 373 wells within the State of Wyoming, (AFMIS data base maintained by BLM, March 2004). In the event that a Holder defaults on any operations, maintenance or reclamation of mineral development on or off federal lands, the bond would first be applied to royalties due the United States. After that payment is made, the remaining bond amount would be applied to down-hole reclamation and well plugging. If there are funds remaining after the first two priorities are applied, they would be applied to surface reclamation.

A reclamation bond can also be required by the surface management agency (in this case, USFS) to ensure that reclamation of disturbed lands occurs. Regulation 36 CFR 228.109 allows the USFS to require reclamation bonds if the lease bond is determined to be inadequate. These are separate from the lease bonds a lessee is required to post with the BLM. Reclamation standards and requirements would be defined by the USFS and BLM.

A bond imposed by the USFS would be unlike the nation-wide bond held by BLM, in that it can be imposed at any time prior to or during the conduct of operations, if the Authorized Officer determines that the financial instrument held by the BLM is not adequate to ensure complete and timely reclamation and restoration of the USFS surface. In addition, a specific reclamation bond held by USFS would be utilized for surface reclamation only, and could not be earmarked for either Federal royalty payments or for downhole well plugging and abandonment. Please see Decision Notice and Appendix B of the Decision, Conditions of Approval.

Interim and final reclamation would be done according to reclamation plans in the APDs as detailed in Section 2.1.3.6. Reclamation also would be done in accordance with standards of the Thunder Basin National Grassland Plan, 2001 Revision (TBNG Plan), or any other plan in effect at the time of final reclamation. Various standards are currently in the place in the TBNG Plan and are included as Potential Mitigation Measures.

SUMMARY OF ACTIONS

Changes or additions to the Final EA include:

- An expanded discussion of reclamation costs and bonding has been added.
- Reclamation bonding will be required in the Decision

Triton Coal Company. LLC
North Rochelle Mine
510 Reno Road
Gillette, Wyoming 82718

01: General Comments

Comment: The following wells have already been displaced by mining operations since the inception of this project. Consequently – these wells will need to be dropped from the project.

1) these wells are located on top of and within existing topsoil piles

T42NR70W, Section 7, NENE – private - well 41-7-4270

T42NR70W, Section 9, NENE - federal – well 41-9-42-70

2) these proposed wells are within the footprint of the mine’s 10 year operating plan

T42NR70W Section 5, SWSW - private - well 14 -5-4270

T42NR70W Section 5, SWSE – private - well 34-5-4270

T42NR70W, section 5, NESE - private - well 43-5-4270

T42NR70W, Section 5, NESW - federal - well 23-10-42-70

T42NR70W, Section 5, NESW - federal - well 23-15-42-70

3) **Utility Corridors** for wells 41-9-42-70 and 43-9-42-70 are shown within 2 existing North Rochelle Mine topsoil piles. Additionally, the utility corridors are shown to cross the North Rochelle coal conveyor belt and 2 access roads.

4) **Utility Corridors** from 4 CBM wells in 4270 Section 5 and Section 8 passes over Reno Road and over the North Rochelle Mine Railroad siding and telephone trunk lines.

Utility corridor for the well 23-10-42-70 (42N70W, Section 10) is shown over an existing topsoil stockpile

5) 23-10-42-70 is located within Pit #1 boundary – *coal has already been mined out for this pit*

Responses:

1) Well 41-7-4270 will be moved to a new location away from the topsoil pile. Well 41-9- 4270 will be dropped from the Proposed Action.

2) Per suggestion from Triton Coal Company, the Proponent may negotiate a drilling and production window with Triton for the following wells:

14-5-4270

34-5-4270

43-5-4270

23-15-4270

3) The following wells and associated utility corridors will be dropped from the Proposed Action:

41-9-4270
43-9-4270

4) The utility corridor from wells in sections 5 and 8, 42N, 70W, will be bored beneath Reno Road and the railroad spur.

5) Well 23-10-4270 will be dropped from the Proposed Action.

Comment: New wildlife analysis reveals previously unknown raptor and MIS species information. Information will be forwarded to the consultant and incorporated into the draft EA. If wells are to be withdrawn for protection of species or individuals, that will also be determined and implemented as mitigation.

Response: Well 12-12-4271 will be moved approximately 100 meters to the northeast to an exception location with line-of-sight exemption to 0.25 NSO stipulation on newly discovered raptor nest. Well 41-12-4271 will be moved approximately 340 meters northwest to an exception location in the NWNE Section 12.

Comment: The EA stated that the “mine could work cooperatively with the Forest Service to establish (sic) desired air monitoring facilities to determine whether dust emissions were originating within the Project Area or within the mine area”. This should be the CBM producer’s responsibility; mines are already monitoring dust emissions adjacent to their facilities.

Response: Air monitoring requirements are the responsibility of WDEQ, and can be imposed on the Operator at any time if necessary. The USFS will not require the mine to install additional monitoring facilities because of impacts that result from this project.

SUMMARY OF ACTIONS

Responses to comments include:

- Drilling and production windows for selected wells will be negotiated with Triton Coal Company by the Proponent.
- Certain wells will be dropped from the Proposed Action and others will be moved.
- Wells located within NSO restrictions near newly-discovered raptor nests will be moved.
- The utility corridor from sections 5 and 8, 42N, 70W, will be bored beneath Reno Road and the railroad spur.

Please see Decision and Appendix B of the Decision, Conditions of Approval.