

CHAPTER 5

CONSULTATION & COORDINATION

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CHAPTER 5: CONSULTATION AND COORDINATION

Introduction

In 2003, the Bureau of Land Management (BLM) and the State of Montana jointly prepared the Montana Statewide Oil and Gas Final Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans (Statewide Document). The Statewide Document analyzed the environmental impacts associated with amending the resource management plans (RMPs) to change existing land use decisions regarding the development of oil and gas resources, including coal bed natural gas (CBNG) exploration and development. The Record of Decision (ROD) for the Statewide Document was approved on April 30, 2003.

As a result of lawsuits filed against the BLM's decision, the District Court ordered the BLM to prepare a supplement to the Statewide Document. The U.S. District Court for the District of Montana identified three topics to be evaluated in the supplement:

1. CBNG phased development
2. Cumulative impacts from the proposed Tongue River Railroad
3. How private water well mitigation agreements will help alleviate the impacts of methane migration and groundwater drawdown

The Draft Supplement to the Montana Statewide Oil and Gas EIS and Amendment of the Powder River and Billings RMPs (DSEIS) was prepared by an interdisciplinary team of specialists from the BLM's Miles City Field Office and Billings Field Office, the Montana State Office of the BLM, and the consulting firms of ALL Consulting and Parametrix under contract to the BLM.

Preparation of the document began in August 2005. The BLM solicited comments from agencies and the public using a variety of tools to announce the beginning of the SEIS process. Public participation activities included public scoping meetings, informal meetings, SEIS website information, and newsletters. Biweekly teleconference calls are also hosted by the BLM to provide ongoing communication with cooperating agencies and collaborators.

Public Participation

The BLM prepared a public participation plan to guide project management and team efforts to develop the SEIS and to ensure public involvement during the entire SEIS preparation process. During the scoping for and preparation of the DSEIS, formal and informal public input was encouraged.

The 30-day scoping period began with the *Federal Register* Notice of Intent (NOI) published on August 5, 2005 (Vol. 70, No. 150, Page 45417). The scoping period and the availability of planning criteria were announced in a legal notice, newspaper advertisements, and media releases. During the scoping period, the BLM received written comments in the form of letters, comment forms, and emails.

Public scoping meetings were held in four towns within the Planning Area. Total attendance was 126 people, with some people attending more than one meeting.

PLACE	DATE	ATTENDANCE
Broadus	August 22, 2005	24
Lame Deer	August 23, 2005	65
Billings	August 24, 2005	22
Miles City	August 25, 2005	15
Total		126

A meeting was also held with the Northern Cheyenne Tribe during the public scoping period.

More than 500 comments were submitted during the scoping meetings and in written communications. Many comments were received in several categories, including air quality, oil and gas, phased development, water resources, and wildlife.

What has Changed in Chapter 5 Since the DSEIS?

Chapter 5 documents the public participation-as well as agency and tribal consultation and coordination-during the preparation of this SEIS. A detailed list of Tribal coordination dates and meetings is provided. The most significant addition is the list of the public's comments, along with the agency responses. Comments and responses are provided for each resource topic.

Following the public scoping period, the BLM held an alternative development meeting with cooperating agencies and other collaborators on September 21, 2005, in Miles City. As a result of this meeting, a preliminary phased development alternative was developed and distributed to the cooperating agencies and collaborators for comment. Based on cooperating agency and other collaborator comments, and further consideration of scoping comments, the BLM revised the alternative.

The revised phased development alternative was then summarized in an October 2005 project newsletter. More than 1,800 copies of the newsletter were sent to interested parties on the current project mailing list. The phased development alternative presented in the newsletter was based on the proposed high range of development identified in the original reasonably foreseeable development (RFD) report. In response to several comments received as a result of the newsletter, the BLM developed a second phased development alternative based on the low range of predicted development.

On November 9, 2005, another meeting was held in Miles City with cooperating agencies and other collaborators. Both the high and low range phased development alternatives were presented for discussion and feedback. As a result of this meeting, the two alternatives were fine-tuned before impact analysis.

On February 2, 2007, a Notice of Availability (NOA) was published in the *Federal Register* announcing the availability of the DSEIS and beginning a 90 day public comment period which ended on May 2, 2007. Approximately 1510 copies of the DSEIS were distributed to the public for comment. Additionally, a copy was posted on the BLM-Miles City Field Office SEIS website for downloading by the public.

Public meetings were held at five locations within the Planning Area to gather comments on and answer questions concerning the DSEIS.

PLACE	DATE	ATTENDANCE
Broadus	March 26, 2007	29
Billings	March 27, 2007	50
Hardin	April 17, 2007	9
Lame Deer	April 17, 2007	43
Miles City	April 19, 2007	30
TOTAL		161

The meetings were attended by a total of 161 members of the public. Comments were received both in writing and orally.

On December 12, 2007 a Notice of Availability (NOA) was published in the *Federal Register* announcing the availability of a Supplemental Air Quality Analysis for the DSEIS and beginning a 90 day public comment period which ended on March 13, 2008. A public meeting was held at Miles City, Montana on February 20, 2008. The meeting was attended by 12 members of the public. Comments were received both in writing and orally.

Consultation with U.S. Fish and Wildlife Service on Threatened and Endangered Species

As required by section 7 of the Endangered Species Act (ESA) of 1973, the BLM initiated consultation with U.S. Fish and Wildlife Service (FWS) by submitting a letter dated September, 15, 2005, to FWS. This letter introduced the project and requested a list of threatened and endangered species to be considered in the DSEIS. The FWS responded with a letter, dated November 4, 2005, to provide an updated species list for preparation of a biological assessment (BA). A copy of this letter is included in the Wildlife Appendix of the SEIS.

The BLM then prepared a BA based on the preferred alternative and submitted the document to FWS. A copy of the draft BA is included in the Wildlife Appendix of this SEIS.

The following is a record of correspondence between the BLM and FWS for section 7 consultation.

- 09/15/05 The BLM submitted a letter introducing the project and requesting an updated species list
- 11/04/05 FWS responded to the BLM letter dated September 15, 2005, request for updated species list
- 09/13/06 The BLM submitted the Draft BA for FWS review
- 04/27/07 FWS provides comments to BLM.

Consultation with FWS has continued throughout the SEIS process. As BLM did not propose actions that may affect a threatened or endangered species, formal consultation as required by section 7 of the ESA would not be required (P.C. FWS 1/17/08).

Consultation and Coordination with Native American Tribes

This section summarizes the BLM's consultation and coordination efforts with the tribes in preparing the SEIS. The list does not include routine phone calls, such as the biweekly teleconference calls held with cooperating agencies and other collaborators during preparation of the SEIS.

Crow Tribe

- 09/21/05 Meeting on Phased Development Alternative held at Ft. Keogh in Miles City, MT, attended by representatives of the Crow Tribe
- 06/27/06 Consultation meeting on the DSEIS held at the Crow Agency, attended by representatives of the Crow Tribe
- 03/26/08 Consultation meeting on the Supplemental Air Quality Analysis was held on the Crow Reservation in Crow Agency, Montana. This meeting was attended by representatives of the Crow Tribal Council.

Northern Cheyenne Tribe

- 09/07/05 SEIS consultation meeting with the Northern Cheyenne Tribe held in Lame Deer, MT
- 09/21/05 Meeting on phased development alternative held at Ft. Keogh in Miles City, MT, attended by representatives of the Northern Cheyenne Tribe
- 11/29/05 Meeting to present and collect feedback on two phased development alternatives held in Lame Deer, MT
- 04/13/06 Meeting with the Northern Cheyenne Tribe to discuss the phased development alternatives
- 11/9/06 Meeting with the Northern Cheyenne Tribe to discuss a new phased development alternative
- 4/5/07 Consultation meeting on the DSEIS held at Lame Deer, MT, attended by

representatives of the Northern Cheyenne Tribe

- 03/13/08 Consultation meeting on the Supplemental Air Quality Analysis held in Lame Deer, MT, attended by representatives of the Northern Cheyenne Tribe

Lower Brule Sioux

- 06/08/05 Meeting to present SEIS project and discuss MOU with tribe for cooperating agency status held at the Lower Brule Sioux headquarters in Lower Brule, SD
- 11/09/05 Meeting to discuss phased development alternatives and elements of a preferred alternative held at Ft. Keogh in Miles City, MT, attended by representatives of Lower Brule Sioux Tribe
- 04/09/08 Consultation meeting on the Supplemental Air Quality Analysis was held at the Lower Brule Sioux Reservation, in Lower Brule, South Dakota. This meeting was attended by representatives of the Lower Brule Sioux Tribal Council.

The Lower Brule Sioux Tribe of South Dakota and the Crow Tribe of Montana have agreed to participate as cooperating agencies for this project. The Northern Cheyenne Tribe has entered into formal Government-to-Government consultation in preparation of this document.

Consistency

The BLM's planning regulations require that resource management plans "be consistent with officially approved or adopted resource related plans, and the policies and programs contained therein, of other Federal agencies, State and local governments, and Indian tribes, so long as the guidance and resource management plans are also consistent with the purposes, policies, and programs of Federal laws, and regulations applicable to public lands..." (43 CFR 1610.3-2).

All federal, state, and local agencies and Tribal councils have been requested to review this document and inform the BLM of any inconsistencies with their plans.

The Montana Governor's clearinghouse will be supplied with copies of the final document for review to ensure consistency with the state's plans.

Comments and Responses

The BLM received 152 public response documents, including letters, e-mails, website submittals, comment forms, and public meeting testimony during the DSEIS and the BLM 2007 Supplemental Air Quality Analysis (SAQA) public comment periods. In preparing the FSEIS, the comments were used to accomplish the following:

- Modify analysis
- Develop and evaluate analyses not previously considered by the agency
- Supplement, improve, or modify the analysis
- Make factual corrections
- Explain why the comments do not warrant further agency response

Comments that expressed a preference or opinion did not affect the analysis. These comments were carefully considered in the decision-making process for developing the FSEIS. Copies of all comments are available at the BLM Miles City Field Office.

Comments that were incorporated into this analysis for the FSEIS are included in this chapter, grouped by topic area. Comments that addressed multiple topics were placed under the predominant concern or issue. Any comment that contains a reference to a specific chapter, page, table, map, or figure refers to the DSEIS document. Each comment is then followed by BLM's response. References to pages, tables, maps or figures refer to the FSEIS.

Air Quality and Climate

Comment 1 (C-1): Are there any studies, information, or guesses as to how much CBNG is released naturally into the atmosphere, contributing to the greenhouse gasses? How much naturally occurring CBNG escaping to the atmosphere would be reduced by lessening the pressure and putting these gasses to beneficial use?

Response 1 (R-1): For a discussion of methane seepage to the surface, see the Geology and Minerals section of Chapter 3 under the heading "Methane Seepage, Migration, and Venting."

C-2: The FSEIS must identify the maximum permissible air emissions as part of its evaluation of the role that phased development can play as a

mitigation strategy in achieving compliance with applicable air quality requirements. To perform an evaluation of the mitigation benefits that can be achieved by phased development, the FSEIS must identify the level of emissions that can be allowed from the project, when considered together with other emissions in the region, without causing or contributing to violations of the various Clean Air Act (CAA) requirements.

R-2: An air quality model that considered the project impacts to air quality from Alternative E and phased development alternatives F and H was conducted for the SEIS. The air quality model considered the potential for air quality impacts from all sources, including project sources, and evaluated the predicted air emissions with respect to applicable air quality standards. The maximum air concentrations were predicted to be below applicable state and national ambient air quality standards. The results of the analyses are included in Chapter 4 under "Air Quality and Climate", in the Air Quality Appendix, and in the Air Quality Technical Support Document (BLM 2006). In addition, the Montana Department of Environmental Quality (MDEQ) has permitting authority for all individual sources that could impact air quality and has also committed to conducting an annual air model to assess overall impacts resulting from project-related activities. As part of the air quality impact analysis, BLM has modeled the level of development that eliminates visibility impacts over the life of the project at Class I airsheds including the Northern Cheyenne Reservation. This effort is based on actual well-to-compressor ratios that are currently being experienced in the Montana portion of the Powder River Basin (PRB). The results of these air quality mitigation modeling efforts are included in the Air Quality and Climate section of Chapter 4, the Air Quality Appendix, and the Supplemental Air Quality Analysis Document (BLM 2007).

C-3: The FSEIS identifies that CBNG companies will be exploring, constructing, and operating with few, if any, mitigation measures until ambient air quality monitoring and/or annual cumulative ambient air quality modeling indicate that an ambient air quality standard or increment has been exceeded. After an exceedance of an ambient air quality standard or increment is realized, the FSEIS then identifies authorities and obligations of MDEQ, tribal authorities, and/or the Environmental Protection Agency (EPA) to require controls to restore air quality back to within the ambient standards and/or increment. Implementing mitigation measures after an ambient air quality standard or increment is exceeded is not the appropriate approach. Rather, the

FSEIS should identify, and BLM should require, the mitigation measures as emission control requirements in each alternative to minimize air quality impacts from oil and gas development. Placing emission controls on all sources, non-permitted and permitted alike, will help preserve the air quality of the area, while allowing the appropriate CBNG development to occur. In addition, the FSEIS should include as required mitigation measures that all CBNG compressor engines be either lean-burn engines or rich-burn engines with properly installed and maintained non-selective catalytic reduction (NSCR) units. The FSEIS should include as mitigation measures the emission control requirements for engines located at facilities that do not exceed the 25 tons per year permitting threshold.

R-3: All CBNG operations equipment, such as compressor engines, currently operating within the Project Area have permitted air emissions controls installed on them based on MDEQ permitting and Best Available Control Technology (BACT) determinations. Such measures include but are not limited to catalytic oxidation units, air-to-fuel ration controllers, and non-selective catalytic reduction. In addition the following measures are part of the preferred alternative:

- Use of surface material for roads, well pads, and facility sites on soils susceptible to wind erosion
- Dust inhibitors on unpaved collector, local and resource roads
- Posting and enforcing speed limits
- Maximize the number of wells per compressor
- Require natural gas fired or electrical compressors or generators

Project-related air emissions sources that would not have air emissions controls consist of construction or development equipment such as bulldozers and drilling rigs. The authority for requiring air emissions controls on these types of mobile sources, or on stationary sources such as compressor engines with air emissions that do not exceed the current 25 tons per year threshold, lies with MDEQ. BLM would support MDEQ should it choose to implement regulations that would require these mobile sources, or other sources that currently do not require permits or controls, to have permitted air emission controls. BLM does have the authority to implement mitigation measures through the alternative selection process, the use of conditions of approval for Applications for Permit to Drill (APDs), or the use of lease stipulations. BLM has worked with MDEQ to

include conducting an annual air quality model to assess the impacts resulting from CBNG development as an element of phased development under Alternatives F, G, and H. In addition, MDEQ has moved to a policy of conducting AERMOD models for all compressor stations that would require a permit. These models will look at both near-field (fenceline) emissions as well as cumulative emissions. The results of modeling at the permit stage and on a continuing cycle will identify when additional mitigation measures may be necessary before air quality standards are compromised. Examples of measures that could be implemented to mitigate air impacts are included in the Air Quality and Climate section of Chapter 4 under "Mitigation" and in Attachment B to the Air Quality Appendix. BLM would work with MDEQ and EPA in determining what mitigation measures would be most effective in addressing impacts to air quality and how or when those measures should be implemented.

C-4: The SEIS identifies mitigation measures that are common to all alternatives in Table 2-1 (page 2-8). However, the common mitigation measures are not required mitigation measures in the preferred alternative. These mitigation measures should be required in the preferred alternative.

R-4: Mitigation measures that are common to all alternatives would be required for all alternatives, including the Preferred Alternative (H).

C-5: BLM should fund the installation and operation of appropriately located ambient air quality monitors for NOx or particulate matter in the PRB.

R-5: The PRB Interagency Air Quality Task Group made recommendations and established the Montana portion of the PRB as a high priority area for monitoring. On May 10, 2007, the Powder River Basin Interagency Working Group decided that the Montana BLM and MDEQ would approach the Montana CBNG operators to determine if there were opportunities for funding assistance. The BLM and MDEQ will continue to pursue options for installing and operating additional air quality monitoring stations in the Montana portion of the Powder River Basin monitoring pollutants including nitrogen oxides, PM_{2.5}, PM₁₀ and ozone.

C-6: The SEIS correctly states that MDEQ has committed to preparation of an annual estimate of cumulative impacts of CBNG development as resources allow, but many of the sources locating in the impact area are not installing equipment that exceed MDEQ's 25 tons per year permitting threshold. MDEQ has no way to track these sources under current law. BLM could require its permittees

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to submit an annual report summarizing emissions data and the required modeling parameters to allow MDEQ, or BLM if necessary, to conduct this annual modeling study.

R-6: BLM does have estimates for emissions that would be associated with construction equipment or other non-permitted project emissions that could be used for the emissions input to the annual air quality modeling conducted by MDEQ. These estimates are derived from industry standards and EPA publications and are widely used for air quality modeling. It is correct that a compressor site with two compressor engines does not typically exceed the tons per year threshold for implementing MDEQ's permitting process. However, the engines used for these compressors are very similar, if not identical, to those currently being permitted by MDEQ, thus, providing another means to develop reasonable estimates for annual air quality modeling. BLM and MDEQ will both have to track development activities to account properly for emission sources to keep the annual monitoring up to date. If it becomes necessary to use other measures to ensure that this information is tracked, the Monitoring Appendix already includes the provision that BLM could require submittal of annual emission reports.

C-7: With respect to the breadth and scope of the increment and visibility impacts in the SEIS, consider the following. If all of the mitigating measures proposed were applied proactively, these impacts could be substantially reduced. BLM should reanalyze the impacts in the preferred alternative with all of the mitigating controls applied to the emission estimates to quantify the benefit of applying these controls earlier rather than later.

R-7: BLM has reanalyzed air impacts resulting from project-related activities under scenarios that would result in greater than 50% emission reductions from compressor engines and the effect this would have on reducing impacts to visibility at specific Class I and II airsheds within the Project Area. This analysis also considered comparisons to prevention of significant deterioration (PSD) increments to quantify the benefit of further emission controls. The results of these analyses are contained in the Air Quality and Climate section of Chapter 4, the Air Quality Appendix, and the Supplemental Air Quality Analysis.

C-8: BLM should use caution when applying a 65 percent reduction to Alternative F to estimate the impacts from Alternative G. Spatial and temporal distribution is an important element in estimation of impacts.

R-8: While applying a 65 percent reduction may not be directly linear due to variables such as photochemistry, well locations, etc., it is an appropriate means of assessing the potential impacts to air quality that would result from implementation of Alternative G on a regional basis.

C-9: Page 3-2, Table 3-1. It appears that the form of the ozone standard is 8-hour rather than 1-hour. Please remove reference to annual PM10 National Ambient Air Quality Standard. On September 21, 2006, EPA announced final revisions to the National Ambient Air Quality Standards for particulate matter, which were published in the Federal Register on October 17, 2006, and took effect on December 18, 2006. The revision not only strengthened the 24-hour PM2.5 standard from 65 to 35 $\mu\text{g}/\text{m}^3$, but also revoked the annual PM10 standard of 50 $\mu\text{g}/\text{m}^3$. EPA retained the existing annual PM2.5 standard of 15 $\mu\text{g}/\text{m}^3$ and the 24-hour PM10 standard of 150 $\mu\text{g}/\text{m}^3$. The state of Wyoming will enter into rulemaking to revise the Wyoming Ambient Air Quality Standards, but as the state has not yet done so, the Wyoming Ambient Air Quality Standard for 24-hour PM2.5 should be listed as 65 $\mu\text{g}/\text{m}^3$, and the annual PM10 standard should be listed as 50 $\mu\text{g}/\text{m}^3$.

R-9: BLM is aware of the changes that were made to certain air quality standards; however, these changes had not been made prior to the printing of the DSEIS. These changes have been reviewed, and the appropriate updates have been incorporated into the FSEIS.

C-10: Page 3-7, Table 3-2. Please remove the reference to 1-hour averaging time for ozone in the table. EPA published a final rule on August 3, 2005, identifying areas for which the 1-hour ozone standard was revoked. In that notice the 1-hour ozone standard was revoked, effective June 15, 2005, for all areas of Wyoming. WYDEQ-Air Quality Division then completed the process to remove the 1-hour standard from Wyoming Air Quality Standards & Regulations. That action was completed, and the effective date for the removal from the regulations was January 30, 2006. As a result, there is no federal 1-hour ozone standard that applies to Wyoming and there is no state 1-hour ozone standard that applied to Wyoming.

R-10: The data in Table 3-2 are referenced to national and state of Montana air quality standards. A footnote has been added which states that the national 1-hour ozone standard does not apply to Wyoming.

C-11: Page AIR-5: Last Paragraph. Short-term (24-hour) modeling exercises are not endorsed as a viable

tool in predicting short-term ambient impacts from fugitive dust particulate emissions, as the recommended EPA dispersion models have not been shown to work well when evaluating short-term fugitive particulate emissions. Please include a discussion of this within the text of the document.

R-11: The referenced text refers to the air quality model that was conducted for the coal review for the states of Montana and Wyoming and is a summation of the results of that study.

C-12: Page 3, AIR-II, Emission Source Groups. Background concentrations are used as an indicator of existing conditions in the region and are assumed to include emissions from industrial sources in operation and from mobile, urban, biogenic, and other non-industrial emission sources. Therefore, it is inappropriate to include sources such as those identified by the Environmental Defense Fund in the emissions inventory, as those sources were in operation during the year in which background data were collected and are accounted for in the monitored background data.

R-12: The emission sources identified by the Environmental Defense Fund that were in operation during the base year (2004) and located in the modeling domain are included as part of the emissions inventory. They are listed as a separate source group only to highlight that emissions from those sources were incorporated into the analysis. Base year emissions for the FSEIS air quality modeling effort are predicated on permitted emissions data obtained from each state and the Western Regional Air Partnership emissions inventory database for emission sources within the modeling domain. Monitored background data were not used in development of the base year emissions.

C-13: Include language that states that the threshold values used for visibility and acid deposition are simply screening thresholds. They should not be interpreted to be standards as there are no applicable local, state, tribal, or federal regulatory standards for either visibility or acid deposition.

R-13: The referenced text states that the values used to evaluate visibility and acid deposition are “thresholds” The text does not imply that they are standards.

C-14: Existing Air Quality, page 3-2: “Although monitoring is primarily conducted in urban or industrial areas and may be relatively higher than expected in the rural areas of the state, the data are considered representative of existing background air pollutant concentrations throughout the Planning

Area.” As stated above, pollutant background concentration levels were based on several monitoring sites generally located either in urban areas or near industrial facilities where elevated concentrations would be measured. This sentence acknowledges that the background is conservatively high. A high background concentration may show a false violation of an applicable ambient air quality standard.

R-14: The referenced text states that the monitored data were not used in conducting the Powder River Basin Coal Review Current Air Quality Condition air quality analysis (ENSR July 2005). The background emissions used for this particular air quality model and air impact analysis were developed from the state and local air quality monitoring system database.

C-15: Air Quality and Climate, Alternative A, Mitigation, page 4-30, “Electric Compression. Using electric-powered compressor motors in place of the typical natural gas-fired compressor engines could eliminate direct NOx emissions from compressor station locations.” The Alternative A air quality mitigation measures are the same for all alternatives. Electric compressors would reduce local air pollution; however, the electricity generated to run these units is likely generated by a nearby fossil-fuel-fired utility. If there is an air quality issue on the project level (i.e., locally within about 1 km), then electric compressors may be a viable mitigation measure. However, long-range transport issues, such as visibility in Class I areas, may be adversely affected because the emissions have effectively just been moved to a tall stack (at a power plant) and will have a greater transport capability.

R-15: BLM recognizes that the use of electric engines for compressors as an air impact mitigation measure is only effective at the local level and does not eliminate the potential for emissions at the point where the electricity is generated. The statement referenced correctly points out that the use of electric motors for compressors would only be effective in eliminating “direct” NOx emissions from compressor station locations.

C-16: The DSEIS, under Alternative H implements an air quality impact screen that requires operators to submit air quality monitoring data to BLM for review. This requirement suggests that BLM has the authority to regulate air quality. While BLM should consult with MDEQ and EPA regarding its air quality concerns and an operator’s compliance with the applicable air quality laws, BLM does not have the authority to regulate air quality. BLM should allow CBNG activity provided air quality is being protected

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per the legal avenue of federal and state air regulations already in place.

R-16: The authority for issuing air quality permits and implementing air quality regulations lies with MDEQ. However, BLM does have a responsibility to evaluate whether project-related activities would result in an exceedance of air quality standards or an unacceptable impact to air quality. BLM also has the authority to implement mitigation measures through the alternative selection process, the use of conditions of approval for APDs, or the use of lease stipulations. BLM would work with MDEQ and EPA in determining what mitigation measures would be most effective in addressing impacts to air quality and how or when those measures should be implemented.

C-17: The air quality impact screen should be eliminated in its entirety because it does not accurately portray CBNG air emissions. First, most CBNG-related air emissions are local impacts. Due to the relatively short stacks of compressor engines and ground-level generation of PM₁₀ emissions from construction activities and road travel, air quality impacts occur very near the point of emission. In fact, compressor station maximum impacts generally occur on the fence line, or within a couple hundred meters of the fence line. Because of CBNG activity emission characteristics, monitoring would show impacts from non-CBNG activity unless the sources were in close proximity. Monitoring would show when other non-CBNG sources were becoming problems. Second, DEQ already requires a cumulative type analysis when a CBNG facility applies for an air quality permit. Emission sources within 10 km are modeled to determine local impacts. This type of analysis is appropriate for the reasons mentioned above about CBNG activity emission characteristics. If the modeling analysis showed a potential violation of the standard, the project either would not be allowed, or the applicant would have to reduce emissions and ambient concentrations. Having BLM review the air quality status would be redundant and would create an additional unnecessary burden.

R-17: See R-14 and R-16. Additionally, while it is true that impacts from individual CBNG emission sources, such as compressors, are local, the combined impacts to air quality from hundreds of compressors could have an impact to air quality that would not be addressed by individual air quality permits or analyses conducted for individual emission sources. For this reason, the air quality impact screen would be a necessary component that would allow for evaluating air quality impacts on a more regional level than would be conducted in conjunction with

the permitting process for individual emission sources.

C-18: Please define/explain when air modeling would be appropriate, what air modeling software would be acceptable, and what the protocol would be for air quality field modeling (i.e., explain how BLM would prefer to receive data in plan of development [POD] submissions).

R-18: The type of air quality modeling that BLM proposes is a model that would be updated annually to assess potential changes in air quality resulting from project-related activities on a regional basis. MDEQ would conduct the annual modeling and would determine which model it deemed best suited to evaluate potential changes in air quality. It is anticipated that data submitted to MDEQ in conjunction with applying for an air quality permit would be sufficient for conducting the annual modeling. Should additional data be required, BLM would let operators know when they submit their plans of development.

C-19: Regarding PSD increment analysis, the SEIS states that “an analysis of this sort is beyond the scope of this project.” The air quality of the Northern Cheyenne Reservation is greatly valued, as evidenced by attaining Class I status. Therefore, an air increment analysis is very much needed. For instance, the reservation lies just north and west of the areas expected to have the most development within the Powder River RMP. It is even stated in Chapter 3 that Rosebud and Bighorn counties would likely have the most CBNG development and production. Of particular concern is the fugitive dust and exhaust from construction activities and operations such as compressor stations and how these activities would affect particulate matter and visibility.

R-19: Conducting a PSD increment analysis would be beyond the scope of the SEIS. A PSD increment analysis that includes the Northern Cheyenne Reservation is being conducted by EPA and MDEQ. As part of the air quality impact analysis, BLM has modeled the level of development that eliminates visibility impacts over the life of the project at Class I airsheds, including the Northern Cheyenne Reservation. This effort is based on actual well-to-compressor ratios currently being experienced in the Montana portion of the PRB. The results of these air quality mitigation modeling efforts are included in the Air Quality and Climate section of Chapter 4, the Air Quality Appendix, and the Supplemental Air Quality Analysis (BLM 2007).

The MDEQ requires that ambient air quality modeling be conducted for CBNG facilities (i.e. compressors) that exceed the 25-ton-per-year Montana Air Quality Permit threshold, regardless of the potential to emit from the facility. This is required to demonstrate compliance with the MAAQS/NAAQS. In addition, MDEQ requires that the modeling include a NO_x PSD increment analysis to demonstrate compliance with the Class I NO_x increment (specifically at the Northern Cheyenne Reservation) and the Class II NO_x increment, regardless of whether PSD applies to the facility.

C-20: The Northern Cheyenne Air Quality Division continuously strives to manage and maintain a current emissions inventory of known and suspected air pollutants within the exterior and posterior of the reservation. It is the Northern Cheyenne Air Quality Division's goal to protect the air quality on the reservation. The Northern Cheyenne Tribe requests that, at a minimum, BLM establish and maintain a productive relationship with the tribe to preserve the Northern Cheyenne Reservation's Class I airshed as part of its trust responsibility to the tribe.

R-20: BLM is committed to working with EPA, MDEQ, the Northern Cheyenne Tribe, and others within the Project Area to ensure that project activities do not result in exceedances of air quality standards. BLM has conducted additional modeling and revised the Air Quality screen to contain measures that are protective of the Northern Cheyenne Class I airshed.

C-21: The air modeling presented in the DSEIS included cumulative impacts from both the Tongue River Railroad (TRR) and the Roundup Power Plant. While these two projects are certainly within the realm of foreseeable development, it is believed that there are other potential projects that should also be considered in the model. For example, in October 2006, Montana Governor Brian Schweitzer announced the development of a \$2 billion coal-to-diesel plant that would accompany the power plant south of Roundup. Air quality concerns associated with this facility would include sulfur dioxide, various nitrous oxides, carbon dioxide, hydrogen sulfide, and volatile organic compounds. This proposed project would ultimately have a long-term impact on the air quality of the planning area and should have been included in the model.

R-21: The proposed coal-to-liquids facility south of Roundup has no funding and no permits have been applied for (e.g. construction, siting). There is no information available such as parameters, size, or

through-put that could be used in anticipating emissions. The project is considered speculative.

C-22: We are concerned about the increased impacts on visibility that are predicted for the Northern Cheyenne and Crow reservations. Although BLM states in the Mitigation Measures section (under Preferred Alternative H, page 4-54), "As modeling and monitoring results become available, the BLM may adopt more stringent measures so predicted air quality impacts are avoided," it is likely that the predicted visibility impacts would have already occurred before modeling and monitoring results were available. Under the Air Quality Screen description (page 2-22), monitoring would take place on an annual basis. In an effort to ensure that visibility impacts would not be exceeded, we strongly urge BLM to work with MDEQ to shorten the monitoring interval from annually to quarterly. We also ask that BLM ensure that current and future PODs include mitigation measures to minimize the impacts of increased visibility problems before the PODs were approved.

R-22: See also R-19. BLM has conducted additional modeling to evaluate the effectiveness of control and mitigation measures to reduce impacts to visibility at specific airsheds within the project air modeling domain, including the Northern Cheyenne and Crow reservations. The results of that modeling are contained in the Air Quality and Climate section of Chapter 4, the Air Quality Appendix, and the Supplemental Air Quality Analysis Report. The air quality screen has been revised to include monitoring of compressor engine horsepower requirements and mitigation if the horsepower requirements should reach a level that modeling indicates impacts would occur.

C-23: While air quality from CBNG operations received some analysis in the DSEIS, there is no analysis of the additional emissions from operating trains along the railroad or emissions and dust from maintenance vehicles along roadways, should the TRR be built.

R-23: Air emissions resulting from the TRR were included as a reasonably foreseeable future action in the cumulative air impact analysis (see Chapter 4, Air Quality and Climate and the Air Quality Appendix).

C-24: The agency must analyze the cumulative effects from emissions of greenhouse gases (GHG) that result from permitted activities under the SEIS. (1) Quantify GHG emissions from past, present, and reasonably foreseeable oil and gas operations; (2) address the emissions as direct, indirect and cumulative impacts to the human environment for the

entire Powder River Basin; (3) consider lease stipulations and post-lease conditions of approval applicable to all oil and gas operations designed to reduce GHG emissions as components of the alternative analyses; (4) consider how climate change impacts ecological resiliency across the basin, and whether such impacts warrant enhanced ecological protections to ensure the landscape's long-term ecological viability; and (5) consider how climate change impacts may operate to constrain oil and gas field operations. BLM must factor the changes wrought by global climate change into its cumulative effects analysis concerning vegetation, wildlife, and water quality.

R-24: The assessment of GHG emissions and climate change is in its formative phase and many existing climate prediction models are global in nature. However a section has been added to Chapter 4 that addresses the quantitative contribution of GHG from the project, indirect impacts from the burning of the methane extracted over the estimated development period and cumulative impacts related to climate change. Impacts addressed include potential climate change impacts identified by the EPA at a regional scale. However, scientific uncertainty does remain, and the lack of proven scientific tools designed to predict climate change on local scales limits the ability to project potential future impacts of climate change on the resources found in the Powder River Basin. For additional information and the contribution of project direct and indirect impacts to this global issue see the Air Quality sections within Chapters 3 and 4 of the FSEIS.

C-25: The Supplemental Air Quality Analysis shows potential violations of the NAAQS and MAAQS for the Preferred Alternative from both direct project impacts and cumulative impacts. The modeling results indicate that there will be exceedances of the 1-hour NO₂ MAAQS under all scenarios of the Preferred Alternative when considering the impact from all sources on the Crow Reservation in Montana. The SAQA does not disclose the potential exceedances of the NO₂ MAAQS and PM₁₀ NAAQS in the cumulative impact modeling for near-field impacts in Montana. Tables 5-1, 5-2 and 5-3 of the SAQA indicate that “[b]ackground is to be added to modeled impact for comparison to AAQS” and yet there are no background concentrations included in the tables. The background concentrations from Table AQ-1 of the Air Quality Appendix from the January 2003 analysis, when added to the projected concentrations from all sources for *all* Preferred Alternative scenarios results in predicted violations of the 1-hour NO₂ MAAQS and the 24-hour PM₁₀

NAAQS for the Montana near-field grid. For example, Table 5-3 of the SAQA (p. 21) shows predicted 1-hour NO₂ concentrations of 1,589 µg/m³ for the cumulative modeling run (“ALL Sources”) for all of the Preferred Alternative H scenarios. Compared with the 1-hour MAAQS of 565 µg/m³ and considering that the 1,589 µg/m³ does not include the background concentration for NO₂ in Montana (117 µg/m³ from Table AQ-1 of the SEIS Air Quality Appendix) these predicted impacts are huge at three times the MAAQS.¹ Similarly, the 24-hour PM₁₀ cumulative impact concentrations from all of the Preferred Alternative H scenarios, when combined with the background concentration for PM₁₀ (105 µg/m³ from Table AQ-1 of the SEIS Air Quality Appendix), are two times the 24-hour PM₁₀ NAAQS.

R-25: The tables in the printed copy of the SAQA were initially revised and an Errata sheet was provided in December of 2007. The revision was required to update model predicted impacts following the removal of an incorrectly identified emission source. The tables have been further revised to show background ambient air concentrations and initial base year modeling impacts and have been incorporated into the SAQA document. The background values presented in the Tables 5-1, 5-2, and 5-3 of the SAQA document were provided by MDEQ and are not the same as the Base Year background levels contained in Table AQ-1 of the SEIS Air Quality Appendix. The Base Year background levels were provided in Table AQ-1 to allow comparison of future impacts to Base Year impacts. The background levels provided by MDEQ are to be added to model predicted results for comparison to AAQS. The revised results indicate that air quality impacts from CBNG project sources would be below applicable air quality standards at all receptors; however, the results for Revised Alternative H show a maximum predicted level for 1-hour NO₂ of 544 µg/m³ with a MAAQS of 565 µg/m³ which indicates the potential for the standard to be exceeded. Cumulative impacts from the revised results show the potential to exceed the PSD increment for 24-hr PM₁₀ and the 1-hr NO₂ AAQS at the Montana Near-field receptors, and the potential to exceed the 24-hr PM₁₀ PSD increment at both the Northern Cheyenne and Crow reservations. A review of modeled sources contributing to these cumulative PM₁₀ and NO₂ impacts indicates that coal mining activities in the region are the predominant contributing sources. Furthermore, the cumulative impacts include reasonably foreseeable future actions

¹ $1,589 \mu\text{g}/\text{m}^3 + 117 \mu\text{g}/\text{m}^3 = 1,706 \mu\text{g}/\text{m}^3$
 $1,706 \mu\text{g}/\text{m}^3 / 565 \mu\text{g}/\text{m}^3 = 3.1$

(RFFA) sources which would be located on the Northern Cheyenne and Crow reservations. BLM has revised the Air quality Screen within the Preferred Alternative (H) to include additional control and monitoring measures that will allow for better tracking of project emissions to avoid exceedances of air quality standards.

C-26: The SAQA does not disclose the potential exceedances of the NO₂ MAAQS and PM₁₀ NAAQS in the cumulative impact modeling for near-field impacts in Montana. Tables 5-1, 5-2 and 5-3 of the SAQA indicate that “background is to be added to modeled impact for comparison to AAQS” and yet there are no background concentrations included in the tables.

R-26: Tables 5-1, 5-2 and 5-3 have been revised to include background values for comparison against the air quality standards. The background values found in Tables 5-1, 5-2 and 5-3 should be used, not the values from Table AQ-1. The values in AQ-1 were used in the original model completed for the 2003 Final Montana Statewide Oil and Gas Environmental Impact Statement and Proposed Amendment of the Powder River and Billings Resource Management Plans (Statewide Document). Elevated background levels were used in this analysis to represent many existing sources. Contrary to this approach, the air quality modeling conducted for this SEIS included all major existing sources and the background values used for most of the State of Montana to represent mobile sources, small stationary sources, and distant (outside of the modeling domain) large sources.

C-27: The BLM’s emissions estimates for PM emissions from construction activities and travel on unpaved roads are based on the assumption that there will be 50% control of fugitive dust emissions (by watering). See, for example, SAQA Appendix at A-2, A-4, A-5, A-11, A-12. The requirement to cut fugitive dust emissions in half through watering of construction sites and roads should clearly be specified in the SEIS.

R-27: The use of dust control measures is addressed as a mitigation measure common to all alternatives within Chapter 2, Table 2-1. The control of dust is included in the preferred alternative. The following measures are required to reduce fugitive dust.

- Access roads, well pads and production facility sites constructed on soils susceptible to wind erosion will be appropriately surfaced to reduce fugitive dust emissions.
- Dust inhibitors will be used as necessary on unpaved collector, local and resource roads

to reduce fugitive dust emissions to the air and resources adjacent to the road.

- To reduce dust, operators of federal leases would have to post and enforce speed limits for their employees and contractors.

In addition, the preferred alternative includes a best management practice (BMP) to encourage operators to work with local government to use dust suppression techniques on county roads.

C-28: The Supplemental Air Quality Analysis shows the potential for violations of the PM_{2.5} NAAQS. The cumulative PM_{2.5} modeled concentrations are over 75% of the 24-hour PM_{2.5} NAAQS. Short-term PM_{2.5} concentrations from direct project sources are over 60% of the 24-hour PM_{2.5} NAAQS.

Previous modeling has shown that emissions from non-project sources of PM_{2.5} result in 24-hour PM_{2.5} concentrations of 44 µg/m³. See Table AQ-4 of the Air Quality Appendix from the January 2003 air quality analysis. This suggests that ambient concentrations from non-project sources already exceed the 24-hour PM_{2.5} NAAQS of 35 µg/m³, at least according to the original modeling. It is not clear why the cumulative modeling in the SAQA now predicts significantly lower PM_{2.5} concentrations than the previous modeling analyses. Tables 5-1, 5-2 and 5-3 show cumulative 24-hour PM_{2.5} concentrations of 6-7 µg/m³. The fact that non-project source concentrations were formerly 7 times the total cumulative source concentrations in the 2007 SAQA (and exceeded the 24-hour PM_{2.5} NAAQS) and now the cumulative modeled impacts are only a fraction of the NAAQS must be more clearly explained in the SAQA.

R-28: The modeling conducted for the SAQA utilized recalculated project emissions based on updated information of current CBNG production methodologies being used in Montana, and removed emissions from maintenance and operations that had inadvertently been counted twice in the DSEIS modeling. The recalculated project emissions were less than those used in the DSEIS modeling. Additionally, placement of project CBNG emissions sources were reconfigured to better reflect anticipated locations of CBNG activities. The combined effects of the recalculated emissions and the source reconfiguration lead to reduced model predicted impacts. The difference between the 2003 non-project source emissions and the non-project source emissions utilized in the SAQA air modeling is due to several changes between the models. The SEIS and SAQA utilized an updated meteorological base year (2002), updated emission sources to the most current

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year (2004) at the time of conducting the DSEIS air modeling, and revision to RFFA source point locations within the Northern Cheyenne and Crow reservations. Each of these changes could feasibly lead to the observed reduction of impacts for non-project sources. Additionally, the reduction in project emissions due to the recalculation would provide reduced cumulative impacts when a project source was the dominating emission source to a receptor. Direct comparison of cumulative impacts and non-project source impacts with AAQS is done by adding the background values provided by MDEQ and contained within Tables 5-1, 5-2, and 5-3 to the modeled impacts.

C-29: The SAQA describes PSD increment violations for all Preferred Alternative H Scenarios for 24-hour PM₁₀. The Montana Near-Field shows a potential to exceed the Class II PSD increment for 24-hour PM₁₀. There is also a potential to exceed the Class I PSD increment for 24-hour PM₁₀ at the Northern Cheyenne Reservation. The BLM must consider the PSD increments as important and legally binding Clean Air Act requirements and it must provide for compliance with these requirements in the statewide EIS and amended RMPs.

R-29: See also R-19. The SAQA modeling results do not show the potential for direct project CBNG sources to exceed PSD increments on Class I or Class II sensitive areas. However, the cumulative impacts, which include RFFA CBNG well development on the Northern Cheyenne and Crow Reservations, could have the potential to exceed certain PSD increments. The BLM will use the air screen to identify and address any potential exceedances, and will work with MDEQ, EPA and Tribal Agencies to minimize the potential for exceedances. Also, comparisons to the PSD Class I and II increments are intended to evaluate a threshold of concern for potential impacts and do not represent a regulatory PSD Increment Consumption Analysis. Such an analysis would be conducted by the appropriate air regulatory agency.

C-30: The results of the visibility analyses for all of the Preferred Alternative scenarios show visibility impacts from direct project impacts and cumulative impacts at the Northern Cheyenne and Crow reservations. None of the preferred alternative scenarios protect against visibility impairment at these Class I and Class II locations. Specifically, when measured by the 0.5 deciview (dv) metric of change in light extinction, visibility degradation will occur at the Northern Cheyenne and Crow reservations under *all* modeled scenarios (i.e., Alternative H Revised, Scenario 1, Scenario 1A, Scenario 2 and Scenario 2A) from project CBNG

construction source impacts alone, from project CBNG operations source impacts alone and when considering cumulative source impacts.

R-30: The FLAG guidance document utilizes a value of 1.0 deciview as the basis for determining if a “just noticeable” impact to visibility has occurred. BLM has used the value recommended by FLAG. For additional information see the Dispersion Modeling Protocol for Ambient Air Quality Impact Assessment (BLM 2006) under the heading of “Air Quality Related Values/Visibility”.

C-31: The Supplemental Air Quality Analysis does not address the ecosystem impacts from nitrogen and sulfur deposition for the Preferred Alternative. The BLM claims these impacts are insignificant based on an acceptability threshold of 3 kilograms/hectare-year (kg/ha-yr) and 5 kg/ha-yr for nitrogen and sulfur deposition respectively. However, these impacts are considered significant when compared to the National Park Service’s (NPS) Class I area “Deposition Analysis Thresholds” of 0.005 kg/ha-yr for both nitrogen and sulfur deposition.

R-31: The USFS (USFS 2000) has indicated that deposition values below thresholds of 3 kg/ha-yr and 5 kg/ha-yr, for nitrogen and sulfur deposition respectively, will not lead to significant air quality related value impacts. Deposition predictions were based on USFS prediction methodologies as described in the Dispersion Modeling Protocol for Ambient Air Quality Impact Assessment (BLM 2006) prepared for the DSEIS, and were therefore compared to threshold level values recommended by the USFS.

C-32: The Supplemental Air Quality Analysis does not include an analysis of impacts on ground-level ozone concentrations.

R-32: As stated in the Dispersion Modeling Protocol for Ambient Air Quality Impact Assessment (BLM 2006) prepared for the DSEIS, CBNG activities would lead to insignificant levels of volatile organic compounds, precursors that chemically combine with other atmospheric pollutants to form ground level ozone, therefore it was not necessary to include ozone in the air quality modeling..

C-33: The Supplemental Air Quality Analysis does not address potential methane mitigation as a means to minimize GHG impacts from CBNG development in the Powder River Basin. BLM should consider and adopt the mitigation strategies identified by EPA and others for minimizing methane emissions from oil and gas development.

R-33: See also R24. Methane is the predominant resource being developed and captured for sale. As such, it is anticipated that producers will make efforts to ensure that minimal amounts are lost to the atmosphere as fugitive emissions of methane represent a lost revenue source. Furthermore, EPA has established a voluntary program to reduce methane emissions in the natural gas industry. This program, known as the [Natural Gas STAR Program](#) (Gas STAR) is a voluntary partnership between EPA and the natural gas and oil industries to reduce emissions of methane from the production, transmission, and distribution of natural gas. The Final SEIS includes additional BMPs (mitigation measures) from EPA's Natural Gas STAR Program that could be used to reduce fugitive methane emissions from compressor stations, metering and regulating stations and other field production activities.

C-34: Methane is leaking in the Tongue River Reservoir. The methane keeps the reservoir from freezing in the winter where the gas is leaking. The reservoir used to freeze in the area it is open now. The amount of methane leaking needs to be quantified. The carbon dioxide from CBM development should also be quantified as well as the cumulative impacts of carbon dioxide from other potential regional projects, such as the Tongue River Railroad, the coal plant at Hardin and Colstrip. The supplement should determine greenhouse gases emitted from the proposed Highwood Generating Plant being considered in Great Falls. In addition there is a coal-to-diesel facility being proposed in the Great Falls area as well.

An important aspect that needs to be looked at is the increase in coal seam fires because of CBM development and how much carbon dioxide is being added to the atmosphere from this source. Not only should this be controlled, it needs to be quantified for the cumulative impacts of greenhouse gas emissions.

R-34: See also R-1, R-21 and R-24. A discussion of methane seepage to the surface is contained in the Geology and Minerals section of Chapter 3 under the heading "Methane Seepage, Migration, and Venting." The Wyoming BLM (Buffalo Field Office) has been conducting a methane seepage monitoring program for over five years. To date, this BLM study has not found indications of surface-seepage. Additionally, a discussion of the potential for impacts from coal seam fires can be found in the Geology and Minerals section of Chapter 4 under the heading of Impacts From Management Common to All Alternatives.

A discussion of greenhouse gases and climate change issues is included within the Air Quality sections of Chapters 3 and 4 of the FSEIS.

C-35: The Hardin plant was recently fined for exceeding the air quality limits. The air quality analysis in this SEIS is done for normal pollution limits. We believe that the analysis should include data for what happens when Hardin exceeds the standards again.

R-35: Many of the sources included in the base year modeling analysis and RFFA sources in the alternative development year (ADY) utilize permit level emissions rates rather than actual emissions rates. In general, most facilities have actual emissions that are significantly less than their permitted levels, in order to maintain sufficient overhead to allow for process modifications that may slightly increase actual emissions, but would not require modification of their permit. The use of permitted levels in the modeling analysis is considered to be conservative enough to allow for temporary excursions over permitted levels by a modeled source when considering that other modeled sources would be operating well below their permitted levels at the same time.

C-36: According to the revised Alternative H some of the Reservations will be impacted. My concern here is the impact on any residents within those impacted areas. Are they people who reside there that have any type of ailment, disease, condition, that would be impacted by the dust in the air? Has any plans been put into effect for these people to decrease the impact on them during the time of production and operation and maintenance? How does this whole operation in its entirety affect the people, their health, welfare and livelihood?

R-36: The area encompassed by the project boundary includes populated regions which would have persons that could potentially be susceptible to certain health effects from airborne pollutants. Attachment A of the Air Quality Appendix- Part 2 to the DSEIS is entitled, "Review of Information on Health Effects," and discusses reported health effects of exposure to particulate matter. Attachment B of the Air Quality Appendix – Part 2 to the DSEIS, entitled "Review of Mitigation Measures," provides a discussion on methods which could be used to reduce potential project air quality emissions to avoid any adverse health impacts. Further, the AAQS are set to be protective of public health with a margin of safety, accounting for health effects on some of the most sensitive members of the population.

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C-37: It is not clear if the emissions from the nearby operating Colstrip and Hardin coal-fired generating plants were included in the SAQA model's baseline data.

R-37: The DSEIS and its supporting documents including the Air Quality Appendix, and the Air Quality Technical Support Document fully describe the sources included in the baseline modeling. The coal-fired power plants at Hardin and Colstrip are included in the baseline modeling.

C-38: The DSEIS SAQA states that "to reduce dust, operators of federal leases would have to post and enforce speed limits for their employees and contractors. Operators could work with local government to use dust suppression techniques on roads." The issue of road dust should be directly addressed in a manner that controls and reduces fugitive dust.

R-38: See also R-27. Reducing road traveling speeds and use of dust suppression methods are required under the preferred alternative. These methods are effective controls accepted by EPA to minimize the potential for particulate matter (see Table AQ-13, page AIR-33 and Supplemental Air Quality Analysis, page A-2)

C-39: As the Air Quality Screen is implemented, EPA recommends that BLM take measures to ensure that interested parties are adequately involved in this endeavor. EPA recommends the FSEIS and subsequent Record of Decision include a mechanism for public disclosure of the future air quality modeling, monitoring data collected, and horsepower threshold calculations completed under the Revised Air Screen. Data and analysis conducted under the Air Quality Screen will be important to share with relevant stakeholders including the Northern Cheyenne Reservation, the Crow Reservation, the MDEQ, and the general public. The data and analysis will also be important for energy companies in planning future development in the area.

R-39: BLM will make public on the Miles City Field Office website

http://www.blm.gov/mt/st/en/fo/miles_city_field_office/cbng/monitoring.html the results of future air quality modeling, monitoring data collected, and horsepower calculation conducted under the Revised Air Quality Screen. The summary of ongoing monitoring related to coal bed natural gas is scheduled to be updated every six (6) months.

C-40: The cumulative impact analysis included in the SAQA suggests the potential for exceedances of the Montana Ambient Air Quality Standard

(MAAQS) for NO₂. BLM's Revised Air Quality Screen is designed to identify and mitigate these potential impacts before they occur. To address this potential for exceedances, the Revised Air Quality Screen notes that "BLM would approve additional APDs only if it can be demonstrated that they would not contribute to the exceedances of air standards." (SAQA, page 2). Nonetheless, the SAQA suggests the need for BLM to closely monitor the NO₂ levels to ensure compliance of future drilling activities with the MAAQS. EPA recommends BLM conduct near-field air quality modeling, such as AERMOD, prior to approval of any project-specific development proposals. EPA understands near-field air quality modeling may already be incorporated into the permitting process by MDEQ. If so, EPA suggests the Final SEIS include a discussion of this process and clarify that additional near-field modeling will occur prior to approval of project-specific development.

R-40: MDEQ conducts project specific near-field air quality modeling as well as an evaluation of potential cumulative effects for each proposed air quality permit. A detailed discussion of this process is included in Chapter 3 of the FSEIS within the Air Quality section. This process is also identified in Chapter 2 within the Air Quality Screen and in Chapter 4 as part of processes in place to protect air quality. See R-19.

C-41: Given the results disclosed in this Supplemental Air Quality Analysis, EPA recommends BLM work with the operators and MDEQ to fund and install additional NO₂ monitors in the area.

R-41: Addressed under R-5.

C-42: The SAQA uses a NO_x emission factor of 1.0 or 1.5 gram/brake horsepower-hour (g/bhp-hr) for compressor engines, depending on the scenario. If these emission rates form the basis for producing modeling results that show an acceptable level of impact for the project, then these emission rates should be made enforceable limits (through regulation, permit condition, or some other enforceable mechanism).

R-42: The horsepower requirement thresholds were incorporated into the air quality screen as a means to track and monitor levels of potential impacts. Air quality modeling has shown that emissions below the horsepower threshold would not have the potential to cause an exceedance of ambient air quality standards or have an impact on visibility. As horsepower requirements approach the threshold, BLM will consider further mitigation measures and/or

requirements that would be enacted to minimize the potential for exceedance of any air quality standard. The MDEQ is the permitting authority for air quality in the State of Montana and will ultimately decide on the allowable emissions for each permitted unit. Currently, they are issuing permits with a NO_x emission factor of 1.0 g/bhp-hr; however they have the flexibility within regulation to issue permits with a higher emission factor. For this reason, BLM has selected a conservative horsepower threshold as an effective means to monitor potential impacts.

C-43: The emission calculations for road dust particulate emissions throughout the inventory use an old (1998) version of AP-42 Section 13.2.2. This section has since been revised three times. The 1998 version used in the SAQA gives a more conservative (higher) estimate of PM₁₀ and PM_{2.5} emissions. Therefore, particulate impacts due to road dust may be over-predicted in the modeling analysis.

R-43: The calculations of potential air emissions associated with project activities were intentionally conservative. The continued use of previous (1998) emission factors was done to maintain consistency with the prior air modeling conducted for the 2003 Statewide EIS. The road dust particulate calculations may result in a conservative estimate of PM₁₀ and PM_{2.5} emissions.

C-44: The sulfur dioxide (SO₂) emission calculations for gas flaring use an AP-42 emission factor for combustion of pipeline quality gas. This assumes low sulfur content in the fuel. While the literature suggests that CBNG is likely to be low in sulfur, in conventional oil and gas project operations, the gas being flared is likely to have high sulfur content unless the gas has undergone a sweetening process. Due to the site-specific variation in sulfur content of fuels, an analysis of sulfur content of a representative sample of CBNG that would typically be flared would be preferable to the use of the AP-42 emission factor.

R-44: As stated in the comment, literature sources indicate that sulfur content of CBNG is typically either very low or below laboratory analytical detection limits. The predominant sources of flaring will occur during CBNG well development. Based on the considerations that CBNG well development will be the greatest source of flaring and given the literature descriptions of CBNG as containing little or no sulfur, it was reasonable to use the AP-42 emission factor for natural gas flaring. It should also be noted that air model predicted impacts of sulfur dioxide were all well below any regulatory threshold limits.

C-45: The emission inventory in the SAQA for "Conventional Oil and Gas Operations" does not appear to include emissions from compressors or dehydration units. The BLM should confirm that compressors or dehydration units are either 1) included in the emissions inventory, or 2) not expected to be sources of emissions in the Conventional Oil and Gas Operations.

R-45: Emissions from compressors and dehydration units were accounted for in the emission inventory. The calculations presented in Appendix B of the Argonne Technical Support Document (TSD) (Argonne 2002) for conventional oil and gas emissions included a comment under the compressor calculations stating, "*Note: Not applicable, as compressor installation will coincide with compressor installation for CBM operations. No additional compression will be required.*" The comment under dehydrator calculations states, "*Note: Same as above. The small amount of conventional gas would be mingled with the CBM gas in the basin. No appreciable increase of emissions is expected.*" The above notes reference an email from C. Martinez (WGR) to K. C. Chun entitled, "Basic Data for Emission Estimation" dated March 30, 2001. These assumptions remain accurate. Furthermore, existing sources, including compressors for conventional oil and gas activity throughout the modeling domain, are included as part of the emission inventory, see the emission inventory tables in the Air Quality Appendix.

C-46: The SAQA uses an emission factor for total suspended particulate (TSP) from AP-42 Section 13.2.3 to calculate fugitive dust emissions from construction operations. PM₁₀ and PM_{2.5} are then determined by multiplying TSP emissions by ratios determined in the 2002 TSD prepared by Argonne National Laboratory. These ratios are 26 percent for PM₁₀ and 3.9 percent for PM_{2.5} (15 percent of PM₁₀). The 26 percent PM₁₀ ratio from the Argonne TSD is the same as the ratio in AP-42 for unpaved road emissions from vehicle use. However, the 26 percent PM₁₀ ratio is much lower than ratios published in AP-42 for activities more similar to construction operations. AP42 Section 13.2 refers the user to other AP-42 sections for more refined calculation of PM emissions from construction operations. The referral for construction operations involving surface disturbance is Section 11.9. Table 11.9-2 gives a PM₁₀ to TSP ratio of 60 percent for grading and 75 percent for bulldozing of overburden. The TSP to PM_{2.5} ratio from the Argonne TSD (3.9 percent) is within the range of values given in Table 11.9-2 (3.1 percent for grading and 10.5 percent for bulldozing).

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R-46: The particulate emission factors were carried forward from the air modeling conducted for the 2003 Statewide FEIS and described fully in the 2002 Air TSD. These same emission factors were used to maintain consistency with the air modeling presented in the 2003 Statewide FEIS. Heavy equipment fugitive dust emissions account for less than five percent of total project particulate emissions. The difference in using the ratios suggested would not likely result in a change to modeled particulate matter impacts beyond those already predicted based on the current model.

C-47: Sulfur dioxide (SO₂) emission calculations for diesel exhaust use emission factors ranging from 0.85 to 0.93 g/hp-hr. This indicates the use of diesel fuel with sulfur content of 2,500 ppm or higher. If the results of the modeling analysis suggest that the impact of SO₂ emissions to ambient air quality or to visibility conditions are higher than acceptable levels, then SO₂ emissions could be lowered and impacts mitigated by requiring the use of low sulfur diesel (500 ppm) or ultra-low sulfur diesel (15 ppm) in project equipment that burns diesel fuel. Such a requirement to limit sulfur content in diesel fuel should be codified by regulation, permit condition, or some other appropriate and enforceable mechanism.

R-47: The results of the air quality model do not indicate the potential to exceed any sulfur air quality standard or regulatory threshold limits. The higher sulfur content fuel was utilized for the air quality model to be conservative. The use of low sulfur and low nitrogen fuels is identified as a potential mitigation measure within the Air Quality and Climate section of Chapter 4 under the heading of Mitigation.

C-48: The SAQA states that model results indicate that applicable air quality standards are not expected to be exceeded. However, receptors on Reservation lands have been excluded from the modeling analysis due to the proximity of these Receptors to emission sources. Even with the exclusion of these receptors, the figures (maps) in Appendix D indicate localized high air quality impacts from sources, particularly for pollutants for which short-term averages (e.g., 1-hour, 3-hour, 8-hour) have been established as standards. The receptors that have been excluded from the modeling analysis are representative of areas that should be considered ambient air. Therefore, comparison of modeled impacts for these receptors to the applicable ambient air quality standards should be represented in the analysis and documentation.

R-48: The purpose of establishing the near-field receptors is to characterize the overall air quality conditions in the PRB as a result of this development. The modeling for assessing potential impacts at any facility fence line, which is required for obtaining an air permit, would be determined by MDEQ. Consequently, all near-field receptors that were located within 1 km of a modeled project emission source were removed from the near-field grid for the SAQA analysis. While the Crow and Northern Cheyenne Reservations are discussed under the far field analysis this is due to their airshed classifications, sensitive Class II and I respectively. In actuality these two receptor groups would be considered near field receptors based on their close proximity to the modeled project emission sources. The receptors that were removed due to being within 1 km of the project emission source would represent fence line modeling results and not regional scale which was the objective of the modeling effort. Note the Final Protocol and SAQA state certain receptors (those within 1- km of emission sources will be removed from the near field modeling domain). This provision was accepted by the stakeholders as a feature of the air quality modeling proposed and subsequently completed for the SEIS.

C-49: The documentation should be made clearer with regard to the expected net change in emission from the base year. Table 3-2 from the Technical Support Document (TSD) suggests project emissions of particulate matter less than 10 microns (PM₁₀) will be increasing while SO₂ and oxides of nitrogen (NO_x) emission will decrease only because of the offset of increased 2004 construction. Figure 2-5 indicates that emissions in the airshed will increase. The documentation is not clear as to what the overall change in air basin emissions will be.

R-49: Table 3-2 within the TSD depicts visibility impacts predicted for the Base Year using the Method 6 approach and does not provide any information as described in the comment. There is not a figure 2-5 in either the TSD or the SAQA documents. However, from Table 5-3 of the SAQA document, a comparison of Base Year to ADY 20, model predicted impacts shows that ADY 20 impacts are less than those for the Base Year. This would result from emission levels for that year which are less than the Base Year. The SAQA document is meant to provide supplemental information in support of information already contained within the FSEIS and its existing supporting documents. The Air Quality Technical Support Document (ALL 2007) for the FSEIS indicates the emission source groups and their respective contributions to air

emissions for the modeled base year. Additionally, the relative change in emissions between the Base Year and ADY 20 can be seen in the tables presented in the FSEIS, Air Quality Appendix – Part 2, and the SAQA.

C-50: The documentation should be made clearer with regard to the presentation of receptor impacts. Tables 5-2 and 5-3 of the SAQA include a column of "All Sources MT Base Year 2004." However, the values appear to be only for the near-field receptors (from Table 5-1 and are the highest in the domain) and not receptors specific to the area. The reader is required to refer back to Table 4-1 to see the difference from base to project year. Tables 5-2 and 5-3 of the SAQA should be revised to include the appropriate receptor values from Section 4.

R-50: Tables 5-2 and 5-3 in the SAQA have been revised to include appropriate area base year information.

C-51: Tables 5-5 and 5-6 show that under all scenarios visibility in the Northern Cheyenne Class I area and in the surrounding areas is projected to get worse as compared to the base year. Because the CBNG project represents many permitted activities, the cumulative 10 percent criteria should be applied to interpreting the results of the modeling analysis.

R-51: The "Issues, Impact Types and Criteria" and "Air Quality Modeling Assumptions" Sections of the SEIS Air Quality analysis discuss criteria and thresholds used for interpreting visibility modeling results. The Supplemental Air Quality Analysis is designed to disclose the level of CBNG activity that creates a potential impact greater than 10% on the Northern Cheyenne Reservation. As shown in the supplemental air quality analysis there are no impacts greater than 10% under Scenario 1A and Scenario 2A. As a result of these findings the Air Quality Screen component of the preferred alternative has been modified to include method to evaluate the need and effectiveness of additional mitigation before impacts greater than 10% occur at the Northern Cheyenne Reservation.

Aquatic Resources

Comment 1 (C-1): The DSEIS does not include bicarbonates in its monitoring criteria. Bicarbonate has been shown to be toxic to fathead minnows and could be toxic to other species. Adding bicarbonate to the monitoring of water quality and adapting the fate of produced water accordingly, will address this deficiency.

Response 1 (R-1): BLM will conduct appropriate monitoring activities stipulated in the permitting of individual CBNG development sites, as governed by federal, state, or local permitting laws. The Aquatic Biota Monitoring Plan (November 9, 2006) has been developed by an aquatic task group for Montana and Wyoming. The plan addresses fish, macro-invertebrates, periphyton, water quality, habitat, and amphibians/reptiles. This plan includes funding research for bicarbonate toxicity effects on fishes. Preliminary results from MFWP and U.S. Geological Survey (USGS) indicate that high bicarbonate levels can impact fathead minnows. They are conducting further research on other aquatic species the summer of 2008, but the research is not complete at this time. Information on aquatics monitoring is found in the Monitoring Appendix: Table Mon-1.

C-2: Discharge of produced water may decrease the seasonality of streams, wetlands, and ponds. Additional research and monitoring of fish, aquatic reptiles, and amphibians is encouraged to identify and address potential impacts resulting from changes in flow regimes and the seasonality of wetlands. A water monitoring system that will allow quantification of CBNG-produced water discharge into the system at any given time is needed. The availability of data pertaining to quantity or water volume will assist with the study of potential impacts to aquatics, but data have not been readily available in the areas of development.

R-2: Additional monitoring requirements have been added to the monitoring table (see the Wildlife and Aquatics sections of the Monitoring Appendix). MDEQ requires monitoring of water quality and quantity in association with Montana Pollutant Discharge Elimination System (MPDES) permits. The preparation of MPDES permits includes a non-degradation analysis related to the change in flow. Data collected in association with MPDES permits are available through EPA's STORET database. The Montana BLM has established a CBNG monitoring website where all monitoring reports are posted (http://www.blm.gov/mt/st/en/fo/miles_city_field_off_ice/cbng/monitoring.html).

C-3: Groundwater drawdown will cause pools in streams to dry up, affecting fish and other aquatic wildlife (amphibians and reptiles). Does a CBNG operator's responsibility to mitigate for loss of water extend to public water bodies? A timeline should be required for supplementation that would reduce the amount of time that instream flows are compromised.

R-3: CBNG production is generally several hundred feet deep. Additionally both modeling and

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monitoring have shown little if any effect on aquifers other than the coal seams; therefore, it is unlikely that surface pools would be impacted. See Chapters 3 and 4, Hydrological Resources, for more discussion.

C-4: The DSEIS does not address the impacts of impoundments on fish and water quality. An index of biotic integrity developed for Montana prairie streams (Bramblett et al. 2005) should be included as a measure of stream health as part of the aquatic monitoring and protection plan. What monitoring has been done to evaluate the impact of effluents on invertebrates, larval fish, or adult fish in the localized area below these outflows? Are there screening mechanisms in place that help BLM determine if the operator's plan of development should be altered?

R-4: An aquatic task group has been formed for CBNG development in Montana and Wyoming. Representatives from BLM, MFWP, Wyoming Game and Fish (WYGF), EPA, MDEQ, WYDEQ, Montana State University (MSU), FWS, and Montana Natural Heritage are all crucial partners of the task group. The Aquatic Biota Monitoring Plan (2006) was developed and has been implemented for aquatic species from 2005 to present. The plan addresses fish, macro-invertebrates, periphyton, water quality, habitat, and amphibians/reptiles. The potential for project-related CBNG activities to affect fish and water quality is addressed in Chapter 4, the Hydrological Resources and the Wildlife, Aquatic Resources sections. Additional information on the results of past water quality sampling and aquatic surveys conducted within the Planning Area is contained within the Hydrological Resources section and the Wildlife, Aquatic Resources, section of Chapter 3.

C-5: Yellowstone cutthroat trout, brown trout, rainbow trout, sauger, northern pike, and smallmouth bass are significant to state fishery management objectives and have to be adequately considered. Potential impacts resulting from surface disturbances, aquifer drawdown, and produced-water discharge to these fisheries from conventional and CBNG development need to be addressed through (1) effective and timely communication with Montana Fish, Wildlife and Parks staff; (2) identification of areas as off-limits to drilling because of significant biological, social, or cultural importance; (3) responsible energy development practices to protect our natural resources, particularly fish; and (4) basin-wide planning and analysis of every project.

R-5: The potential for project-related CBNG activities to impact fish and aquatic habitats is

contained within the Wildlife, Aquatic Resources section of Chapter 4. Also see R-4.

C-6: The DSEIS does not adequately consider the direct and indirect impacts of either energy development or railroad construction to fish and other aquatic species. For example, the potential of the Tongue and Powder rivers to be recovery areas for pallid sturgeon is high, and restoration is being planned for this federally endangered species through improving fish passage in the rivers. The DEIS and DSEIS provide no information on how energy development or construction of the TRR would affect pallid sturgeon populations or their recovery.

R-6: For direct and indirect impacts, see the TRR EIS (ICC 1992; STB 2004). The SEIS does address the cumulative effects of the TRR and energy development to aquatics. See Chapter 4 under Wildlife, Aquatics Resources for discussion. Measures to protect water quality are described within the water screen under the preferred alternative (Alternative H) as described within Chapter 2.

Long-term effects on pallid sturgeon associated with discontinued activities, such as sediment delivery from roads, would subside as disturbed areas are reclaimed. Agency mitigation measures implemented during abandonment would reduce erosion potential, prevent water pollution, facilitate reclamation of disturbed lands, and further reduce the potential for long-term impacts on pallid sturgeon.

As determined by FWS, implementation of the SEIS, including all of the above conservation measures "may affect but is not likely to adversely affect" pallid sturgeon.

C-7: The SEIS lacks information on fisheries in the development area, including Tongue River Reservoir and the Big Horn River. Specifically, the SEIS lacks information on the current distribution of recreational fisheries for brown as well as rainbow and brook trout, Yellowstone cutthroat trout (YCT); and sauger, northern pike; and smallmouth bass. Information is also lacking regarding the potential impacts to these fisheries from surface disturbances, aquifer drawdown, and produced water discharge from conventional and CBNG development. BLM should eliminate threats by precluding development in sensitive watersheds, or mitigate the losses in the development area. BLM should coordinate with MFWP to develop plans before development occurs to protect fisheries, gather baseline information, monitor effects, mitigate impacts, and enforce regulations.

R-7: The SEIS discusses the potential effects of surface disturbances, aquifer drawdown, and produced water discharge from conventional and CBNG development on aquatic species within the Wildlife, Aquatic Resources section, of Chapter 4. See also R-4.

C-8: Page 3-135 contains the following statement: "Fish sampling in a number of Tongue River tributaries suggests fish in Squirrel Creek have a substantial potential to be affected by CBNG development, primarily from impoundments located within intermittent and ephemeral draws that flow into the creek (BLM 2005d). However, the stream has not been assessed to the extent needed to identify the specific cause(s) of habitat changes between sampling sites located upstream and downstream of CBNG development facilities." It appears, according to this statement, that the DSEIS is using speculation to describe the affected environment. This statement should be deleted from this section and placed in Chapter 4, Environmental Consequences, where this type of speculative analysis is more appropriately located. There is only one CBNG impoundment, for the purpose of analyzing overflow, located within the intermittent and ephemeral draws that flow into Squirrel Creek.

R-8: The statement reflects the observed conditions in Squirrel Creek based on sampling, as referenced by BLM (2005d). The statement provides specific information regarding evidence of potential effects of CBNG development on fish assemblages, but also provides some clarification concerning the potential accuracy of the data interpretation. The referenced statement has been modified in Chapter 3 of the FSEIS as follows: "Fish sampling in a number of Tongue River tributaries suggests fish in Squirrel Creek have a potential to be affected by CBNG development, primarily from impoundments located within intermittent and ephemeral draws that flow into the creek (BLM 2005d)."

C-9: Page 3-136 contains the following statement: "One site in Pumpkin Creek showed a decrease from 10 to four species, with only white suckers occurring both historically and recently." The DSEIS fails to inform the reader that there are no CBNG discharges into Pumpkin Creek in Montana.

R-9: The text within Chapter 3 of the FSEIS has been modified to include the following: "There are currently no CBNG discharges to Pumpkin Creek."

C-10: Page 3-136 contains the following statement: "Another site showing a substantial decrease in species over time was Sarpy Creek. This site showed a decrease from five species historically to one

species (fathead minnow) in 2003 and 2005 (MFWP 2006)." The DSEIS fails to inform the reader that there are no CBNG discharges into Sarpy Creek, nor are there any CBNG impoundments within the vicinity of Sarpy Creek.

R-10: The text within Chapter 3 of the FSEIS has been modified to include the following: "There are currently no CBNG discharges to Sarpy Creek."

C-11: There is particular concern about the health of coldwater fisheries in the planning area and the lack of information that the SEIS provides regarding (1) the current distribution of native salmonids and recreational coldwater fisheries; (2) the potential impacts resulting from surface disturbances, groundwater withdrawals, and well discharges to these fisheries from conventional and CBNG development; (3) how BLM will mitigate these impacts or eliminate threats by precluding development in sensitive watersheds; (4) how BLM will coordinate efforts with MFWP to ensure that development plans protect coldwater fisheries before development occurs; and (5) how and whether the federal agency will gather baseline information, monitor effects, mitigate impacts, and enforce regulations to ensure that CBNG development does not impair fisheries. With regard to recreational coldwater fisheries, we are concerned that CBNG development will negatively affect important populations of wild brown, rainbow, and brook trout. It is essential that BLM include a complete inventory of YCT populations using the best available information after consulting with its own biologists, as well as with U.S. Forest Service (USFS) and MFWP fishery professionals. It is suggested that a No Surface Occupancy (NSO) within 0.5-mile of a stream containing genetically pure (99 to 100 percent) native trout stipulation be incorporated into the FSEIS. It is further recommended that this stipulation be expanded to include all conservation populations (90 to 100 percent genetically pure) of YCT. It is also recommended that groundwater withdrawals from aquifers hydrologically connected to streams containing conservation populations of YCT be prohibited. Moreover, we recommend that discharges of produced water also not be approved in watersheds containing conservation populations. BLM has to fully disclose all of the coldwater fisheries that could be affected by CBNG development, not only for the larger rivers in the Planning Area. Also of concern are the popular reservoir fisheries in Tongue River Reservoir, Cooney Reservoir, and Bighorn Lake.

R-11: Information on existing aquatic species within the Planning Area is presented within the Wildlife,

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Aquatic Resources section of Chapter 3. The potential for project-related CBNG activities to impact fish and aquatic habitats is contained within the Wildlife, Aquatic Resources section of Chapter 4. The FSEIS has been modified within the Wildlife, Aquatic Resources section of Chapter 3 to include additional information on the occurrence of YCT within the Planning Area. The potential for adverse impacts to individual populations of YCT or restoration efforts will be evaluated during the review process of an operator's POD. Should a proposed development activity have the potential for an adverse effect on the species or individual population, then BLM would implement appropriate measures to provide protection. As stated in the Wildlife Appendix under the heading of Aquatic Species, "Detection of a retraction in the range of a species, a downward trend in abundance, or reduced population diversity in systems with produced water discharge shall warrant a review of Project Plans and possible recommendations for adjustment of management to address the specific problems." This provision would apply to aquatic species in general including those in coldwater fisheries and reservoirs. Also see R-4.

C-12: The use of the 7Q10 tool ensures that poor quality CBNG water is not the majority of stream flow in a system. The text on page 2-19 of the DSEIS allows for modification of this rule based upon monitoring. There is often a delayed response in monitoring aquatic species that may create situations where eliminating the 7Q10 would result when it should not be eliminated. Other impacts, especially drought, would create problems not identified through monitoring.

R-12: The referenced text refers to Alternative F; BLM's Preferred Alternative is Alternative H. Unlike Alternative F, Alternative H would only allow additional produced water discharges from BLM wells so long as water quality criteria are not exceeded. This approach places more emphasis on specific water quality criteria, rather than relying on total discharge limitations to protect aquatic habitat. The monitoring component of Alternative H, combined with adaptive management, would increase the likelihood of obtaining accurate and quantifiable data concerning potential effects of CBNG development on aquatic resources. While there is still uncertainty, including the potential for delayed response, regarding the specific effects of CBNG development on aquatic resources, the use of adaptive management and water quality monitoring are believed to provide an effective means for the protection of this resource. Additionally, use of the

7Q10, combined with monitoring and adaptive management, also considers water volume, as well as water quality. It would, therefore, consider the combined effects that could result from drought conditions. As a result, relatively few impacts on aquatic resources would be expected under Alternative H.

C-13: One of the rationales for the SEIS was a need to further expand on the cumulative impacts of development in the planning area, and more specifically the Powder River Basin. Although some consideration was given for the additional impacts of the TRR for wildlife, the overall cumulative impacts analysis was not conducted. For example, the removal of Intake Dam by the Bureau of Reclamations is as reasonable and foreseeable as the TRR.

R-13: The MDEQ adopts water quality standards to protect beneficial use of surface water. Currently, irrigation use is considered the most sensitive beneficial use. The water quality standards that MDEQ has set to protect irrigation are assumed to also protect aquatic resources. As such, pallid sturgeon should not be impacted by adverse water quality from CBNG-produced water discharges should the fish bypasses at Intake and the Tongue and Yellowstone (T&Y) diversions allow for the pallid sturgeon to increase its range upstream in the Yellowstone or Tongue rivers.

Cultural Resources

Comment 1 (C-1): The DSEIS does not specifically note the presence of the several designated and/or potential National Historic Landmarks (NHLs) within the impact area. The FSEIS should include an evaluation of the impacts to these sites and the measures that will be taken to avoid and minimize impacts to these nationally significant resources. As part of this discussion, BLM must acknowledge the heightened legal standard that applies to the management of NHLs under section 110 of the National Historic Preservation Act (NHPA) and explain how it will satisfy this standard through the development of measures designed to minimize harm to NHLs.

Response 1 (R-1): The existing NHLs have been added to the cultural table in Chapter 3. BLM has requested additional information from the Park Service on the potential NHLs in the SEIS area. The existing listed NHLs, Chief Plenty Coups, Pompey's Pillar Area of Critical Environmental Concern (ACEC), and Pictograph Cave are either in State

Parks (Pictograph Cave, Chief Plenty Coups) or National Monuments/ACEC (Pompey's Pillar) where development is not allowed. Site specific impacts on the listed NHLs would be addressed in the POD plans. If it were found that CBNG development would adversely affect an NHL, BLM would apply the procedures found in 36 CFR 800, rather than using the National Programmatic Agreement (BLM 1997b).

C-2: In the Cultural Resources section of Chapter 4, under the conclusions for all alternatives (pages 4-56 through 4-61), the DSEIS does not advise the reader that on private surface lands, regardless of mineral ownership, title to any cultural resource (excluding grave sites) belongs to the surface owner.

R-2: The FSEIS has text clarifying that on private surface lands, regardless of mineral ownership, title to any cultural resource (excluding grave sites) belongs to the surface owner.

C-3: The SEIS states that there will be no adverse impacts to cultural resources resulting from construction of the TRR. To the contrary, there would most definitely be adverse impacts, beginning with the fact that the railroad is drawn to run directly through the Wolf Mountains Battlefield, a site approved for NHL listing and now pending with the National Park Service (NPS) NHL program in Washington, D.C. In addition, the TRR will run through miles of country that is highly historic. By programmatic agreement, the FEIS deferred section 106 consultation on these impacts to coincide with planning of the railroad segments. There will undoubtedly be impacts; there is no way to build the railroad through the region of the Great Sioux Wars campaign, an NHL, and a rural historic district in the Birney area (recognized in the landscape-level report by RTI for BLM in 2006) without impacting cultural resources. To state otherwise is inaccurate.

R-3: The SEIS incorporates the findings of the Supplement to the TRR EIS. The Transportation Board's section of environmental analysis for its Supplement to the TRR EIS indicated that, with mitigation, neither the construction nor the operation of the TRR would result in significant impacts on cultural resources. Pursuant to the Cultural Resource Programmatic Agreement for the TRR, the landscape level and historic/traditional cultural property (TCP) district issues would be addressed for any segment proposed for construction that might affect those resources.

C-4: The SEIS states that the planning area includes BLM-administered lands and minerals in the Powder River and Billings RMP areas, but excludes lands

administered by other agencies such as the Forest Service, sovereign tribal governments, and Indian allotted lands. While this may represent the land base for which BLM is directly responsible, it then fails to consider the cumulative impacts of BLM-driven development alongside that anticipated on the neighboring Indian reservations, Custer National Forest, and state leased lands. If these areas of development are not included in BLM's cumulative analysis, the leading federal agency for oil and gas development in the region, how will those cumulative regional impacts on the natural and cultural resource base be considered?

R-4: The SEIS includes an analysis of the potential cumulative impacts resulting from future CBNG development on the Northern Cheyenne and Crow Reservations, allotted lands within the reservation boundaries, state lands, and the Ashland District of the U.S. Forest Service. See Chapter 4, Conclusion section.

C-5: Is there no situation wherein BLM would choose not to promote development of mineral resources it administers?

R-5: BLM does have situations where there is no development of mineral resources in certain areas of critical environmental concern (USDI BLM 1999a).

C-6: Why is the landscape cultural level study not mentioned in the SEIS? The commenter notes that the SEIS cites the work of the Montana Preservation Alliance (MPA) in the Tongue River area, which the commenter believes to be misleading, and recommends that it be removed from the document in favor of discussion of BLM's efforts in this area. While MPA's work does further the understanding of resources located within the region, it does not substitute for BLM actively working to meet agency responsibilities under NEPA and section 106 of the NHPA, nor does it alleviate BLM's broader management and planning mandates under section 110 of the National Historic Preservation Act and under the Federal Land Policy and Management Act (FLPMA).

R-6: The Landscape Level Overview for CBNG development areas was used for the SEIS and is referenced within the Cultural and Historical section of Chapter 3.

BLM has included information from many sources, as well as information generated from its own work, in the preparation of the SEIS in an effort to provide the most relevant information to describe the affected area. BLM recognizes that the inclusion of information generated from other sources does not

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substitute for meeting its responsibilities under the National Environmental Policy Act (NEPA), NHPA, or FLPMA. Rather, BLM believes that inclusion of information from other sources is a necessary element of meeting these responsibilities.

C-7: Has there been any effort by BLM to conduct landscape level studies within the Billings RMP Management Area?

R-7: The Billings Field Office has not done a landscape level overview such as the one completed by the Miles City Field Office. This was due to limited funding. The Billings Field Office will address landscape level issues when they update their Class I Overview as part of their Resource Management Plan update.

C-8: There are numerous landscapes and spiritual sites of cultural significance to the Northern Cheyenne, Crow, Arapaho, Ute, Shoshone, and several Sioux bands, including Oglala, Santee, Rosebud, Hunkpapa, Lower Brule, and others—some of which are found in BLM's, "An Ethnographic Overview of Southeast Montana." Throughout the Miles City and Billings RMP areas are many more sites of significance to tribes. These sites warrant a separate Indian cultural resource survey to identify the locations of archeological, ethnographic, and traditional cultural properties, "the contexts within which to evaluate their significance," and the prospects for avoiding, minimizing, and/or mitigating any potential impacts to these resources.

R-8: Every proposed POD requires that a cultural survey be conducted by an archeologist (who meets the requirements necessary to hold a BLM permit under Manual 8151) before approval of any surface-disturbing activities. Additionally, consultation with potentially affected tribes is conducted before the approval of each POD to identify TCPs. This has included on-site visits with the Northern Cheyenne.

C-9: For the past two years, research has been conducted on the Birney/Hanging Woman Creek drainages with a cultural landscape orientation. Findings from this work include the following:

- A National-Register-eligible Historic District centered on historic ranching. Several individual listings already on the National Register are located in our study area.
- The potential for an NHL district for dude ranching centered in Sheridan, Wyoming, which historically extended into the Birney rural community.

R-9: As with any culturally significant sites, BLM would consider these in evaluating proposed PODs.

C-10: Table 3-3 is misleading. The reason that only a handful of NRHP sites are listed is not that these are the only ones eligible out of tens of thousands, but that, most of the time, the agency either does not have enough information or chooses not to seek a determination of eligibility on sites it records.

R-10: The NRHP sites listed in Table 3-3 include those officially listed on the NRHP; they do not include sites that are eligible for listing on the NRHP. Table 3-3 also includes the total numbers of cultural resource sites that have been identified by survey for each county.

C-11: Will BLM consider special management designations such as ACECs for split-estate situations where the surface ownership is not federal? Doesn't the Rosebud Battlefield merit the highest sensitivity designation by BLM management? Some formal management consideration seems warranted for this and other highly significant sites to be affected by agency minerals management decisions.

R-11: ACEC consideration can be done on BLM-administered surface only. There are no BLM-administered surface acres in the Rosebud Battlefield.

C-12: On page 2-8, under Cultural Resources, the SEIS prohibits use "within sites or areas designated for conservation uses, public use, or sociocultural use." Montana Fish, Wildlife and Parks requests a list of these areas before any Record of Decision (ROD) is issued for the SEIS. It would be beneficial to both the public and potential/existing lessees, plus it requires that these areas be defined up front. The same comment applies for the Recreation section on page 2-9, these areas have to be delineated before any development.

R-12: There are currently neither concentrated use recreation areas, nor cultural sites designated for conservation, public, or sociocultural use. BLM will coordinate with MFWP in its planning.

C-13: Cultural sites are not only affected by physical alterations of the landscape, but by mineral development that could affect traffic, smells, activity, aesthetics, noise, and solitude. This could alter use of these sites significant to historic and modern cultures.

R-13: The Cultural Resources section of Chapter 4, "Impacts from Management Common to All Alternatives," states that "Noise, activity, traffic, and smells can affect the quality and continued use of Traditional Cultural Properties (TCPs)." This also

applies to other eligible sites under the criteria of effect found in 36 CFR 800.

C-14: The SEIS includes the following statement (page 4-55): "Most of the mitigation of native American cultural resources will entail avoidance, particularly any site associated with burials of human remains." Other state and federally significant sites should also receive these stipulations. Many sites are significant due to 19th century occupation, encampments for the U.S. military, and use by explorers, in addition to Native Americans. They hold social, historical, and cultural significance. Surface owners must be consulted to understand this significance since BLM, state agencies, tribes, and private landowners have yet to conduct scientific or ethnographic studies and document their findings throughout much of the SEIS study area.

R-14: BLM generally stipulates that significant cultural sites are to be avoided when in conflict with oil and gas development, regardless of their ownership. If the site cannot be avoided, there are remedies for preserving the site data; see Chapter 4, Cultural Resources.

C-15: BLM failed to acknowledge that Pompey's Pillar is a National Monument established by presidential proclamation under the Antiquities Act of 1906, 16 U.S.C. §§ 431–33. By failing to recognize Pompey's Pillar as a National Monument in the DSEIS, BLM may make decisions related to CBNG development that are inconsistent with the protection of the objects identified in the proclamation. BLM has to recognize Pompey's Pillar as a National Monument in the FSEIS and discuss its duty to manage Pompey's Pillar to protect the historic and prehistoric objects identified within President Clinton's proclamation. The FSEIS must address how CBNG development will affect the objects, including the landscape surrounding Pompey's Pillar, and explain how BLM will ensure that CBNG development does not adversely affect any of the protected objects.

R-15: The FSEIS has been modified to include the National Monument information in Chapter 3, under "Cultural and Historical." The effects on the monument would be similar to those disclosed on cultural resources in Chapter 4, if development were to occur. However, Pompey's Pillar Monument is withdrawn from mineral entry (oil and gas development is not allowed). The monument boundary lies within the Pompey's Pillar ACEC. Minerals not within the monument and in the ACEC are held in trust for the Crow Tribe.

C-16: On pages 4-55 and 4-56, paragraphs 1 and 2, the Assumptions section within the Cultural Resource section seems to be based strictly on an archeological definition of a cultural resource. That is, it is something that can be quantified, seen with the eye, is a remnant of human activity, and/or is individual in nature that can be moved or transported. Such examples could be burial sites, lithic scatters, or petroglyphs. The Native American perspective of a cultural resource differs greatly from this. It not only includes physical, human-generated, cultural resources, but cultural resources that are seen as a whole landscape, as well. For instance, a specific place that holds great religious value within Native American cultures is considered a cultural resource, even though it may or may not display any evidence of human activity. One example may be a particular field or area within a valley.

R-16: BLM's 8100 Manual defines cultural resources or cultural properties as a definite location of human activity, occupation or use identifiable through field evidence (survey) historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, or places with important public and scientific uses, and may include definite locations (sites and places) of traditional cultural or religious importance to specified social and/or cultural groups. BLM manages cultural resources through guidance provided in its 8100 (Cultural Resource) Manual which provides for identification (8110) Protecting Cultural Resources (8140) and Permitting Uses of Cultural Resources (8150).

C-17: Surface owners, other than BLM or Trust Land Management Division (TLMD), should also be given the authority to require a cultural survey before surface-disturbing activities with the results presented as part of the permit review or approval process. If cultural resources are found, the surface owner and State Historic Preservation Office (SHPO) have to approve of the activities and mitigation, if appropriate, before disturbance.

R-17: When federal or state minerals are involved, a cultural resource survey is required, and all findings are shared with SHPO. Consultation with tribes is required for all PODs. Although BLM does not have the authority to require cultural surveys where private surface is involved; BLM does make recommendations to the landowner to avoid any sites on their property.

C-18: The DSEIS states that "BLM would consult with affected tribes when operator's proposed actions are near American Indian traditional cultural

properties, such as the Rosebud Battlefield and the Wolf Mountain Battlefield. Consultation might result in mitigation of impacts to traditional cultural properties." Chief Plenty Coups State Park and Pictograph Cave State Park should also be included on this list. How will BLM determine what is "near"? BLM must also consult with surface owners to determine importance of the site to the state of Montana and the property's social significance, such as a state park or original homestead.

R-18: BLM will consult with tribes for all TCP sites as identified by the tribes. Consultation with SHPO and surface owners will be appropriate when minerals are owned by the federal government, and a site is discovered. It is not appropriate to include Chief Plenty Coups State Park and Pictograph Cave State Park on this list, because there are few or no federal minerals and no potential for CBNG development in or within more than 20 miles of these two parks.

C-19: Individual well APDs (1 per 640 acres) would be accepted and processed without a project POD in accordance with requirements of Onshore Order 1."

One well in a sensitive location combined with the entry roads and pad could pose irreparable damage to cultural sites. How will BLM assure MFWP or the surface owner that cultural sites will be avoided without a POD?

R-19: Cultural surveys are required for all development, whether a POD is required or not.

C-20: Why is there no screen for cultural resources?

R-20: While there is no screen for cultural resources, cultural surveys are required for each proposed POD, as well as tribal consultation to define any TCPs within the proposed development area.

Geology and Minerals

Comment 1 (C-1): BLM did not fully study the combined effects of coal bed methane extraction and the Tongue River Railroad (TRR). This massive project consisting of over 130 miles of railroad track through a ranching valley will have major impacts and must be considered in light of any additional development such as coal bed methane (p. 4-80).

Response 1 (R-1): Cumulative impacts resulting from the construction of the TRR are included throughout Chapter 4 of the SEIS. Additional information on the cumulative impacts resulting from the TRR is in the Minerals Appendix and the Air Quality Appendix.

C-2: BLM needs to state that the Spring Creek Mine is a "dry mine" that does not produce water. This should be addressed under the Geology and Minerals discussion of Alternative H.

R-2: Language has been added to the FSEIS to show that the Spring Creek Mine is a dry mine.

C-3: BLM should advise the reader that the 5-mile buffer around reservation lands will result in a loss of gas resource and tax revenues to the nation, and these losses should be quantified. The Powder River Basin is the third largest gas field with the thirteenth greatest proven reserves in the United States. BLM should also explain that the 5-mile buffer would further add to the loss of private and state gas resources because of the disincentive it provides to developers. BLM should advise the readers that its responsibility to Indian Trust Asset (ITA) lands has a higher statutory priority than its obligation to protect and develop the public domain natural gas resource.

R-3: The analysis and discussions are provided in Chapter 4; Alternatives F, G, and H under the headings "Geology and Minerals" "Social and Economic Values". The 5-mile buffer is not excluded from development; there are, however, additional provisions that must be satisfied for development to proceed. BLM Departmental Manual 303, Chapter 2, defines the Secretary of Interior's Principles for Managing Indian Trust Assets, section DM 303.2.7: Trust Principles. This reads in part, "The proper discharge of the Secretary's trust responsibilities requires that persons who manage Indian trust assets: A. protect and preserve Indian trust assets from loss, damage, unlawful alienation, waste, and depletion..."

C-4: Naturally occurring radioactive materials (NORMs) pose a potential risk to human health and the environment when brought to the surface as a result of coal, oil, or gas development. The DSEIS did not discuss whether these constituents are present in CBNG-produced water from the Powder River Basin in Montana and if they pose a level of risk to the public. The DSEIS did not discuss whether radium is present in CBNG-produced water from the Powder River Basin in Montana and if it poses a level of risk to the public. The Alberta Geological Survey is studying the presence of NORMs in CBNG-produced water; the commenter believes that its findings are relevant to the Montana portion of the Powder River Basin. Radon, a common NORM constituent, may pose a potential risk to human health and the environment when brought to the surface as a result of coal, oil, or gas development. The DSEIS does not discuss whether radon is present in CBNG-

produced water from the Powder River Basin in Montana and if secondary escape via springs and water wells poses a risk to the public.

R-4: NORM, including radium and radon, is a potential byproduct of oil and gas production. It typically accumulates in piping and equipment as scale or sludge and can be present in produced water. It requires appropriate disposal, sometimes including the piping or equipment it has accumulated in once it is removed from service. Because variations frequently occur within and among geologic basins, the findings of the Alberta Geological Survey are not necessarily applicable to the Montana portion of the Powder River Basin. Radon is a volatile gas and readily liberates from the water in which it is dissolved once sufficient pressure is released. The threat to human health posed by radon is most typically the result of exposure in hot water showers, basements, and “tightly” built homes. BLM is not aware of NORM wastes being present in water produced from the PRB.

C-5: Consider withdrawal of mineral leases from all state parks and fishing access sites within the study area, including a 5-mile buffer around those areas, and prohibit surface occupancy and disturbance, including roads. BLM should also consider an alternative that withdraws mineral leases under significant sites that are important to the public socially, culturally, and historically, including traditional cultural properties (for a variety of cultures) and state parks.

R-5: Making oil and gas leasing decisions is beyond the scope of the plan (see Chapter 2, “Alternatives Considered but Not Analyzed in Detail” under “Leasing” for discussion. However, surface occupancy and use is prohibited within sites or areas designated for conservation, public, or sociocultural uses. Surface occupancy and use is also prohibited within developed recreation areas and undeveloped recreation areas receiving concentrated public use; and within 0.25-mile of designated reservoirs and fisheries.

C-6: If lessee surface use rights mature when the SEIS ROD is signed, how can BLM condition the exercise of surface use rights at the APD/POD stage? BLM has to define the relationship of the SEIS relative to the lessees' surface use rights and explain how those rights are managed from the lease stage, through the RMP stage, to the APD/ROD stage. BLM must expressly retain the authority to condition the exercise of surface use rights at the APD/POD stage, or conduct a site-specific NEPA analysis based on the SEIS ROD maturing lessee surface rights.

R-6: Oil and gas mineral lessees do not have a surface use right to their mineral lease. The surface rights are retained by the state and federal governments or the private surface owner. Prior to surface development mineral lessees are required to gain concurrence from surface owners/managers through private surface use agreements or regulations such as Onshore Order #1.

C-7: BLM should abandon its “no-development” approach (e.g., crucial sage-grouse habitat and lands next to Indian reservations) under Alternative H because it could cause further delays in the decision process. BLM has no authority to adjust or “clarify” lease stipulations unless it obtains voluntary agreement from the lessee (43 CFR 3101.1-1 and BLM’s Manual 1624). Furthermore, if BLM intends to attach a condition of approval to a permit, it must also be consistent with lease rights. Once a lease has been sold, BLM does not have the authority to prevent development unless the lease terms prohibit surface occupancy, or development would result in unnecessary and undue degradation that could not be mitigated.

R-7: Leases issued by the BLM do not convey full development rights to the lessee. Also, Alternative H does not say “no development” within sage-grouse habitat or on lands near the Indian reservation boundaries. Alternative H requires the BLM and operators that propose development on leases in those areas must conduct more analysis and evaluations against the screens proposed in the alternative. The increase in analysis may cause delays in the decision process, may slow the rate of development and may limit full field development within sage grouse habitat and on lands near the Indian reservation boundaries.

C-8: Many of the mineral leases for CBNG should be reconsidered because these leases were sold without the natural resources data necessary to evaluate whether the impacts from development would significantly negatively affect those other resources. Based on the legal decision, *Northern Plains v. Bureau of Land Management* (CV-O1096-BLG-RWA), the federal oil and gas leases in the Powder River Basin do not yet convey the right to full field development, and BLM has ample authority to reconsider these leasing decisions under that legal decision.

R-8: BLM oil and gas leasing decisions and lease stipulations, including those applicable to CBNG, were previously analyzed in the BLM 1992 Final Oil and Gas RMP/EIS Amendment. Those decisions were approved in the project’s ROD published in

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February 1994. Analyzing new federal lease decisions, such as closing federal areas of oil and gas estate in the Powder River and Billings RMP areas, are, therefore, beyond the scope of this SEIS.

C-9: It is difficult for the public to obtain documents and notification of pending activities, including leases, when they are offered, projects open for comment, and comment reports. The BLM should have to notify surface owners ahead of time when minerals are being put up for lease, so they can raise valid concerns that could inform agency management and could actually bid on those minerals if the leases were offered for sale. Is BLM doing anything to improve on the current state of communication that forces the public to try to monitor oil and gas activities overseen by BLM offices in both Montana and Wyoming?

R-9: BLM provides public notice when federal minerals are up for lease. BLM provides notice to the public 45 days ahead of all lease sales by posting available lease parcels at the Public Room in the Montana State Office, on the BLM website http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/leasing.html and at the local office (Miles City Field Office). All applications for permit to drill federal wells are posted in local BLM offices and on the internet for 30 days before approval. During this 30-day period, the APDs undergo NEPA review. The public can comment on the APDs during this time.

C-10: How will BLM modify lease permits already granted with new on-the-ground information on resources that has and will continue to become available? There are areas leased that should not have any development because of the sensitive nature of specific resources. In the development of the alternatives, the DSEIS does not state that BLM will exercise its authority to impose conditions through RMP amendments to add no surface occupancy stipulations to prevent development in areas or surface disturbance to protect important resources.

R-10: Under Alternative H, the BLM will use the screens and thresholds developed to protect resources while evaluating Plans of Development (PODs) and Applications for Permit to Drill (APDs). By using these screens, BLM will apply conditions of approval to the proposals to protect resources identified during BLM's review. The BLM will use adaptive management techniques to adjust to changes in the future.

C-11: Alternative H does not address the effect of landowner surface use agreements, a very important factor for surface and mineral owners.

R-11: The provisions for landowner surface use agreements are contained within the Plan of Development, which is a required element of the Preferred Alternative, Alternative H. Plans of Development are also required under Alternative E, F, and G.

C-12: How is "phased in development" going to be defined if BLM limits the number of permits issued per year? How is permitting going to be addressed?

R-12: The Preferred Alternative, Alternative H, does not set numeric limits on the pace of development, but uses the four identified resource screens to control and monitor development to mitigate or reduce potential impacts. Numeric limits on the number of APDs BLM would approve annually and within specified watersheds are elements of Alternatives F and G. Under Alternatives F and G, numeric limits may affect the timing of how some developments proceed.

C-13: It is imperative that the producer/operator post enough bonding capacity to cover any mitigation, including revocation for non-performance or poor performance.

R-13: Bonding is discussed within Chapter 2 under "Alternatives Considered but Not Analyzed in Detail, Bonding."

C-14: BLM is avoiding its federal trust responsibility for Indian Trust Assets by putting the mitigation decisions onto the operators.

R-14: BLM would require operators to demonstrate how their proposal, with mitigation incorporated, would not impact Trust Assets. It then is BLM's responsibility to assess the proposal and make the determination if Trust Assets are protected or require additional measures to provide this assurance. The application of the four screens, increased planning and monitoring for development within the 5-mile buffer zone, and tribal consultation assist in the protection of ITAs as well as TCPs.

C-15: Alternative "H" places a higher value on the protection of tribal assets than development of public domain natural gas resources.

R-15: It is BLM's responsibility to assess proposals and make the determination that Indian Trust Assets are protected or require additional measures to provide this assurance. Development isn't necessarily precluded (see Response R-14 above).

C-16: Tables 4-3 and 4-4 provide the number of APDs to be issued under BLM's assumed rates of development for Alternatives F and G, respectively. The private/state rates are based on the reasonably

foreseeable development (RFD) scenario, while the BLM rate results from application of its four “screens.” This section indicates BLM would issue no APDs in years 3, 4, and 5 of Alternatives F and G, with peak APD approvals in years 11 and 12. Neither of these alternatives, in particular Alternative F, appears reasonable since without concurrent approval of federal APDs it is highly unlikely that CBNG producers could expand into new adjoining POD areas. They would also be unable to advance into new private/state leases that lie beyond lease blocks dominated by federal ownership.

R-16: The information provided in Tables 4-3 and 4-4 is for assumed development rates for Alternatives F and G, respectively. Under Alternatives F and G, BLM would not issue any federal APDs if state and private APDs exceeded the annual limits under these alternatives. In Tables 4-3 and 4-4 this is assumed to occur in years 3 and 4. If state and private APDs did not meet or exceed the annual limits set under Alternatives F and G, then BLM could still issue APDs. If state and private APDs met or exceeded the annual limits set under Alternatives F and G, whether in year 3 or 4 or any year of development, however, then BLM would not issue any federal APDs. Annual limits set under Alternatives F and G could affect the timing of some developments on federal leases if the annual limit on APDs were met or exceeded by state and private APDs. Alternatives F and G also include limits on the number of APDs that would be approved each year by watershed. This provision could also affect the timing of some developments on federal leases if the annual watershed limit were met or exceeded by state and private APDs.

C-17: The Montana Board of Oil and Gas Conservation (MBOGC) has the authority to control CBNG development on state and private lands, and operators on federal land must seek permits from MBOGC. MBOGC is a cooperating agency on this DSEIS. MBOGC thus has ample authority to guide development on state and private lands to implement a phased alternative. Therefore, the fact that “BLM authorizes BLM wells only” does not preclude the agency from working with the state of Montana to implement a phased development alternative that develops one watershed or specific area at a time.

R-17: BLM is working with the State of Montana, but no commitment has been made by the State to develop one watershed, or specific area at a time. BLM has considered geographic phasing by setting numeric limits on the number of APDs that would be approved annually within each watershed in the development area under Alternatives F and G. By setting federal numeric limits on the number of APDs

approved annually per watershed, development within certain watersheds would be delayed pending approval of the number of APDs that would be economically viable.

Hydrological Resources

Comment 1 (C-1): The SEIS states that the discharge of CBNG-produced water would be in accordance with rules and regulations of state or federal agencies. What rules and regulations are being referred to?

Response-1 (R-1): A discussion of the regulations and agencies responsible for regulating wastewater discharges is included in Chapter 1.

C-2: Is reinjection of CBNG-produced water considered in the SEIS? BLM dismissed the alternative of reinjecting CBNG wastewater into the aquifer as a produced water management tool; this is a practice in other states. Although reinjection is a logical solution to pursue, BLM simply fails to consider it as a possible mitigation measure for one of the biggest impacts of CBNG extraction (p. 2-4).

As an example of best available control technology (BACT) that we believe is not adequately addressed, BLM quotes (on page 2-4) a 2005 report that states that injection into the Fort Union Formation in the Powder River Basin has not been widely tested, and areas where favorable conditions exist appear to be limited to 9 percent of the area. However, there is no additional information provided, such as potential storage capacity or location of these areas. The Montana Bureau of Mines and Geology continues to study this issue, and these conclusions will likely change. We do not believe that BLM should dismiss reinjection.

R-2: The text within the SEIS states that reinjection may be feasible in 9 percent of the planning area. Reinjection must be technically and economically feasible. Injection into the Madison Group strata is discouraged, because it would essentially result in removal of that water source for future use within the Powder River Basin. Reinjection, as a method of produced water management, is discussed under Hydrological Resources Alternatives B, F, and H.

BLM has not dismissed the option of injection as a CBNG-produced water management option and provides information on the various types of injection options that could be used within the Hydrological Resources section of Chapter 3. Reinjection of produced water into the same aquifer is discussed under the heading of "Reinjection of Produced Water

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into the Same Aquifer Alternative" within Chapter 2. Alternative B provides a detailed analysis of the injection of produced water into units other than the coal seams (see Chapter 4 for analysis).

C-3: What elements does the SEIS include to protect water, one of Montana's most valuable resources?

R-3: The Montana Department of Natural Resources and Conservation (DNRC) issued an order that describes the authorities that pertain to CBNG development and groundwater: "Final Order: In the Matter of the Designation of the Powder River Basin Controlled Groundwater Area." The order is included in the SEIS via reference to Appendix E of the Water Resources Technical Report (ALL 2001b). The order requires groundwater monitoring and reporting and indicates that water mitigation agreements must be offered to owners of water wells or natural springs within the area that may be impacted by CBNG development. Water management plans must be submitted by CBNG operators before approval to drill can be obtained. If a surface discharge is requested, the CBNG operator must obtain a Montana Pollution Discharge Elimination System Permit, which must protect all beneficial uses. In addition, BLM's Preferred Alternative, Alternative H, includes a water screen to further protect surface water quality (see Chapter 2 under Alternative H.)

C-4: When proposing water mitigation within 1 mile on private property versus 5 miles around Indian reservations, the 5-mile area is more prudent. Data from around Decker and Wyoming show significant drawdowns (20 percent of more) 2 miles out.

R-4: Pursuant to MCA 82-11-175, if appropriated groundwater within 1 mile of the coal bed methane well may be impacted by a CBNG production operation, then the mitigation area will be automatically extended 0.5 mile beyond the water well or natural spring adversely affected. The owners of water rights are also protected from impacts from CBNG through the Coal Bed Methane Protection Act (MCA 76-15-9). The Act provides for the establishment of a fund that can be used to compensate landowners and water rights holders for damages attributable to coal bed methane development. Also, MBOGC Order 99-99 states that water mitigation agreements must be offered to any water right holder who is in the area of impact. Therefore the 1-mile distance should be viewed as a minimum distance.

The 5-mile buffer around the reservations is to help protect Indian Trust Assets and resources of concern to the Tribes. This buffer delineates an area where

additional analysis is needed when CBNG projects are proposed, while the 1-mile buffer delineates an area in which a water mitigation agreement must be offered. The difference in buffer distances is largely a function of the buffer's purpose.

C-5: The development of CBNG should allow for unlined, on-channel reservoirs for the storage of produced water. The use of unlined, on-channel reservoirs should be combined with an intelligent groundwater monitoring program.

R-5: The use of unlined, on-channel reservoirs is allowed under the preferred alternative (see discussion in Chapter 2, Alternative H, Produced Water Management). Any on-channel CBNG impoundments would have to be approved by MDEQ, and MDEQ would develop the groundwater monitoring requirements. The MBOGC would have to concur with MDEQ from a water management perspective. The BLM would also have to concur with the MDEQ for impoundments that received water from federal wells, or were located on federal surface.

C-6: BLM did not consider whether water mitigation agreements effectively protect landowners. To measure the effectiveness of these agreements, BLM only interviewed industry representatives; they did not consider the perspectives of landowners (pages. 2-6, 3-45 through 3-48).

Aquifer drawdowns are projected to occur 20 miles or more from CBNG development, yet water-well mitigation agreements are still required only for wells within 1 mile of a producing CBNG well. Other problems with these agreements still are not addressed. BLM cannot continue to rely on these agreements without an analysis of their efficacy and assessment of other possible mitigation that could be implemented to make up for their shortcomings.

R-6: BLM had to determine whether water mitigation agreements actually mitigated effects. As every agreement can be different, BLM interviewed industry representatives to determine how many water mitigation agreements had been executed and what mitigation measures were used to address the potential impacts from CBNG production to area water wells. How effectively the landowner is protected in the agreement depends on the agreement the landowner made with the company.

The protective measures provided for in using water mitigation agreements are discussed under the heading of "Management Common to All Alternatives" within Chapter 2. Should a well within 1 mile of a producing CBNG well be impacted, then

the cone of influence for the agreement is extended out another 0.5 mile and so on until no more wells are impacted. Groundwater drawdown, how it relates to water mitigation agreements and possible mitigation measures are discussed under the heading of "CBNG Groundwater Drawdown and Water Mitigation Agreements" within the Hydrological Resources section of Chapter 4.

C-7: If a water supply well goes dry as a result of nearby CBNG activity, the operator must replace that lost water supply. However, the mitigation agreement does not state how the lost water must be replaced. Thus, the CBNG company could haul water to the damaged party and keep a cistern filled, or could drill a new well. If the latter, the new well will be in a different aquifer, causing the water right holder to lose his/her senior water rights; he/she now has a junior water right to the CBNG company that destroyed his/her water source. And, this new, deeper well will require more electricity to operate in perpetuity. This after-the-fact mitigation is simply inadequate given the severity of impact on senior water right holders and the severity and longevity of the impacts on naturally flowing springs and artesian wells.

R-7: The form of the replaced water will depend on the area and the agreement between the landowner and the CBNG operator. If an existing well fails and a new well is constructed to replace it, a replacement well water right may be issued by DNRC, which would retain the priority date of the old well. This information has been added to Chapter 4, Hydrological Resources, CBNG Groundwater Drawdown and Water Mitigation Agreements subsection of the FSEIS.

If the replaced water consists of a deeper well with higher operating costs, then it is up to the operator to negotiate compensation for the higher operating costs with the CBNG operator. If cost negotiations with the operator are not successful, the landowner can petition for compensation under the Coal Bed Methane Protection Act (MCA 76-15-9).

C-8: The DSEIS ignores the consequences of CBNG wastewater discharges on downstream irrigation, because (on page 4-125) BLM assumes wastewater will be treated before being discharged. However, no wastewater treatment requirements have been established in Montana, in part, because the CBNG industry has fought every effort made to establish standards and because both the CBNG industry and the state of Montana are arguing against establishing treatment requirements in the MPDES lawsuit *Northern Cheyenne et al. v. DEQ et al.*, DV 06-34

Big Horn County. BLM has to examine the positions being advanced in that lawsuit, because there will be no wastewater treatment required if DEQ prevails.

R-8: While treatment is not specifically required at this time, the Montana Board of Environmental Quality has designated EC and SAR as harmful parameters. The designation of these parameters as "harmful" causes non-degradation criteria to apply. As such, CBNG water would have to be treated to ambient, or better, water quality since all streams in the Montana portion of the Powder River Basin currently exceed 40 percent of the established standards.

The potential effects to surface water quantity and quality are detailed in the Hydrological Resources section of Chapter 4 and the Surface Water Quality Analysis Technical Report (SWQATR). BLM recognizes the transitional nature of current water quality standards and CBNG rules in Montana. Implementation of the provisions of the Water Screen (i.e., 10 percent of the 7Q10) provides an additional level of assurance for protecting surface water quality.

C-9: The SEIS has to address the Northern Cheyenne Tribe proposed regulations for dealing with coal bed methane development that are pending before EPA. The tribe also has nondegradation criteria with different standards. Why is there no discussion of the Northern Cheyenne non-degradation criterion?

R-9: The adoption of surface water quality standards by the Northern Cheyenne Tribe is discussed in the Hydrology section of Chapter 3 and in the Hydrological Resources section of Chapter 4. The Northern Cheyenne water quality standards are mentioned, but not in detail, because they have not been approved by EPA.

C-10: Aquifer drawdown has not yet been truly examined.

R-10: The drawdown of groundwater within aquifers is discussed in the Hydrologic Resources section of Chapter 3, under the heading "Observed CBNG Related Groundwater Drawdown," and in the Hydrological Resources section of Chapter 4 under the heading, "CBNG Groundwater Drawdown and Water Mitigation Agreements." Additional information is also contained in the Water Resources Technical Report (ALL 2001b), the groundwater modeling reports (Wheaton and Metesh 2001; Wheaton and Metesh 2002), and the subsequent groundwater monitoring reports (MBMG Open File Reports 508, 528, 538, and 556).

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C-11: If BLM were to implement phased development under Alternatives F, G, or H, as indicated on Page 4-4, it could result in longer time frames for a given amount of CBNG development. Application of general groundwater theory suggests that a given amount of CBNG development, which is more spread out in time and space, will result in a greater total quantity of produced water due to the additional recharge to the coal beds over the longer period of production. The time period for recovery of pressure head in the produced coal beds would also be extended. The SEIS should make it clear that this is one of the tradeoffs of phased development.

R-11: CBNG production will continue until the wells no longer produce natural gas in economic quantities. Thus each individual well is not producing for a longer period of time. While the amount of water produced per well may be somewhat increased if CBNG development is spread out in space (due to there being more “edge”), this difference is unlikely to be substantially different than that assumed for the SEIS.

C-12: Page 4-101 discusses the mixing ability of the Yellowstone River and concludes that CBNG water will have no impacts on the Yellowstone River waters. No attempt was made to quantify the site-specific impacts to Tongue River irrigators, T&Y, Kinsey, Buffalo Rapids Project and the other major private irrigators along the Yellowstone River downstream of the confluences which bear CBNG water. This opinion is not currently shared by the Buffalo Rapids Irrigation Company. The irrigation company's proposed solution to its perceived water quality problem will have habitat impacts that are unacceptable to MFWP fisheries managers. Buffalo Rapids Irrigation Company is proposing drastic habitat alterations to the stream course of the Yellowstone River to reduce the detrimental effect of CBNG discharge water on its crops. The Buffalo Rapids Company has asked state regulatory agencies about building deflection barriers in the Yellowstone River downstream of the confluence of the Powder River. The District purports that saline water from CBNG production in the upper Powder River is not diluting in the low flow period of the summer months. This water is then flowing along the south bank of the Yellowstone River, a distance about 2 miles downstream, where it enters one of the district's water intakes and is fed into the irrigation system to irrigate crops. The district's theory is that building jetty-like berms into the river would make it easier to mix and dilute the saline water coming from the Powder River with higher quality water from the Yellowstone River before it is used in the irrigation

system. The proposed berms would create fish movement and navigation problems during these low flow periods and are discouraged by MFWP fisheries staff. Furthermore, there is no definitive proof that these measures would increase the quality of water pumped into district intakes during these low flow periods.

There is no account of what the SAR/EC relationships are just downstream of the Tongue and Powder rivers. The Powder River water does not mix until well past Terry, close to Fallon, and it hugs the south bank. This causes an acute problem for the Terry irrigators as SARs above 3 have been seen with ECs below 800. A soils analysis of Buffalo Rapids' soils and what effect varying CBNG water compositions might have on them indicated that a SAR of 3 with a corresponding EC of 800 spelled trouble for heavy soils (51 percent of BRP soils). At that point danger exists that a cumulative effect could take place over years, permanently damaging the heavy soils and rendering them useless for crop production. There is no way to know how far downstream these effects may carry before adequate mixing occurs.

R-12: The referenced text refers to potential effects to the Yellowstone River resulting from CBNG-produced water discharges under Alternative C, which was not selected as the Preferred Alternative. Further, the text does not indicate that CBNG water will have no impacts on the Yellowstone River waters. Rather the text states, "The surface water quality of the Yellowstone River would be noticeably degraded by discharges from Montana and Wyoming under Alternative C; however, beneficial uses would not be impacted."

MDEQ has set numerical standards for SAR and EC that it believes are protective of soils, plants, and animals. The analysis conducted for the Tongue River at Brandenburg Bridge (USGS Station 06307830) and for the Yellowstone River near Sidney (USGS Station 06329500) are believed to be representative of the water quality that will be experienced by irrigators near Miles City and on the Yellowstone below the Powder River. Impacts at Kinsey would be lower than those calculated for the Sidney Station, since the intake is upstream from the Powder River. If it is anticipated that irrigation water is going to come primarily from the Powder River, the calculations for the Powder River at Locate should be representative (USGS Station 06326500).

C-13: The SEIS states that the water from the shallow Dietz seam near the Tongue River Reservoir is recharged from the Tongue River Reservoir. Now

that the aquifer pressure has been lowered, more water comes from the reservoir. This is water that belongs to the Tongue River water users and the Northern Cheyenne Tribe. How will the water users or the tribe be compensated for this taking of water?

R-13: The SEIS considers this issue in Chapter 3, Hydrology, under “Observed CBNG related Groundwater Drawdown.” The SEIS suggests that a small volume (approximately 1.5 gallons per minute [gpm]) of water is being drawn into the shallow Dietz coal aquifer. BLM has a responsibility to protect Indian Trust Assets, which includes groundwater.

C-14: I obtained water quality data from the United States Geological Survey for the gauging station at Miles City for 1959 to the present. I used the period from 1959 to 1972 as a baseline because no discharges from coal mining or CBNG were present at that time. I then averaged the water quality data from 1999 to the present and compared it to baseline data. The sodium adsorption ratio increased by 44 percent from the baseline data.

When will the screening guidelines kick in? Do 10 percent of the irrigators have to be damaged before anything is done? Do 50 percent of the irrigators have to be damaged? I do not see that there is a screening guideline for soil damages in this SEIS.

R-14: An increase in SAR, or any other single indicator, cannot be assigned to a single source without modeling flow and composition in the stream. As described in the SEIS, flow rate and composition are closely related in Montana’s rivers. The samples mentioned for CBNG development lie entirely in a period with extended drought. As stream levels drop, salts increase, and calculated indicators such as SAR also frequently increase. As discussed in Chapter 2, the water screen will kick in if untreated CBNG discharges to a stream exceed 10 percent of the 7Q10.

Screening guidelines under the Preferred Alternative, Alternative H, would not be implemented until the ROD is approved and signed. A screen for damages to soils from the use of CBNG-produced water was not deemed necessary. Water quality standards are set to protect irrigation. Should a landowner decide to use CBNG-produced water directly for irrigation, it is up to the landowner to determine if the water is useable, given site-specific soil properties, the type of crop to be irrigated, and the application rate and overall volume of water used.

C-15: The cumulative effects on water quality are not considered. The Tongue River Railroad final EIS was submitted last fall. It states that 20,000 tons of

sediment will be introduced to the Tongue River during construction. It also states that 7,000 to 10,000 tons of sediment will be dumped into the Tongue River every year after that. If standards at Miles City are being exceeded now, things will only get worse with the TRR. The cursory review of effects from TRR is not adequate.

R-15: The potential for sedimentation impacts to the Tongue River from the TRR is discussed within the Hydrological Resources section of Chapter 4. Construction of the TRR would be consistent with all state and federal rules and regulations, and hydrological impacts are expected to be short-lived and minor. Construction of the TRR will increase the local effects of soil erosion with a greater suspended sediment load to the Tongue River and its tributaries. The use of mitigating measures and best management practices is expected to minimize erosion and control runoff. These impacts are anticipated to be of low intensity and short duration. Sediment yields will return to natural levels once vegetation is reestablished.

C-16: BLM failed to include and recognize its only requirement, as contained in Onshore Oil & Gas Order Nos. 1 and 7, is for federal acceptance of water management plans, so long as mitigation agreements meet all applicable laws of the state.

R-16: The SEIS points out repeatedly that the requirement for water mitigation agreements is a state issue administered by the DNRC and MBOGC. BLM must have reasonable assurance that water mitigation agreements have been offered prior to approving federal APDs; however BLM believes that including an example Water Well Mitigation Agreement provides a better explanation of how these agreements would work as opposed to a bulleted or check list of those items required by state law. The terms of actual agreements will be as determined by operators and the water source owners.

C-17: What methodology, frequency, and discharge rate will be used to determine “projected to exceed”? How would the 7Q10 be derived for ephemeral streams that do not flow most of the year? What will be the obligation for MDEQ to complete the report in a timely manner? What is the scope of the report? How frequently would the report have to be redone if new data or proposed sites come to light? If another operator proposes discharges in the same area how will the report include those sites? Would not it be more efficient for the operator to prepare the report following BLM specified requirements and methods and use MDEQ to review? Will the operator have

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opportunity to review, comment, or rebuff parts of the report and findings?

As BLM recognizes in the water screen, MDEQ has the lead role in managing Montana water resources and administers the MPDES permit program for all CBNG discharges. Under criteria for determining nonsignificant changes in water quality (Administrative Rules of Montana [ARM] 30-7:17.30.715), the existing surface water quality resulting from activities that would increase the 7Q10 flow by less than 10 percent is defined as nonsignificant and does not require additional review under 75-5-303, MCA. Therefore BLM's screen and proposal to prepare a surface water monitoring report only serve to complicate the regulatory framework and burden the MDEQ with further collaboration. Please clarify how the water screen is different from the review required under 75-5-303 MCA, and if any additional mitigation measures would be required above and beyond what can be expected from MDEQ.

R-17: The water screen is not a limit on discharge. It is a trigger to be used by BLM to indicate when detailed analysis of monitoring data is needed. This would allow BLM to evaluate the potential for water quality standards being exceeded before the exceedance actually occurs.

Discharge monitoring reports will be used to determine the volume of untreated water being discharged. The 7Q10 calculations will be based on USGS streamflow data. Ephemeral and intermittent streams will have a 7Q10 of zero, so analysis will be required if there is any untreated discharge.

BLM has entered into a memorandum of understanding (MOU) with MDEQ under which BLM is providing funding under the Energy Policy Act's Pilot Office provisions for several MDEQ positions. One of the duties specifically identified for these positions is the review of BLM analysis.

The scope of the report is discussed in Chapter 2 of the SEIS, under Alternative H. This section has also been modified to clarify that this would be an annual report, which considers all discharges within the watershed cumulatively.

BLM does not believe that it would be more efficient to have operators prepare the reports, since this would require preparation effort and then detailed review and analysis of many reports. In most cases, these reports will probably not be complicated or controversial; in cases where it appears that there are issues, however, stakeholders may be consulted.

The provisions of the water screen are not substantially different from MDEQ requirements under 17.30.715. Both items relate to the 10 percent over the 7Q10 threshold and both allow re-evaluation under "cumulative impacts" and "any other information deemed relevant by the department."

C-18: The SEIS does not analyze the indirect impacts to wildlife or the human environment from discharge of produced water to surface streams. This may impact shoreline vegetation and increase soil salts to the extent that both sensitive crops and native vegetation may be killed. In addition, there may be impacts to shallow groundwater quality from impoundment infiltration and other water management practices.

R-18: The SEIS does analyze the direct and indirect potential impacts to wildlife and the human environment. They are addressed in several sections of Chapter 4, including Hydrological Resources and Wildlife.

C-19: There is no evidence of water quality degradation at the Montana border attributable to CBNG discharges. This fact should be highlighted and stated directly in the EIS. Any reference to assertions that the way WYDEQ is managing water quality discharges will lead to degradation of surface water quality below standards in Montana is unwarranted, unsupported by the facts, and should be removed from the document.

R-19: The SEIS states that the impact analysis is based on the assumption that water management in Wyoming will proceed as assumed under the Wyoming EISs (USDI 2003) Alternative 2A (see the "General Assumptions" section in Chapter 4. It is also discussed in the impacts section that implementation in Wyoming may be different than assumed to assure compliance with the Montana Standards (e.g. see Chapter 4 "Hydrologic Resources" Alternative E under "Powder River").

C-20: Page 2-8: Under "Hydrologic Resources" the wording in the second paragraph should be changed to the following: "Montana's water quality standards for the Tongue and Powder Rivers are being challenged by court actions which are not yet resolved. The states of Montana and Wyoming are in negotiations on appropriate state line standards and how CBNG discharges in Wyoming will be managed to meet whatever standards are eventually adopted."

R-20: The wording within the FSEIS Mitigation Measures Common to All Alternatives table has been modified accordingly.

C-21: Page 4-77: In the second paragraph of the right-hand column, note that Montana's 2003 standards are being challenged in both Montana and federal courts and that those court actions have not been resolved. Additionally, the last sentence should be modified as follows: "In addition, all CWA permits issued in Wyoming authorizing discharges into streams that flow north into Montana contain conditions to ensure that Montana's water quality standards are not exceeded at the border."

R-21: The language in the FSEIS has been modified.

C-22: Pages 4-77 and 4-78: Montana's proposed nondegradation requirements have not been approved by EPA. Their impact, even if approved by EPA is very speculative at this time. Wyoming suggests that the discussion of this issue be limited to those basic facts and that the discussion on page 4-78 as written be deleted.

R-22: The text within the SEIS acknowledges that the standards have not been approved by EPA. However, BLM believes that the discussion concerning the effect of possible outcomes is necessary to understand the issue.

C-23: Page 4-84, Table 4-33: The table should include the timeframe of the data set used to establish the existing stream water quality and the data source (i.e., USGS). The table should include the assumptions used in making the calculations, such as assumed additional flow from CBNG water; assumed EC, sodium, calcium, magnesium and any other constituent concentrations used in the calculations; the method of calculating resulting concentrations; and the timeframe represented (i.e., yearly average, seasonal average, or monthly average). This comment is applicable to all other tables representing mixing calculations throughout the document.

R-23: The data set used is in Chapter 3, Hydrological Resources, Surface Water Discharge and Water Quality for Minimum Mean Monthly Flows at Selected USGS Stations Table. The stream segments and gauging stations are shown on the Powder River Basin Watersheds and Area USGS Gauging Stations Map. The assumptions used concerning water quantity and quality is contained in the text.

C-24: Page 4-84: This section discusses Alternative A, No Action (Existing CBNG Management) and assumes that approximately 15 percent of the water produced in Wyoming would reach the Tongue River, but there is no basis for this assumption. In fact, WYDEQ records and records from the Wyoming Oil and Gas Conservation Commission substantiate that no more than 1.1 percent of

produced water in the Tongue River Drainage Basin has actually reached the Tongue River in any given month. That equates to a peak average monthly volume of 0.19 cubic feet per second. Consequently, the effects presented in Table 4-33 should be amended to incorporate realistic expectations of CBNG flows and concentrations.

R-24: The assumption is 15 percent of the produced water in the Wyoming portion of the Tongue River watershed discharged to impoundments would reach the Tongue River. This is based not only on existing production but also on future production under the Reasonably Foreseeable Development Scenario. This value was derived during the development of the Surface Water Quality Analysis Technical Report in 2002. The development of this analysis included input from WYDEQ, MDEQ, EPA, and BLM. Using 15 percent as an estimate is a reasonable approach to assessing potential affects from the discharges in Wyoming. The text within the FSEIS clarifies that the 15 percent refers to produced water within the Tongue River watershed that is discharged into impoundments.

C-25: The first paragraph under Powder River on page 4-85 and first paragraph on page 4-86 under Little Powder River incorrectly suggest that Wyoming discharge permits do not protect the Montana water quality standards. Wyoming CBNG discharges are managed to result in minimal to no change in water quality in rivers shared between Montana and Wyoming. In all circumstances, they are managed not to exceed Montana water quality standards. The management of CBNG in Wyoming should not be in question in this document. The 40 percent minimum mean monthly flow is not relevant to the document because it is not an existing enforceable standard and should be deleted.

R-25: The referenced language states that under Alternative A, there would not be any CBNG wells in Montana discharging to the Powder or Little Powder rivers. Therefore, any alteration in quantity or quality of water in the two rivers would be due to discharges in Wyoming. This does not suggest that Wyoming discharge permits do not protect Montana Water quality standards.

C-26: The DSEIS does not describe what an application must contain to demonstrate that surface or subsurface water will not be degraded. The DSEIS must set forth how Onshore Order No. 7 will be applied in this instance to be consistent with previous applications in other locations and for other oil and gas operations.

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R-26: What an application must contain is determined on a case-by-case basis depending on several factors, including the water quality and soil type (it is site specific). Demonstrating that water will not be degraded will depend on site-specific conditions.

C-27: The term "land application" should be replaced with "managed irrigation" to maintain consistency throughout the document. "Land application" as the term is generally used is not considered to be a beneficial use.

R-27: The text in the FSEIS has been modified to read "managed irrigation" as opposed to "land application."

C-28: Regarding increased methane production in two water wells on the Tongue River Reservoir State Park, as well as increased seepage under the reservoir, the DSEIS only refers to the MFWP in this discussion. Have operators been approached about this issue? What data are available, and how does MFWP know that there is increased seepage under the reservoir? The DSEIS does not explain the fact that there is an outcropping of coals within the reservoir.

R-28: The information as presented was reported to BLM by MFWP and concerns only reports of methane. Potential causes are not discussed.

C-29: SAR is not a constituent; it is the ratio of calcium and magnesium in comparison to sodium. The DSEIS does not provide a complete list and map showing the USGS monitoring stations along the Tongue River.

R-29: SAR is defined as a ratio within the text of the Hydrological Resources section of Chapter 3. A list of USGS monitoring stations is in Chapter 3, Hydrological Resources, Surface Water Discharge and Water Quality for Minimum Mean Monthly Flows at Selected USGS Stations Table. A map also shows the location of USGS monitoring stations included as Powder River Basin Watersheds and Area USGS Gauging Stations Map.

C-30: There is a statement in the SEIS, "As such it does not appear that CBNG development had a measurable effect on EC and SAR through 2005." Has this knowledge and the relevant data been considered and applied in the development of the new alternatives? If so, how and in which alternatives?

R-30: Surface water quality and quantity data were considered in the development of each alternative. The more recent data for 2003 through 2005 was also

considered in the development of Alternatives F, G, and H. The potential for impacts to surface water quality and quantity are not based solely on current levels of development, but also on future development as outlined in the Reasonably Foreseeable Development Scenario described in Chapter 4.

C-31: There are no electrical power plants using CBNG-produced water within the DSEIS area. They are not applicable to the current affected environment.

R-31: It is appropriate for Chapter 3, Affected Environment, to include a discussion of the potential beneficial uses for CBNG-produced water.

C-32: The DSEIS fails to address the naturally occurring groundwater quality present in the wells on the reservation. Table 3-19 demonstrates an extremely wide range of SAR and total dissolved solids (TDS) values, with the upper ends of the ranges higher than most CBNG-produced water; e.g., in the table, highs for SAR range from 11 to 82, and, TDS ranges from 1,180 to 8,060 mg/l.

R-32: The data in the Chapter 3, Native American Concerns, Groundwater Sodium Adsorption Ratio and Total Dissolved Solids Values Crow Reservation Table are based on the analysis of naturally occurring groundwater present in wells on the reservation. The source of the data is referenced in the table.

C-33: How will BLM (and the Northern Cheyenne Tribe) enforce very low allowable SAR and TDS numbers in CBNG-produced water when natural sources have high numbers and wide ranges?

R-33: MDEQ, EPA, and the Northern Cheyenne Tribe are responsible for enforcement of water quality standards.

C-34: The DSEIS should advise the reader that MDEQ has never granted an authorization to degrade water quality. Consequently, it should not be presented as a viable option for any alternative.

R-34: The fact that MDEQ has never approved an authorization to degrade water quality is acknowledged within the DSEIS (for example see Chapter 4, Hydrological Resources, Alternative C, Rosebud Creek and Yellowstone River Subsections, etc.). Although it has not been done yet, an authorization to degrade is still a legal option (MCA 75-5-303.3).

C-35: On page 3-50 under "Existing Wells and Springs," the DSEIS states the following: "Furthermore, it is unlikely that CBNG production would impact springs, because if subsurface coal

seams were in direct contact with surface springs, water and methane gas would have long ago leaked to the surface....” Most springs are expressions of local groundwater flow systems. BLM should make its discussion on page 4-81 consistent with its interpretation in Chapter 3.

R-35: The text in Chapter 3 provides that it is unlikely that CBNG production would impact springs. The text in Chapter 4 provides management alternatives that could be used should a spring be impacted, however unlikely that may be. The text from Chapters 3 and 4 is consistent.

C-36: Nonproductive coals are predicted to regain 80 percent of their pressure within five years. Surface aquifers that are projected to lose only 6 feet of pressure, would regain 50 percent of that pressure in less than 10 years (Wheaton and Metesh 2002, page 4-82). BLM should modify this statement because no drawdown effects from CBNG production have been observed in non-producing aquifers or overlying aquifers after 6 years of monitoring in the CX Field (Source: Ground Water Information Center database 2006).

R-36: The statement accurately reflects the groundwater modeling results and is not based on the current level of production from the CX Ranch Field. The fact that drawdown has not been observed in units other than the developed coal seams is included in Chapter 3, Hydrological Resources, Observed CBNG Related Groundwater Drawdown Subsection.

C-37: A recent analysis of WYDEQ's Impoundment Groundwater Monitoring Database found that of 77 CBNG impoundments in compliance monitoring; only 6 came out of compliance due to exceeding one or more water quality parameters. By the end of 2006, those six sites were back in compliance following subsequent monitoring (Osborne, et al. 2007). BLM should advise the reader of these updated findings.

R-37: BLM reviewed this information in the preparation of the FSEIS. The review determined that, when compared to the DSEIS, new significant information was not presented. Therefore, the new information did not result in a modification to the FSEIS.

C-38: Water well or spring mitigation agreements are private contracts between operators and willing landowners. Operators cannot be required to certify that agreements have been made when some landowners may not be willing to sign one. Jurisdiction over mitigation agreements is under the Montana DNRC, not BLM. Thus, requiring that an

operator certify entering into such an agreement is unreasonable and unwarranted.

R-38: Alternative E does require the operator to certify that mitigation agreements have been ratified; however, this requirement has been dropped from the proposed decision (see Chapter 2, Alternative H).

C-39: The DSEIS should note that the cause of the siltation in Hanging Woman Creek is not related to CBNG production and that this impairment is best addressed by correcting the sources of the impairment through the total maximum daily load (TMDL) program by the appropriate agencies and landowners. It is not within BLM's statutory authority to limit treated water discharges.

R-39: The identified probable source of impairment is included in Chapter 3, Hydrological Resources, Impaired Water Bodies in Area of Maximum CBNG Potential Table of the SEIS. The fact that the stream is impaired may be used by MDEQ to determine the level of discharge of treated and untreated water that would be allowed. Additionally, since BLM is the designated management agency for water quality for lands it manages (2002 Non-point source MOU between BLM and DEQ), the agency must evaluate potential impacts to surface water quality from erosion/siltation.

C-40: MDEQ, not BLM has the responsibility to issue discharge permits that meet applicable water quality standards and non-degradation criteria under the Clean Water Act (CWA). BLM attempts to impose water quality criteria which are duplicative of the state of Montana's criteria, are mandated without any formal rule-making process, do not acknowledge whether an operator is compliant with its MPDES permit, and would be applied without consideration of site-specific conditions. Furthermore, BLM has not defined land health standards, nor invoked an authoritative reference. The proposed 7Q10 limitation exceeds BLM's authority and could create more environmental impacts, while interfering with POD area-wide water management, which will be permitted by MDEQ to meet all applicable water quality rules.

The "potential to cause water quality standards to be exceeded" is not defined. How is potential defined in terms of concentrations, for which parameters, and at what flow rates? The DSEIS has not indicated if and how BLM would account for the natural variations in water quality in determining potential. The DSEIS has not indicated if and how BLM would account for contributions of contaminants from non-CBNG sources, such as mining or irrigation return flows, in determining potential. The DSEIS has not indicated

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what regional surface water monitoring stations it is referring to, nor if and how it will deal with potential discharge sites that do not have upstream and/or downstream regional monitoring stations.

R-40: BLM's intent with the water screen and implementation of the 10 percent of the 7Q10 threshold is to provide a way to evaluate the potential for a discharge to exceed a water quality standard before the exceedance actually occurs. This would allow BLM, in consultation with MDEQ, to work with operators in implementing measures to avoid the exceedance.

The first paragraph describing the screen (see Chapter 2, Alternatives, Alternative H, Water Screen Subsection) clearly identifies the objective as coordination and reducing duplication of efforts. Natural variations and non-CBNG sources would be considered during consultation with MDEQ.

BLM recognizes the primacy of MDEQ in permitting and enforcement of water quality in the state but retains its oversight responsibility as it applies to management of produced water from federal minerals. The water screen does not have specific limits attached to it, as each hydrological setting and CBNG development is site-specific. CBNG water, although it is unaltered groundwater, is considered to be a pollutant. As such, it is regulated by the MDEQ's MPDES program.

Land health standards refer to the Montana/Dakotas Standards for Rangeland Health, operating standards developed to guide management of all uses on BLM rangelands managed by the Miles City Field Office.

Potential to exceed is determined by surface mixing models included in Chapter 4 Hydrology. Regional monitoring guidance is spelled out in the USGS Surface-Water Monitoring in Watersheds of the Powder River Basin, 2005 report in the Monitoring Appendix.

C-41: New Tables HYD-2 and HYD-3 present the 2004 TMDL impaired water body status for the Upper Tongue River and Lower Tongue River, respectively. These stream segments have experienced discharge of treated and untreated CBNG-produced water. However, CBNG was not found to be a source of water quality impairment by MDEQ. The impairment sources included grazing, agriculture, wastewater lagoons, dam construction, and flow modification or hydromodification. Flow modification and hydromodifications are associated with stream diversions for irrigation. Given this new information, BLM should update the 2003 discussion on page HYD-3 under the heading "Surface Water

Impact from Discharge." The initial statement, "[i]mpacts to surface water from discharge of CBNG water can be severe depending upon the quality of the CBNG water," is also not consistent with the TMDL findings. The cited TMDL report demonstrates that the other referenced sources have resulted in impaired water bodies in the Tongue River drainage, but that CBNG activities to date have not.

R-41: Findings of the 2004 Impaired Waterbodies List are included in Chapter 3, Hydrological Resources, Impaired Water Bodies in Area of Maximum CBNG Potential Table of the SEIS. This table includes the probable sources of impairment. Neither CBNG nor oil and gas development is mentioned as a probable source. While CBNG activities have not impaired water bodies in the Tongue River drainage to date, the potential does exist, particularly as development expands beyond current levels.

C-42: HYD-8: "The 1996 list identified many waters within the Tongue and Powder TMDL planning areas as impaired by salinity, total dissolved solids, chlorides, metals, inorganics, suspended solids, siltation, nutrients, low dissolved oxygen, pathogens, flow alteration, thermal modification, and habitat alteration. Of these pollutants, salinity, total dissolved solids, metals, and nutrients are frequently associated with produced water from CBNG development. CBNG development may also cause flow alterations and associated pollutants to exceed standards (i.e., total suspended solids)."

This paragraph does not accurately reflect the sources of water quality impairment actually found in the 2004 TMDL assessment. It should be updated to more accurately reflect that sources other than CBNG discharges are responsible for the current impairments in the Tongue River Basin. BLM's updated discussion should clarify that the pollutants listed, including salinity, total dissolved solids, and nutrients are also frequently associated with agricultural sources of contamination and that irrigated agriculture in the Tongue River Basin is a large source of flow alterations.

R-42: The tables contained within the Hydrology Appendix contain information on the "Probable Causes of Impairment." The text in the FSEIS states "agriculture, dam construction and hydromodification (all of which relate to irrigated crop production), are included on these lists."

C-43: The DSEIS should set forth that the monitoring requirements for CBNG discharges are contained in an operator's MPDES permit, which is administered and enforced by MDEQ. It should also

state that BLM will rely on MDEQ to implement monitoring requirements and trigger levels and to require remedial action as necessary.

R-43: BLM has the responsibility to monitor the disposition of water and other products taken from federal minerals. While it does not approve and administer MPDES permits, it retains an advisory role to MDEQ as these permits pertain to federal minerals. Onshore Order Number 7 clearly states the following: “The approval of the Environmental Protection Agency or a State/Tribe shall not be considered as granting approval to dispose of produced water from leased Federal or Indian lands until and unless BLM approval is obtained.”

C-44: There is significant new information regarding the feasibility of reinjection that further establishes its viability as a means of protecting ground and surface water resources. MBOGC recently granted a permit to Pinnacle Resources to reinject CBNG wastewater, and the Montana Bureau of Mines and Geology has produced maps of underground formations suitable for injection. The SEIS must incorporate these and other developments in taking a hard look at a phased development alternative that incorporates reinjection.

R-44: Injection is already considered and analyzed as a water management option under the preferred alternative; however it cannot be mandated in all areas. When injecting into coal seams, the area must be geologically or geographically separated from CBNG development. As discussed in the SEIS, studies indicate that suitable shallow injection zones in units other than the coals, which would allow for the future use of the water, are limited to about 9 percent of the PRB.

C-45: The water screen is unsupported by science or data. Because the screen is applied on a watershed basis, it would not provide protection to the countless ephemeral streams. As with the wildlife screen, the 10 percent of the 7Q10 limit appears to be pulled out of a hat. We can find no scientific basis for requiring a surface water monitoring report only if discharges within the watershed are projected to exceed 10 percent of the 7Q10.

R-45: The use of 10 percent of the 7Q10 limit is based on MDEQ's non-degradation regulations. BLM's intent with the water screen and implementation of the 10 percent of the 7Q10 threshold was to provide a way the agency could evaluate the potential for a discharge to exceed a water quality standard before the exceedance actually occurred. This would allow BLM, in consultation with MDEQ, to work with the operator(s) in implementing measures to avoid the

exceedance. Because the water screen is applied on a watershed basis, it would apply to ephemeral as well as main stem streams (i.e., any untreated discharge to an ephemeral or intermittent stream would trigger the requirement since the 7Q10 is zero).

C-47: BLM's proposed use of the 7Q10 flow rate as a water screen is a mistaken policy. Evidently BLM assumes that all discharge permits issued by MDEQ would be based on the annual 7Q10. Although some permits include discharge limits incorporating the annual 7Q10 flow, not all permits do, and other flow criteria may be used. The Montana Board of Environmental Review specifically eliminated a provision in state rules that had previously required use of the 7Q10 flow for CBNG permitting. (<http://www.dea.state.mt.us/ldirl/egallNotices/17-236adD.pdf>).

R-47: The provisions of the water screen are in addition to MPDES permit conditions. In accordance with BLM's responsibilities that apply to federal minerals, they will advise MDEQ about surface water quality changes and CBNG production

The screens are not a regulatory step, but rather a tool to identify potential problems. MDEQ is responsible for making all determinations of water quality impairment. Until such a determination is made, BLM may prohibit disposal of any substance on public lands.

The text within the SEIS does not imply that BLM is regulating water quality. In fact, it clearly discloses who has regulatory authority. Outside of this regulatory arena, BLM has a responsibility to know the condition of public resources and what effects are being generated by activities it approved. This would allow BLM to coordinate with the proper agency that does have regulatory authority. This regulatory body could then take appropriate regulatory action while BLM takes appropriate management action (actions necessary to meet BLM's standards for rangeland health, Miles City Standard 5). In this case, MDEQ would be responsible for regulatory action, and BLM would be responsible for its land health (management) standard.

C-48: On page 2-21, it is specified that even if the 10 percent of 7Q10 threshold is not exceeded, CBNG discharges could be arbitrarily disallowed from federal wells. The first full paragraph on page 2-21 appears to authorize this in ill-defined situations where CBNG discharges are causing surface water quality standards or land health standards to be exceeded, but not by enough to exceed the actual standard stated in the SEIS.

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R-48: The text is correct. If CBNG discharges are causing surface water quality standards to be exceeded (i.e., excessive erosion), even if discharges do not exceed the 10 percent of the 7Q10 threshold, no additional CBNG discharges would be allowed from federal wells upstream of the exceedance.

Land Health Standards refer to the Montana/Dakotas Standards for Rangeland Health, operating standards developed to guide management of all uses on BLM rangelands managed by the Miles City Field Office. Excessive erosion is covered under these standards.

C-49: EPA recommends that the water screen clearly state that the CWA and EPA's implementing regulations require that discharges with the potential to cause or contribute to water quality standards (WQS) excursions be subject to water-quality-based effluent limitations as stringent as necessary to meet water quality standards.

R-49: The water screen is in addition to MDEQ permits, including MPDES requirements for water quality based effluent limitations. See the modified text in Chapter 1 of the FSEIS under the heading of Montana Department of Environmental Quality.

C-50: There is a concern that applications for individual well permits will not require preparation and submittal of a plan of development, which includes a water management plan. Information provided in the DSEIS indicates that CBNG wells produce water at a rate of 15 to 20 gpm, which, over time, is reduced to 2 to 5 gpm (page 3-52). With the substantial quantities of water produced by even an individual CBNG well, EPA recommends that BLM require water management plans for individual CBNG APDs.

R-50: While not submitted as part of a POD, water management for individual well APDs must conform to Onshore Order 1 (Approval of Operations) and Onshore Order 7 (Water Management). Part of Onshore Order 7 is a demonstration of the ability to safely manage produced water.

C-51: In the DSEIS, the impacts to surface water quality were estimated using EC and SAR values for CBNG-produced water quality based on data available through 2002. Considering the extensive CBNG development that has occurred since 2002, EPA recommends that BLM review the CBNG water quality estimates used in the impact analysis to ensure that they are still representative and not significantly under-predicting or over-predicting the impact to surface water quality.

R-51: Comparisons of monitoring data to modeling data indicate that the model used for the SEIS is

somewhat conservative. While there have been much more data collected about CBNG water quality in the basin, most is from Wyoming or that part of Montana directly adjacent to Wyoming. Large portions of the Montana part of the basin have had no CBNG production. In some respects, the coal sequence is getting shallower, and higher quality water may occur, as seen in the eastern edge of the basin in Wyoming. The general trend up to now is that water quality declines as production moves north and west in the basin. In the next 20 years, these outlying areas are expected to become productive, but water production rates and water quality are likely to vary highly. Parameters used in the SEIS are considered to be conservative, but reasonable, estimates.

C-52: EPA is concerned about concluding that CBNG development will not affect surface water quality because additional discharges of saline CBNG-produced water will likely increase total dissolved solid (TDS) loading to receiving streams. Also, increased stream flows from CBNG discharges beyond historical flows have the potential to destabilize stream channels and increase channel and bank erosion, thus, potentially increasing sediment and siltation impairments. EPA recommends that BLM clarify this text in Chapter 3.

R-52: Chapter 3 does not conclude that CBNG development will not affect surface water quality. It concludes that monitoring to date has not resulted in noticeable impacts. This is not to say that future development at RFD levels could not result in noticeable impacts. The SEIS highlights the impacts of CBNG development on surface water quality in the Hydrology section of Chapter 4, which includes a quantitative analysis of impacts to EC (proportional to TDS) and SAR. A qualitative description of the impacts from increased flows, sediment, and siltation is also included in Chapter 4. Uncertainty of impacts was one of the reasons behind the proposed water screen and the subsequent adoption of a two-part discharge monitoring program with built-in redundancy. To discharge treated, partly treated, or untreated water, an operator must first obtain an MPDES permit from MDEQ. The permit will set limits on discharge in terms of TDS loading, SAR effects, and flow rate impacts. Permits are written with knowledge of and reference to existing stream conditions and existing discharge permits. The water screen functions as an additional way to alert the oversight authority of BLM on federal minerals.

C-53: It is unclear from the discussion in Chapter 4 of the DSEIS whether the Yellowstone River would receive both untreated and/or treated discharges.

R-53: The Yellowstone River at Sidney, Montana (the gauging station downstream of all Montana and Wyoming CBNG development), will receive both treated and untreated water. The text in the FSEIS in Chapter 4, "Hydrological Resources" and then "Yellowstone River" has been modified to read as follows: "...from the Wyoming portion of the Powder River Basin under the Preferred Alternative, CBNG discharges to these streams will be a combination of treated and untreated water."

C-54: Up to 18,225 new CBNG wells could potentially be developed on federal surface and mineral estate lands, including some with additional saline discharges to surface waters. BLM predicts that water quality will be "slightly altered; however, beneficial uses will not be diminished," due to the proposed CBNG development (page 4-77). EPA is concerned about even slight alterations in water quality, since monitoring data show that water quality standards are currently exceeded at times in some surface waters (Table 3-7, page 3-37, Table 4-54, page 4-113), and water bodies in the area are listed as water quality impaired under section 303(d) of the CWA (Table 3-9, page 3-39). Where existing water quality is already at or near the water quality standards, even small reductions in water quality may cause or contribute to water quality impairments.

R-54: The potential for impacts to surface water quality resulting from project related activities is discussed in detail under the Hydrological Resources section of Chapter 4. The potential impacts are based on the specific elements for each alternative, which could include up to 18,225 Applications for Permit to Drill being approved for CBNG wells.

As stated in the SEIS (see Chapter 4 Hydrological Resources), many streams exceed Montana's water quality standards. CBNG has the potential for impacting surface water, but the MPDES permitting process and the water screen process are designed to mitigate the impacts. Page 1-10 has been modified to clarify that discharges with the potential to cause or contribute to water quality standard excursions are subject to water quality-based effluent limitations as stringent as necessary to meet water quality standards.

C-55: Throughout the development of the EIS and subsequent SEIS, numerous stakeholders have expressed concern regarding CBNG water management and impacts. Thus, it is important that the SEIS clearly identify the water bodies that may be impacted and the potential impacts. EPA recommends this section be expanded in the SEIS to include more detailed maps and to clarify impacts

predicted under the Preferred Alternative, Alternative H.

R-55: More detail can be found in the SWQATR and the 2003 EIS, which are part of the SEIS. These are the best estimates of impacts from a regional perspective. Detailed site-specific analysis will be conducted for each proposed federal POD per NEPA requirements.

C-56: EPA recommends that Table 3-9 (page 3-39), Impaired Water Bodies In Area Of Maximum CBNG Potential be expanded to include all CWA section 303(d) listed water bodies in the area that could potentially be affected by CBNG development (e.g., Otter Creek, Pumpkin Creek, Powder River, Little Powder River, Mizpah Creek, Stump Creek). Table 3-9 should be revised to disclose all water quality impaired streams in the project area that could potentially be affected by CBNG development.

R-56: All section 303(d) impaired streams from the 2004 report that may be affected are listed in Chapter 3, Hydrological Resources - Impaired Water Bodies in Area of Maximum CBNG Potential Table. The referenced streams are not listed as impaired on the 2004 303(d) list. The 303(d) list is defined as waters with Category 5 designations: i.e., "Waters where one or more applicable beneficial uses have been assessed as being impaired or threatened, and a TMDL is required to address the factors causing the impairment or threat." (MDEQ 2004).

C-57: EPA recommends that sufficient monitoring be conducted in all receiving streams where there are CBNG discharges to surface waters to ensure that such discharges are not causing or contributing to excursions of water quality standards, rather than only in those watersheds where proposed untreated discharges exceed 10 percent of the 7Q10 flow.

R-57: MPDES permits contain monitoring requirements. In addition, the Miles City Field Office has published annual watershed monitoring reports describing water quality trends in the main streams. The water screen contains provisions for additional monitoring of stream water quality. This level of monitoring is believed to be adequate, based on results of the monitoring data collected to date for streams in the basin.

C-58: The DSEIS discusses the extent to which Montana's water quality standards would apply to Wyoming. We suggest that BLM review the current draft language to ensure the document clearly and consistently explains that regulated discharges in

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Wyoming must ensure compliance with Montana's water quality standards at the border.

R-58: This requirement has not been clarified. See the discussion within the Hydrological Resources section of Chapter 4.

C-59: EPA recommends that the SEIS evaluate and discuss potential water quality impacts associated with other potential pollutants in CBNG discharges, especially selenium and fluoride.

R-59: The Water Resources Technical Report (ALL 2001b), which the SEIS incorporates by reference, includes data on selenium and fluoride, as well as many other constituents from the water produced from the CX field on page 36, Exhibit 24. Selenium and fluoride have not been seen as a widespread problem in CBNG water in the PRB; however they may be of concern as site-specific parameters. As such, they will be addressed in the site-specific water management plans and discharge permits, rather than in this basin-wide document.

C-60: EPA recommends groundwater modeling and monitoring be required for CBNG development within 11 miles of reservation boundaries at a minimum. EPA believes that the commitments in the water screen could be strengthened to provide a way to detect all potential aquifer drawdown that may occur from CBNG developments, including those that result from CBNG developments that are over 5 miles from reservation boundaries.

R-60: Aquifer drawdown that would occur beyond the 5-mile reservation boundaries is taken into account (see response to C-4). In addition to the water screen, the water well and springs mitigation agreements, as required under Order 99-99, would provide a way to monitor groundwater drawdown around private water wells and tribal land.

C-61: The DSEIS indicates that production plans will be modified to limit drawdown impacts to springs that are culturally significant or critical to wildlife. If the springs have been identified, EPA recommends that the SEIS include a map identifying the springs. If the springs have not been identified, EPA recommends that the SEIS include a discussion of how the springs will be identified and monitored and how mitigation measures will be considered to reduce impacts from drawdown.

R-61: As detailed in Chapter 2, POD Requirements, CBNG developers must identify water wells and springs in the vicinity of proposed development during POD submission. Monitoring springs will be part of any development plan. Springs that are culturally significant would be identified through

consultations with tribal authorities on a site-specific basis for each POD submitted to BLM. Springs that are important to wildlife would be identified through the site-specific wildlife survey conducted for each POD.

C-62: Exceedance of Northern Cheyenne Tribal Water Quality Standards should be included among the factors for remedial action triggers (Table Mon-1). The remedial action trigger for groundwater drawdown is a 20-foot decrease in static water level. It appears that this would allow for a significant groundwater drawdown before the remedial action of a water well mitigation agreement is offered to landowners. EPA recommends that a lower magnitude of groundwater drawdown (e.g., 5 feet) be considered for a remedial action trigger. It is not clear why the remedial action trigger of a 50 percent decrease in spring discharge is only determined in the first three years. If groundwater drawdowns that cause significant reduction in spring flows occur after three years, EPA recommends these adverse effects to springs should also be mitigated.

R-62: Receiving stream monitoring is part of every MPDES permit issued by MDEQ regardless of the rate of discharge. MDEQ determines which parameters would be monitored for surface water discharges on a site-specific basis depending on the quality of the discharged water and the receiving water body. Where appropriate, and if approved by EPA, the Northern Cheyenne Water Quality Standards would be included in monitoring requirements. BLM believes that a 20-foot drawdown in static water level is appropriate for determining potential impacts to groundwater, particularly since it is dealing with aquifers having substantial artesian pressure. Requirements for water mitigation agreements are specified by MBOGC Order 99-99, and are not a function of the trigger in the monitoring appendix. The seasonally adjusted mean spring flow is determined in the first 3 years; this is the spring's baseline flow rate against which subsequent flows are measured to determine impact.

C-63: Adequate resources are often not devoted to monitoring of environmental effects so that effects may go undetected. Thus, they are not adequately mitigated. EPA recommends that BLM discuss this issue in the SEIS and ensure adequate resources for monitoring. EPA also recommends that BLM ensure that agencies and the public to have access to periodic monitoring reports and information on mitigation taken in response to monitoring results.

R-63: Monitoring of surface water quality is specified by MDEQ and written into MPDES

permits. Groundwater monitoring is required by MBOGC as part of each development plan. Monitoring reports submitted to the MBOGC are posted on its website. Data collected in association with MPDES permits are available through EPA's STORET database. The Montana BLM has established a CBNG monitoring website where all monitoring reports are posted (http://www.blm.gov/mt/st/en/fo/miles_city_field_office/cbng/monitoring.html).

C-64: For the benefit of the public, when discussing the regulatory areas where BLM has shared responsibilities or consultation requirements with other federal agencies in Chapter 1, page 1-6, EPA suggests the following edits to the second bullet: "For activities that would impact waters of the United States from the discharge of produced water, BLM must comply with the Clean Water Act (CWA) as provided by section 313 (which subjects the federal government to the same requirements regarding the control and abatement of water pollution as any nongovernmental entity relating to the discharge or runoff of pollutants) and section 401 of the CWA, (which gives states the authority to veto or place conditions on federally permitted activities that may result in water pollution)."

R-64: The existing text clearly states BLM's responsibility to comply with the Clean Water Act and the Montana Water Quality Act.

C-65: EPA also suggests the SEIS include language in Chapter 1, page 1-12, to explain the link between water quality standards, permits, monitoring and assessment. EPA suggests adding the following text to the end of the CWA section 303(c) paragraph on page 1-12: "NPDES permits must include limits as stringent as necessary to meet water quality standards (40 CFR 122.44). When waters are monitored and assessed, the data are compared to the water quality standards to determine whether the water is impaired and whether discharges have the reasonable potential to cause or contribute to such impairments."

R-65: The text in the FSEIS has been modified to include the recommended language.

C-70: In Chapter 3, page 3-32, EPA suggests adding a reference in the fourth paragraph of the Surface Water section to Vol. II, HYD-10 to -11 and adding language to HYD-10 to clarify that the standards language there is the 2003 language, not the 2006 language. EPA also suggests BLM add the following clarification to the end of the first paragraph on page 3-36: "The numerical standards for EC and SAR shown in Table 3-6 are the same under Montana's 2003 and 2006 standards."

R-70: The text in the FSEIS has been modified to include the recommended language and changes.

C-71: In Chapter 3, page 3-32, EPA also suggests adding the following sentence to the end of the paragraph about EC and SAR: "Although EPA has not recommended 304(a) criteria for SAR and EC, states may choose to adopt criteria for SAR and EC to protect agricultural crops."

R-71: The text in the FSEIS has been modified to include the recommended language.

C-72: In Chapter 3, page 3-36, the SAR and EC concentrations corresponding to the minimum mean monthly flows at each station were estimated from flow versus concentration relationships developed for each station based on USGS data through 2002. This cutoff date is appropriate for most rivers in the Powder River Basin, but may not be appropriate for the Tongue River and downstream of the Tongue River at Stateline Station. CBNG-produced water has been directly discharged to the Tongue River upstream of the Tongue River at Stateline Station since 1997. The flow versus concentration relationships for the Tongue River should be reviewed to ensure that those used in the SWQATR for the impact analysis are appropriate for the time period before CBNG discharge to the river.

R-72: Numerous studies have been made of the pre-CBNG and post-CBNG water quality in the Tongue River, and no noticeable increases have been observed for these parameters after the onset of direct discharge of CBNG-produced water to the Tongue River.

C-73: In Chapter 3, page 3-52, Water Management, EPA recommends the text under the third bullet be revised from "injection into deep non-underground sources of drinking water..." to "injection into deep underground non-drinking water sources," for clarity.

R-73: The text in the FSEIS has been modified to include the recommended language.

C-74: In Chapter 4, page 4-88, Table 4-37, please clarify the EC values for the Bighorn River at Bighorn. The Table lists the EC values as 962, but the SWQATR lists the values as 952.

R-74: The SWQATR is correct. The EC value of the Bighorn River at Bighorn in Chapter 4, Hydrological Resources, Effects on Surface Waters of the little Bighorn and Bighorn Rivers under the Alternative A Table has been corrected in the FSEIS.

C-75: In the Surface Water Quality Analysis Technical Report, the hydrologic resources sections refer repeatedly to the SWQATR, but do not provide

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a valid reference to the report. The Bibliography lists this report as written by Greystone Environmental Consultants, November 2002. However, the final report was published in January 2003 and lists both Greystone and ALL Consultants as the authors.

R-75: Text of the bibliography for the FSEIS has been changed to the following: USDI Bureau of Land Management, 2003. SWQATR: Surface Water Quality Analysis Technical Report, report to accompany Final Montana Statewide CBNG EIS, Greystone Environmental Consultants and ALL Consultants, Jan 2003.

C-76: Existing approved water management operations may require alteration or even complete changeover to a new method to meet new, more restrictive, standards based on monitoring. Provide a clarification of how BLM intends to phase in new water management measures so that production can continue at a reasonable level. Also provide time criteria that will be allotted to implement new water management measures.

R-76: The Preferred Alternative (H) allows for changing water management requirements. If requirements change, different proposed water management practices will be evaluated on a site specific basis.

C-77: Within the water screen discussion on page 2-21, the word "untreated" should be inserted in the following sentence: "If CBNG discharges are causing surface water quality standards, or land health standards (i.e., excessive erosion), to be exceeded, even if discharges do not exceed the 10 percent of 7Q10 threshold, no additional untreated CBNG discharges would be allowed from federal wells upstream of the exceedance."

R-77: Existing language emphasizes that either treated or untreated water discharges can impact water quality and stream conditions. Even additional treated water discharges can cause increases in suspended sediments and modification to the riparian zone.

C-78: BLM indicated that in addition to following court orders, the agency decided to include an analysis of certain changes in conditions that occurred since the previous ROD was signed. However, additional changes which have to be addressed are itemized below:

- The rate of development is much slower than projected in the 2003 FEIS.
- Water from CBNG wells is significantly less than projected in the 2003 FEIS.

- Groundwater monitoring data show significantly less extensive drawdown than expected in the 2003 FEIS.

- Montana has adopted new stringent water quality standards in the Powder River Basin.

- Additional monitoring activities addressing surface water quality, soils, and crops in the Tongue River watershed have been initiated (USGS Tongue River monitoring, an additional gauging station directly above the T&Y 12-mile diversion dam on the Tongue River).

- The MDEQ Tongue, Powder and Rosebud Creek TMDL Modeling Committee has been established.

- The Agronomic Monitoring and Protection Plan program and Tongue River Information Program have been established.

R-78: The comments provided address current conditions relative to CBNG production at current levels, and most of these points have been incorporated into the SEIS (see Chapter 3, Hydrological Resources). The SEIS also has to consider the potential for those conditions to change as a result of increased CBNG production as proposed within the Reasonably Foreseeable Development Scenario, particularly as development spreads to areas away from the CX Field development.

C-79: Inclusion of the 7Q10 flow rate in the water screen is inappropriate because it presumes all discharge permits issued by the respective state departments of environmental quality would be based on the annual 7Q10 flow. Many permits do not fall within these parameters. In fact, the Montana Board of Environmental Review specifically eliminated a provision in the state rules which had previously required use of the 7Q10 flow for CBNG permitting. The SEIS fails to identify criteria for determining when water quality standards are exceeded. The term "potential" is undefined and fails to explain how natural variations in water quality would be addressed. Moreover, it fails to discuss contaminants from non-CBNG sources or how BLM would handle potential discharge sites not covered by regional monitoring stations.

R-79: The water screen is a BLM reporting trigger, and is not directly linked to any particular permit. Use of 10 percent of the 7Q10 flow is a valid threshold for evaluating if the potential exists for exceeding a water quality standard.

C-80: The paragraph discussing observed infiltration effects on page 3-49 describes what happens to water stored in ponds. It shows that the SAR of the water decreases as it infiltrates, and the EC of the water increases. Photos of ponds near the Decker Coal mine show that the seepage water goes down, hits an impermeable layer, and then proceeds down-gradient. The photos reveal that the water comes out of that seam and then seeps into the mine. The same phenomena will occur with CBNG ponds, but they do not empty into the mine. The water from them will proceed down-gradient until it hits the Tongue River. The seepage water has a TDS of 3,548 and a SAR of 14. How will this water affect water quality in the Tongue River? How long does it take to progress underground to the Tongue River? This management option of water should be discontinued as it only postpones the load of salt from getting into the river. It could very well postpone it until after the developers are gone. The cost of cleanup will then be the responsibility of the state or the landowner.

R-80: Storage of CBNG water in surface impoundments is one option for water management. Many studies are underway in both the Wyoming and Montana portions of the Powder River Basin. While some subsurface migration has occurred, many impoundments appear to be appropriate vehicles for managing waste water. The potential for using impoundments to manage produced water would depend on site-specific conditions. If unacceptable impacts would occur, such as poor quality water seepage into the Tongue River, the proposed impoundment would not be approved.

C-81: Will plugged wells be reopened once the development is complete? Will any water be put back into the aquifers to replace the water that has been removed? What good is the water right for this well if the developer is allowed to take all of the usable water from it?

R-81: Mitigation agreements must be offered to potentially affected landowners; whether or not they execute the agreements is up to the landowners. If the well is impacted, it is often plugged to avoid venting of natural gas. The water supply is then replaced by the operator. After abandonment of the CBNG field, the water wells could be returned to use after a period of recharge so long as they were shut-in rather than plugged.

C-82: On page 4-78, the SEIS talks about the newly adopted non-degradation policy. This non-degradation policy has recently been challenged by the state of Montana, which has sued the state of Wyoming (in the U.S. Supreme Court) for violation

of the Yellowstone River Compact. This case has relevance for issues in this DSEIS because the outcome of this suit will determine how the issues of CBNG wastewater, water mitigation agreements, and other water-related issues are addressed for water coming into Montana from Wyoming. The DSEIS does not consider this issue. The comment is made that non-degradation will be assumed in Montana but not in Wyoming. How can water quality be maintained at ambient levels in Montana if Wyoming does not comply?

R-82: The SEIS addresses Wyoming development and the potential affects that development could have on surface water quality in Montana. The SEIS does not claim that ambient water quality will be preserved in all watersheds. In addition, Wyoming has a pollution discharge elimination system permitting process to protect water quality.

C-83: On page 4-81 of the SEIS, there is a discussion about a hydraulic barrier, and injection wells could be used for such a purpose. This highlights the fact that water can be injected into the aquifers being developed. Why wasn't reinjection into the same aquifer considered in this document for phased in development? Couldn't this also serve to protect wells of adjacent landowners that are not developing? BLM discussed the CX field at the hearing and stated that some of operators' wells are shut in on the edge of their fields. BLM also stated that those wells have come back to about 80 percent of their original levels in about one year. The recharge is coming from the aquifer horizontally. This means that the aquifer is being drawn down for people who obtain their water from that aquifer. Why hasn't reinjection been practiced when the wells were shut in to serve as a hydrologic barrier? It would help alleviate some of the problems caused by CBNG discharge water.

R-83: Reinjection of produced water into the same Aquifer is discussed in Chapter 2, "Alternatives Considered But Not Analyzed in Detail," under the heading, "Reinjection of Produced Water into the Same Aquifer Alternative." The use of reinjection wells to create a hydraulic barrier is presented as an example of one way to limit the lateral extent of drawdown.

C-84: On page 4-82 of the SEIS, there is a statement that the water would likely take hundreds of years to recharge through infiltration. How will landowners be able to sustain their operations if the aquifers do not come back for as long as the SEIS estimates?

R-84: The SEIS (Chapter 4 Hydrological Resources, CBNG Groundwater Drawdown and Water Mitigation Agreements subsection) states that

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“...within three to four years water levels in the coal aquifers are expected to partially recover to within 20 to 30 feet of pre-operational conditions. Complete water level recovery will be a long-term process, likely requiring hundreds of years...” In these artesian aquifers, it is believed that 20 feet of drawdown is a reasonable parameter for evaluation of impacts. Water wells that are impacted by CBNG development would also be covered by the requirement for water mitigation agreements.

C-85: On page 4-84 of the EIS, there is a table that shows water quality at the gauging stations on the Tongue River. Why has the Miles City Station been omitted? The Miles City Station is one that has been monitored for a long time. I acquired the grab sample data from USGS for the Miles City Station, and I arrived at baseline water quality for the Miles City Station for 1959 until 1972. At this point in time, the T&Y ditch was in existence for over 50 years. The return flows from irrigation from T&Y irrigation would be included in these averages. The EC average was 826 microsiemens per centimeter, and the SAR average was 1.48. The next time period I averaged was from 1973 to 1998. The Decker Mine began discharging coal water into the Tongue River in 1973. The EC average was 808 microsiemens per centimeter, and the SAR average was 1.55. In 1999, CBNG discharges started into the Tongue River. From 1999 to 2006, the EC average was 904 microsiemens per centimeter, and the SAR was 2.13. Using the 1959 to 1972 data as baseline, the SAR has increased by 44 percent. The EC has only increased by about 9 percent. This is an unacceptable increase in SAR. This decrease in water quality can only be attributed to CBNG. If the change were due to drought, the EC would have changed by 44 percent to match the change in SAR.

R-85: The station at Miles City was not included since the data at low flows are complicated by the diversion of most of the Tongue River water by the T&Y diversion dam at this time. An increase in SAR, EC, or any other single indicator, cannot be assigned to a single source without modeling flow and composition in the stream. As described in the SEIS, flow rate and composition are closely related in Montana's rivers. The samples mentioned for CBNG development lie entirely in the extended drought area experienced by Montana and much of the arid west. As stream levels drop, salts increase, and calculated indicators such as SAR frequently also increase. CBNG development activities are not expected in northern Custer County for the foreseeable future. As such, the analysis conducted for the Tongue River at Brandenburg Bridge (USGS Station 06307830) is

believed to be representative of the water quality that will be experienced by irrigators near Miles City. Surface water monitoring conducted along the Tongue River does not indicate any noticeable differences in surface water quality due to CBNG development once flow is taken into account.

C-86: The tables begin on page 4-84. For water quality at the state line, the SAR has increased from 0.86 SAR to 1.93 SAR. This is a 124 percent increase in SAR level. How does this satisfy non-degradation? The purpose of the Clean Water Act is to protect existing quality. The SAR at Birney Day is estimated to increase by 131 percent. The SAR at Brandenburg is estimated to increase by 84 percent. There are no estimates done for Miles City. Why were no estimates done for Miles City? The data for the Powder shows that SAR increases by about 130 percent at the State Line and about 146 percent at Locate. The flow on the Little Powder River is increased by 430 percent (page 4-86). How does this meet the nondegradation requirement for flow? Alternatives A thru E show how the water quality will be affected pre-development versus post development. In Alternatives A through E, there are predictions that show that SAR will be affected by almost 130 percent on most of the alternatives.

R-86: See R-85. Also, the Tables in Chapter 4, Hydrological Resources, Alternative A, Effects on Surface Waters of the Tongue River Under Alternative A and similar tables for other alternatives are projections based upon conservative assumptions. The changes to water quality are well within MDEQ water quality standards. If there are changes in surface water quality requirements, water management practices will also need to be modified to ensure that standards are not exceeded.

C-87: Page 4-92 states that water discharges may have to be curtailed. When will this happen? It appears that there will be no controls placed on Wyoming. The Wyoming discharges alone could impair Montana rivers. This EIS has no control over Wyoming discharges. How will the Wyoming EIS be modified to stop discharges in Wyoming, once EPA has ruled that non-degradation is the law of the land?

R-87: Chapter 3, Hydrological Resources section, states that the numerical surface water quality limits adopted by the Montana Board of Environmental Review are enforceable upstream under the CWA. As such, both Montana and Wyoming may have to modify water management practices if EPA approves the designation of EC and SAR as “harmful” parameters.

C-88: If the TMDL will not be done until 2012, how can a good analysis be done in this SEIS regarding TMDLs? On Page 3-32, paragraph 5, it states the following: “The completion of TMDLs for the Tongue River for the parameters of concern, such as SAR and EC, should be included in the SEIS document to ensure that the proper permits must be obtained and complied with....”

R-88: Surface water quality models estimate surface water conditions. Findings of the TMDL will allow better modeling and prediction of surface water conditions. TMDLs will not be established until 2012.

C-89: The DSEIS proposes using CBNG water for “managed” irrigation. Most wastewater from CBNG wells has far too high a pH to be useful for irrigation. BLM does little to describe the factors that may make this option less than desirable. For example, the necessary amendments added to soils so that they can tolerate the highly saline CBNG wastewater are costly and would be needed on an ongoing basis. An economic analysis of these costs was not included. A review of the BLM-sponsored report that was published in 2005, *Soil Chemical Changes Resulting from Irrigation with Water Co-Produced with Coalbed Natural Gas*, by Girusha J. Ganjgunte et al. (Attachment L), provides information on the significant problems associated with using this wastewater as irrigation water.

There is little discussion in the DSEIS of the short- or long-term success of managed irrigation as wastewater management technology. Land application and disposal operations create significant problems, such as over-application and massive reclamation costs required for rehabilitation, especially of areas that were once rangelands (see below) after CBNG wastewater declines and disappears. Additionally, there is increasing evidence (increased SAR and EC levels) from the Wyoming portion of the basin that land application and disposal activities are resulting in unpermitted discharges of CBNG wastewater into tributaries of the Powder and Tongue rivers.

R-89: Irrigation is one of several water management options available. The potential for CBNG-produced water to be used for managed irrigation will depend on the quality of the produced water. The water quality can vary by coal seam, as well as by location of the development within the basin. The use of CBNG-produced water in Wyoming has shown that with the correct pH and use of other parameters it can be managed to allow short-term and long-term irrigation of various crops. An analysis of the

potential effects resulting from the use of CBNG-produced water for irrigation is contained in the *Soils Technical Report (ALL 2001a)*.

The decision whether to use CBNG-produced water for managed irrigation, or other types of crop irrigation, rests with the land owner, who will have to weigh the economic benefit against any increased cost.

C-90: On page 3-39, Table 3-9, the lower Tongue River has only one small segment listed as impaired for flow alteration, which does not reflect other impairments that were often discussed by the Tongue and Rosebud TMDL workgroup. Salinity is a parameter that should be listed as an impairment from the mouth of the Tongue River to the Montana/Wyoming stateline.

R-90: BLM is using MDEQ's determination of which stream segments are impaired. MDEQ does not list the noted segment as impaired.

C-91: On page 3-45, it states that groundwater drawdowns are of concern to the Northern Cheyenne Tribe as they pertain to aquifers on the reservation that provide drinking water from domestic wells and springs. Drawdowns that are reported to be around 594 to 20 feet 2 miles from a CBNG production field are not what the tribe favors. As the CBNG fields move closer to the tribe's boundaries, the need for added protection of tribal resources must be planned and implemented.

R-91: The Preferred Alternative, H, contains a Native American Concerns Screen which includes a 5-mile buffer around reservation boundaries. Within the 5-mile boundary, operators would have to demonstrate that the overall POD would be protective of Indian Trust Assets and air quality. If the site-specific analyses indicate that unacceptable levels of impairment would occur and could not be mitigated, BLM would not approve the APDs.

C-92: Calculations show that each CBNG well in the Dietz Project is expected to produce at an average of 14 gpm and will remove approximately 450 acre-feet of water in its 20-year life (Myers 2006). At an infiltration rate of 0.3 inch per year, it will take approximately 200 years for the aquifer to recharge after the 20-year operational period of the wells, assuming extensive simultaneous development of the CBNG extraction in the basin. If the Dietz Project were conducted in isolation, the recharge times would be reduced, and the expected recharge time over the footprint of the project would be approximately 150 years (Myers 2006). Recharge of the coal and sandstone aquifers in the area and

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reestablishment of the supported springs in the area will not occur for at least 150 years after the Dietz CBNG development is completed. The SEIS does not contain an estimate of recharge rates for the coal seam aquifers in the Powder River Basin, nor any analysis of what factors influence recharge or the rate of recharge.

R-92: The SEIS estimated that the initial rate of water production from a CBNG well would be approximately 15 gpm and would decline over time with an average rate of water production of approximately 2.5 gpm. These numbers were derived from actual CBNG well water production rates for Wyoming and Montana. Using an average water production rate of 14 gpm over the life of the well will overestimate the quantity of water withdrawn, as well as the subsequent time required for recharge. Groundwater modelers assisting the Wyoming BLM determined that coal seams experiencing substantial drawdown also experience recovery as a two-part process. After CBNG development (and water removal) ends, within three to four years water levels in the coal aquifers are expected to partially recover to within 20 to 30 feet of preoperational conditions. Complete water level recovery will be a long-term process, likely requiring hundreds of years for the removed groundwater to be replaced through the infiltration of precipitation. A similar recovery process is expected to occur in the Montana portion of the basin. The 3D computer model conducted for the Montana 2003 FEIS predicted that aquifers within CBNG fields would be expected to recover at least 70 percent within five to 12 years. Aquifers outside of the CBNG fields would be expected to recover 90 percent within three to five years. Factors relating to aquifer recharge, including groundwater modeling results, are contained in the Hydrological Resources section of Chapter 4.

C-93: BLM has stated (during litigation proceedings) that impacts to tributaries were not evaluated during the first EIS process because "untreated produced water discharges to perennial tributaries of the Tongue and Powder Rivers are not likely to ever occur because of the water quality standards adopted by the State of Montana for such tributaries (i.e., EC = 500)." We have previously provided BLM with volumes of evidence refuting this assumption and showing untreated methane discharges (from impoundment failures, overflows, or creation of saline seeps) into Youngs Creek, Squirrel Creek, and Badger Creek—all tributaries of the Tongue River that flow through Wyoming CBNG development fields before emptying into the river. All the discharges were from total containment

impoundments that failed. One failure discharged almost 2.5 million gallons of wastewater into Youngs Creek, measurably increasing pollution. We have documented numerous failures of impoundments in Montana and Wyoming resulting in similar discharges.

R-93: See R-5 and R-80. Application of current and proposed water quality standards for the state of Montana would likely prevent the intentional discharge of untreated CBNG-produced water to main stream tributaries.

C-94: The DSEIS has failed to seriously and adequately address the negative impacts that CBNG wastewater is having and will continue to have on irrigated agriculture.

R-94: The potential effects on irrigated agriculture relate primarily to the potential for impacts to soils from the discharge of CBNG-produced water with high EC and SAR values. Detailed analysis of resultant instream EC and SAR values are provided in Chapter 4. Potential effects are also detailed in the Soils Technical Report prepared for the 2003 FEIS (ALL 2001a). Detailed analysis of resultant instream EC and SAR values are provided within the Hydrological Resources section of Chapter 4.

C-95: In the DSEIS, BLM estimates that only 20 percent of the water discharged from CBNG production will be put to a beneficial use. Where did this number come from? BLM has not adequately addressed the BACT that exists for the management of CBNG wastewater.

R-95: The 20 percent number representing beneficial use is presented in Chapter 4 under the heading of Assumption Rationale, Beneficial Use of CBNG Production Water. CBNG-produced water management/treatment options, as well as potential effects resulting from project related activities, are discussed in the Hydrological Resources section of Chapter 4 and the SWQATR. EPA, not BLM, develops BACT requirements for each industry. EPA has not yet developed BACT for the CBNG industry.

C-96: BLM's surface water quality analysis was based on numerous unsupported assumptions and conclusions that likely underestimate the volume of wastewater that will reach the mainstreams of the Tongue and Powder rivers. First, BLM assumed that operators will use certain disposal methods in each watershed and then made assumptions about how much wastewater from each means of disposal would reach the mainstreams of the rivers. Second, BLM assumed that none of the wastewater put to a beneficial use (including land application and

disposal operations) or discharged into impoundments would reach surface waters. Third, BLM assumed that none or at least minimal volumes of wastewater discharge to ephemeral or intermittent tributaries of the Powder and Tongue rivers would ever reach the mainstreams. These assumptions are not supported by scientific data, have no basis in reality, and are wrong.

R-96: The assumptions referenced are based on data from current CBNG operations. A discussion of the assumptions used and the rationale is found under the headings of General Assumptions and Assumption Rationale within Chapter 4 and are further discussed in the SWQATR. It was assumed that 80% of this water would reach the mainstems.

C-97: There is evidence from the Wyoming portion of the basin showing that discharges into intermittent and ephemeral tributaries of the Powder River are, in fact, transforming these streams into perennial water bodies and reaching the mainstem of the Powder River. Many months of the year, the flows of these tributaries comprise entirely CBNG wastewater. The DSEIS does not address the potential impacts of transforming ephemeral and intermittent streams into perennial waterbodies, including the impacts on surface water quality; on stream morphology; on sedimentation and erosion rates (head cutting); on riparian vegetation, including spread of salt cedar (tamarisk) and killing of cottonwoods; or on native aquatic life, including reptiles and amphibians. Nor did BLM evaluate the toxicity of contaminants in the CBNG wastewater such as selenium, lead, cadmium, copper, and arsenic. This transformation of the intermittent and ephemeral tributaries represents a fundamental change in the ecology of these prairie ecosystems that will likely have devastating impacts. The DSEIS did not evaluate the impacts of such transformations on farming and ranching operations or the impacts of such discharges creating ice jams and resulting overland flows of water with high EC and SAR levels onto adjacent meadows. The DSEIS did not consider the impacts of such incidents on native soils and vegetation and the impacts of the potential loss of these resources on local ranches.

R-97: A detailed discussion of the potential effects resulting from project-related activities, including the discharge of CBNG-produced water, is contained within the resource sections of Chapter 4. The potential effects of constituents that have been found to be of concern for CBNG-produced water are discussed within the Hydrological Resources section of Chapter 4 and the SWQATR (Greystone 2002). The potential for those constituents of CBNG-produced water to affect soils, wildlife, aquatics, and

vegetation are discussed within the relevant resource sections of Chapter 4. The potential to alter ephemeral drainages to a more perennial nature is discussed in Chapter 4, Hydrological Resources, Alternative C, under the Production Subsection.

C-98: BLM has not analyzed the impacts of LAD practices on the water quality of shallow groundwater resources and nearby surface waters by assuming—without providing any supporting data or studies—that none of the wastewater applied will reach groundwater or surface waters because the wastewater will be applied at agronomic uptake rates. In doing so, BLM ignores available studies showing the potential impacts of LAD operations on groundwater and surface water resources.

R-98: The potential effects to groundwater from managed irrigation or other land applications of CBNG-produced water are discussed in the SEIS via reference to the Soils Technical Report (ALL 2001a).

C-99: Is somebody going to be testing water that we use where it comes out of the Tongue River so that we know that the SAR and the other measurements are acceptable for our irrigation? And if not, what options do I have?

R-99: CBNG-produced water is tested before being discharged to ensure that it meets Montana Water Quality Standards. MPDES permits also require instream monitoring to ensure that standards are not exceeded. The Montana Water Quality Standards for EC and SAR have been developed specifically at levels that are protective of irrigation use.

C-100: If we have a process in Tongue River, the Rosebud, or even the Powder River, of exceeded water standards, what mechanism does BLM or DEQ or the state of Montana have in place when multiple companies are in that drainage? In other words, if we have high sodium levels and EC levels in the river and five companies at the head of it, who steps in and says you are the one who caused the problem? What is going to happen?

R-100: If an exceedance within a water body occurs, MDEQ would investigate the source, or sources, and implement measures to correct the cause of the exceedance. Once the source of the problem is determined, MPDES permits can be reopened and modified as needed.

C-101: Do BLM employees check water quality and quantity of discharges into the Tongue River, or is it self-reported by industry? The commenter believes it is self-reported by industry, and this is wrong; it should be performed by an independent party.

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R-101: Water discharge sampling is conducted by industry and reported to MDEQ in accordance with its standards. MDEQ also conducts periodic site investigations and takes samples to ensure consistency with industry-collected samples and to ensure that industry complies with its permit requirements. BLM, USGS, MDEQ, and other state and federal agencies also collect water quality samples along the Tongue River and other rivers and streams in the basin to evaluate overall water quality and stream health.

C-102: The document mentions the importance of groundwater to agriculture. It does nothing to mitigate or protect it, nor did the original EIS. How does this fit with the mission statement of BLM?

R-102: See R-4. CBNG operators have to replace any water supply, including springs or groundwater supply wells used for irrigation or for any other purpose that is impacted by CBNG operations. This is accomplished through the execution of a water mitigation agreement with the landowner. Water rights issues are under the purview of DNRC, not BLM.

C-103: Our reservation lies right under and right on the Fort Union formation. Our reservation stands to have the most damage from this CBNG. Aquifers are going to deplete, and the water that is drained into the creeks and into the rivers is going to kill the ecosystems.

R-103: An element of the Preferred Alternative, Alternative H, is the Native American Concerns Screen, which establishes a 5-mile buffer around the reservation boundaries. Development within the 5-mile boundary would have to show that it would be protective of Indian Trust Assets (including groundwater) and air resources. All discharges to surface waters must comply with MPDES requirements.

C-104: In the last bullet point on Page SUM-8 in the summary, it says, "Surface water is the primary water source for Montana users. Groundwater is a minor source of usable water, however, in some areas groundwater is the only source of water for domestic stock use." A USGS circular, number 1081, published in 1993, contradicts this flatly. It says, "More than 50 percent of Montana's citizens rely on groundwater for drinking and household use." The Montana groundwater plan, published in 1998 by DNRC, repeats the USGS circular and adds this, "95 percent of rural residents depend on groundwater for their domestic water supply."

R-104: The statement in the Summary section refers to the volume of water used. Most of water used in Montana for industrial or agricultural uses comes from surface water. It is equally true that groundwater is a significant source for household use, particularly in rural areas; however, when compared to the larger volume of water used from surface water sources, the actual volume of groundwater used is relatively minor.

C-105: Under Preferred Alternative H, The water screen says, "if surface water monitoring indicates permitted levels of CBNG discharge have the potential to cause water quality standards to be exceeded, no future untreated discharge of CBNG water would be allowed from federal wells unless the regional surface water monitoring stations above and below the proposed discharge are active." If the application for discharge is recognized to have the potential to cause water quality exceedance, why allow it to occur without requiring the applicant to modify their discharge proposal? To rely on the monitoring stations to trigger alteration of the discharge puts correction of the problem behind a power curve that could and should be avoided in the first place.

R-105: If the threshold of 10 percent of the 7Q10 within the water screen is exceeded, the monitoring would be used to ensure that water quality standards are not exceeded. This monitoring will allow MDEQ to develop appropriate mitigation measures before exceedances are observed.

C-106: Under the DSEIS, companies must mitigate for the loss of water resources by providing a supplemental water source. It is, however, unclear if these supplements will be in place for in-stream water augmentation or if they are to supplement beneficial uses for off-stream landowners.

R-106: Supplemental water sources would be supplied to a landowner if water use, either from a groundwater supply well or spring, is impacted by CBNG operations. This water supplement is supplied by the CBNG operator under the provisions of a water mitigation agreement executed between the CBNG operator and the landowner.

C-107: BLM should implement a water monitoring system that will allow for the quantification of all CBNG-produced water discharge into the system at any given time. The availability of this information will assist with the study of potential impacts to aquatics.

R-107: BLM believes that the existing system of USGS stations and MPDES requirements for DMRs

is sufficient to assess changes in mainstem stream flows resulting from the discharge of CBNG-produced water.

C-108: The SEIS does not fully address the impacts of numerous evaporative storage basins across the landscapes on water quality and fisheries. Aquatics monitoring should take place on streams in the study area that are in areas where water management includes the use of storage ponds.

R-108: The potential for project-related activities to affect water quality and fisheries is discussed within the Wildlife Aquatics section of Chapter 4. Monitoring requirements for CBNG operations with respect to assessing aquatic biological diversity are included in the Monitoring Appendix. BLM has several ongoing studies considering these potential impacts.

C-109: Methane seepage into Tongue River Reservoir is noted, but it is not addressed. Are the impacts of seeping methane on the reservoirs fisheries to be addressed? Will this effort be incorporated into the overall monitoring program? Who is accountable for non-point source issues such as potential impacts to fisheries due to methane seepage?

R-109: Increased seepage of methane into the Tongue River Reservoir was reported by the MFWP; however, there have been no data to confirm this or reports of impacts resulting from methane seepage to fisheries.

C-110: Non-irrigation season standards for EC and SAR could have severe impacts on fish populations. The not to exceed standards (2,500 EC) are at levels that can impact fish eggs and juveniles (Skaar 2006). These standards potentially allow for operators to maintain discharges at the not to exceed level for extended periods of time so long as the monthly mean standard is met. This slug of poor-quality water could destroy eggs and juvenile fish during the early spring months of March and April. High SAR values could be seen under the same scenario.

R-110: The mean monthly standard for EC is 1,500, which operators would have to maintain. The not to exceed standard of 2,500 could not be maintained for an extended period and still allow for maintaining the mean monthly standard. The MDEQ developed these standards to protect all beneficial uses, including aquatic life.

C-111: On page 3-41, the concept that "some water, even if it is of poor quality, is better than none" may not be the best assumption to make. Prairie stream systems evolved with drought and function

appropriately. The addition of poor-quality water may indeed be detrimental in the long term.

C-111: The text states that data indicate the high EC and SAR levels observed in 2005 are the result of low flows due to drought conditions. It does not appear that CBNG development had a measurable effect on the high EC and SAR levels that were measured.

C-112: On page 4-103, Hydrology, Alternative D, it states that an increase of 1,135 percent flow in the Rosebud Creek drainage for a sustained duration could be catastrophic to stream morphology. These soils are not accustomed to this type of flow or saturation, and they would be destroyed over time, resulting in the loss of this stream course's definition.

R-112: The referenced text refers to potential increases to flow in Rosebud Creek at Kirby, resulting from CBNG-produced water discharges under Alternative D, which was not selected as the Preferred Alternative. The text also outlines the potential impacts and states the following: "These increases in water flow rates would be likely to cause changes in streambed geometry, flow regime, stream depth distribution, presence and condition of in stream vegetation, and other physical factors associated with the stream and adjacent riparian zone."

C-113: On page 4-105, Hydrology: Alternative E, it states the following: "Water management based on site-specific water management plans (WMPs) allows for regulatory ability." Other alternatives seem deficient in holding industry to meet state and federal water quality standards. This alternative would secure fragile stream systems such as the Rosebud, because MPDES standards would be met.

R-113: The requirement for operators to submit site-specific WMPs is a component of Alternatives E, F, G, and H. Alternative H, the Preferred Alternative, also includes an additional water screen to further protect the water quality of streams and rivers that would receive CBNG-produced water.

C-114: On page 3-30 of the DSEIS, BLM states that the "Montana Department of Fish, Wildlife and Parks reports increased methane production in two water wells on the Tongue River Reservoir State Park as well increased seepage under the reservoir." What is the basis for this statement and are supporting data available for public review?

R-114: As the commenter notes, the text within the SEIS references the MFWP as the source for this information.

C-115: Before development proceeds, Miles City water quality exceedances in the summer of 2006 should be resolved. These exceedances led to soil damages on several farms along the Tongue River and should be addressed. How will damages to irrigated landowners be dealt with?

R-115: The Suarez Report, submitted June 2006, was not evaluated in the DSEIS because of a May 2006 submittal date for the draft document. The referenced report has been reviewed for the FSEIS.

C-116: Impoundments used to store CBNG-produced water can leak, even if lined, and therefore will get into the streams and rivers.

R-116: The use of impoundments will not be the case for all disposal of CBNG-produced water in the Powder River Basin. Remediation and monitoring of the impoundments will be included in the POD to ensure that produced water from CBNG wells does not adversely affect the surrounding environment.

C-117: Several farms obtain water for irrigation from the Tongue, Yellowstone, and Powder Rivers. Many of these farms are outside the Planning Area, as defined in this DSEIS, but could be affected by the discharge of CBNG-produced water into the Tongue and Powder rivers (which flow into the Yellowstone River). By excluding an analysis of how CBNG-produced water discharges will potentially adversely affect soils that are irrigated in and around Miles City, Terry, Fallon, and Glendive, the affected environment outside the Planning Area is not properly considered, and we believe this makes the DSEIS significantly deficient.

R-117: Discharge of CBNG-produced water into the Tongue or Powder rivers is regulated by the state of Montana, and operators must obtain MPDES permits to discharge. Furthermore, water quality along the Yellowstone River at Forsyth and Sidney is evaluated in the SEIS.

C-118: MDEQ, not BLM, has the authority to write water quality permits and enforce the Clean Water Act.

R-118: BLM recognizes that MDEQ has the lead role in managing water resources. BLM would coordinate all water monitoring efforts with MDEQ. While Onshore Order 7 reinforces BLM's approval authority for produced water disposal, it does not provide BLM with primacy for the management of water within the state of Montana. Therefore, BLM would apply the water quality screen in close coordination and under the lead of MDEQ. Close coordination would avoid duplication of effort and ensure that each agency

fulfilled its roles with respect to resource management.

C-119: Under Results of Surface Water Monitoring, Page 3-41, it states, "As such it does not appear that CBNG development had a measurable effect on EC and SAR through 2005." Have this knowledge and the relevant data been considered and applied in the development of the new alternatives? If so, how, and in which alternatives?

R-119: BLM has recognized this study in the SEIS and chooses to ensure water quality is protected for all downstream users by implementation of the water screen under Alternative H. The fact that noticeable changes have not been seen with the current level of development does not necessarily imply that impacts at the RFD level of development will not be noticeable.

Indian Trust and Native American Concerns

Comment 1 (C-1): BLM did not address the full impact of CBNG extraction on Native American communities. The Northern Cheyenne have developed water quality standards that are awaiting EPA approval for their reservation. However, the draft supplemental EIS does not address how CBNG extraction would affect these proposed standards. BLM also did not assess the number and location of traditional cultural properties of the Lower Brule Sioux Tribe in the area (pp. 3-36, 3-86).

Response 1 (R-1): Impacts on Native American communities resulting from project-related activities are outlined in the Indian Trust and Native American Concerns section of Chapter 4. Water quality impacts specific to the Northern Cheyenne resulting from project-related activities for each alternative are in the Hydrological Resources section of Chapter 4. The tribe has adopted surface water quality standards for EC and SAR and has been granted treatment as a state status by EPA. EPA has not yet reviewed the tribe's proposed water quality standards, however, the tribe does not yet have Clean Water Act standing (see Chapter 3 Hydrological Resources, Surface Water). Surface water quality for the Tongue River (see Chapter 4 Hydrological Resources, Alternative C, Surface Water Analysis, Tongue River) and Rosebud Creek (see Chapter 4 Hydrological Resources, Alternative C, Surface Water Analysis, Rosebud Creek) would potentially exceed the tribe's proposed standards under Alternative C.

With regard to off-reservation TCPs, BLM requires cultural block surveys for most CBNG lands to be developed under each POD. These block surveys, coupled with tribal consultation requirements, demonstrate the ability to identify cultural sites and reduce the potential impacts associated with developing CBNG near cultural resources. Additionally, BLM has signed a memorandum of understanding with the Lower Brule Sioux to participate in the SEIS as a cooperating agency. BLM has also entered into government-to-government consultation with the tribe to address its concerns over TCPs within the Project Area.

C-2: Page MON-5: Regarding "Indian Trust Groundwater," the specific monitoring techniques, the frequency of monitoring, remedial actions, and management options listed are premature and inappropriate at the SEIS level. The need for and extent of groundwater monitoring around POD areas near Indian reservations should be determined within the context of the water management plan submitted with the POD application. At that point, operators will have developed specific CBNG production plans, identified coals to be produced, and site-specific geology. These elements are critical to establishing monitoring objectives and tasks. This level of information is necessary to determine whether hydrologic connectivity exists between the POD area and reservation aquifers. BLM will have the opportunity to conduct its review of such information, consult with tribes and the operator, and develop an appropriate groundwater monitoring plan.

R-2: The process would transpire as outlined above. CBNG development within the 5-mile buffer zone would require the operators to demonstrate within their water management plan that Indian Trust Assets or resources would not be impacted. The level of monitoring and remedial actions required would depend on site-specific conditions and results of the operator's analysis.

C-3: The Northern Cheyenne Mitigation Appendix summarizes the DSEIS's proposed mitigation measures resulting from the Native American Concerns Screen under Preferred Alternative H. The DSEIS does not, however, provide any data on how the 5-mile buffer is determined. This improperly shifts the burden of proof to CBNG operators. Instead of allowing CBNG development to take place, then making mid-course corrections if the development impacts tribal resources/interests, the DSEIS assumes that impacts will occur and improperly requires operators to prove at the outset that their development(s) would not affect tribal resources/interests. Next, the DSEIS does not

acknowledge pre-existing lease rights. Denial of a permit under this Native American screen may be viewed as a federal taking. Would BLM buy back leases that operators cannot develop because they cannot prove that drainage of groundwater or CBNG will not occur? BLM is shifting its fiduciary responsibilities to the CBNG operator. Additionally, while the DSEIS does advise the reader that the Native American screen would result in a loss of gas resource to the nation, the agency does not quantify that loss and does not explain the collateral loss of local and state revenues. The DSEIS should acknowledge that the Native American Concerns Screen would probably lead to the loss of private and state gas resources because an operator might be less inclined to develop an area knowing he or she could not develop all of the gas; therefore, the project might be uneconomical. The DSEIS should also advise the reader that the Native American Concerns Screen is not applicable to existing federal leases lacking such a stipulation because of valid existing lease rights. Finally, the DSEIS should acknowledge the legal complexities of the Native American screen and how it might lead to a federal takings issue and increased litigation.

R-3: The 5-mile buffer was determined from groundwater modeling conducted for the 2003 FEIS, which showed that groundwater drawdown at a distance of 5 miles was minimal. BLM has a responsibility to protect Indian Trust Assets, which include CBNG and groundwater. PODs submitted for existing federal leases would be subject to the provisions of the Native American screen and would have to show that the proposed development would not impact Indian Trust Assets or resources. BLM understands that local geologic conditions combined with mitigation measures would determine where and how much development would occur within the 5-mile buffer. Some loss of the federal CBNG resource might result from the provisions of this screen and BLM's responsibility to protect Indian Trust Assets. The amount of gas resource potentially lost to the federal government and foregone revenue are detailed within the Geology and Minerals and Social and Economic Values sections of Chapter 4. Due to many factors, it is impossible for BLM to predict how economics might affect development on private and state leases within the 5-mile buffer zone if development were to be restricted on adjoining federal minerals.

C-4: Page CHE-2: The DSEIS should explain the increase in the proposed buffer zone around reservations from 2 miles in the 2003 statewide FEIS to 5 miles in the DSEIS. As cited in the DSEIS,

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recent studies (Wheaton et al. 2006) indicate that the extent of CBNG drawdown is lower than expected. The third paragraph on this page states, "Groundwater monitoring to date indicates drawdown has extended approximately 1.5 miles from production fields." This is after approximately 6 years of CBNG production in the CX Field area. Since BLM states it uses adaptive management, it should provide justification for the larger buffer zone. BLM's provision requiring site-specific determination of potential impacts based on hydrologic connectivity to reservation groundwater resources is a superior criterion. The last sentence under Alternative H mentions "to demonstrate model adequacy." Which model BLM references is unclear. The discussion immediately above refers to the modeling performed for the statewide FEIS (by Montana Bureau of Mines and Geology [MBMG]). BLM should clarify that operators do not have to model groundwater. We suggest that BLM specify that the demonstration of no impacts to reservation groundwater be submitted with the water management plan in the POD application, unless the parties agree to other provisions.

R-4: The 5-mile buffer was determined from groundwater modeling conducted for the 2003 FEIS, which showed that groundwater drawdown at a distance of 5 miles was minimal. Recent studies do indicate that groundwater drawdown resulting from development at the CX Field extends out approximately 1.5 miles. When considering the effects from all of the wells predicted, however, groundwater modeling results indicate drawdown could be up to 5 miles. The referenced sentence on page CHE-2 states, "Additional monitoring of groundwater and air may be required to demonstrate model adequacy." This refers to modeling that the operator may have to conduct to demonstrate that development would not adversely impact Indian Trust Assets and resources. Language in the FSEIS has been modified to clarify that methods employed to demonstrate that Indian Trust Asset groundwater will not be adversely impacted will be submitted as part of the water management plan in the POD application, unless the parties agree to alternative provisions.

C-5: Page CHE-4: The lower portion of Alternative H states, "Where there is potential for affecting reservation groundwater..." BLM should define what it means by "potential."

R-5: Before development, operators would have to demonstrate within their water management plans that Indian Trust groundwater would not be impacted. Should that analysis indicate that Indian

Trust groundwater could be impacted, then there would be a "potential for affecting reservation groundwater."

C-6: Page CHE-27: Regarding protection of culturally important springs under Alternative H, BLM should clarify that operators would have to evaluate potential impacts of proposed CBNG operations only on those springs that the tribal authority identified to BLM and for which it provided basic information, including adequate location, flow, and water quality data. The tribal authority would also agree to assist BLM and the operator in obtaining that information for springs that lie within the anticipated drawdown radius of the proposed development.

R-6: BLM would consult with tribal authorities and work with operators to identify TCPs, including springs, located within the Planning Area before development. The Northern Cheyenne Document and 2002 Ethnographic Overview have lists of springs to assist the applicant in determining if culturally important springs are present in their POD areas.

C-7: Page CHE-28: In the second row under Alternative H, BLM should revise this to state that operators could be required to monitor the condition of culturally significant springs. The springs would be identified by the tribal authority only where there would be a reasonable potential for impacts, based on a site-specific hydrologic evaluation associated with APD approval, and where the tribal authority would agree to assist in the monitoring.

R-7: The current language states that monitoring would be required only "where there is the potential for production activities to impact the springs." BLM believes that this language is adequate, and operators should not assume that tribal authorities would agree to assist in the monitoring.

C-8: The standards proposed in the Native American Concerns Screen are arbitrary and ill-defined. For proposed development within 5 miles of the Northern Cheyenne and Crow reservations, site-specific groundwater and air analyses would have to be submitted along with the POD. However, Alternative H does not specify what these analyses would entail, further eroding an operator's ability to determine a business plan that would adequately include the costs of regulation. If rules were made up as the process moved from the leasing phase to the exploration and development phase, operators would not be able to assess whether implementing a business plan in a given area would be feasible. This would put small, independent operators at a particular disadvantage. The SEIS does not define the standards for

“unacceptable levels of impact,” further rendering this screen arbitrary. The table in the Monitoring Index does not contain the standards for this screen.

R-8: The type of site-specific air and groundwater analyses required under the Native American Concerns Screen is left up to the operator with the only requirement being that it is sufficient to demonstrate whether the proposed development would have an impact on Indian Trust Assets or resources. The level of impact that would be deemed unacceptable would depend on site-specific factors such as proximity of the development to culturally significant springs or groundwater use wells and expected impact, as well as the type of operational equipment and air emission control measures proposed in the project POD.

C-9: The Native American Concerns Screen states that, as development proceeds, BLM would monitor the effects on air, water, and “other resources of concern to Native American tribes.” So not only would BLM take over jurisdiction from the state for regulating air and water, it could decide that other resources are now of concern and deny any further APDs accordingly. This, in effect, would extend the jurisdiction of the tribes 5 miles into BLM administered lands that adjoin theirs.

R-9: The 5-mile buffer does not extend the Tribe’s jurisdiction. It extends BLM’s area of concern for potential effects to Indian Trust Assets. The BLM would work with the appropriate regulatory agency if monitoring indicated that an air quality or water standard may have been exceeded.

C-10: The 5-mile buffer zone described in the Native American Concerns Screen to protect water and air obscures a problem with Alternative H. In Chapter 4, page 200, BLM admits that if development of federal minerals were delayed or restricted in the 5-mile buffer zone, there would be an increased potential for drainage of federal minerals. As much as 1.4 to 1.6 trillion cubic feet (tcf) of gas might be lost to federal, state, and county governments, with a loss of royalties to the federal government of \$1.2 billion at current gas prices. This is a significant economic loss to Montana, which would otherwise receive \$600 million. Alternative H does not contain any plan for mitigating this loss of federal minerals.

R-10: BLM recognizes that implementation of the Native American Concerns Screen could result in restricted development of federal minerals within the 5-mile buffer. The numbers contained in Chapter 4 reflect what would happen if no development were to occur on federal minerals within the 5-mile buffer.

C-11: It is not clear from the SEIS that BLM has adequately contacted the numerous tribes with historical associations with the region under discussion. For Rosebud Battlefield alone, this would entail discussions with the Northern Cheyenne, Crow, several bands of the Sioux, Shoshone, Arapaho, and Utes. In addition, there are tribes that were active in this region and the area farther to the east that merit consultation for the planning area covered by this document.

R-11: BLM has held meetings with the Northern Cheyenne, Crow, and Lower Brule Sioux Tribes concerning the SEIS and proposed activities. As operators propose specific sites for development, consultation and meetings with additional tribes may become necessary. BLM contacted the tribes identified in the 2002 Ethnographic Overview of Southeast Montana. Twelve tribes were contacted with an invitation to participate as cooperating agencies. Of those, two tribes elected to become cooperating agencies for the SEIS (for additional information see Chapter 5 under the headings of Consultation and Coordination with Native American Tribes and Official Cooperating Agencies).

C-12: Northern Cheyenne representatives and others have repeatedly expressed concerns related to the impact of CBNG development on aboriginal lands, indicated that their right to a government-to-government relationship among themselves and the United States was being undermined, and stated that the heritage of the tribe is being threatened. Has BLM contacted and consulted with these tribes? Has the agency developed any formal consultation process through memoranda of agreement or other approaches to help ensure meaningful consultation? Has BLM followed its own 2004 Manual Tribal Consultation under Cultural Resources in the development and consultation for this SEIS?

R-12: In accord with BLM Manual on Tribal Consultations, BLM has held consultations and meetings with the Northern Cheyenne, Crow, and Lower Brule Sioux Tribes concerning the SEIS and proposed activities. The consultations and meetings held are listed in Chapter 5 of the SEIS. The Crow Tribe and Lower Brule Sioux Tribe signed a memorandum of understanding with BLM to become a cooperating agency for the development of the SEIS. A Memorandum of Understanding to become a Cooperating Agency was offered to the Northern Cheyenne Tribe, which declined.

C-13: Within the Native American Concerns section of Chapter 3, subheading Aquatic Resources, Bighorn Lake is listed as being a highly valuable

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recreational fishery. The same emphasis is not being given to the recreational fishery in the Tongue River Reservoir. This fishery is the premier crappie fishery in the state and often ranks in the top 10 sites within Montana for angling opportunity. This system receives over 100,000 recreation days of use each year, primarily related to angling activities. Emphasis has to be given to the protection of this resource.

R-13: The Tongue River Reservoir is recognized as an important fishery and recreational site within the Planning Area. It is not emphasized within the Native Americans Concerns section of Chapter 3 because it is not located within the boundaries of a reservation.

C-14: Under the section detailing the "Native American Concerns Screen," Alternative H would require site-specific groundwater and air analyses from operators. The analyses would be intended to demonstrate "that the overall POD would be protective of Indian Trust Assets (groundwater and CBNG) and air quality," and must not indicate an "unacceptable level of impairment to these resources" (DSEIS at 2-22). As a preliminary matter, BLM's attempt to push an affirmative obligation to conduct these initial analyses down to operators and, in effect, prove a negative, is inappropriate. Moreover, this requirement is unnecessary to ensure protection of Indian Trust Assets and would likely prohibit all development in those areas. Given BLM's obligation to manage federal lands for alternative multiple uses, see the DSEIS at 3-88, BLM should adopt its previous preferred alternative, Alternative E, under which BLM would have ample authority to impose appropriate mitigation.

R-14: See R-3. Additionally, the elements of Alternative E, such as the requirements for CBNG operators to submit PODs and conduct monitoring, have been carried over into Alternative H. Because of new data and information obtained since the Record of Decision for the 2003 FEIS was signed, Alternative H was developed to include an adaptive management approach, four resource screens to evaluate PODs, and mitigation measures implemented during development to better protect resource values within the CBNG development area.

C-15: It is conceivable that observed impacts could be the result of development on private or state minerals. Please include provisions/define protocols to differentiate between impacts to Indian Trust Assets that result from private and state development and those that result from development of federal minerals. Also, please provide details/plan for developing a coalition of buffer zone operators to optimize monitoring and share monitoring results.

R-15: BLM has a responsibility to protect Indian Trust Assets, including natural gas. However development of public domain gas resources wouldn't necessarily be precluded. BLM would have to evaluate a proposal and determine if Indian Trust Assets would be protected or if any additional mitigation might be required to assure BLM that the ITAs were protected.

C-16: If development occurs on an Indian reservation (i.e., private minerals, allottee minerals, or tribal minerals), please state clearly how this would change the management of the 5-mile buffer around the reservations. Furthermore, please establish and justify a threshold of wells to be drilled on an Indian reservation before the buffer zone would be removed.

R-16: The development of mineral resources within the boundaries of a reservation, whether it be on private, allottee, or tribal minerals, would not change BLM's responsibility to protect Indian Trust Assets or resources from development outside of a reservation boundary. If CBNG development occurred on a reservation, the requirements of the Native American Concerns Screen might be modified in consultation with the tribes and other affected parties.

C-17: We are concerned regarding the Native American Concerns Screen, especially because the SEIS has no additional impacts beyond those included in the 2003 EIS. The 2003 EIS had a 2-mile buffer around the Indian reservations as an element of Alternative B, which was not selected as BLM's preferred alternative. Since no new information has been included in the SEIS that would justify the inclusion of a 5-mile buffer in the preferred alternative, it is recommended that BLM remove this screen from the preferred alternative and instead incorporate the mitigation measures outlined for Alternative E contained in the Northern Cheyenne Mitigation Appendix. Please explain/clarify how the 5-mile distance was determined and how BLM and tribal consultation process would work (i.e., time limits, ability of operator to attend consultation meetings, types of appropriate analyses that might be required, etc.).

R-17: See R-4 and R-14. Additionally, with respect to the consultation process between BLM and tribal authorities, after a POD is received, BLM would hold consultations with the appropriate tribal authorities as part of the POD review process. The consultation process would identify any TCPs within the development area and, depending on the location of the development (i.e., whether it was located within the 5-mile buffer around a reservation boundary), indicate any potential impacts to ITAs or resources. If

TCPs occur within the development area, or if the development is within the 5-mile buffer and there is a potential for impacts to ITAs or resources, BLM would then work with the operator to avoid potential impacts to TCPs and ITAs or resources.

C-18: BLM has failed to provide any rationale in the SEIS for the proposed 5-mile buffer around Indian reservation lands. It is not evident whether BLM consulted with the tribes or they agreed that such a buffer is needed or wanted.

R-18: See R-3 and R-4. With respect to consultations with tribal authorities concerning the 5-mile buffer, meetings held with tribal authorities as part of the SEIS development process are detailed in Chapter 5. During a scoping meeting held at Ft. Keogh in September of 2005, both the Northern Cheyenne and Crow Tribes expressed interest in having a buffer around their respective reservation boundaries.

C-19: Although BLM Miles City Field Office staff have worked diligently on the SEIS and have made great efforts to include the tribe and our concerns, we remain steadfast that the SEIS does not entirely or accurately portray the effects that will be realized by the Northern Cheyenne people and our resources upon development of CBNG.

R-19: BLM appreciates the concerns expressed by the Northern Cheyenne Tribe and believes that every effort has been made to address those concerns and accurately describe the potential impacts that could result from the proposed project activities within Chapter 4 of the SEIS. BLM will continue to work with the tribe through consultations on specific PODs to avoid or mitigate potential impacts from proposed development.

C-20: The Northern Cheyenne Tribe is very concerned with the likelihood of its CBNG and groundwater resources being drained by adjacent, off-reservation CBNG development. BLM has a trust responsibility to protect the tribe's resources. We believe that BLM's proposed management methods (i.e., the four screens outlined in Alternative H and relying on operators to do the analyses on trust resources such as air, CBNG, and groundwater) do not do enough to fulfill this responsibility. Another concern is the lack of a mitigation measure to ensure the necessary involvement of the tribe in the standard APD review and approval.

R-20: BLM believes that the use of adaptive management and implementation of the four resource screens contained in Alternative H, combined with tribal consultations on individual PODs, would provide the means to protect Indian Trust Assets and

resources. BLM is committed to working with the tribe to protect its ITAs and resources through consultations on proposed PODs.

C-21: With respect to Chapter 3, the Northern Cheyenne Tribe completed a report entitled, "The Northern Cheyenne Tribe and its Reservation 2002: A Report to the US Bureau of Land Management and the State of Montana Department of Natural Resources and Conservation." As was the issue in 2003, the report still is not incorporated to the extent necessary. Specifically, the report contains invaluable data and information related to how the Northern Cheyenne Tribe and the services provided by the tribe would be impacted upon development of CBNG. The tribe requests that BLM review its report again and include more data from it to better portray the current state of the reservation.

R-21: The report entitled, "The Northern Cheyenne Tribe and its Reservation 2002: A Report to the US Bureau of Land Management and the State of Montana Department of Natural Resources and Conservation" is summarized in the Native American Concerns section of Chapter 3 under the heading of Northern Cheyenne Reservation. Additionally, readers are referred to a website where the entire report can either be viewed or downloaded for more detailed information. Within Chapter 4, potential impacts specific to the Northern Cheyenne Tribe are described for each alternative and each resource value.

C-22: While the DSEIS specifies a series of mitigation measures that are part of the preferred alternative for the Northern Cheyenne, we note that there are no comparable specific measures listed for the Crow Tribe.

R-22: The commenter is correct. The Northern Cheyenne Tribe proposed the mitigation measures contained within the Northern Cheyenne Mitigation Appendix on August 13, 2002. The Crow Tribe did not propose any corresponding mitigation measures; however, they did request that the 5-mile buffer provision within the Native American Concerns Screen be applied to the Crow Reservation boundary.

C-23: One of the big issues that the commenter is very concerned about is that there is no hard analysis on socioeconomic or cultural impacts to the Northern Cheyenne Tribe.

R-23: Potential social, economic, and cultural impacts relative to the Northern Cheyenne Tribe are contained within the Indian Trust and Native American Concerns section and Social and Economic Values section of Chapter 4.

C-24: The commenter is concerned that tribal culture is being impacted, both directly and indirectly. It is impacted directly in that, with development, developers will sometimes be unable to avoid burial sites and other culturally significant properties to tribes. This would have a direct effect on tribal culture.

R-24: Project-specific mitigation of sacred, historic TCPs, or cultural resources related to tribal interests, topography, and concentration of sites would be addressed through the consultation process with the Native American tribes that have an interest in the area being proposed for development. If sacred or traditional sites exist in the area, the affected tribe would be consulted before determining appropriate action or treatment. Additionally, mitigation measures specific to the Northern Cheyenne Tribe for the protection of tribal resources and cultural sites are contained in the Northern Cheyenne Mitigation Appendix.

C-25: The commenter is concerned that if BLM honestly took its trust responsibility seriously, it would have the Northern Cheyenne Tribe included in the SEIS, in the mitigation measures, and have a plan lined out in that document stating how BLM would work with the tribe, what BLM would do, and what BLM could do and would not do, and what BLM would be unable to do.

R-25: See R-11 and R-12. Meetings and consultations held with the Northern Cheyenne Tribe during the development of the SEIS are contained in Chapter 5 under the heading of Consultation and Coordination with Native American Tribes. In addition, measures to mitigate potential impacts specific to the Northern Cheyenne Tribe are detailed in the Northern Cheyenne Mitigation Appendix. BLM also has written policy concerning consultation with Native American Tribes contained within BLM Manual on Tribal Consultation which spells out the provisions that BLM should follow in coordinating with tribal authorities.

C-26: BLM's protections offered for the Northern Cheyenne's resources, by BLM's own assessment in the EIS, will most likely result in groundwater loss from the Northern Cheyenne Reservation. In order to protect these resources the BLM has offered a 5-mile buffer zone in which development of methane will undergo additional scrutiny in the permitting process. The DSEIS indicates that ground water draw-down may occur up to 22 miles away from a producing CBNG well. A 5 mile buffer is clearly not enough. The DSEIS also states that "CBNG development would threaten to drain methane resources under

tribal lands in the planning area." BLM should guarantee, not speculate, that it can protect the draining of tribal gas and water resources, as it is part of BLM's trust responsibility.

R-26: See R-3 and R-4. The reference to a potential 22-mile drawdown is from a 3D model conducted for the Wyodak EIS (Wyoming). It specifically calls for a 5-foot potential drawdown. Furthermore the reference cited on page 4-131 of the DSEIS is for Alternative B and not the Preferred Alternative (H). Alternative H states implementation of the BLM mitigation measures, coupled with the 5-mile monitoring proximity, would reduce the likelihood that any reservation groundwater resources would be drained from off-reservation federal CBNG activities. Furthermore current operations at CX range (4 years of extraction) indicate that drawdown of 20 feet is noted at a distance of 1 to 2 miles. Modeling of a 20-foot drawdown can be accomplished with a greater degree of certainty than modeling a 5-foot drawdown, particularly in consideration of site-specific differences in geology. For these reasons, and due to the uncertainty associated with modeling a 5-foot drawdown contour, the SEIS uses the 20-foot drawdown contour to represent the extent that results from CBNG development. Based on the 3D model prepared for the analysis, the 20-foot contour can be expected to extend 4 to 5 miles from the edge of CBNG production.

Paleontological Resources

C-1: "The BLM APD contains guidance for notifying and mitigating damage to paleontological resources discovered during oil and gas construction activities." Surveys should be conducted before surface activities. "Surface occupancy and use is prohibited within designated paleontological sites." Designated by whom? The word "designated" should be changed to "known" paleontological sites. This would include sites known by surface owners (state, federal, or private) and those subject to surveys to determine appropriate activities and/or mitigation.

R-1: BLM has designated several ACECs within the Planning Area on the basis of the potential for those sites to contain significant paleontological resources. Not all known paleontological sites are considered significant. BLM does address the potential for significant paleontological finds before development when activity is in an area where the geology indicates such finds are possible.

Social and Economic Values

Comment 1 (C-1): BLM should not assume that all workers will come from Wyoming and will not live on or near a reservation. Social issues due to increased population on reservations (drug, alcohol, crime, and other socioeconomic problems) are not addressed.

Response (R-1): Based on discussions with the CBNG industry, this assumption is warranted. The CBNG industry in the region is based primarily out of Sheridan and Gillette, Wyoming. Social problems that come with increased population on reservations are discussed in the socioeconomic analysis in Chapter 4.

C-2: The economic impacts of adopting Alternative H over Alternative E are not addressed. Alternative H is more stringent than Alternative E and will limit potential economic benefit for the Powder River Basin and surrounding areas.

R-2: Economic impacts for Alternative H are addressed in the Socioeconomics section of Chapter 4. In general, the socioeconomic effects of Alternative H are more similar to Alternative F than to Alternative E.

C-3: The DSEIS does not provide any discussion of the growing national demand for natural gas and the potential contribution of the Montana portion of the Powder River Basin.

R-3: The Social and Economic Values section of Chapter 3 provides information on current socioeconomic conditions within the Planning Area. Positive and negative socioeconomic effects from project-related activities are presented in the Social and Economic Values section of Chapter 4. Current natural gas supply and demand are constantly changing and can be obtained easily from numerous government websites, including the Department of Energy.

C-4: The DSEIS does not provide any CBNG employment data in Montana or any discussion about the various types of employment (e.g., company and contractors).

R-4: Employment by sector is provided in Tables 3-30 and 3-31, with CBNG jobs included in the mining sector. As stated in the SEIS, the CBNG industry in the region is based primarily out of Sheridan and Gillette, Wyoming. The types of jobs are discussed in the Social and Economic Values section of Chapter 4, Social and Economic Values Assumptions.

C-5: BLM has to update the tables for employment by category, unemployment, and per capita personal income. The U.S. Department of Commerce has changed before, so data before 1999 are inconsistent categories segregating industries for employment data. Unemployment rates across the counties have fallen to unprecedented low levels within the last 7 years. More recent unemployment data show levels below what is presented in the DSEIS and reflect a significant change in labor market conditions in the planning area. Per capita personal income has also risen.

R-5: Employment by category data within the SEIS was based on the most recent data available when the report was prepared.

C-6: The DSEIS does not incorporate information from the Executive Summary of the Economic Review of the Travel Industry in Montana, 2006 Biennial Edition or the Montana Tourism and Recreation Strategy Plan 2003-2007. The DSEIS does not address impacts on Montana's travel and tourism industry and the effects on the state's economy as a result of oil and gas development activities.

R-6: The potential impacts on recreational opportunities, including tourism-related opportunities such as hiking, hunting, fishing, and water activities, within the Planning Area from project-related CBNG activities are presented within the Recreation section of Chapter 4. The economic impacts resulting from project-related CBNG activities are presented in the Social and Economic Values section of Chapter 4. These impacts would affect both Montana residents and visitors.

C-7: Lessees have a qualified right to development on leased lands. Phased development under Alternatives F, G, and H will result in a delay of CBNG resource development on federal leases. During any such delay in development, lessees' federal leases will be drained, devaluing their property and contract rights. They will be arbitrarily subjected to disparate treatment based on a phased plan. If BLM's decision to phase development results in a delayed consideration of applications, this decision could mature into a contract violation.

R-7: The potential for drainage of federal mineral due to phased federal development resulting from implementation of the four resource screens contained in Alternative H is discussed under the Geology and Minerals section of Chapter 4.

C-8: The DSEIS states that workers would most likely come from Sheridan and Gillette. Are these

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workers reporting their time in Montana to the Department of Revenue in Montana? How much income taxes are these workers paying to Montana? How many tax dollars is Montana losing from these workers? These workers are also filling their fuel tanks in Wyoming. If they fueled in Montana, the state would obtain fuel tax money to maintain roads. Where will Montana get the money to maintain the roads that will be overrun with employees from Sheridan and Gillette?

R-8: Taxes from income and fuel would likely benefit both Wyoming and Montana. The state of Montana and counties within the Planning Area would also receive income from property taxes and royalties paid by operators. These funds would be available for maintenance of roads, subject to state and local regulations.

C-9: BLM should complete a more in-depth analysis of the current social state of the Northern Cheyenne Reservation. It should include a subsequent analysis of the impacts of CBNG development, similar to the 1990 analysis for the Powder River Basin coal lease sale program.

R-9: As noted in the Social and Economic Values section of Chapter 4, the types of effects identified in the 1990 analysis are not expected to occur. While coal development employs many Montana workers, most the CBNG jobs would be filled by workers currently employed by the CBNG industry based in Wyoming.

C-10: BLM should not assume that most CBNG workers will commute from Wyoming for the duration of the development, production, and abandonment of CBNG wells. Making this assumption means that impacts from any potential workforce relocating to Montana have not been considered. BLM did not adequately analyze the possibility of temporary living quarters, such as “man-camps,” recreation vehicle (RV) camps, or motels. This is especially relevant to the area north of the Northern Cheyenne Reservation, once it is developed.

R-10: See R-1. The potential for CBNG workers to use camping facilities or motels at work sites that are more distant from their base of operations is also discussed in the Social and Economic Values section of Chapter 4.

C-11: BLM should include reports and research related to negative social change, such as crime and drug rates, associated with CBNG development in its analysis of social and economic values. For instance, a report prepared for the Sublette County, Wyoming

Attorney's Office, titled “Sublette County Statistics on Drug and Crime Rates,” discusses how oil and gas development has affected drug and crime rates the last 7 to 10 years in Sublette County, Wyoming. The report indicated that crimes and arrests correlate highly to oil and gas field activity and increase with mineral development. These crimes and arrests consist of drug, burglary, domestic violence, and petty crimes. Drug use by oil and gas field workers is of particular concern. Even assuming that Sheridan, Wyoming, will be most affected by CBNG development in Montana, the regional increase in availability of drugs to the reservation will only compound the already rampant drug and alcohol problems on the reservation.

R-11: BLM has reviewed the crime information from Sublette County and does not believe it warrants a change in the analysis. The impacts in Sublette County were related to substantial population increases due to immigrating oil and gas workers. BLM does not predict population increases on the reservation due to CBNG development. CBNG operators and subcontractors may have to drive across the Northern Cheyenne reservation to reach some well sites in the northern part of the Planning Area (Rosebud County). Although the number of wells to be developed north of the reservation is relatively small, limited traffic, noise, safety, and road maintenance impacts could occur. This could increase tribal member contact with outsiders, increasing the negative effects of social change described above. Workers commuting back to Sheridan on a daily basis would, however, have few reasons to stop on the reservation. Any workers who lived in temporary housing north of the reservation would be more likely to use facilities in Colstrip than on the reservation. Also see R-1 and R-10.

C-12: The EIS should address the economics, farming, agricultural well-being, and industry of the lower Tongue River.

R-12: The SEIS presents data on the potential effects of project-related activities on the economy and agricultural operations within the Planning Area in general. It does not emphasize the Lower Tongue River or other watersheds.

C-13: The DSEIS does not include a socioeconomic impact study.

R-13: The analysis of socioeconomic impacts is provided in the Social and Economic Values section of Chapter 4. See also R-9.

C-14: The inclusion of a 5-mile buffer zone around the Crow and Northern Cheyenne reservations

represents a “federal taking” as these land and/or mineral owners would be prevented from their right to develop their resources and would be entitled to compensation.

R-14: The minerals within the 5-mile buffer zone around the reservations are not excluded from development. The inclusion of the 5-mile buffer around reservation boundaries within Preferred Alternative H provides for protection of Indian Trust Assets and requires operators to conduct additional studies and monitoring to ensure that these ITAs are protected before APD approval and during operations.

Environmental Justice

C-1: Pages 2-38 and 4-203: Under “Environmental justice,” Wyoming disagrees that its management of CBNG discharges in Wyoming will create an environmental justice issue. All CBNG discharges in Wyoming and Montana must meet federal and state requirements. As long as those requirements are met, it is inconceivable that an environmental justice issue can occur. Reference to WYDEQ management of CBNG discharges in Wyoming creating environmental justice issues should be deleted from the document.

R-1: BLM believes that the language concerning the potential for an environmental justice issue is accurate.

Soils

Comment 1 (C-1): The SEIS states that there will be no impacts to soils. What is the basis for this and how was it determined? What about saline seeps?

Response 1 (R-1): The potential for impacts to soils, including salinization, from the discharge of CBNG-produced waters is available in the Soils section of Chapter 4. Additional information is found in the Soils Appendix and in the Soils Technical Report (ALL 2001a).

C-2: The SEIS states the following: “Soils with lower cation exchange capacity (CEC) potential would result in greater geochemical changes to infiltrating water.” In the case of infiltrating produced water, the primary factors affecting its quality are the nature and extent of soluble salts naturally present in the soil and rock formations through which the water passes.

R-2: CEC is one of several factors affecting geochemical changes to infiltrating water. This

statement in the SEIS pertains only to the CEC discussion.

C-3: It is incorrect to generalize that the soils in the emphasis area are generally clayey.

R-3: A description of soil classifications in the planning area can be found in the Soils section of Chapter 3, while additional information can be found in the Soils Appendix. The text in the SEIS states that soils within the Planning Area “generally range from loams to clays, but are principally loams to silty clay loams.” Soils data used in the SEIS were derived from the Soils Survey Geographic Database (SSURGO) at <http://www.ncgc.nrcs.usda.gov/products/datasets/ssurgo/index.html>.

C-4: The SEIS statement that the saline water has a more persistent and detrimental effect on soil productivity, especially when immediate mitigation measures are not followed for cleanup, is misleading. Salinity in water does not directly impact soils; it simply makes it more difficult for plants to extract water. Also, it is unclear what immediate “mitigation measures” and “cleanup” mean in the statement. This sentence should be deleted.

R-4: The meaning of soil productivity within the SEIS relates to the ability of plants to thrive in the surrounding environment. Changes have been made within the Soils section of Chapter 4 under the heading “Alternative C – Emphasize CBNG Development” to avoid confusion in this statement.

C-5: When will screening guidelines begin? Where are the screening guidelines for soils in the EIS? Does the SEIS contain a soil screen for the Lower Tongue River and for T&Y property?

R-5: Implementation of the provisions, or guidelines, contained within the four resource screens that are part of Alternative H would begin during BLM’s review of an operator’s POD. MDEQ has specific regulations in place to address the quality of water discharged from CBNG operations. Therefore, a separate screen to address produced water discharged to soils was not deemed necessary.

C-6: On page 3-54, BLM discusses “managed irrigation” (land application and disposal activities) as one option available for putting water produced from CBNG wells to beneficial use. However, BLM does little to describe the factors that may make this option less than desirable. For example, the amendments added to soils so that they can tolerate CBNG-produced water are costly and would be needed on an ongoing basis. An economic analysis of these costs was not included. A review of a 2005

BLM-sponsored report, Soil Chemical Changes Resulting from Irrigation with Water Co-Produced with Coal Bed Natural Gas, Girusha J. Ganjgunte et al., provides information on the significant problems associated with using this wastewater as irrigation water.

R-6: The referenced discussion introduces managed irrigation as an option under water management, identifies the possible problems associated with using CBNG-produced water for LAD or irrigation, and addresses the need for soil amendments, as well as water treatment, if this method is used. Not all produced water is of the same quality, nor are all soils in the Powder River Basin the same. All crops do not have the same tolerances to salinity. The identification of this method as an option does not obligate any surface owner to use this method. If the economics of receiving produced water for agricultural development do not work under particular site-specific circumstances, other options could be used.

Vegetation

Comment 1 (C-1): The DSEIS does not clarify who will monitor roads and well sites for weed invasions.

Response 1 (R-1): The implementation of weed control measures will be overseen by BLM.

C-2: The DSEIS (page 4-229) indicates that only 60 percent of the disturbed vegetation will have to be covered with prescribed vegetation. In instances where the surrounding land cover is 100 percent vegetated, 60 percent will be insufficient vegetation cover because it leaves areas open for weed invasion. In other areas where the surrounding land cover is barren, 60 percent may be too great a coverage to achieve.

R-2: The Vegetation section in Chapter 4 states, "Reclamation work will be considered complete when the disturbed area is stabilized, soil erosion is controlled, and at least 60 percent of the disturbed area is covered with the prescribed vegetation." Stabilization in terms of reclamation generally is considered a goal and may include revegetating disturbed areas to achieve a diverse native plant community, control soil erosion, control invasive non-native plants and noxious weeds, and establish wildlife habitat or forage production. A 60 percent vegetation cover is the short-term goal for disturbed areas throughout the planning area. The goal is to set the course for natural processes to achieve ecosystem restoration. For impacts on barren lands and other

low cover types, this goal may be adjusted in the reclamation plan.

C-3: The DSEIS should define the differences between early successional species and early seral stage species. It should specify whether species referred to as early successional will be native or introduced and, if native, what characteristics separate early successional from early seral stage species. Alternatively, the DSEIS should use only the term "seral stage species" and delete the reference to successional species.

R-3: This sentence has been revised in the FSEIS as "...and the use of early and late seral stage native species for revegetation" to provide more clarity. Early and late seral can be interchanged with early and late successional. Seral stage plant communities are those where one of a series of plant communities follows another in time within a given area. They consist of a mix of trees and shrubs.

C-4: Page 2-12 includes the following statement: "Additionally, during reclamation activities, early succession plants would be used for revegetation to provide quick cover before noxious weeds can take root." The DSEIS should specify whether the early succession plants used would be introduced or native species. Many early succession plant species are considered weed species.

R-4: This sentence has been revised in the FSEIS to reflect the use of native and non-native early succession plants and sterile cover crops.

C-5: Page 3-108 includes the following statement: "Important shrubs include several species of sagebrush (*Artemisia nova*, *A. tridentata*, *A. vaseyana*, *A. cana*, and *A. wyomingensis*). Other important shrub species in this category are bitterbrush (*Purshia tridentata*), creeping juniper (*Juniperus horizontalis*), greasewood (*Sarcobatus* spp.), mountain mahogany (*Cercocarpus* spp.), rabbitbrush (*Chrysothamnus* spp.), and shadscale (*Atriplex canescens*)." Several of these species are misnamed. The DSEIS should be modified to state, "several species of sagebrush (*Artemisia nova*, *A. tridentata* ssp. *tridentata*, *A. tridentata* ssp. *vaseyana*, *A. cana*, and *A. tridentata* ssp. *wyomingensis*)" and either "shadscale (*Atriplex confertifolia*)" or "fourwing saltbush (*Atriplex canescens*)."

R-5: The species names used in the DSEIS are those that are used in the Montana Land Cover Atlas, The Montana Gap Analysis Project, which was the land classification system used for the EIS. The FSEIS has been updated to read "several species of sagebrush (*Artemisia nova*, *A. tridentata* ssp. *tridentata*, *A.*

tridentata ssp. *vaseyana*, *A. cana*, and *A. tridentata* ssp. *wyomingensis*.” The FSEIS has also been revised to read “and shadscale (*Atriplex confertifolia*) or fourwing saltbush (*Atriplex canescens*).”

C-6: On page 3-108, the paragraph under Other Wetlands should provide scientific names for species or genera not previously discussed.

R-6: The FSEIS includes the scientific names for these and other common names on page 3-108. The scientific names are included in the Vegetation Appendix.

C-7: Page 4-233 includes the following statement: “When shrub and forest sites are impacted, there would be a loss of structure and diversity of vegetation using the current seeding mix.” This sentence should be deleted. The loss of structure and diversity of vegetation occurred at the time of the initial disturbance and is not the result of the seeding mix.

R-7: The referenced sentence in the SEIS is accurate. While the loss of vegetative structure and diversity is the result of the disturbance, that structure and diversity is not restored using the current seeding mix.

C-8: Page 4-230 includes the following statement: “MBOGC policies require the operators to minimize the size of the drilling pads and require complete restoration of the area once operations are complete” (Administrative Rules of Montana [ARM] 36.22). The ARM is more specific as to what is required to restore disturbed sites. Revise to state “and require the restoration of the area to its previous grade and productive capability once operations are complete” (ARM 36.22).

R-8: State regulations are subject to change and modification and are considered to be outside of federal actions.

C-9: Page 4-232 includes the following statement: “Indirect impacts, such as noxious weed invasion, erosion, reduced plant species diversity following reclamation, or lack of successful reclamation could also cause vegetation loss.” Reduced plant species diversity following reclamation and a lack of successful reclamation should be deleted from this list. The loss of vegetation occurred because of initial disturbance. Reclamation attempts to restore vegetation. If diversity following reclamation is lower than before disturbance, or if reclamation is unsuccessful, no vegetation loss has occurred in addition to the initial disturbance.

R-9: The sentence has been revised in the FSEIS to read, “Impacts, such as noxious weed invasion, prescribed reseeding mix and erosion, could result in loss of desirable vegetation.”

C-10: Page 4-233 includes the following statement: “... indirect impacts would include the effects of erosion, changes in wildlife and livestock distribution, unsuccessful reclamation, riparian community changes, and the spread of noxious weeds.” Riparian community changes do not have an indirect impact on vegetation communities and should be deleted from this list. The release of produced water into surface water can cause riparian community changes. The method of disposing of water should be listed as an impact on vegetation communities, rather than the resulting changes.

R-10: The sentence has been revised in the FSEIS to “... indirect impacts would include the effects of erosion, changes in wildlife and livestock distribution, riparian vegetation community changes, and the spread of noxious weeds.”

C-11: Page 4-233 includes the following statement: “Failure to adequately restore these acres to pre-disturbance conditions would result in a loss of native habitat.” Delete this sentence. The loss of native habitat has already occurred during initial disturbance. Reclamation attempts to restore vegetation and habitats, and no additional losses occur if restoration fails.

R-11: The failure to restore acres to pre-disturbance conditions would result in a long-term loss of native habitat.

C-12: Pages 4-237 and 4-241 include the following statement: “More roadways provide greater access and more potential for disturbance, poaching, or harassing of protected species.” Poaching and harassing do not apply to plant species and should be removed from these statements.

R-12: The FSEIS has been revised to read “More roadways provide greater access and more potential for disturbance of protected species.”

C-13: Page 4-238 includes the following statement: “Salinity can have long-term effects on vegetation, including death of riparian vegetation and concentrations of salt in riparian soils.” Death of all riparian vegetation will not occur. Replace with “including a change in riparian vegetation to more salt tolerant species and. ...”

R-13: The sentence has been revised in the FSEIS to: “Salinity can have long-term effects on vegetation, including changes in species composition to more

salt-tolerant species, and high concentrations of salt in riparian soils."

Visual Resource Management

Comment 1 (C-1): The SEIS includes the following statement on page 4-244: "Four thousand acres of surface mining expansion under permit consideration may be approved this year. This mining activity may affect some visual resources in those areas for the next 20-30 years." The affected area covers far more than the 4,000 acres physically being mined. For example, Rosebud Battlefield State Park is 3,052 acres, but the viewshed is estimated to be about 11,000 acres (noted ACEC identified by MFWP and BLM archeologist in the 1990s). Much of the study area has topography similar to this state park or perhaps more level, extending the visual impacts of estimated surface mining to perhaps 14,400 acres. The visual effects of clearing operations for access road construction, site construction, drill rig operations, and on-site generator use will change the landscape line, form, color, and texture. These changes in aesthetics will alter the traditional use and ability of people to understand the events that took place on these lands. Many of these sites, similar to Rosebud Battlefield, have been preserved by private owners and agencies for 130 years. Mineral development could potentially destroy these assets in less than 5 years, with the impacts visible for 20 to 30 years.

Response 1 (R-1): BLM mitigates effects to visual resources for site-specific proposals. See the Visual Resource Management and Recreation sections of Chapter 4.

Wildlife

Comment 1 (C-1): An alternative should be developed that protects Montana's natural values, especially sensitive habitat for grizzly bears and other wildlife. There is no analysis of the road impacts or human-grizzly bear conflict on the survival and recovery of the species. BLM must provide an analysis using the best commercial and scientific data available on possible impacts to grizzlies and means to mitigate those impacts.

Response 1 (R-1): Alternatives B, E, and H include elements to protect natural resources within the Planning Area. Approximately 550 acres of BLM-administered estate occur within the occupied grizzly

bear habitat. Therefore, limited impacts would be expected for grizzly bears. The BLM's Biological Assessment to the FWS states "Garbage and other human refuse would be removed from drilling and construction sites on a daily basis in potential bear habitat to avoid attracting bears. Surveys for scat and other sign of grizzly bears in remote, sparsely roaded areas would be conducted prior to construction. If found, protocol would be established after consultation with FWS biologists." If a plan of development is submitted within grizzly bear habitat, specific conservation measures or protocols would be developed to provide additional protections.

C2: Table 1-1 indicates that the FWS's authority includes the Endangered Species Act. For clarification, FWS also provides recommendations for protective measures for migratory birds in accord with the Migratory Bird Treaty Act, *Bald and Golden Eagle Protection Act, Executive Orders 11990 and 11988, CWA, Fish and Wildlife Coordination Act, and Fish and Wildlife Act.

R-2: The FSEIS has been modified to include the recommended language in Table 1-1.

C-3: Alternative H does not provide the same level of protection to crucial sage-grouse habitat as a no-development alternative. There are time lags of three to four years involved with sage-grouse population response to oil and gas extraction. This would allow significant impacts to occur before adaptive management has a chance to work. The pace of development must be slow enough to allow for monitoring to detect sage-grouse population level response before additional disturbances are allowed.

R-3: Management of sage grouse habitat has been modified. See Chapter 2, Alternative H under the Wildlife Screen.

C-4: The 20 percent surface disturbance over 20 years (20/20) rule does not provide added protection for sage-grouse.

R-4: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-5: The large amount of produced water extracted during CBNG extraction tends to create the right habitat constituents for Culex mosquitoes; therefore, CBNG development is likely to increase the incidence of West Nile virus outbreaks among sage-grouse. Any mosquito abatement program should not preclude use of created wetlands by other native species.

R-5: The SEIS acknowledges that CBNG production could result in increased risk of West Nile virus due to creation of holding ponds that could increase mosquito populations. The Wildlife Monitoring and Protection Plan (WMPP) was revised to include clarification that larvacides are used only in created holding ponds; are as environmentally sensitive as possible; do not accumulate in the air, soil, or water of a treatment site; and are not harmful to non-target insects. Measures to minimize mosquito populations in CBNG ponds are included in the WMPP. These BMPs are also being used on other water developments. The listing of these BMPs within the WMPP does not preclude use of other acceptable measures that would prove an effective element of a mosquito abatement program.

C-6: Full-field CBNG in the past has been detrimental and likely incompatible with maintenance of sage-grouse populations, and it is unknown what level of development can be withstood by sage-grouse. Loss of the Powder River Basin sage-grouse population could lead to demographic and genetic isolation of the northern population, making it more likely that this population would require listing under ESA. Sage-grouse mitigation measures need to address habitat on a large scale.

R-6: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-7: Oil and gas operations negatively affect sage-grouse in all seasons, making timing restrictions ineffective and necessitating mitigation measures that effectively address sage-grouse needs in all seasons. Current BLM mineral lease stipulations only address construction impacts on wildlife. Mitigation also has to address the operation phase.

R-7: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-8: Alternative H does not prevent adverse effects to sage-grouse within the identified crucial range. For adaptive management to prevent such impacts, the SEIS has to describe a process of monitoring and thresholds for guiding management decisions.

R-8: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-9: Identification of leks to be monitored both inside of crucial habitats and outside of crucial

habitats (outside of oil and gas development). It should be completed so that determinations can be made as to the adequacy of sample sizes and appropriateness of reference (non-developed) areas.

R-9: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-10: Criteria have to be identified for monitoring data and thresholds for adaptive management actions.

R-10: Within the WMPP, under “Annual Reports and Meeting,” protocol requires an annual meeting by the core team to discuss and modify, as necessary, proposed wildlife inventory, monitoring, and protection protocol for the subsequent year. See Monitoring Appendix.

C-11: BLM must identify mitigation circumstances (measures) that would allow for development if population is declining.

R-11: The wildlife screen under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-12: BLM should implement sage-grouse management elements described under Alternatives F or G which protect sage-grouse crucial range until it can be demonstrated that development can occur without displacing the population. Outside of crucial sage-grouse habitat, adaptive management from Alternative H, along with enhanced BMPs, should be used to maintain habitat connectivity.

R-12: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-13: Other sagebrush-dependent species may also be negatively affected by CBNG development in the Powder River Basin. Behavioral avoidance of roads indicates that the effects of project roads in oil and gas developments extend far from the roadbeds themselves and may negatively affect migratory bird populations. These sensitive bird species would benefit from a conservative approach to oil and gas development.

R-13: Chapter 4 of the SEIS acknowledges the preferred alternative will have negative effects on sagebrush-dependent species. BLM acknowledges the likelihood of impacts to some wildlife species, even with the use of BMPs, etc. Direct and indirect road-related impacts on wildlife are discussed under Alternative A. Chapter 2, Alternative H, discusses protection measures for crucial habitats, including

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songbirds. In addition, elements of Alternative H specific to sage-grouse would offer additional protections for sagebrush-obligate species using similar habitats.

C-14: FWS supports BLM in its continued efforts to manage habitat for the bald eagle if the species is delisted, as well as the monitoring outlined in the WMPP. FWS encourages BLM to modify the monitoring plan as needed to address changing management needs for the species. Instead of continuing winter roost surveys on an annual basis, FWS recommends that roost surveys occur only at times and in years where severe winter conditions make roosting concentrations likely and that surveys occur at most every other year. FWS further recommends that BLM consider the entire wooded corridor of rivers used by wintering bald eagles be considered by BLM during project planning as high bald eagle use areas and protect them accordingly.

R-14: The WMPP was revised to reflect FWS recommendations for monitoring. Currently, development is not allowed within 0.50 miles of bald eagle nesting habitat within riparian areas. However, additional conservation measures could be added at the POD level for specific projects based on localized habitat conditions or adaptive management. For roads and infrastructure, the operator will be required to demonstrate in the Project POD how proposed roads and infrastructure would mitigate or minimize impacts to affected wildlife, including bald eagles.

C-15: FWS supports the management of black-footed ferret habitat outlined in the WMPP. FWS should be notified before conducting surveys on prairie dog towns over 80 acres so that the need for such surveys can be addressed before resources are expended.

R-15: The WMPP was modified to indicate BLM will notify and coordinate with FWS before conducting surveys on prairie dog complexes over 80 acres.

C-16: FWS recommends no surface use or disturbance on prairie dog towns. Roads and infrastructure should be placed away from prairie dog towns when possible. BLM does not have to permit destruction of suitable prairie dog and mountain plover habitat simply because the agency does not own the surface estate. All prairie dog colonies, regardless of presence, absence, or suitability for either mountain plovers or black-footed ferrets, should be, at minimum, managed under no-surface-occupancy stipulations for oil and gas development and should also be excluded with a 0.25-mile buffer.

R-16: BLM oil and gas leasing decisions and lease stipulations, including those applicable to CBNG, were previously analyzed in the BLM 1992 Final Oil and Gas RMP/EIS Amendment. Those decisions were approved in the project's Record of Decision published in February 1994. Analyzing new or modified lease stipulations are therefore beyond the scope of this SEIS. However, additional conservation measures could be added at the POD level for specific projects based on localized habitat conditions or adaptive management. For roads and infrastructure, the operator will be required to demonstrate in the Project POD how proposed roads and infrastructure would mitigate or minimize impacts to affected wildlife, including prairie dogs.

C-17: With respect to restrictions contained in the wildlife screen, is it legal to restrain development until research is completed?

R-17: The management policy for sensitive species requires that BLM manage sage-grouse so as not to contribute to the species being listed under ESA. Much research has been completed with respect to sage-grouse and other wildlife within the Planning Area, and additional research is expected to continue. The concept of adaptive management allows for alterations based on new data, and this additional research will add to the knowledge base and help guide future decisions. Given recent research, BLM has elected to modify the Preferred Alternative for sage-grouse habitat management in Alternative H. See Chapter 2, Alternative H.

C-18: What is the basis for the statement "In general, suitable long-term sage-grouse habitat must contain a minimum of 1,000 contiguous acres of sagebrush and (be) located a minimum of 400 meters from visible conifers?"

R-18: Suitable long-term, sage-grouse habitat was based on professional research, including GIS analyses that indicated grouse select habitat based on the amount of sagebrush habitat at the 1,000-meter scale and a minimum of 400 meters from visible conifers (Naugle 2006 [June 24]).

C-19: While negative effects on sagebrush obligate species are likely, such disruption of sagebrush habitats will have positive effects on wildlife species that require more open or mixed sagebrush/herbaceous habitats. The prey base, which is known to limit raptor populations (Grant et al. 1991), is likely to be increased with the opening up of the sagebrush habitat.

R-19: See changes to Preferred Alternative H, wildlife screen, for management of sage-grouse

habitat. Chapter 4, Wildlife, Alternative H, now discusses how species more closely associated with grassland habitats may become more common in some areas as sagebrush-obligate species decline (Knick et al. 2003). During the construction and production phases of the development, however, removed sagebrush habitat will be replaced by facilities and associated human disturbance and may compromise effective wildlife habitat until restoration to pre-disturbance conditions occurs.

C-20: "Restrict noise levels from production facilities to 49 decibels (dBA) (10 dBA above background noise at the lek)" (Page WMPP-13). It is not clear whether noise levels at all production facilities must be restricted to 49 dBA, or only those within a certain distance of an active lek. Also, there are no empirical data supporting this requirement.

R-20: Noise levels at all production facilities must be limited to 50 dBA. WDFG (2005) indicates that to avoid disrupting auditory displays, from March 1 through May 15, anthropogenic sources of continuous or frequently intermittent noise should not exceed 10 dBA above natural, ambient noise measured at the perimeter of any occupied sage-grouse lek. From April 1 through June 30, reduce noise levels to 49 dBA or less within Status 1-3 songbird breeding habitat to minimize the effects of continuous noise on species that rely on aural cues for successful breeding (Inglefinger 2001).

C-21: Tall sagebrush stands represent severe winter relief habitats and have to be identified to prevent protecting overly large areas. During severe winters of prolonged deep snow, there are only a few areas where sagebrush is tall enough to remain available to sage-grouse above the snow. These areas, termed severe winter relief habitats in a study conducted by Hayden-Wing Associates and the Rawlins Office of BLM, are described in "Vegetation and Habitat Analysis of Critical Wintering Areas for Greater Sage-Grouse" (July 2006). These severe winter relief habitats must be identified as soon as possible to avoid the unnecessary protection of large areas of winter habitat that are not critical to sage-grouse survival.

R-21: Although winter range may not always be a limiting factor in sage-grouse populations—birds may be spread out over large areas during mild winters but clumped in less than 10 percent of the available habitat in severe winters (Beck 1977). Winter range does play an important role in population dynamics (Connelly et al. 2003). In Montana, protection of winter sagebrush habitat was reported to be important due to increased hen mortality during severe winters

(Moynahan et al. 2006). In Idaho, grouse adapted to loss of dense sagebrush winter range by moving 1 to 10 km to areas with greater sagebrush cover (Robertson 1991), thus demonstrating the importance of large blocks of habitat. Delineation of crucial winter range involves several factors, one of which will be presence of large blocks of tall sagebrush. Shorter sagebrush in areas where snow does not accumulate can also be important. In Colorado, Hupp and Braun (1989) recommend sagebrush be maintained in drainages and on slopes with south or west aspects because, during winters with deep snow cover, these areas would be most likely to have exposed sagebrush available for sage-grouse. Sage-grouse in the SEIS area are considered to be essentially non-migratory, meaning important seasonal habitats are one and the same or in close proximity to one another. In some areas, these crucial habitats have been identified. In areas where these crucial habitats have not been identified, they will be prior to APD approval.

C-22: Existing stipulations that restrict surface occupancy within 0.4 km (0.25 mile) of an active lek are insufficient to maintain populations within developed oil and gas fields. Current well spacing of 32 to 64 hectares (80 to 160 acres) appear to be several times greater than breeding sage-grouse populations can tolerate. We support using a minimum 1.6-km (1-mile) buffer of no surface occupancy around existing leks and preferably, use a minimum 3-km (1.8-mile) buffer recognizing that development activities within 3 km will have negative impacts on sage-grouse populations. Further, it is recommended that a 6.9-km (4-mile) buffer around leks be used to protect nesting and brood rearing habitat for a minimum of 70 percent of the nesting hens associated with a lek from March 1 through June 30. This protection should apply to both initial development and subsequent annual development and maintenance operations.

R-22: This is not a document where stipulations are being added. Our approach focuses on maintaining the functionality of crucial areas and minimizing disturbance in other habitats. BLM will use monitoring data and the wildlife screen within the preferred alternative to guide it in the protection of crucial habitat. Should data indicate the need to implement the suggested setbacks and restrictions, BLM would use Conditions of Approval and revisions to PODs to protect crucial habitat.

C-23: The DSEIS fails to adequately analyze how using CBNG-produced water for livestock will change distribution across these landscapes, as well

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as the impacts that may result to vegetation and wildlife. More surface water very likely will result in additional fencing to manage livestock distribution; the effects of such additional fencing on sage-grouse and other wildlife are also not adequately analyzed in the DSEIS. BLM, in addition to stronger in-field stipulations, could propose extensive off-site mitigation where sage-grouse habitat quality is optimized through state-of-the-art livestock allotment management, herd buy-downs, or other long-term dedication to shrub-steppe habitat conservation.

R-23: The effects of produced water are discussed in the Livestock Grazing, Vegetation, and Wildlife sections of Chapter 4. Project-specific analyses and mitigation regarding how produced water will be handled will be evaluated in the NEPA document at the ADP/POD level.

C-24: CBNG development will further fragment prairie dog habitat, making recolonization and long-term persistence more unlikely. The FSEIS should include provisions to mitigate for adverse impacts on prairie dog colonies through establishment of large complexes of prairie dog towns on BLM-administered lands unaffected by CBNG development.

R-24: As stated in the WMPP, project activity will be located to avoid impacts to prairie dog colonies determined suitable as black-footed ferret habitat. Also, Table MIN-5 includes a mitigation measure to survey prairie dog colonies and complexes 80 acres or larger to determine the presence or absence of black-footed ferrets. The findings of this examination may result in some restrictions to operators' plans. There are no plans to consider establishment of new prairie dog towns.

C-25: Will the Tongue River Railroad cumulatively impact sage-grouse? There are no WMPP measures for sage-grouse except a 0.25-mile NSO and 2-mile April 1 to June 30 avoidance (WMPP-17, Table 2). Does this mean the railroad will not run in the spring if it passes within 2 miles of a sage-grouse lek?

R-25: The cumulative effects to sage-grouse are found in Chapter 4 under the heading of Conclusions for Alternative H. While BLM must consider and disclose these effects, BLM does not have the ability to apply protective measures to the TRR.

C-26: The DEIS and DSEIS fail to adequately analyze how new roads will influence vulnerability of formerly inaccessible wildlife to hunter harvest.

R-26: Direct and indirect road-related impacts on wildlife are discussed within the Recreation and Wildlife sections of Chapter 4 under the heading of

Alternative A and apply to all alternatives. These include impacts from increased recreational use (including hunting).

C-27: This DSEIS does not provide any certainty that sage-grouse populations will be sustained in eastern Montana and northern Wyoming over the long term. BLM must set aside adequate areas of breeding, winter, and seasonal habitats to sustain large intact sage-grouse populations. A population goal for maintenance of sage-grouse in the Powder River Basin should be established and actions taken to achieve that goal by rigorous designation of critical habitat as is done for listed species.

R-27: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2. The SEIS includes maps of known habitats likely to be important for sage-grouse and sets objectives for those habitats. The SEIS also discloses that efforts to identify additional important habitat will continue to work with MFWP, the state agency responsible for managing sage-grouse populations, to understand population goals. Designation of Critical Habitat is a requirement under the Endangered Species Act and does not apply to non-listed species.

C-28: BLM should map crucial mule deer habitat.

R-28: A map has been included in the FSEIS within the Wildlife section of Chapter 3.

C-29: Impacts on pronghorns should be analyzed and a plan developed to prevent or minimize losses.

R-29: Impacts from various CBNG-related activities, including roads and other infrastructure, are discussed in the Wildlife section of Chapter 4. Since the SEIS is programmatic, quantities and locations of site-specific impacts from development are not known with respect to existing pronghorn populations or habitat. Existing oil and gas lease stipulations and provisions within the SEIS include protective measures for big game species, including pronghorns.

C-30: Development should also include taking all measures to reduce the potential of CBNG ponds to produce late summer mosquito populations that infect sage-grouse with West Nile Virus.

R-30: Monitoring will tell BLM what protective measures need to be added, removed or modified. See the WMPP protective measures under Sage and Sharp-tail grouse, Control of West Nile Virus.

C-31: The DSEIS again offers no baseline data in its analysis of wildlife impacts, specifically, data or

information on current population numbers, trends, geographic distribution, or any quantifiable information on the amount and quality of existing habitat is not presented for a single species of wildlife to serve as a basis for design of alternatives. Additionally, the list of species of concern/sensitive presented in Table WIL-1 does not seem to match the list of sensitive species from the Montana Natural Heritage Program.

R-31: The Wildlife section of Chapter 3 includes the most recent information available regarding relevant wildlife species populations and trends at the time the document was prepared. Crucial habitats for big game and sage-grouse have been identified across the planning area, based on MFWP and BLM data. Potential crucial habitats for other species will be analyzed continually throughout the planning process. Crucial habitats were integrated as part of the design criteria for alternatives. A map showing crucial big game habitat areas within the PRB has been added to the FSEIS within the Wildlife section of Chapter 3. BLM and MFWP are and will continue to collect baseline and monitoring data for selected species of wildlife.

The potential for project-related CBNG activities to have an impact on these species and their habitat is presented within the Wildlife section of Chapter 4. The species listed on Table WIL-1 are those which have been identified as being present within the Planning Area. Not all of the species of concern listed by the Natural Heritage Program would be present within the Planning Area. The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-32: BMPs are voluntary, and BLM should be working with CBNG operators and surface owners regarding their voluntary implementation in crucial sage-grouse habitat areas where the species is present. The DSEIS does not acknowledge the surface owner's role in sage-grouse habitat protection.

R-32: BLM encourages all energy companies to develop and add BMPs into all of their drilling proposals. Because BMPs are so important for protecting the resources we manage as stewards of the public lands, the BLM can and will require energy companies to use appropriate BMPs, through the use of conditions of approval if determined necessary as part of the POD review.

C-33: The displacement criteria for sage-grouse are inconsistent. On page 2-21, the DSEIS provides that no displacement can occur. This provision should be deleted. On page 2-26; the DSEIS provides that

monitoring should take place to "ensure development is not displacing sage-grouse to the point that a sustainable population is not maintained."

R-33: The language on page 2-21 of the DSEIS states that displacement of sage-grouse from crucial habitat areas should be avoided. This is consistent with the language as noted on page 2-26 of the DSEIS. The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-34: The DSEIS does not reference the report, "Greater Sage-Grouse Lek Counts (2000-2006) in and around Fidelity Exploration & Production Company's Coalbed Natural Gas Development Areas in Big Horn County, Montana and Sheridan County, Wyoming," prepared by Hayden-Wing Associates and dated September 2006. The DSEIS should also include the recent data collected by the Wyoming Game and Fish Commission on sage-grouse populations in Wyoming. Sage-grouse should be listed under "Upland Game Birds" instead of under "State Species of Special Concern." The DSEIS does not advise the reader that the sage-grouse is a game bird. The DSEIS should also discuss sage-grouse observations that have been documented at the Cedar Creek Anticline.

R-34: The DSEIS included information available at the time the document was prepared; the referenced document was not available before the DSEIS went to print. Sage-grouse is included as an Upland Game Bird species within the Wildlife section of Chapter 3; however, it is also a State Species of Special Concern. BLM included consideration of region-wide sage-grouse data in the SEIS and in formulation of the wildlife screen under the Preferred Alternative, Alternative H, but did not include data specific to the Cedar Creek Anticline as it is outside of the Planning Area. The Preferred Alternative for sage-grouse habitat management has been modified in Alternative H. See Chapter 2, Wildlife section.

C-35: Do any of the studies mentioned include non-CBNG reservoirs or impoundments? The DSEIS does not provide a discussion of the region-wide West Nile Virus epidemic in Wyoming, Colorado, Montana, and Idaho (non-CBNG).

R-35: A regional discussion of the effect that West Nile Virus has had on sage-grouse is presented within the Wildlife section of Chapter 3 under the heading of West Nile Virus. The data presented are, in part, for four radio-marked populations of sage-grouse in Wyoming, Montana, and Canada.

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C-36: Page 3-123 includes the following statement: "In 2006, Naugle utilizing satellite imagery identified priority habitats for sage-grouse in the PRB. This information identified areas of high value sage-grouse habitat. This mapping utilized several components including, roughness, sagebrush coverage (height/abundance), and distance from conifers. In general, suitable long term sage-grouse habitat must contain a minimum of 1000 contiguous acres of sage brush and located a minimum of 400 meters from visible conifers." The DSEIS fails to advise the reader of the accuracy of the satellite imagery used and that the data have not been ground-truthed. The DSEIS should address what other quantitative parameters were factored into the formulation of this conclusion.

R-36: The FSEIS was revised to describe criteria for the mapping data sources. Doherty et al. (2007 in press) found that sage-grouse selected winter sites that had a greater than 75 percent sagebrush cover in a 4-square-km area. Some areas have been ground truthed.

C-37: Page 3-123 includes the following statement: "Much of the recent research conducted by Holloran and Naugle, et al. focuses on the impact of CBNG development on male sage-grouse attendance on strutting grounds." Holloran did not do any research on CBNG development. Matt Holloran's research was in southwest Wyoming and mainly focused on natural gas development in the Jonah Field and the Pinedale Anticline.

R-37: The FSEIS has been revised to clarify where Holloran's research was conducted.

C-38: The DSEIS does not include the sage-grouse data that were collected for the Fidelity Exploration & Production Company, Montana 2002-2003 Drilling Area, Baseline Wildlife Inventory or for the Fidelity Exploration & Production Company, Proposed Coal Creek POD, Big Horn County, Baseline Wildlife Inventory.

R-38: The referenced data, as well as data from other sources, were considered in the development of the DSEIS. The referenced documents are summarized within the Wildlife section of Chapter 3 under the heading of Wildlife Surveys and Monitoring Since the Statewide Document and are included as references within the Bibliography.

C-39: The Montana Board of Oil and Gas Conservation does not have statutory authority to apply sage-grouse protection standards to APDs. BMPs are to be voluntary and not mandatory. Does BLM have data that show habitat connectivity exists

today? The section on sage-grouse habitat (page 2-21) is poorly defined. The section does not specify how BLM will maintain the connectivity of sage-grouse habitat and allow for genetic diversity and repopulation. At this stage, BLM is committing to work with operators, landowners, FWS, and Montana Fish, Wildlife and Parks to identify BMPs and alternate development schemes, yet the result will be restricting the pace of development in crucial habitat areas.

R-39: MBOGC conducts environmental reviews and issues drilling permits for all private, state, and most federal lands (excluding proposals on allotted or tribal minerals). To provide for the mitigation of potential effects to sage-grouse within the Planning Area, BLM will work with the MBOGC to incorporate and encourage the use of BMPs for CBNG development on state and private lands. The BMPs would be used, as appropriate, in CBNG development and would be included as part of approved PODs. With respect to sage-grouse connectivity, a discussion of sage-grouse distribution is included in the Wildlife section of Chapter 3 under the heading of Sage-grouse Distribution, Habitat Needs, and Population Dynamics. Additionally, Map 3-12 shows sage-grouse distribution and connectivity within the Planning Area, while Map 3-14 shows sage-grouse distribution and connectivity throughout Montana and Wyoming, as well as parts of North and South Dakota. Through the use of adaptive management and the implementation of BMPs, existing habitat and connectivity can be maintained. The commenter is correct in noting implementation of the provisions of the wildlife screen under the Preferred Alternative, Alternative H, would likely result in some CBNG development delays, particularly in areas where crucial habitat is present.

C-40: "The goal of the WMPP is to avoid or minimize impacts to wildlife and serve as a communication tool to foster cooperative relationships among the CBNG and conventional Oil and Gas industry (i.e., Operators), resource management agencies, landowners and adjacent Tribal Governments" (Wildlife Appendix, page WMPP-1). The goal of the WMPP should include the documentation of both beneficial and negative changes to the species that occur on project areas.

R-40: The WMPP has many functions; one would be to document changes, both positive and negative, to a species to guide ongoing and future actions. However, the goal of the WMPP is as stated, "...to avoid or minimize impacts to wildlife and serve as a communication tool...."

C-41: "Surface use is prohibited between April 1 - June 30 in grouse nesting habitat within 2 miles of a known lek." (Wildlife Appendix, page WMPP-8). BLM is proposing to shift and expand the timing limitation stipulation from March 1 to June 15. What is the basis for such change?

R-41: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified; see Alternative H within Chapter 2. See the Wildlife Appendix for proposed changes with respect to surface use near a lek.

C-42: "Manage produced water to reduce the spread of West Nile virus within sage-grouse habitat areas. Implement the following impoundment construction techniques to eliminate water sources that support breeding mosquitoes" (Wildlife Appendix, page WMPP-8). The goal to "eliminate water sources that support breeding mosquitoes" is unrealistic. There are several natural and man-made impoundments (excluding CBNG-produced water impoundments) that contain mosquito habitat. The techniques should be recommended, not mandated, practices. The construction of the CBNG-produced water impoundment should take into account the surface owner's needs and desires.

R-42: The WMPP includes measures aimed at reducing the impact of produced water on West Nile Virus. BLM would not eliminate all water sources, but would implement the use of stipulations to minimize the potential for CBNG impoundments to provide mosquito habitat. BLM would work with surface owners and the operators in meeting the needs of the surface owner where conditions allowed.

C-43: "Locate storage facilities, generators, and holding tanks outside the line of sight and sound of important sage-grouse breeding habitat" (Page WMPP -13). No empirical data support the requirement to locate storage facilities, generators, and holding tanks outside the line of sight and sound of important sage-grouse breeding habitat. Is "sage-grouse breeding habitat" the same as a sage-grouse lek? BLM already has a 0.25-mile, no-surface-occupancy stipulation protecting leks. Is this an additional stipulation that is being implemented through programmatic guidance?

R-43: The requirement is directly from the Montana State Sage Grouse Management Plan and Conservation Strategies (MSGWP 2005). The sage-grouse breeding habitat is essentially the same as the identified crucial sage-grouse habitats. The requirement for locating storage facilities, generators, and holding tanks outside the line of sight and sound

of important sage-grouse breeding habitat is in addition to the 0.25-mile NSO stipulation for protecting leks.

The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2 and the Wildlife Appendix for proposed changes with respect to surface use near a lek.

C-44: Corridors undeveloped to allow for wildlife movement is a very good idea, but this is not phased development. In contrast, phased development to protect wildlife populations and habitat would have to concentrate on limiting the geographic and temporal scope of development in a given area in ways designed to leave enough habitat for species to coexist with development at each point in time during the life of the project, from drilling through extraction to reclamation.

R-44: BLM is aware there may be some crucial sage-grouse habitat irreversibly committed while monitoring and research are conducted to test the application of BMPs and identify new ones. The Preferred Alternative, Alternative H, has the objective of "maintaining the connectivity of sage-grouse habitat within the PRB and adjacent regions and maintenance of source populations for repopulation of areas from which displacement may have occurred due to CBNG development." Monitoring data will be used to develop and apply BMPs sufficient to protect sagebrush habitat and sage-grouse source populations.

C-45: Regarding the definition of surface disturbance in crucial habitat areas (page 2-21), BLM does not provide any references to substantiate the 200 meters on both sides of main roads as a direct disturbance. What data did BLM use to generate this definition? This stipulation does not provide flexibility in road use, such as during construction versus during the production phase. Also, BLM does not account for well maintenance activities, such as workovers or the pulling of pumps. BLM's statements about what wildlife will avoid and not avoid are not substantiated by any technical reference. Main arterial roads are not defined. It appears that BLM is trying to define arterial roads as roads that have a high traffic volume of 12 vehicles per day. Therefore, BLM would consider a road that has one vehicle every 2 hours during a 24 hour day a high-traffic road.

R-45: There are numerous documents referenced in the Wildlife section of Chapter 3 which discusses the impact of roads to wildlife. Research indicates some wildlife species are negatively impacted by roads,

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regardless of the amount of use. The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-46: Regarding the adaptive management objectives listed on page 2-21, how is a CBNG operator going to prove that operation will maintain the connectivity of sage-grouse habitat within the PRB and adjacent regions? Adjacent regions are not identified. BLM is putting the burden on CBNG operators to prove a negative. How are we to prove that our operation will not cause a temporary displacement? Where are the data that show displacement as being detrimental to the species?

R-46: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2. Operators will need to follow the guidelines and requirements under Alternative H and management Common.

Literature has been cited documenting the adverse effects of temporary displacement of sage grouse.

C-47: The new sage-grouse crucial habitat restrictions are based upon a preliminary report from the University of Montana that has not been validated or peer-reviewed. It is irresponsible of BLM to implement such preliminary research when on-the-ground data (HWA Greater Sage-Grouse Lek Counts, 2000, 2006) in and around Fidelity Exploration & Production Company's Coalbed Natural Gas Development Areas in Big Horn County, Montana, and Sheridan County, Wyoming, show that sage-grouse are still using leks within Fidelity's development. Holding up CBNG development until the completion of research to identify crucial brood, rearing, and nesting habitat areas does not honor an oil and gas lessee's valid existing rights to explore and develop his leases.

R-47: Interim reports were used because they were the information available at the time the DSEIS was released; since that time, the University of Montana report referenced has been peer-reviewed. It is not BLM's intent to either delay or hold up CBNG development, but rather to provide a means for CBNG development to proceed without unacceptable impacts to wildlife habitat within the Planning Area. The agency recognizes some delay will likely occur within areas with crucial habitat. The Preferred Alternative for sage-grouse habitat management has been modified in Alternative H. See Chapters 2 and 4 under the Wildlife section.

C-48: The assumption in Alternative H that CBNG development is to blame for any reduction in wildlife populations without analyzing other causes, such as drought or severe winters, is not borne out by scientific data.

R-48: The potential for project-related, CBNG development activities to impact wildlife is detailed within the Wildlife section of Chapter 4. Additional discussion of the potential for other factors, such as drought, to impact wildlife populations is contained in the FSEIS within the Hydrological Resources and Wildlife sections of Chapter 3.

C-49: CBNG standard stipulations are clearly insufficient to prevent significant impacts to and ultimate depopulation of sage-grouse. Proposed well densities of 80 to 160 acres spacing should be expected to have heavy impacts on sage-grouse populations. BLM has not planned the location of wells and roads; the agency will not be able to analyze the direct and cumulative impacts of the project on sage-grouse, either on a project-wide basis or lek by lek.

R-49: Cumulative effects are assessed in the SEIS; see Chapter 4. Project-specific environmental assessments, as well as WMPPs, are required for each POD. All potential impacts, direct and cumulative, resulting from a specific project would be identified during the development of the project environmental assessment (EA).

C-50: What exactly does the BLM define as "within suitable mountain plover habitat?"

R-50: The WMPP, in the Wildlife Appendix, states that BLM, FWS, and MFWP will estimate potential mountain plover habitat to determine the presence/absence of potentially suitable mountain plover habitat. Additionally, within the Wildlife section of Chapter 3 under the heading of Mountain Plover it is stated that the mountain plover "prefers relatively flat sites with very short grass and scattered cactus." Intensive grazing is beneficial for mountain plovers, and mountain plovers also regularly occupy prairie dog towns. High, arid plains and shortgrass prairie with blue grama-buffalo grass communities are the primary habitat.

C-51: BLM should undertake a detailed analysis of burrowing owl population numbers and trends in the Powder River Basin and thoroughly analyze the impact of the proposed plan amendment's various alternatives on burrowing owl population viability.

R-51: Raptor surveys conducted from 2002 to 2005 in proposed CBNG drilling and pipeline development areas in Big Horn and Powder River counties

documented active burrowing owl nesting areas (see the Wildlife section of Chapter 3 under the heading of Wildlife Surveys and Monitoring Since the Statewide Document). BLM will continue to update burrowing owl population data as surveys are conducted and will incorporate the information into the WMPP.

C-52: BLM should undertake a detailed analysis of swift fox population numbers and trends on the Powder River Basin and thoroughly analyze the impact of the proposed plan amendment's various alternatives on swift fox population viability.

R-52: The swift fox is discussed within the Native Americans Concern section of Chapter 3 under the heading of Wildlife which states that the swift fox was "removed as a Candidate Species for Threatened Status by the FWS on January 8, 2001. Their numbers are believed to be stable, but there is still concern for their future." BLM does not believe that additional surveys are warranted at this time. Should additional data become available, then BLM would reconsider the need for swift fox surveys.

C-53: Potential black footed ferret recovery areas should be ACECs.

R-53: In order to consider this for an ACEC, additional planning must occur.

C-54: Because prairie dogs are already stressed by endemic or epidemic levels of sylvatic plague, stronger conservation measures are needed to prevent impacts from activities that can, in fact, be controlled. This analysis has not been attempted by BLM, in violation of NEPA.

R-54: BLM recognizes the potential for plague to impact prairie dog populations. The WMPP, included within the Wildlife Appendix, states the following: "Prairie dog towns on BLM lands within 0.5 miles of a specific project area will be identified, mapped and surveyed...." In addition, reference prairie dog colonies subject to development will be identified. On an annual basis, BLM and/or a BLM-approved, operator-financed biologist will survey, at least a portion of, the prairie dog colonies, including the reference colonies. Prairie dog populations may be subject to population fluctuations primarily due to disease (plague). Therefore, efforts will be made to compare the data from the reference colonies with that obtained from the project areas, in order to monitor the response of prairie dog population to CBNG development.

C-55: The actual road avoidance zone for deer is much larger than 200 meters, and elk have been found to avoid areas within 0.6 to 1.2 miles from a

road as a result of vehicle-related disturbance (Powell 2003; Sawyer and Neilson 2005).

R-55: The 200 meter road requirement has changed. See Chapter 2, Alternative H, Wildlife Screen. One of the wildlife objectives is to protect wildlife species that rely seasonally or yearlong on crucial habitats.

C-56: Several studies have shown that elk abandon calving and winter ranges in response to oil field development. Thus, winter range areas should be withdrawn from the surface disturbances associated with oil and gas development, and leased only under no-surface-occupancy stipulations.

R-56: A map has been added to the FSEIS showing winter habitat within the Planning Area for deer, antelope, and elk. BLM will work with MFWP to gather additional data and further refine protection measures as necessary within any of these potential areas. The SEIS is not a leasing document (see Chapter 2, "Alternatives Considered but not Analyzed in Detail, "Leasing" for further discussion.)

C-57: How much of the landscape will be within 100 meters of a road or well pad under each alternative resulting in habitat function losses for migratory birds?

R-57: A discussion of the potential impacts to migratory birds resulting from project-related CBNG activities is contained within the Wildlife section of Chapter 4 under the heading of Alternative A. Not all roads or well pads within the Planning area would be constructed within suitable habitat for migratory birds; therefore, a discussion of the number of acres within 100 m of a road or well pad would not provide usable data for assessing potential impacts. Project specific environmental assessments and wildlife monitoring and protection plans are required for each POD. Should an environmental assessment identify the potential for project-related activities to impact sensitive habitat for migratory birds, then measures to mitigate the potential impacts to that habitat would be outlined in the wildlife monitoring and protection plan.

C-58: BLM fails to provide baseline information about the size of the present mountain plover population and also fails to predict the population trend as a result of the project. Recent studies have documented mountain plover population extinction with oil and gas development in Utah.

R-58: There are limited data available to quantify the population of mountain plovers in the Project Area. BLM has conducted mountain plover surveys in various locations as described in the DSEIS, within the Wildlife section of Chapter 3 under the heading

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of Mountain Plover, and has not found any mountain plovers.

C-59: Simply listing and not analyzing the effectiveness of mountain plover mitigation measures results in violation of NEPA. BLM has failed to provide any support or analysis of the effectiveness of seasonal mitigation measures for wildlife, including big game, despite its obligations under NEPA.

R-59: Mitigation measures for mountain plover consist of surveying development areas for potential nesting sites and avoiding construction and exploration activities in any identified nesting areas during the nesting period from May 1 through June 15 to ensure potential nesting mountain plovers are not prevented from setting up territories as a result of the presence of equipment and humans. A discussion of mountain plover mitigation measures, including the rationale for the mitigation measure, is included in the Wildlife section of Chapter 4 under the heading of Alternative A, Mountain Plover. The effectiveness of mitigation measures, including seasonal mitigation measures, in avoiding or minimizing impacts is discussed under the heading of Conclusions for each alternative within Chapter 4. Additionally, using adaptive management techniques, as outlined in the Preferred Alternative, Alternative H, would allow for monitoring and adjustment of existing and new mitigation measures to ensure they provide some level of protection of wildlife and wildlife habitat.

C-60: Mitigation measures must use a buffer size adequate to result in only minor impacts.

R-60: The buffers proposed are appropriate for maintaining wildlife and wildlife habitat. BLM would evaluate new data as it becomes available, or new data developed through the use of adaptive management, that show the need for adjusting a buffer to better protect wildlife or wildlife habitat. BLM would then adjust the buffer accordingly.

C-61: Potentially disruptive activities that occur in sensitive habitats after construction and drilling are completed negate the mitigation value of seasonal restrictions as proposed by BLM.

R-61: The WMPP includes seasonal restrictions developed through consultation with MFWP and FWS. While not eliminating all adverse impacts that could occur, the seasonal restrictions do reduce the level of impact during the most crucial time periods. As stated in the WMPP, additional conservation measures will be incorporated through the Project Plan design or as conditions of approval. When reviewing PODs, BLM will use currently available

information regarding effects of CBNG development to develop additional protective measures where appropriate.

C-62: A reasonable alternative would be to place a moratorium on the construction of wells, roads, and other infrastructure for the important nesting habitat that occurs within 3 miles of a sage-grouse lek, or within 1 mile of a sharp-tailed grouse lek.

R-62: The Wildlife Screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2. No development in crucial habitat was analyzed in Alternative F and H. the assumption used for the analysis ranged from no development to full field development.

C-63: Oil and gas development poses perhaps the greatest threat to sage-grouse viability in the region. Dr. Braun's Blueprint for Sage-grouse Conservation and Recovery should be implemented in the context of the Montana Powder River Basin CBNG SEIS process.

R-63: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-64: There has been no disclosure or analysis of the effectiveness of mitigation measures proposed for sage-grouse within the planning area.

R-64: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-65: BLM has repeatedly failed to provide any analysis, whether field experiments or literature reviews, that examines the effectiveness of the proposed 0.25-mile buffers where disturbance would be prevented. Roads and wells would still be built within 2 miles of sage-grouse leks and within 1 mile of sharp-tailed grouse leks as long as construction occurred outside the breeding/nesting season. This is the very area for which experts have recommended that no oil and gas facilities or infrastructure be built (Connelly et al. 2000).

R-65: See the Monitoring Appendix for management options BLM could take if a threshold is reached. The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-66: Mitigation measures have to allow pronghorns, elk, and mule deer to migrate and use their winter

ranges optimally. Such a mitigation measure would be allowing no surface disturbance on big game crucial winter range and migration corridors. BLM should also analyze an alternative that at least requires all roads within big game crucial winter range and migration corridors to be gated and places a moratorium on all human presence and vehicle traffic within crucial winter range and migration corridors between November 15 and April 30.

R-66: The FSEIS is not a leasing document where stipulations are developed. See Chapter 2, Alternatives Considered but not Analyzed, Leasing. Current stipulations to minimize the potential for impacts to big game species from project-related CBNG activities require no surface use of big game winter range areas from December 1 through March 31 for development related activities. While not eliminating all adverse impacts, this seasonal restriction does reduce the level of potential impacts during the most crucial time. Additional data could indicate the timing of this stipulation should be adjusted, BLM could adjust the stipulation accordingly. There appears to be little to no seasonal migration for mule and white-tailed deer within the Planning Area. Should additional data be developed indicating migration corridors for other big game animals would have to be protected to avoid unacceptable impacts, then BLM could adjust the stipulation accordingly. Chapter 2 states BLM could require actions such as restricting use in crucial habitats to protect wildlife or their habitats.

C-67: BLM has provided no evidence that a road density of 3 miles per square mile will support big game (or other wildlife). The best available science indicates that densities must be held below 1 mile per square mile to maintain habitat function.

R-67: The wildlife screen for the management of wildlife habitat under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-68: We are concerned that "active" raptor nest sites are defined as only those that have been occupied during the past 2 years. Most raptors have multiple alternate nest sites that are used repeatedly within a nesting territory, yet it is common for a nest site to go unused for two or more years, only to have nesting use return again. BLM should analyze and present the monitoring data it has in its own files, compare presence and nest success data to proximity to wells and roads (which data the BLM also possesses), and present some conclusions on the effectiveness of seasonal mitigation measures by species.

R-68: The revised WMPP includes seasonal restrictions that were developed through consultation with MFWP and FWS. The criteria to determine nest activity was modified to seven years. The WMPP will monitor effectiveness of the seasonal restrictions around raptor nests.

C-69: BLM should establish adequate nest buffers (a minimum of 1 mile in diameter for all species, with larger buffers for ferruginous hawks) around nest sites, preventing all construction of developments (such as wells and roads) that would lead to future disturbance of nesting raptors through focusing human activities in these areas. Seasonal restrictions are insufficient.

R-69: BLM has implemented a ½ mile No Surface Occupancy stipulation around Ferruginous Hawk nests and timing restriction of ½ mile around all raptor nests. The WMPP includes buffers around raptor nests, based on consultation with MFWP and FWS. Adaptive management will provide an opportunity to evaluate the need to modify buffers. POD approval will include site-specific assessment of well and road placement relative to raptor nests to avoid continued disturbance.

C-70: The DSEIS presents no population estimates for sage-grouse. How many of the leks are currently active, how many inactive, and how many historic? What are the lek count data at each lek (lek count data should be readily available for many leks)? What proportion of the nationwide populations of these species are represented by the populations in the planning area? What are the lek attendance trends for each lek, and what current human activities are affecting these trends?

R-70: Data on the number of active leks surveyed and average male attendance at those leks is included within the Wildlife section of Chapter 3. In addition, an annual report summarizing monitoring information, as outlined in the WMPP will track the status of leks in and adjacent to development. A discussion of sage-grouse population relevant to the Planning Area is also included within the Wildlife section of Chapter 3 under the heading of Sage-grouse Distribution, Habitat Needs, and Population Dynamics.

C-71: BLM has made no attempt to gather comprehensive baseline information on nesting raptors throughout the planning area.

R-71: Available data on raptors is included within the Wildlife section of Chapter 3 and within the Wildlife Appendix, Wildlife Monitoring and Protection Plan, and the Biological Assessment. In

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addition, inventory/monitoring for raptors has been conducted and will continue.

C-72: It is certain that elk and pronghorn populations are migrating freely across the state line and the cumulative effects analysis is equally lacking. Numerous species of migratory birds (passerines and raptors, including BLM sensitive and threatened species under the Endangered Species Act [ESA]) are listed in the DSEIS, yet BLM makes no attempt to look cumulatively at the factors affecting their population dynamics range-wide. Both prairie dogs and sage-grouse found within the planning area are parts of a larger common population shared between Montana and Wyoming, yet the agency makes no effort to examine the impacts of development in Wyoming in the context of making an overall assessment of population viability for these species.

R-72: Potential impacts resulting from project-related CBNG activities, including potential cumulative impacts, are discussed within the Wildlife section of Chapter 4. Additional analyses would be conducted at the site-specific POD level.

C-73: The DSEIS inappropriately abandoned a flexible adaptive management strategy designed to provide protection for wildlife without needlessly creating uncertainty and impeding development. Instead, preferred Alternative H mandates, in advance, blanket imposition of a set of undefined mitigation measures, an approach that unnecessarily restricts BLM's flexibility.

R-73: The wildlife screen for the management of wildlife habitat under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-74: Please define/explain the proposed factors that are included in the definition or identification of a crucial habitat area. Furthermore, please define/explain any crucial habitat areas within the Powder River Basin and cross-reference them with the oil and gas leases they affect.

R-74: Crucial habitats are defined using BLM/MFWP data, research findings, etc. Crucial habitats for sage-grouse, big game, and migratory songbirds include areas necessary for maintaining viable populations. The specific requirements encompass habitats for breeding, raising young, foraging, and wintering. Sage-grouse crucial habitat consists of large intact patches of sagebrush. Big game crucial habitat includes winter range and elk calving areas. Migratory bird crucial habitat includes sagebrush, native grassland, riparian, and wetland communities. CBNG development potentially

affecting any particular crucial habitat would be assessed at the individual POD level. Maps showing crucial habitat within the planning area are contained within the Wildlife section of Chapter 3.

C-75: Please include detailed documentation on how four crucial sage-grouse habitat (page 3-124) areas were delineated.

R-75: Information on how crucial sage-grouse habitat was determined is presented within the Wildlife section of Chapter 3 under the heading of Ongoing Sage-grouse Habitat and Oil and Gas Research.

C-76: Please clarify/explain how BLM proposes to manage the sage-grouse population within the crucial habitat areas given the hunting of this species, especially in light of the recent public identification of these areas as crucial sage-grouse habitat.

R-76: MFWP is responsible for setting hunting harvests and managing the sage-grouse population. BLM will manage the habitat in the area in a manner consistent with maintaining a viable population.

C-77: Please define/explain the process an operator can take (i.e., wildlife surveys, monitoring, mitigation measures, etc.) if an operator chooses to develop within a crucial sage-grouse habitat area.

R-77: The wildlife screen for the management of wildlife habitat under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2. In general, an operator will need to demonstrate how the development/ production of the CBNG wells could occur while still protecting wildlife species that rely seasonally or year-long on crucial habitats.

C-78: There is a concern that BLM could use the lack of information to prevent operators from exercising their lease rights until they have had time to collect relevant sage-grouse data before submitting a POD. This requirement is unwarranted because preliminary research, which is the foundation of this requirement, has not been finalized and peer-reviewed. Therefore, we recommend this screen be eliminated or revised to accommodate the concept of adaptive management, whereby monitoring could be used to establish whether there are significant negative impacts during operations, as well as appropriate mitigation measures.

R-78: Since the publication of the DSEIS, the referenced research has been peer reviewed. The wildlife screen for the management of sage-grouse habitat under the Preferred Alternative, Alternative

H, has been modified. See Alternative H within Chapter 2.

C-79: Conservation actions have to consider the relationship between CBNG and West Nile Virus and attempt to mitigate those conditions conducive to its spread. The commenter supports reducing the potential of CBNG impoundments to produce late summer mosquito populations that vector West Nile Virus. The DSEIS fails to consider groundwater reinjection as an alternative, which could limit some sources of West Nile Virus infestation.

R-79: The potential for CBNG-produced water managed in surface impoundments to increase the availability of surface water bodies, which in turn may increase mosquito populations within a given POD area, is discussed within the Wildlife section of Chapter 4. Mitigation measures that would be implemented to minimize the potential for CBNG surface water impoundments to serve as breeding grounds for mosquitoes are contained within the Wildlife Monitoring and Protection Plan included in the Wildlife Appendix. One alternative to the surface management of produced water is subsurface injection. Subsurface injection or reinjection of produced water would make it unavailable for mosquito breeding. Subsurface injection or reinjection as a method of produced water management is discussed under the Hydrological Resources section of Chapter 4.

C-80: The DSEIS fails to address how a CBNG operator will prove that operation will maintain the connectivity of sage-grouse habitat within the PRB and adjacent regions.

R-80: The wildlife screen for the management of sage-grouse habitat under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-81: MFWP is concerned about the 20 percent disturbance threshold defined in the SEIS and considers it inadequate to protect fish and wildlife populations in the project area. Research in Wyoming shows that impacts to wildlife from disturbed habitat is cumulative, and wildlife populations can be severely impacted at disturbance levels much less than 20 percent. There is no scientific justification for using this 20 percent threshold for limiting development, and more conservative thresholds are required (Connelly, I.W., M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000). Considering sage grouse alone and their observed level of sensitivity to various disturbance factors, the 20 percent threshold is inappropriate.

R-81: The wildlife screen for sage-grouse and mule-deer habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-82: MFWP believes that a combination of Alternatives F, G, and H would provide the best opportunity to conserve fish and wildlife resources.

R-82: BLM is tasked with developing the best opportunity to conserve fish and wildlife, while also providing an opportunity for industry to develop oil and gas resources. BLM has developed an alternative, Preferred Alternative H, which it believes achieves a balance between the development of CBNG, while providing for protection of the environment that supports wildlife and fish populations. The wildlife screen under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-83: Under the development of roads, pipelines and other infrastructure (p. 2-24), it is stated that the authorized officer could approve high-voltage aerial power lines by application. BLM should provide estimates based on cost or evidence from Wyoming on what proportion of PODs and applications will request aerial powerlines. There are plans to reduce impacts of aerial power lines where feasible, but if the majority of lines constructed are aerial, negative impacts will be unavoidable (only in crucial sage-grouse habitat are distribution lines required to be buried; p. WMPP-10).

R-83: Although the authorizing office can approve above-ground, high-voltage, aerial power lines by application, the preference is for buried lines. Therefore, it is not implied or suggested the majority of lines will be aerial, resulting in negative impacts. The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2.

C-84: A slower pace of development in crucial habitat areas may be a result of insufficient long-term data to identify population trends. The time that constitutes long-term data is not defined.

R-84: The timeframe for developing a sufficient set of data will vary by species and area, as well as variations in monitoring data collected. At this time, BLM does not have a set timeframe to determine what would be sufficient or insufficient in the long term.

C-85: "Raptor inventories would be conducted over the entire Coal Bed Natural Gas project area every 5 years by the BLM and MFWP." This document

cannot commit and does not have authority to commit MFWP to this. Resources within MFWP have not been identified at this time, and making the assumption that MFWP will be able to, or will agree to, do so is premature. In addition, no indication is provided for how funding or resources will be made available for MFWP to accomplish this.

R-85: BLM is committed to keeping MFWP informed about wildlife surveys and recognizes BLM does not have the authority to commit resources from MFWP to participate in conducting wildlife surveys. Language in the FSEIS has been modified to show that participation by MFWP in conducting wildlife surveys would be as its resources allow.

C-86: “As development schemes are identified and approved ongoing monitoring would be conducted to ensure development is not displacing sage grouse to the point that a sustainable population is not maintained.” What if monitoring indicates development is displacing sage-grouse?

R-86: The wildlife screen for sage-grouse habitat management under the Preferred Alternative, Alternative H, has been modified. See Alternative H within Chapter 2. BLM recognizes some displacement of sage-grouse will occur as a result of project-related CBNG development. The goal of implementing the wildlife screen is not to avoid all displacement of sage-grouse, but to maintain sustainable populations. BLM will work with state and federal agencies and operators to determine if the guidelines developed to achieve this goal are effective, or if additional measures are required. The additional measures that could be used would likely be site-specific and could include curtailing or restricting development within impacted areas.

Alternatives

Comment 1 (C-1): Phased development should consist of developing CBNG watershed-by-watershed to minimize utility corridors, roads, and the disruption they cause to agriculture and wildlife. Phased development watershed by watershed would avoid unnecessary cost and provide for more effective monitoring.

Response 1 (R-1): For a discussion on various “Phased Development” alternatives considered but not analyzed, see Chapter 2, “Alternatives Considered but not Analyzed in Detail” under “Phased Development (other than Alternatives F, G and H)”.

C-2: The proposed alternatives do not take into account the cumulative impacts of methane development on private as well as public lands. Significant habitat degradation could occur in watersheds where a large proportion of the land is in private ownership. The screens should involve landscape-level planning that includes cumulative effects analysis.

R-2: The SEIS includes a landscape level analysis that provides detailed information on cumulative impacts resulting from CBNG project activities regardless of ownership. Information on cumulative impacts is in Chapter 4 and the Minerals Appendix of the SEIS. The resource screens do not differentiate between impacts resulting from private, state, or federal development, but rather consider potential impacts from all development. As an example, under the water screen, should surface water quality standards be exceeded, BLM would implement mitigation measures on federal development to bring water quality back into compliance. BLM would also work with MDEQ to mitigate the impact from private or state development. As such, while BLM’s actions are directed to federal development, the resource screens consider cumulative impacts from all development.

C-3: Weed mapping should be conducted to provide a baseline and help guide the screening process.

R-3: Vegetation surveys, including for noxious weeds, will be conducted at the POD level on federal lease areas to develop baseline information before beginning operations.

C-4: What authority does BLM or anyone else have to stop CBNG development if it begins to damage the wildlife, water, air, noise, or any other of the environmental aspects that should be protected?

R-4: The Preferred Alternative, Alternative H, allows for CBNG development with monitoring conducted to evaluate if resource values are being protected. BLM would compare the monitoring data against the four resource value screens contained in Alternative H. BLM has the authority to implement mitigation measures and/or decline applications if unacceptable impacts to resource values are occurring.

C-5: The DSEIS does not address whether the pace and geographic distribution of CBNG development to date in Montana, or in the northern portion of the Powder River Basin in Wyoming, effectively constitutes phased development under the term’s potential definitions. Thus, the fundamental distinction between the new alternatives and the

CBNG development status quo has not been established.

R-5: Phased development has more than one definition (see R-1). The distinction between the alternatives is apparent when reviewing the effects of one alternative vs. another (for example, current management (Alternative A) versus the preferred alternative (H). The pace of CBNG development has been adequately addressed for each alternative; see the "Comparison Summary of Impacts" table at the end of Chapter 4 for comparisons.

C-6: The problem with phased-in development, based on a numeric criteria, is the sustained impact this will exert on the landowner/surface user, split-estate. It would be more prudent to develop each area as a whole. This will prevent continued disruption of the landowner's surface and operations that may drag into decades if numeric limitations are adopted.

R-6: The Preferred Alternative, Alternative H, supports a phased development approach based on the protection of resource values using four resource screens. A numeric limit on development, as included in Alternatives F and G, is not an element of BLM's Preferred Alternative.

C-7: The SEIS fails to look at phasing development by aquifer. This would allow one seam to be developed, while another is used for water disposal.

R-7: See R-1

C-8: During the alternative development phase of this DSEIS we asked that BLM analyze a geographically phased alternative in which designated areas of land would be developed for CBNG extraction through their production phase, then reclaimed before moving on to extract CBNG in another area.

R-8: See R-1.

C-9: If BLM desires a phased development approach, it could occur through future lease sales. This would allow BLM to restrict or consider establishing development plans confined to certain areas, within specific seams, at pre-determined APD approval rates, or with baseline monitoring in place and adequately evaluated based on actual results from preceding development.

R-9: BLM oil and gas leasing decisions and lease stipulations, including those applicable to CBNG, were previously analyzed in the BLM 1992 Final Oil and Gas RMP/EIS Amendment. Those decisions were approved in the project's February 1994 ROD. Analyzing new federal lease decisions, such as closing federal areas of oil and gas estate in the

Powder River and Billings RMP areas, are therefore, beyond the scope of this SEIS. Also see response to R-1 and Chapter 2 under the Alternatives Considered but Not Analyzed in Detail section.

C-10: The cumulative impact analysis is not supported by the necessary data for BLM to select any of the alternatives in the SEIS.

R-10: For data used in preparation of the SEIS see the Bibliography. Cumulative impacts resulting from the implementation of the proposed action are included throughout Chapter 4 of the SEIS. Additional information on cumulative impacts is contained in the Minerals and the Air appendices. The data supplied adequately describe cumulative impacts and allow selection of a preferred alternative, while recognizing that additional site-specific analyses will be required within a plan of development before project-level CBNG development begins.

C-11: The DSEIS does not indicate when BLM would apply modifications to a POD on the basis of using the four filters or screens proposed in Alternative H. Is BLM going to apply modifications to a POD during permitting and construction, or after development has commenced?

R-11: A decision flow chart outlining how and when the four screens would be used under the Preferred Alternative, Alternative H, is presented on Figure 2-1 within Chapter 2.

C-12: One of the requirements of a POD is that digital project maps depicting all infrastructure installations necessary for the project, etc., be included. BLM should clarify that digital includes PDF files of the proposed infrastructure.

R-12: Digital refers to GIS maps or AutoCAD files.

C-13: Mandated use of transportation corridors could easily infringe on operator/surface owner agreements.

R-13: BLM will take into account any difficulties encountered by an operator when consulting with adjoining operators, as well as the wishes of the landowner(s) and existing operator/surface owner agreements. The intent of this provision is, to minimize to the extent achievable, the overall area of surface disturbance and the number of roads and utility corridors.

C-14: The SEIS states the following: "Prior to approving a road, the operator, landowner, the BLM, adjacent landowners, and adjacent gas leaseholders would coordinate long-term planning for roads in the area." What type of road is being referred to here?

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R-14: BLM is referring to all roads constructed for the purposes of developing CBNG.

C-15: The SEIS states the following: "Low voltage (440-v) distribution powerlines would be buried. The authorized officer (AO) could approve proposed high voltage, aerial power lines by application. The AO could approve above-ground, low-voltage distribution power lines only if the operator could demonstrate that it would not be feasible or it would be impracticable to bury them (economic issues, technically impossible, etc)." The DSEIS is mandating the use of buried powerlines with no consideration of surface owner desires.

R-15: BLM recognizes that power lines cannot always be buried. The intent of this requirement is to remove power lines and poles as potential raptor perches and to prevent the impact that multiple power lines would have on the visual landscape.

C-16: Developing leases in stages could help reduce impacts on surface resources such as air, water, and wildlife. In phased development of leases, it would be imperative that, before moving on to the next phase, the prior phase of the lease that is developed not only be reclaimed, but actually restored to its fully functioning capacity to support the economic and ecosystem values it supported before development. Phased development of leases would also provide BLM and other agencies with an opportunity to gather information to use in adaptive management to assess the impacts of the earlier phase, and if advisable, change the way the next phase occurs to address those impacts.

R-16: See R-1 and R-9.

C-17: It must be emphasized that there is likely no one-size-fits-all phased development alternative that would best protect the important resources of a given area within Montana's portion of the Powder River Basin. For example, important wildlife populations such as sage-grouse may be concentrated in certain regions, just as the availability of receiving formations for the reinjection of CBNG wastewater will vary by location. Therefore, BLM should create specific management areas and implement different concepts of phased development to protect the resources as they vary from one area to another.

R-17: The Preferred Alternative provides management actions to address the differences between areas and the resource issues found within each area. See also R-1.

C-18: The new Preferred Alternative (Alternative H) must be "environmentally preferable." BLM has not

established that Alternative H is environmentally preferable to Alternative E.

R-18: In accordance with 40 CFR 1505.2(b) "Record of decision in cases requiring environmental impact statements "BLM must: "(i)identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable."

A record of decision (ROD) has not yet been made. After the Governor's consistency review ends, a ROD will be issued. When the ROD for the SEIS is issued, it will include a section discussing the "environmentally preferred alternative".

C-19: Judge Anderson rejected almost all other challenges to the FEIS and ruled that "as a whole, the FEIS adequately considered the impacts of CBM development in the Powder River Basin," Order, CV 03-69-BLG-RWA (February 25, 2005). Therefore, the SEIS should be restricted to the judge's stated areas of concern. However, the preferred alternative involves a new system of mitigation measures above and beyond the judge's requirement to consider a phased development approach. Judge Anderson characterized phased development as involving numeric limits on wells or geographic limits on areas developed. The SEIS, in contrast, employs a radically different approach in Alternatives F, G, and H, which does not control development by a specified number of wells or defined geographical area. On the contrary, these alternatives would impose a discretionary system of mitigation measures and enable BLM to arbitrarily limit APD and POD approvals without objective standards.

R-19: Judge Anderson's order did not restrict the scope of BLM's analysis. Alternatives F and G analyzed phased development based on a two-tier system of numerical controls, involving numeric limits on wells annually and by watershed area. The watershed area numeric limits would place geographic limits on areas developed. The preferred alternative (H) supports a phased development approach by using adaptive management based on the protection of resource values using four resource screens. These resource screens control and provide for monitoring development to mitigate or reduce potential effects.

C-20: From a fish and wildlife habitat perspective, restoration is equally as important as attempting to mitigate during development. To this end, there have to be further discussions in the SEIS defining the specific commitments that BLM will make to ensure that public lands are restored to an acceptable functioning condition. The SEIS should outline the

restoration process and BLM's commitments to restoration to ensure that Montana's public lands are not only protected during development, but also restored upon termination of CBNG energy development activities.

R-20: Reclamation plans are required elements of plans of development that each operator must submit for each CBNG development under the Preferred Alternative, Alternative H. Reclamation plans include measures for interim reclamation of such things as well pads, as well as long-term reclamation of wells and roads and other associated facilities.

C-21: Under Preferred Alternative H, the CBNG APD and project POD guidance manual says the following: "BMPs are voluntary yet the SEIS suggests they are mandatory." BLM needs to clarify whether BMPs are mandatory.

R-21: The term BMP is a conceptual term representing the idea that BLM will be requiring better practices. The actual practices themselves will be either operator committed measures or BLM conditions of approval (referred to as stipulations if required as part of a BLM right-of-way grant). Practices that will be included as conditions of approval if they are not part of a proposed plan of development are specified in the description of the preferred alternative and in Table 2-1. In addition, other practices that BLM is encouraging the use of are included in the Wildlife Monitoring and Protection Plan (see Wildlife Appendix). These measures are identified as Programmatic Guidance for the Development of Project Plans in the Wildlife Monitoring and Protection Plan. These measures may also be required conditions of approval if they are not included in a plan of development, based on the review of each proposal and site specific resource conditions.

C-22: The decision flow chart for the preferred alternative does not include a path from BLM to MDEQ or vice versa. Yet the water screen requires cooperation and communication with MDEQ. BLM should define how this will occur.

R-22: MDEQ is not directly involved in the decision process, however BLM would coordinate the agency on implementing mitigation or protective measures relating to the four resource screens under the Preferred Alternative, Alternative H.

C-23: "Full scale development would be allowed if each POD passed the four screens." These screens are not quantified.

R-23: BLM will use an adaptive management approach to implement the four resource screens.

Under adaptive management, monitoring would be conducted to determine if the potential for impacts to resources would occur from the ongoing development. If there is potential for impacts to occur, BLM would work with the operators and state agencies to implement site-specific mitigation measures.

C-24: With respect to evaluating monitoring data; who will be responsible for this effort, and whose interpretation will prevail? Differences of opinion are inevitable. How will they be resolved in a timely enough manner to reduce impacts to wildlife species?

R-24: BLM will be responsible for evaluation and interpretation of the monitoring data via coordination with MFWP and FWS.

C-25: It is interesting to note that many of the BMPs specifically requested by the conservation community and the public (such as directional drilling, drilling multiple wells from a single pad, etc.) will specifically not be implemented under any action alternative.

R-25: BLM does consider requiring directional drilling in several of the alternatives (see Chapter 2, alternatives B, D, and (unless exempted) alternatives E, F and G.) Multiple coal seams developed per well bore are considered in Alternatives B and D and simultaneous coal seam development is considered under alternatives B and D. See R-22 for BMP implementation.

C-26: Phased development will mean that, in the Powder River Basin, development may not proceed in contiguous geographic areas, but, instead, state and private leases will be developed before federal leases. Thus, multiple mobilizations of workers and equipment will be necessary. First, a right-of-way corridor will be established to service the state and private wells, and later these rights-of-way will be expanded and augmented to service the federal wells. Multiple mobilizations will result in additional risks to wildlife and additional air quality impacts. They are particularly disruptive to surface owners because they create more environmental and aesthetic harms.

R-26: The comment points out reasons why some phased development alternatives were not considered in detail. See R-1. Phased development, as described within Preferred Alternative H, does not mean that state and private leases would be developed first, followed by development of federal leases. BLM anticipates the development to be concurrent with private and state due to the (mostly) checkerboard landownership pattern.

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C-27: The necessary adoption of 80-acre spacing instead of 160-acre spacing to accommodate phased development translates into nearly twice the number of wells, roads, infrastructure, surface disruption, and produced water. It will also result in nearly twice the construction-related disturbances. For these reasons, BLM should reject all alternatives based on formal phased development, including Preferred Alternative H.

R-27: The plan the SEIS is supplementing (BLM 2003) assumed 80-acre spacing for producing wells in Alternatives B through E. This assumption is carried forward in the SEIS for alternatives F through H. Note, the plan also assumes 160-acre spacing for exploration wells. Also, spacing is per coal seam, so in areas with three coal seams where wells are co-located on the surface, the construction-related disturbances are reduced by approximately two-thirds.

C-28: The threshold/trigger numbers contained in the SEIS only require BLM to evaluate the situation to determine if additional APDs could or should be approved. The SEIS does not detail what form this evaluation would take or what the basis would be for allowing or denying additional APDs. Please provide an explanation/clarification of how BLM justifies the use of these threshold values when no significant difference in impact can be derived between Alternatives E and H.

R-28: The threshold values or triggers are identified in the description of Alternative H and the Monitoring Appendix. See the Monitoring Appendix under “Remedial Action Trigger” and “Management Options”.

C-29: The SEIS does not discuss when the four resource screens contained within the Preferred Alternative will go into effect.

R-29: Alternative H will go into effect when the Record of Decision (ROD) is signed. BLM will then implement the plan. The ROD is anticipated to be signed this winter.

C-30: Alternative H may still allow for full-field development, which runs contrary to the purpose of analyzing a phased development alternative.

R-30: There are several interpretations regarding what constitutes “phased” development (see Chapter 2, “Alternatives Considered but not Analyzed in Detail”, under “Phased Development (other than Alternatives F, G and H)”). Less than full-field development was analyzed in alternatives F and G. While required to analyze phased development, BLM

is not required to select phased development as the preferred alternative.

C-31: Numerous documents, reports, and scientific studies on a wide variety of resource subjects were available to BLM before and during preparation of this DSEIS; however, it appears that these data, updated data, and new data were not analyzed fully for many issues in the DSEIS.

R-31: All applicable reports were reviewed and information analyzed as appropriate. The documents are incorporated into the SEIS (see Bibliography)

C-32: The Montana and Wyoming EISs must be combined to assess cumulative effects.

R-32: Cumulative impacts are disclosed in resource sections of Chapter 4. The analysis was based on the combined impact of similar actions. On February 25, 2005, the U.S. District Court for the District of Montana issued an order in the *Northern Plains Resource Council (NPRC) v. BLM*, Cause No. CV 03-69-BLG-RWA and *Northern Cheyenne Tribe v. Norton*, Cause No. CV 03-78-BLG-RWA cases which previously had been consolidated. In its order, the Court found that BLM’s decision to use two documents to assess cumulative impacts and similar actions was properly within its discretion. The Court’s reasons for this finding are found on pages 21 through 27 of the February 25, 2005 Order.

C-33: Alternatives F, G, and H are deficient because the limits on the number of APDs approved each year and the percentage of disturbance on BLM-administered lands are not arbitrary and not substantiated by science-based analysis or evaluation.

R-33: The cumulative limit placed on federal APDs would be based on 5 percent of the total number of state, private, and federal wells (18,225 wells) predicted to be drilled over 20 years (see Chapter 2 under Alternatives F and G). The 5 percent takes the total number of wells (18,225) divided by 20 years, resulting in 5 percent per year. The 5 percent limit was chosen to level the pace of development over a 20-year period and to apply a numerical limit to federal APD approvals.

The FSEIS modified Alternative H, does not contain numeric limits, but it phases development through implementation of four resource screens and POD requirements, as well as use of adaptive management to define modifications or mitigation measures to existing operations necessary to provide for the protection of resources.

Monitoring

Comment 1 (C-1): Monitoring as included in the SEIS is unfunded at both the state and federal level.

Response 1 (R-1): Monitoring of surface water, groundwater, and wildlife is funded annually, has been ongoing for a number of years, and is conducted by a variety of agencies including BLM, MDEQ, MFWP, FWS, and USGS. CBNG operators are also required to conduct monitoring as part of their water management plans and wildlife monitoring and protection plans submitted with their plans of development. BLM recognizes that it does not have the authority to commit other agency resources to conduct monitoring.

C-2: The procedure and schedule for monitoring needs to be developed. BLM needs to ensure BMPs are being implemented by companies.

R-2: The procedure and schedule for monitoring is located within the Monitoring Appendix, Table MON-1. Also, BLM has a POD Manual that provides guidance to operators. (The Manual will be updated upon conclusion of the SEIS.)

C-3: Most of the alternatives listed in the SEIS refer to industry creating a wildlife monitoring plan for each POD. This plan has to be in compliance with BLM's wildlife monitoring protection plan. This plan includes Montana as a primary source of labor and information. These additional monitoring tasks and informational needs have not been approved within MFWP.

R-3: BLM is committed to keeping MFWP informed about wildlife surveys and recognizes that BLM does not have the authority to commit unfunded resources from MFWP to participate in conducting wildlife surveys.

C-4: Using the fourth order watershed unit as the basic monitoring unit is too broad. The ability to monitor direct impacts to fish, wildlife, and water resources at this large a scale is unlikely. Localized impacts can be identified to resources if requirements allow for such monitoring, but monitoring of the entire upper Tongue River Basin to determine changes in fisheries or terrestrial animals can only be generic at best. This type of information does not allow for required changes to be implemented by local operations. The area in question for phased development has to be reduced if monitoring is to be pertinent.

R-4: Monitoring at the fourth order watershed level is appropriate and would supply effective information

in establishing trends. Monitoring on a smaller scale would be implemented should data collected indicate a need for more detailed information.

C-5: Well-defined thresholds and decision points for identifying when adaptive management actions would be implemented have not been described.

R-5: Threshold values or triggers for the air impact, water, and wildlife resource screens are described in the description of Alternative H in Chapter 2 and the Monitoring Appendix. Please refer to the decision flow chart included as Figure 2-1 in Chapter 2 defining how these threshold values would be used and implemented. Also, see the Monitoring Appendix under "Remedial Action Trigger" and "Management Options".

Other Comments

Comment 1 (C-1): At several points in the SEIS, it is mentioned that MDEQ will monitor water and air quality. Does the SEIS address impacts to the state resources?

Response 1 (R-1): The SEIS addresses impacts that could occur for state, federal, and private resources from project-related CBNG activities for each alternative in Chapter 4.

C-2: Did BLM account for cumulative impacts resulting from the TRR? There's only one paragraph in this document that deals with the TRR. There are many resource impacts from that development, and I think we need BLM, for CBNG development, to deal with the reasonable foreseeable development of the TRR.

R-2: Cumulative impacts resulting from the construction of the TRR are included throughout Chapter 4 of the SEIS. For example, the effects to vegetation from the TRR are addressed within the Vegetation section of Chapter 4 under the heading of Cumulative Impacts. Additional information on the cumulative impacts resulting from the TRR are contained in the Minerals Appendix and the Air Quality Appendix.

C-3: Noise would be a major CBM impact on the ambient quiet of the region due to (but not limited to) increased road traffic, drilling operations, and compressor stations. No analysis is presented of the combined and cumulative increase in noise, not only from the construction, but also the operation, of the TRR should it be approved.

R-3: Potential impacts from project-related noise are contained within the Cultural, Lands and Realty,

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Social and Economic Values, and Wildlife sections of Chapter 4 under the heading of Impacts from Management Common to All Alternatives.

C-4: Land Use. For specific properties, agricultural operations would be affected by CBM development, including, but not limited to, soil and vegetation disturbance, disruption of pasture or field use, disruption of cattle movement and location, increased problems from fence breach or gate mismanagement, and potential cattle illness or death from hazardous materials or conditions. If these same agricultural operations will also be crossed by the TRR, the negative impacts would be compounded for the land owner. Additionally, any and all of the industrial development could and would impact recreational users of the area, both directly and indirectly (particularly cumulative impacts to wildlife populations). The cumulative impacts of these problems were not analyzed.

R-4: Potential impacts to agricultural operations from proposed project activities are contained in the Livestock and Grazing section and the Soils section of Chapter 4. Cumulative impacts, including impacts from the TRR, are also contained in the Livestock and Grazing section of Chapter 4. Potential impacts to recreational and wildlife resources are discussed within the Recreation and Wildlife sections of Chapter 4. Additional information on cumulative impacts is contained within the Mineral Appendix.

C-5: The planning area described in the DSEIS has omitted areas of Custer and Dawson counties that might be affected from the development of CBNG. The CEQ regulations state that "...the environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration" (40 CFR §1502.15). Further, the regulations state that if an area that may be affected by the project extends beyond the project area, the entire area of potential effect should be included in the affected environment.

R-5: CBNG development activities are not expected in the areas of northern Custer County or Dawson County for the foreseeable future. Air quality and water quality resources in these areas may be indirectly affected by CBNG development in the Powder River Basin.

Potential impacts to air quality throughout the Planning Area, the state of Montana, and portions of surrounding states were evaluated by conducting an air quality model. These results are contained within the Air Quality and Climate section of Chapter 4, the

Air Quality Appendix, and the Air Quality Modeling Technical Support Document.

The analysis conducted for the Tongue River at Brandenburg Bridge (USGS Station 06307830) and for the Yellowstone River near Sidney (USGS Station 06329500) are believed to be representative of the water quality effects that will be experienced in these areas. These analyses are in the Hydrological Resources section of Chapter 4.

C-6: The mineral leases for CBM should be reconsidered because these leases were sold without the natural resources data necessary to evaluate whether the impacts from development would significantly negatively affect those other resources.

R-6: Analyzing decisions such as oil and gas estate is beyond the scope of this SEIS. See Chapter 2 of the SEIS, Alternatives Considered But Not Analyzed in Detail, Leasing.

C-7: One of the rationales for the SEIS was a need to further expand on the cumulative impacts of development in the planning area and, more specifically, in the Powder River Basin. Although some consideration was given for the additional impacts of the TRR on wildlife (page 4-254), the overall cumulative impacts analysis was not conducted. For example, the removal of the intake dam by the Bureau of Reclamation is as reasonable and foreseeable as the TRR.

R-7: The Intake Dam is outside the Powder River Basin. The cumulative impacts for wildlife are addressed in the Wildlife section of Chapter 4.

C-8: On page 6 of the Monitoring Appendix, correct the acronym FLMPA to FLPMA in the frequency and duration column for Lands and Realty.

R-8: The correction was made in the FSEIS.

C-9: BLM did not fully study the combined effects of coal bed methane extraction and the TRR.

R-9: Cumulative impacts resulting from the construction of the TRR are included throughout Chapter 4 of the SEIS. Additional information on the cumulative impacts resulting from the TRR is contained in the Minerals Appendix, the Air Quality Appendix, and the Air Quality Technical Support Document.

C-10: Throughout the document there is a general lack of literature citations to support the rationale for the stringent and somewhat unique restrictions being imposed on oil and gas operators.

R-10: Literature citations have been added to the FSEIS as appropriate.

C-11: The SEIS should look at using solar power for compressors in the lines.

R-11: The purpose and need for the document is to analyze the effects from CBNG development (See Chapter 1 under Purpose and Need). Alternative management, such as the use of alternative energy sources, to existing management must meet the purpose and need for completing the plan. See Chapter 2 in the section Alternatives not Analyzed in Detail – Alternative Sources of Energy for a full explanation.

C-12: The SEIS has to define the following terms and phrases:

- Screening process
- Water screen
- Threshold values relative to the water quality standards
- Regional scale monitoring
- Unacceptable impacts
- Excessive erosion
- Develop appropriate measure
- Appropriate mitigation measure
- No additional CBNG discharges [is that in terms of numbers of sites, or volume of discharge?]

R-12: The screening process, as used within the Preferred Alternative, Alternative H, is outlined within Figure 2-1 in Chapter 2.

The water screen and threshold values relative to water quality standards are defined under the heading of Alternative H – Preferred Alternative – Multiple Screens within Chapter 2.

With respect to monitoring, Table MON -1 within the Monitoring Appendix outlines the types of monitoring to be conducted and details whether the monitoring is area-specific or required throughout the entire CBNG development area.

The definition of "unacceptable" would be developed on the basis of site-specific conditions and water management provisions contained in the water management plans.

Excessive erosion would be any erosion that would have the potential to reach and affect the water quality of a stream or water body.

Appropriate measures or appropriate mitigation measures will be selected on a site-specific basis that will consider seasonal variations and current cumulative impacts in the area.

"No additional CBNG discharges" means "no additional untreated CBNG discharges." Recent changes in MDEQ water quality standards under which EC and SAR have been designated as harmful parameters may result in MDEQ not allowing the untreated discharge of CBNG produced water. If future changes in water regulations would allow for the discharge of untreated CBNG produced water, BLM's water screen would still be applied.

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Non-Governmental Organizations

Advisory Council on Historic Preservation
American Fisheries Society
American Fisheries Society – Montana Chapter
American Lands Alliance
American Sportfishing Association
Archery Trade Association
Association for Preservation of American Wildlife
Association on American Indian Affairs
Association for the Advancement of Indian Resources
Association of Fish and Wildlife Agencies

Bear Creek Council
Billings Rod & Gun Club
Biodiversity Conservation Alliance
Boone and Crockett Club of America
Bridger Canyon Property Association

Campfire Club of America
Citizens for Resource Development
Coalition for Peace and Justice
Colstrip Area Association of Business
Congressional Sportsmen's Foundation
Conservation Force
Cottonwood Resource Council
Custer Resource Alliance

Custer Rod and Gun Club

Dallas Safari Club
Defenders of Wildlife
Delta Waterfowl Foundation
Ducks Unlimited

Earth Justice
Environmental Defense

Flathead Audubon Society
Foundation for North American Wild Sheep
Frontier Heritage Alliance

Greater Yellowstone Coalition

High Country Citizen Alliance
Houston Safari Club

Institute for Wildlife Protection
Izaak Walton League of America

Martinsdale Colony
Medicine Wheel Coalition
Montana Association of Conservation Districts
Montana Association of Counties
Montana Association of Oil Gas & Coal Counties
Montana Association of Petroleum
Montana Audubon Council
Montana Bowhunters Association
Montana Coal Council
Montana Coalbed Natural Gas Alliance
Montana Council of Trout Unlimited
Montana Environmental Information Center
Montana Farm Bureau Federation
Montana Farmers Union
Montana Grain Growers Association
Montana Native Plant Society
Montana Natural Heritage Program
Montana Outfitters & Guides Association
Montana Parks Association
Montana Petroleum Association
Montana Public Lands Council
Montana River Association
Montana Wilderness Association Eastern Wildlands Chapter
Montana Wildlife Federation

National Assembly of Sportsmen's Caucuses
National Parks Conservation Association
National Rifle Association of America
National Shooting Sports Foundation
National Trappers Association
National Trust for Historic Preservation

Distribution List (continued)

National Wild Turkey Federation
National Wildlife Federation
National Wildlife Society
Native Action
Natural Resources Committee
New Jersey Chapter – Sierra Club
North American Bear Foundation
North American Grouse Partnership
Northern Plains Resource Council
Northwest Mining Association

Orion – The Hunters Institute

Petroleum Association of Wyoming
Pheasants Forever
Pope and Young Club
Powder River Basin Resource Council
Public at Large
Public Lands Access Association
Public Lands Advocacy
Public Lands Foundation

Quails Unlimited
Quality Deer Management Association

Recreational Boating and Fishing Foundation
Rocky Mountain Elk Foundation
Rocky Mountain Environmental Defense
Rosebud Protective Association
Ruffed Grouse Society

San Juan Citizens Alliance
Sand County Foundation
Sierra Club Billings Office
Society for Species Management
Southeastern Montana Sportsmen Association
Sporting Arms and Ammunition Manufacturers' Institute
Stillwater Protective Association
Sustainable Obtainable SOL

Texas Wildlife Association
The Environmental Services Network
The Institute for Environmental and Natural Resources
Theodore Roosevelt Conservation Partnership
The Wildlife Society
Tongue River Water Users Association

US Sportsmen's Alliance

Water Watch
Western Governors Association
Western Land Exchange Project

Western Organization of Resource Council
Whitetail's Unlimited
Wildlife Forever
Wildlife Management Institute
Womens' Voices for the Earth
Wyoming Outdoor Council

Yellowstone County Green Party
Yellowstone Valley Audubon Society

Schools and Libraries

AG Research Center
Big Horn County Library
Colorado State University Library
CSU – Dept. of Fish Wildlife Biology
Columbus University – Dept. of Env. Science
Harvard School of Public Health
Henry Malley Memorial Library
Little Big Horn College
Montana Bureau of Mines Geology
Montana Power Law Library
Montana State University
Montana Tech Geophysics Department
Montana Tech Library
MSU Billings
MSU Billings Environmental Studies Program
MSU – Fisheries Laboratory
Nicholas School of Environmental Earth Science
Northwestern University – Env. Policy Program
Oberlin College, Dept. of Psychology
Peter Yegen Jr. Yellowstone Co. Museum
Rocky Mountain College
Saint Labre Mission
Montana State Library
University of Michigan, School of Natural Resources
University of Montana, Flathead Lake Bio. Station

Tribes

Arapaho Business Council
Crow Tribe
Crow Tribal Chairman
Crow Tribal Contracts Office
Crow Tribal Council
Crow Tribe Cultural Commission
Crow Tribe - Elk River Law Office
Crow Tribe Energy Commission
Crow Tribal EPA
Crow Tribe Legal Department
Crow Tribe Office of Natural Resources
Eastern Shoshone Business Council
Fort Peck Tribes

Distribution List (continued)

Fort Peck Tribal - Minerals
Lower Brule Sioux Tribe
Northern Arapaho Business Council
Northern Cheyenne Chamber of Commerce
Northern Cheyenne Crazy Dog Society
Northern Cheyenne Tribe - Chair
Northern Cheyenne Tribe- Health
Northern Cheyenne Tribe - President
Northern Cheyenne Tribe - TERO
Northern Cheyenne Tribe – Dept of Natural Resources
Northern Cheyenne Tribal Council

Federal Agencies

Bighorn Canyon National Recreation Area
Bureau of Indian Affairs (BIA)
BIA – Northern Cheyenne Agency
Bureau of Land Management
BLM Billings Field Office, Montana
BLM Buffalo Field Office, Wyoming
BLM Cody Field Office, Wyoming
BLM Eastern Montana Resource Advisory Council
BLM Great Falls Field Office, Montana
BLM Havre Field Office, Montana
BLM New Mexico State Office
BLM Montana State Office
BLM Oregon State Office
BLM Wyoming State Office
Bureau of Reclamation
Department of Agriculture
Department of Energy
DOE – National Energy Technology Laboratory
Department of the Interior
Department of the Interior – Protest Coordinator
Department of the Interior - Solicitors Office
Federal Energy Regulatory Commission
National Parks Service
U.S. Army Corp of Engineers
USDA Farm Service Agency
USDA Forest Service (USFS) Regional Office
USDA Fort Keogh Research Station
USDA Natural Resources Conservation Services
USEPA Region 8
USEPA Region 8 Library Serials
USEPA Region 8 Montana Office
US Fish and Wildlife Service
USFS Ashland Ranger District
USFS Custer National Forest
U.S. Geological Survey

State Agencies

Honorable Governor Brian Schweitzer
Montana Board of Oil & Gas Conservation
Montana Chamber of Commerce
Montana Department of Environmental Quality
Montana DEQ - Coal & Uranium Board
Montana Department of Natural Resources & Conservation
Montana DNRC Southeastern Land Office
Montana DNRC Water Resources Division
Montana Fish Wildlife and Parks
Montana Department of Transportation
Montana Environmental Quality Council
Montana Fish, Wildlife and Parks
Montana Secretary State
Montana State Historical Preservation Office
Oregon State Fisheries
State Auditor Office
Washington Department of Ecology
Wyoming Department of Environmental Quality
Wyoming Department of Commerce
Wyoming Office of Surface Mining

Local Agencies

Big Horn Conservation District
Big Horn County Commissioners
Big Horn Planning Board
Billings Chamber of Commerce
Bridger Canyon Fire Hall
Broadus Chamber of Commerce
Carbon County Commissioners
Carter County Commissioners
Carter County Conservation District
Custer Fallon County Farm Bureau
Gallatin County Planning Department
Golden Valley County Commissioners
Hardin Chamber of Commerce
Liberty County Conservation
Musselshell County Commissioners
Park County Commissioners
Park County Environmental Council
Powder River County Commissioners
Powder River Conservation District
Rosebud County Conservation District
Rosebud County Commissioners
Rosebud County Extension Agent
Rosebud County Weed District
Sheridan Chamber of Commerce
Sheridan County Commissioners
Sheridan County Planning
Town of Broadus

Distribution List (continued)

Treasure County Commissioners
Yellowstone County Commissioners
Yellowstone County Weed Supervisor

Legislators

Congressional Delegation

U.S. Senator Max Baucus
U.S. Senator John Tester
U.S. Representative Dennis Rehberg

State Legislators

Senators

District 20 – Keith Bales
District 21 – Gerald Pease
District 22 – Lane Larson
District 23 – Kelly Gebhardt
District 24 – Kim Gillan
District 25 – Roy Brown
District 26 – Lynda Moss
District 27 – Corey Stapleton
District 28 – Jeff Essmann
District 29 – Daniel McGee
District 30 – Robert Story
District 31 – John Esp
District 32 – Larry Jent
District 33 – Bob Hawks
District 34 – Joe Balyeat
District 35 – Gary Perry
District 42 – Helena

Representatives

District 39 - Carol Lambert
District 40 – Bill McChesney
District 41 – Norma Bixby
District 42 – Veronica Small-Eastman
District 43 – Duane Ankney
District 44 – William Glaser
District 45 – Alan Olsen
District 46 – Ken Peterson
District 47 – Dennis Himmelberger
District 48 – Wanda Grinde
District 49 – Kendall Van Dyk
District 50 – Tom McGillvray
District 51 – Robyn Driscoll
District 52 – Arlene Becker
District 53 – Elsie Arntzen
District 54 – Gary Branae
District 55 – Michael Lange
District 56 – Ernie Dutton
District 57 – Penny Morgan
District 58 – Krayton Kerns
District 59 – Scott Boggio
District 60 – John Ross
District 61 – Bruce Malcolm
District 62 – Bob Ebinger
District 63 – Jennifer Pomnichowski
District 64 – Franke Wilmer
District 65 – Brady Wiseman
District 66 – Mike Phillips
District 67 – John Sinrud
District 68 – Scott Sales
District 69 – Jack Wells
District 70 – Roger Koopman
District 83 – Harry Klock

List of Preparers

This section lists those responsible for preparation of the FSEIS. See the List of Preparers in Chapter 5 of the Statewide Document for those responsible for preparing the portions of the DSEIS that were not changed from the Statewide Document (i.e., unshaded text).

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Montana State Office, Miles City Field Office, Billings Field Office and BLM Wyoming staffs:

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Division of Mineral Resources

Division of Administration

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Official Cooperating Agencies

The following tribes and agencies are Cooperating Agencies who helped prepare the FSEIS.

Tribal

- Crow Tribe of Montana
- Lower Brule Sioux Tribe of the Lower Brule Reservation, South Dakota

Federal

- Bureau of Indian Affairs, Rocky Mountain Regional Office
- U.S. Army Corps of Engineers
- U.S. Department of Energy
- U.S. Environmental Protection Agency, Region VIII

State

- Montana Board of Oil and Gas Conservation
- Montana Department of Environmental Quality

County

- Big Horn County
- Carbon County
- Golden Valley County
- Musselshell County
- Powder River County
- Rosebud County
- Treasure County
- Yellowstone County

List of Preparers (continued)

Invited Cooperators

The following tribes and agencies chose not to become cooperating agencies in the preparation of the SEIS/Amendment.

Tribes

- Fort Peck (Assiniboine and Sioux)
- Northern Cheyenne
- Blackfeet
- Standing Rock Sioux
- Rosebud Sioux
- Pine Ridge Sioux
- Northern Arapahoe
- Fort Belknap (Assiniboine and Gros Ventre)
- Eastern Shoshone
- Chippewa-Cree
- Cheyenne River Sioux
- Rocky Boys

Federal

- U.S. Fish and Wildlife Service
- U.S. Forest Service, Custer National Forest

State

- Montana Department of Natural Resources and Conservation
- Montana Fish, Wildlife, and Parks

County

- Carter County
- Custer County
- Stillwater County
- Sweet Grass County
- Wheatland County