

SECTION 5:

RESPONSE TO COMMENTS

SECTION 5 - RESPONSE TO COMMENTS

Responses to comments are organized by responder and are numbered in the order received. Page and section numbers, unless otherwise noted, refer to the draft EIS issued in February 1997.

BOB TANNER

Comment 1-1: Thank you for your comment.

DEPARTMENT OF THE ARMY

Comment 2-1: Thank you for your comment. Waters of the U.S., including special aquatic sites and wetlands are identified at the reconnaissance-level in Section 3.5 of Chapter 3 (page 3-39), Figure 3-6 (page 3-41), and in the Soils, Water, and Vegetation Resources Technical Report (ECOTONE 1997). Section 4.4.5, bullet #8 (page 4-41); Section 4.5.2, bullet #6 (page 4-43); Section 4.5.3.1, page 4-45, paragraph #1; and Section 4.5.5, bullet #6 (page 4-49) describe the requirements of the Operators pursuant to Section 404 of the CWA.

LYLE E. WOELICH

Comment 3-1: Thank you for your comments. Any restrictions relating to the alternatives to the proposed action will be included as a decision within the Cave Gulch ROD.

Comment 3-2: Thank you for your comment. The relative merits and disadvantages of the Proposed Action and each of the alternatives are presented in the analysis of the EIS and in the public comments. The BLM will consider these advantages and disadvantages in formulating the perspectives required to make informed decisions for the ROD.

MIKE WILKINSON TRUCKING, INC.

Comment 4-1: The conclusion that the proposed activities will, in the absence of appropriate mitigation, impact raptors was based on careful analysis of known facts and documented research.

Please refer to response to comments 43-27 and 45-3.

Comment 4-2: The positive socioeconomic impacts of the Proposed Action and alternatives are described in the Section 4.11 of the DEIS. No attempt has been made to determine the economic value of any potential wildlife impacts.

LARRY PENNOCK

Comment 5-1: Thank you for your comment.

WEATHERFORD ENTERRA U.S., INC.

Comment 6-1: Management of the project area during preparation of the EIS has been more restrictive than is expected under the Proposed Action or Alternatives B or C. The impacts of the seasonal and year-round restrictions proposed for the Proposed Action and Alternatives A and B on the Natrona County economy are discussed in more detail in the Errata for Sections 4.11.3.1 and 4.11.4.

RESPONSE TO COMMENTS

CAMERON

Comment 7-1: See response to comment 6-1.

FRED KLEIN

Comment 8-1: Thank you for taking the time to review the DEIS and provide your comments. Your concerns are being considered and will be reflected in the results of the final analysis which will be set forth in the Cave Gulch ROD.

See response to comment 4-2.

USA TRUCKING

Comment 9-1: See response to comment 6-1.

ROY H. GUESS

Comment 10-1: Section 303 of the Federal Land Policy and Management Act of 1976 authorizes criminal enforcement of regulations adopted by the Secretary of the Interior through BLM under FLPMA relating to the management, use, and protection of the public lands and the property located thereon. 43 U.S.C. 1733. FLPMA provides for criminal penalties in the amount of \$1,000.00 or imprisonment of no more than 12 months, or both, for violations of the Act. United States Magistrates, United States District Judges, and juries consisting of citizens of the United States, are utilized during criminal legal proceedings.

REP. CHARLES P. "PAT" CHILDERS

Comment 11-1: In response to the proposed Natrona County agreement for cooperating agency status on the EIS, the BLM responded in a letter dated Dec. 10, 1996, that BLM wished to cooperate and coordinate with Natrona County but that some of the items in the draft agreement were not appropriate and were not "within the letter of the law."

The Council of Environmental quality regulations and the Bureau of Land Management planning regulations have no provisions for exclusive or separate involvement by the County or any other party to review and provide comment on a Federal National Environmental Policy Act/planning document. The planning regulations are very explicit in allowing other Federal agencies, State and local Governments, and Indian Tribes the "same" times and time periods for review/comment on NEPA/planning documents as provided for all other publics.

This certainly does not mean that the County Government has no way to affect resource and land use decision making on Federal lands. It also does not mean that there is no way for County Government and Federal agencies to cooperate and work together in the course of a planning effort or preparing a NEPA document on either a Federal or non-federal project. In fact, we wish to work very closely with Natrona County.

RESPONSE TO COMMENTS

The BLM is willing to develop a written agreement for the County's participation, however such an agreement cannot include provisions for the County to be a "cooperating agency" in the EIS project, as defined by the Council on Environmental Quality (CEQ) regulations, for the purposes of: (1) being a joint decision maker for Federal land and resource uses and management; (2) to allow the County exclusive or separate (i.e., separate from any other public review and comment period opportunities on any phase of EIS development; or (3) obligating the BLM for any expense that the County or its representatives may incur through participating in the project.

In response to the comment that cooperating agency status has been given to the Eureka County in Nevada, an agreement has been signed with Eureka County for the Ruby Hill Mine EIS, but the BLM and Eureka County are not sharing decision making authority or joint jurisdiction for management on public lands. This is BLM's policy and is supported in Wyoming as well. Items in the proposed agreement submitted by the Natrona County were not appropriate and according to the BLM solicitor, certain items in the proposed agreement were not "within the letter of the law."

RICE ENTERPRISES

Comment 12-1: The seasonal restriction will be applied to only a small proportion of the project area during development, primarily to new development, and rarely for the full six months.

The seasonal restriction for raptor nesting was applied more restrictively (or broadly) during the EIS preparation to: (1) not cause adverse impacts, and (2) not preclude EIS alternatives. Even so, the restrictive period was about 3 ½ months (Feb. 1 through mid-May). After mid-May, restrictions were applicable only for an occupied nest. In no situation during 1995 and 1996 was there an occupied nest which restricted development activities for six months.

The seasonal restriction for raptor nesting will not affect all of the project area; instead it is applied only to "active" nests. "Active" nests are defined in the PRRA RMP at page 30 of the ROD. This RMP decision is included in the Addenda. Seventeen nests (Table 3-18 of the DEIS) within the project area fall within this "active" definition. The seasonal restriction is applied to new development, to operation and maintenance of existing facilities only within the buffer zones of occupied nests, and usually is applied for less than six months.

During the preparation of the EIS, there has been a restriction on "unusual" maintenance of existing wells within the buffer zone of an occupied nest during a 60-day period of the nesting season. This restriction was agreed upon by the operators in May 1995, and is being evaluated under Alternatives A and B within the EIS process to determine if it should be included as mitigation.

Several policies under Federal Land Policy and Management Act are applicable to the companies' responsible development. Management of public lands (for mineral development) also includes management for other uses (including fish and wildlife habitat). Protection of habitat for fish and wildlife is a declared policy of the United States. Fish and wildlife development and utilization is one of the six "principal or major uses" of the public lands.

Primarily, the seasonal restriction is applied to avoid the disturbance of nesting raptors. Thus it prevents violation of the federal laws and state statutes which protect raptors and their nests. The federal laws, which protect raptors and their nests include the Migratory Bird Treaty Act and the Bald Eagle Protection Act. The Wyoming statutes are WRS 23-1-101 and 23-3-108.

RESPONSE TO COMMENTS

As set forth in the DEIS on page 4-57: Nesting Related Impacts. When or if human activities occur within the zone of influence of active raptor nests during the breeding/nesting season, stress from increased human activity and increased noise levels may result in nest abandonment, lowered productivity levels, or abandonment of the entire area. Potential effects that human disturbance can have on nesting raptors include nest desertion, damage to eggs or young caused by frightened adults, overexposure of eggs or young to heat or cold, missed feedings, premature fledging of young, and possible increased predation (Fyfe and Olendorff 1976). The nest construction and egg laying phases in *Buteo* nesting cycles are considered to be very sensitive times for disturbance. Later in the nesting cycle, however, tolerance to humans is much greater (Call 1978). The potential for these impacts would be greatest during the construction phase (first 10 years) when human activity levels are highest, and would generally decrease during production (10 to 40 years).

Although the disturbance potential is reduced during the production phase, some raptors may be affected at this time. This may hold particularly true for ferruginous hawks which are more sensitive to human disturbances and abandon their nests more readily than any other *Buteo* species (Howard 1975, Smith and Murphy 1967, Powers et al 1975, Olendorff 1973).

One effective way to mitigate potential impacts of the proposed project on raptors is to employ spatial and temporal buffer zones. Buffers around active raptor nests provide insulation from facilities, human activity, and altered habitat. In Wyoming, buffer zones have been commonly used by the BLM to protect raptor nests near surface mines and oil and gas development during the breeding season. Existing BLM RMP seasonal raptor stipulations specify a ¼- to ½-mile buffer zone around all active raptor nests during the nesting period. Buffer size and dates may vary, however, as determined by the BLM Authorized Officer (AO), depending on the status of current use, species involved, and the arrangement and size of natural topographic barriers.

The BLM, WRMG's April 1996 report (referenced in the DEIS) specifies the factors considered by the BLM to conclude that the Key Raptor Area has low potential for oil and gas development in the foreseeable future. Published geological data used in preparation of the report included the results of a seismic line across the proposed KRA; a report that identified a northeast-southwest trending strike-slip fault or shear zone in the proposed KRA; and, a published map identifying a northeast trending synclinal axis across the middle of the proposed KRA parallel to the seismic line. The strike-slip fault or shear zone is likely to exclude the proposed KRA geologically from the Cave Gulch-Bullfrog-Waltman project area. Considering the location of synclinal axis, there is no structural "trap" where oil or gas could accumulate in the proposed KRA. None of the eight wells drilled in the proposed KRA since the 1930s have ever produced oil or gas, and only one of the eight wells showed any initial production potential (6 barrels of oil per day). The projected future development of fewer than 15 wells is typical of "low" development in an area the size of the proposed KRA.

RICHARDSON TRUCKING

Comment 13-1: See response to comment 6-1.

TOTEM CONSTRUCTION CO, INC.

Comment 14-1: See response to Comment 12-1.

RESPONSE TO COMMENTS

Comment 14-2: See response to comment 6-1.

JOE KIRN, CONSULTING GEOLOGIST

Comment 15-1: Thank you for your comment. Please refer to response 12-1 for more information.

W.A. MONCRIEF, JR.

Comment 16-1: Moncrief's proposed Cave Gulch No. 32-1 well and associated access road were evaluated in the 1996 development package in the Cave Gulch-Bullfrog-Waltman area during the preparation of the Cave Gulch-Bullfrog-Waltman EIS.

This proposal was found to be very close and within line-of-sight of ferruginous hawk nest # 12. The Cave Gulch-Bullfrog-Waltman Biologist Group recommended the well be directionally drilled from a location with greater spatial and visual separation from nest # 12, while assuring ferruginous hawk nests # 21, 22, 25, and 26 were not encroached upon. Moncrief did not offer any modifications to their original proposal to vertically drill the Cave Gulch # 32-1 well. As a result, this well, and the associated access road and pipeline were not included in the 1996 development package.

Further processing of the applications has been suspended pending completion of the EIS. Following completion of the EIS, a decision to approve, approve-as-modified, or reject the applications will be issued.

USA TRUCKING

Comment 17-1: See response to comment 6-1.

BOB TANNER

Comment 18-1: See response to comment 4-2.

DRILEX SYSTEMS, INC.

Comment 19-1: Since 1994 both the level and rate of oil and gas development in the Project Area has increased dramatically and the magnitude of human activities that raptors are exposed to has increased proportionately. Given this scenario and the plan for even more intensive development in the near future, it is not unreasonable to expect disturbances to raptors using the Project Area. A wealth of scientific research supports such an expectation, and three years of field observations suggest that such disturbances have begun.

Direct evidence that the Cave Gulch field development activities are having an effect on raptor use of the project area is set forth in the Raptor Technical Report on pages 16 and 17 where it is stated:

In 1996 a new pattern was observed in the raptor nesting activity data.

During 1996, for the first time after 3 years' data collection, the level of ferruginous hawk productivity or late season nesting activity (Table 3) was higher off of the EIS Project Area

RESPONSE TO COMMENTS

(0.03 nests/sq. mi) than on it (0.0 nests per square mile). At the same time ferruginous hawk nesting attempts on the EIS Project Area declined, the intensity of red-tailed hawk nesting attempts increased. As shown in Table 3, the number of occupied red-tailed hawk nests on the project area (0.025 per square mile) was more than double that on the surrounding 233 square miles (0.009 per square mile). The implications of these survey results are that:

- region-wide nesting activity and success were higher in 1996 than in 1994 and 1995.
- as region-wide nesting activity increased the nesting success of sensitive species such as the ferruginous hawk was lower on the EIS Project Area (zero) than it was on the surrounding area (0.03), while the success of less sensitive species such as the red-tailed hawk was higher on the EIS Project Area than it was on the surrounding 233 square miles (Table 3).

Although 1996 was the first year raptor prey base surveys were conducted, and no between-year comparisons can be made, it appears from field assessments that prey populations have increased between 1994 and 1996 and this is the most likely factor contributing to the increase in raptor nesting attempts in the area. It may be that prey populations are on the rise and that subsequent years will show a commensurate increase in successful raptor nesting attempts.

Commensurate with the apparent rise in prey base populations, well field development on the project area has increased and, for the first time in 3 years, appears to be displacing the more sensitive raptor species, such as the ferruginous hawk, and allowing the encroachment of less sensitive species such as the red-tailed hawk. Only more observations in future years can confirm or reject these initial and tentative conclusions.

Additionally, the abandonment of a red-tailed hawk nest occurred during 1996 as the direct result of surveyors operating in the immediate vicinity.

There is no stipulation to limit operations due to weather. During the past 3 years since the Cave Gulch discovery well, the actual limitations due to weather have been minimal.

Please also refer to Comments 12-1.

Comment 19-2: Raptors already reside in the proposed KRA and have been present there for a long time. The setting aside of this acreage would, as described on page 4-68 of the DEIS, serve as a long-term nucleus that will help to protect and stabilize the on-going production of raptors in the greater area and region and help to minimize cumulative impacts.

Comment 19-3: See response to comments 4-2 and 6-1.

HOWARD L. EWART

Comment 20-1: Criteria to determine significance of impacts to raptors is described at page 4-53 of the Draft EIS. The kinds of nesting related impacts are described at page 4-57, and an

RESPONSE TO COMMENTS

assessment of impacts relative to the significance criteria is given for each alternative at pages 4-58 through 4-71. See Table 4-18 for a summary. Cumulative Impacts are described in Chapter 5 at pages 5-20 through 5-27.

The analysis documented in the DEIS predicts that significant impacts to visual quality and recreation resources would occur under any of the alternatives analyzed. No new information has been provided as a result of public review and comment on the draft EIS which would warrant changing the impact conclusions in the Final EIS. A *Finding of No Significant Impact* (FONSI) can only be issued when the analysis predicts that impacts are not expected to be significant. Therefore, the BLM can not declare the project a FONSI.

Please also refer to response to comments 12-1, 43-27, and 45-3.

SOUTHWEST WYOMING MINERAL ASSOCIATION

Comment 21-1: Management guidelines were proposed for each kind of activity that might occur in the proposed KRA. Different kinds of restrictions were proposed according to the level of human activity, use of mechanized equipment, duration of activities, and whether short-term and/or long-term changes to the land were predicted.

Potential impacts to raptors are described at page 4-57 through 4-59.

Please refer to response to comments 12-1, 19-1, 43-1, 43-27, 45-3, 45-16, and 51-18.

ABB VETCO GRAY

Comment 22-1: See response to comment 6-1.

LAVETA PENNOCK

Comment 23-1: Please refer to response to comment 19-1, 43-27, and 45-3..

DAVE ORNDORFF

Comment 24-1: Thank your for comment. "Multiple use" also includes the use of some land for less than all of the resources (Sec. 103.(c) of FLPMA); and management based upon the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output (also Sec. 103.(c) of FLPMA).

Through multiple use management, Alternative B emphasizes priority of oil and gas development in the project area and priority of raptor nesting habitat in the proposed Key Raptor Area.

Comment 24-2: Ferruginous hawks, one of the principal raptor species that is likely to be displaced from much of the project area, prey on rodents and small rabbits and are too small to prey on livestock.

See also responses to Comment Nos. 12-1, 19-2, and 25-1.

RESPONSE TO COMMENTS

Comment 24-3: The Federal Minerals Management Service is responsible for collection and disbursement of federal mineral royalties. The Wyoming Department of Revenue is responsible for the collection of State mineral severance taxes, sales and use taxes. The Wyoming State Land and Investment Department is responsible for the collection of State mineral royalties. Natrona County is responsible for the collection of ad valorem taxes on production and facilities.

CHARLES J. SPURLOCK

Comment 25-1: Existing federal and state laws, as well as BLM policy and stipulations, require that land managers take certain measures to protect wildlife regardless of their numbers. In some cases, the species of wildlife that exhibit the lowest population densities are the very species that require the most protection, e.g. Threatened and Endangered Species. Field data collected during 1996 indicate that the low density of raptor species on the Project Area and surrounding areas is probably due to the temporary low density of prey species. Populations of prey species tend to cycle, causing populations of the raptor species that depend upon them to cycle in turn. Therefore, higher densities of both prey and raptor populations are likely to occur in the future when the prey cycle returns to its high.

Please refer to responses 12-1, 19-1, 19-2, 24-1, 43-27, and 45-3.

NINA EWART

Comment 26-1: Please refer to responses 12-1 and 20-1.

DR. MAYO W. CALL, RAPTOR ECOLOGIST

Comment 27-1: Thank you for your authoritative comments and suggestions. The perspectives you provided are being considered. Results of the final analysis will be set forth in the Cave Gulch ROD.

DEPARTMENT OF THE ARMY

Comment 28-1: Thank you for your comment.

WILLARD FRANK

Comment 29-1: Thank you for your comment. Please refer to responses 12-1, 19-1, 25-1, 43-27, and 45-3.

RALPH MYERS

Comment 30-1: BLM's policy for applying a seasonal restriction stipulation for raptors on an oil and gas lease offer is given at page 1-13 of the Draft EIS. Application of this restriction to specific actions, such as drilling and construction, is done under the PRRA Resources Management Plan Decision WL7: Raptors (page 30 of the PRRA RMP ROD).

RESPONSE TO COMMENTS

BLM's policy is to apply the seasonal restriction to "active nests" as defined in our land use plan (see Errata). Primarily, the seasonal restriction is applied to avoid the disturbance of nesting raptors. Thus it prevents violation of the federal laws and state statutes which protect raptors and their nests.

After the Barrett field development environmental assessment (EA) was completed, numerous changes from the analyzed proposed action were proposed. As a result, implementation of raptor mitigation, upon which a Finding Of No Significant Impact (FONSI) for the EA relied, could not be achieved. Subsequently, the Chevron EA proposed action was changed repeatedly over several months. Without a clearly defined proposal to assess, the BLM could not predict the potential impacts sufficiently to determine if there could be a FONSI. The Draft EIS found that the impacts of an undefined proposed action could not be quantified or predicted.

Please refer to responses to Comments 12-1, 19-1, 43-27, and 45-3.

ROBERT STANLEY LOWE

Comment 31-1: Figure 5-2 of the Draft EIS shows the importance of the Project Area in having 52 nests in 40 square miles of the total 170 nests in the GRAA in 273 square miles (Draft EIS pages 5-20 through 5-22). Likewise, the proposed KRA has 24 nests in 9.7 square miles (Draft EIS page 4-67).

For 1996, the density of occupied nests was also greater for the project area and the proposed KRA than for the remainder of the GRAA (Draft EIS pages 5-22 through 5-25).

Please refer to responses to Comments 12-1, 19-1, 25-1, 30-1, 43-27, and 45-3.

Comment 31-2: Thank you for your comment. Please refer to response 11-1.

Comment 31-3: Please refer to response to comment 12-1, 19-1, 24-1, 25-1, 30-1, 43-27, and 45-3.

Comment 31-4: Please refer to response 11-1.

Comment 31-5: Please refer to response 30-1.

Comment 31-6: Please refer to responses 12-1 and 24-1 for more information.

Comment 31-7: Thank you for your comment.

DRU BOWER

Comment 32-1: Thank your for your comment.

Comment 32-2: The BLM was unable to locate a 1992 U. S. Bureau of Mines *Availability of Known Mineral Deposit Areas (KMDAs) for Oil & Gas in Wyoming* report or map. With the assistance of the Petroleum Association of Wyoming, a U. S. Bureau of Mines report entitled, "*Availability of Federally Owned Minerals for Exploration and Development in Western States: Wyoming, 1990*"

RESPONSE TO COMMENTS

was found. This report is a regional look at mineral potential, and Plate 3 (map entitled, "Availability of Federal Mineral Land Compared with Known Mineral Deposit Areas for Oil and Gas in Wyoming") includes the project area and adjacent proposed KRA in moderate to high value areas. The Cave Gulch-Bullfrog-Waltman project area and the proposed KRA are within the northeastern Wind River Basin, which is generally an area of high mineral potential. The 1990 report states, "Much of the area assigned to high- and moderate-value KMDAs (*known mineral deposit areas*) does not contain valuable mineral deposits; conversely, valuable deposits may occur outside these areas." The 1996 BLM report is specific to the proposed KRA, and provides the analysis performed by the BLM to conclude that the mineral potential of the proposed KRA is distinct from the general findings for the Wind River Basin.

Please refer to response 12-1 for more information.

Comment 32-3:

As a result of public comment, additional information on the opportunities to secure ANS sites on mixed-ownership were offered. The opportunities and the information will be taken into consideration in the selection of sites and addressed in the Record of Decision.

Comment 32-4: Please refer to response to comment 12-1.

Comment 32-5: In the cases of seasonal restrictions, there was a misunderstanding that the entire natural gas development would cease for six months. That information was incorrect, and the implementation and effects of seasonal restrictions have been clarified in the FEIS errata.

Please refer to responses to Comments 6-1, 12-1, and 25-1.

ROBERT STELLMAN

Comment 33-1: Please refer to responses to Comments 12-1, 24-1, 25-1 and 31-1.

ROBERT YONTS

Comment 34-1: A good suggestion that has been incorporated into the selection process for suitable sites for ANSs. In some areas, however, it may not be feasible to use dry hole marker sites because of new seismic data that indicates product potential at levels deeper than was tested by the dry hole wells.

Comment 34-2: Thank you for your comment. Please refer to response 12-1 and 32-2 for more information.

Comment 34-3: We agree with your assessments and have described these same points in the Cumulative Impact Analysis in the Draft EIS at pages 5-26 through 5-27.

Please refer to response to Comment 12-1.

RESPONSE TO COMMENTS

DOUG SAMUELSON

Comment 35-1: The use of ANSs to mitigate potential impacts to raptors on the project area, as described on pages 4-60 and 4-61, is being considered and a final decision and/or plan will be presented in the ROD.

The BLM considers the social economic impacts of a proposed action. In the cases of seasonal restrictions, there was a misunderstanding that the entire natural gas development would cease for six months. That information was incorrect.

Please refer to responses 12-1, 24-1, 25-1, and 30-1.

MURIE AUDUBON SOCIETY

Comment 36-1: Thank your for your comment.

REPRESENTATIVE CAROLYN PASENEAUX

Comment 37-1: See response to comment 4-2.

Comment 37-2: Please refer to response 11-1.

Comment 37-3: Please refer to responses to Comments 12-1, 19-1, 19-2, and 25-1.

Comment 37-4: See response to comments 6-1, 12-1, 24-1, and 25-1.

Comment 37-5: Social and economic objectives were given sufficient consideration for management to make a decision.

Comment 37-6: Thank you for your comment. Please refer to responses 11-1, 12-1, and 19-2.

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VIII

Comment 38-1: Implementation of the proposed action, particularly as specified in the Water Resources Impacts (section 4.4.3.1) and Water Resources Mitigation Summary (section 4.4.5) is designed to protect all useable groundwater, regardless of regional significance. Specifically, by complying with Onshore Oil and Gas Order No.2, ". . . proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all useable water zones . . ."

The Environmental Protection Agency, under the provisions of Section 1425 of the Safe Drinking Water Act, has delegated the WOGCC authority to administer the Underground Injection Control Program for Class II injection wells on federal, state, and private lands in Wyoming. The BLM recognizes the Commission's authority, and accepts their approval of Class II injection wells, as specified in a Memorandum of Understanding between the BLM and the WOGCC. Other classes of injection wells have been delegated to the DEQ, Water Quality Division.

Section 4.4.3.1 requires pit liners to have a permeability of less than 0.0000001 cm/sec. Also see specifications in 43 CFR, Part 3160, III. Requirements, E. Design requirements for pits, Figure 2,

RESPONSE TO COMMENTS

Example Of Acceptable Design For Concrete, Asphalt and Bentonite/Clay Liners. If the Operators proposed to use liners of materials other than poly membranes, they would be required to meet and certify the specifications as listed, which could include a monitoring program for each pit with a leakage detection system and/or monitor wells.

Evaporation pits authorized by the BLM for the disposal of produced water would be designed in accordance with the requirements of Onshore Order No. 7. Pits would be lined with material that is impervious and resistant to weather, sunlight, hydrocarbons, aqueous acids, alkalies, salt, fungi, or other substances likely to be contained in produced water. In addition, they would have an underlying gravel-filled sump and lateral system or other suitable device for the detection of leaks which would be inspected at least once a month.

The Final EIS is not a decision document. Its purpose is to inform the public of the impacts associated with implementing the Proposed Action and to evaluate alternatives to the proposal. Included as part of the analysis is identification of mitigation measures intended to avoid or reduce predicted impacts. As with the Draft EIS, the Final EIS is issued for public review and comment. Following the comment period, the BLM will consider the information and comments received and a decision will be reached. The decision regarding the project will be documented in a Record of Decision (ROD) signed by the Bureau of Land Management (BLM) State Director, Cheyenne, Wyoming. The ROD will define the decision; specify the administrative requirements and conditions of approval (e.g., mitigation and monitoring measures); and, explain the rationale for the decision.

Comment 38-2: Section 3.2.1, Climate, Precipitation, and Winds

1. The wind speed classes are reported in knots (one knot equals nearly 1.15 statute miles per hour). This correction is included in the FEIS Section 2 - Addendum and Errata.
2. Additional material and reference are included in the FEIS Section 2 - Addendum and Errata.

Section 3.2.2, Air Quality

1. The Cumulative Impact Study Area was presented as Figure 1.1 (Page 1-2) of the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), and was incorporated by reference into the DEIS.
2. The Wyoming Ambient Air Quality Standards (WAAQS) and the National Ambient Air Quality Standards (NAAQS) were reported by WDEQ (1995) and WESTAR (1995). Gaseous pollutant standards were converted to mass per volume units assuming standard temperature and pressure conditions. These references for Section 3.2.2 and Table 3-4 are included in the FEIS Section 2 - Addendum and Errata.
3. The third column of Table 3-4 should be titled "Background Concentration ($\mu\text{g}/\text{m}^3$)." A revised Table 3-4 is included in the FEIS Section 2 - Addendum and Errata.

RESPONSE TO COMMENTS

4. A revised Table 3-4 is included in the FEIS Section 2 - Addendum and Errata.

The 90th percentile maximum 1-hour ozone value measured at Pinedale, Wyoming was assumed to be representative of the Cave Gulch - Bullfrog- Waltman Project Area, and reflects allowable expected number of ozone standard exceedances. For further information regarding the ozone standard and its interpretation, the commentor should review 40 CFR 50.9 and 40 CFR 50, Appendix H, respectively.

Section 4.2.1, Introduction

The sentence has been revised and is included in the FEIS Section 2 - Addendum and Errata.

Section 4.2.2, Impact Significance Criteria

The sentence and Table 3-4 have been revised and are included in the FEIS Section 2 - Addendum and Errata Section 4.2.3.

Section 4.2.3, Direct and Indirect Impacts

1. The paragraph has been revised and is included in the FEIS Section 2 - Addendum and Errata.
2. As stated in the DEIS, ozone is formed as a result of photochemical reactions involving ambient concentrations of volatile organic compounds and oxides of nitrogen. The predicted impact is based on a nomograph developed using meteorological conditions (i.e.; sunlight, temperature, stagnation, etc.) more conducive for forming ozone than would be found in southwestern Wyoming. Therefore, the total predicted ozone impacts are likely to overestimate actual expected concentrations because they reflect the sum of the maximum representative background and modeled ozone concentrations.

The 90th percentile maximum 1-hour ozone value measured at Pinedale, Wyoming was assumed to be representative of the Cave Gulch - Bullfrog- Waltman Project Area, and reflects allowable expected number of ozone standard exceedances. Assuming a greater background ozone concentration would increase the total predicted impact proportionately, but is not appropriate for this analysis.

3. The sentence has been revised and is included in the FEIS Section 2 - Addendum and Errata.
4. The sentence has been revised and is included, along with the reference, in the FEIS Section 2 - Addendum and Errata.
5. The phrase has been revised and is included in the FEIS Section 2 - Addendum and Errata.
6. Please see response to Comment 38-2 (Section 3.2.2, Air Quality, Number 1).

RESPONSE TO COMMENTS

7. As stated in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), page A2-14: "Triethylene glycol (TEG) is used to remove the water from the field gas by bubbling the inlet gas through TEG in a packed tower. The rich glycol (containing water) exits the bottom of the tower and flow to the regenerator, while the dehydrated gas exits the top. Triethylene glycol has a higher boiling point than water, thus the glycol water bond is broken by heating the rich glycol past the boiling point of water, but below the boiling point of TEG. The lean glycol from the regenerator is routed back to the contactor tower for reuse." No triethylene glycol would be emitted from dehydrators.
8. Table 4-1 has been revised to read "Source: (EPA 1997)." This correction and Reference are included in the FEIS Section 2 - Addendum and Errata.
9. As in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), page 5-9: "The WDEQ does not have any defined exposure levels for the HAPs: n-hexane, benzene, toluene, ethyl benzene, xylene, or formaldehyde. Screening values for short-term or acute exposure limits were determined from a review of various States' Acceptable Ambient Concentration Levels (AACLs) that were available from the National Air Toxics Information Clearinghouse (EPA 1997)." The lower range value for benzene ($30\mu\text{g}/\text{m}^3$) came from the State of Florida, Pinellas County Air Pollution Control Board, not the State of Texas.
10. Please see response to Comment 38-2 (Section 4.2.3, Direct and Indirect Impacts, Number 8).
11. As stated in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), page 5-9: "The ISCST3 model was used to simulate the transport and dispersion of n-hexane and BTEX HAPs from a representative "worst case" patch or group of eight simultaneously producing well sites, all emitting a maximum possible 50 tons per year of VOCs ..." and on Page 2-5 "Maximum gas processing emissions would be those from a well at 50 tons per year of VOCs. The WDEQ requires Best Available Control Technology (BACT) for emissions greater than 50 tons per year of VOCs." No specific control measures were identified.

As stated in Section 4.2.1 (Introduction) of the DEIS, page 4-7: "The WDEQ/AQD is responsible for implementing and enforcing Federal and State air quality laws, regulations and standards. Under FLPMA and the Clean Air Act, the Bureau of Land Management can not conduct or authorize any activity which does not conform to all applicable local, state or Federal air quality laws, statues, regulations, standards or implementation plans." Therefore, the air quality impact analysis assumed (VOC, and therefore HAP) control measures required by the WDEQ/AQD would be implemented, and additional mitigation measures would not be necessary.

12. As stated in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), page 5-12: "For the purposes of this assessment, the estimated cancer risks were evaluated in the context of a target cancer risk level of one in a million (i.e., $1\text{e-}06$). Under the "Superfund" National

RESPONSE TO COMMENTS

Oil and Hazardous Substances Pollution Contingency Plan (EPA 1990a), a cancer risk range of 1e-06 to 1e-04 is generally acceptable, while risks above 1e-04 typically imply a need for remediation. A cancer risk of 1e-06 is considered the point of departure for determining risk-based remediation goals.”

13. As stated in Section 2.5 (Alternative C - No Action) of the DEIS, page 2-43: “For this project, the No Action Alternative is denial of the drilling and development proposal as submitted by the Operators. However, the Department of the Interior’s authority to implement a “No Action” alternative which precludes drilling by denying the process is limited.” The “No Action” alternative “would deny the proposal as submitted but would allow consideration of individual APDs on federal lands on a case by case basis through individual project and site-specific environmental analysis.” Therefore, the statement in the first paragraph on page 4-11 is consistent with Section 2.5 of the DEIS.
14. Potential emission levels would meet Prevention of Significant Deterioration (PSD) Class II increment limits (no PSD Class I areas are likely to be affected by the proposed project). The maximum modeled NO₂ concentration of 22.3 is below the applicable PSD Class II increment of 25 μg/m³. This comparison is not a comprehensive PSD Increment Consumption analysis (which is a regulatory inventory and compliance responsibility of the state regulatory agencies and the EPA), but is included to indicate the potential level of significance.

This additional material is included in the FEIS Section 2 - Addendum and Errata.

Section 4.2.5, Mitigation Summary

The air quality impact analysis assumed those NO_x and VOC control measures required by the WDEQ/AQD would be implemented, and additional mitigation measures would not be necessary.

Comment 38-3: The Record of Decision for the Platte River Resource Area Resource Management Plan, dated July 1985, did not identify any acreage in the project area that would require a “No Surface Occupancy” stipulation. Therefore, there are no leases in the project area with a “No Surface Occupancy” stipulation.

The COE is ultimately responsible for determining what areas are waters of the U.S., including special aquatic sites and jurisdictional wetlands. Based on several years of coordination with the Cheyenne COE Regulatory Field Office, a swale that is vegetated by native upland species under normal circumstances and that does not exhibit hydric soils or wetland hydrology is not considered a waters of the U.S. (see Section 3.5.2, page 3-42). Impoundment on such swales for agricultural (i.e., livestock watering) and aesthetic purposes exempt such areas as waters of the U.S. Use of such an impoundment does not make such areas jurisdictional; however, use of such areas by waterfowl, etc. may provide regulatory authority under the Fish and Wildlife Coordination Act. Further, this section clearly states that ephemeral channels that are at bed and grade and that show consistent fluviogeomorphic development process are waters of the U.S., even though flowing water may be absent for most of the year.

RESPONSE TO COMMENTS

Should a watershed management plan, as identified in Section 4.3.2, be required by the BLM, the WDEQ and other appropriate state, federal, and local agencies would be involved.

Section 4.5.2 (bullet #6) correctly identifies EO 11988 as the "floodplain protection" EO and 19990 as the "wetlands protection" EO. However, Section 4.4.1 inadvertently switched these two EO's. The correction has been made in the Errata.

BLM and other agency authorization of the proposed project would require compliance with Pollution Prevention Act of 1990, EO on Pollution Prevention in 1993 (EO 12856); Spill Prevention Control Plan, Clean Water Act, CEQ guidelines, and NEPA.

Soil and reclamation information was presented in the DEIS at Sections 2.2.2.2 (page 2-17), 4.3.3.1 (page 4-18), 4.3.5, bullet #2 (page 4-29), Section 4.4.5, bullet #1 (page 4-40), and in Appendix B.

In general, construction during the no flow period is preferable to during the low flow period. However, in certain circumstances as specified by the BLM, construction during the low flow period may be acceptable.

The 20 percent weed threshold has been utilized by the BLM on similar gas development projects in Wyoming. The 10 percent vegetation and wetlands threshold has been used effectively on other BLM natural gas development projects in Wyoming. It is true that waters of the U.S., including special aquatic sites and wetlands are particularly rare and therefore require special attention, and the CWA in general and Section 404(b)(1) guidelines prohibit the net loss of such areas. The final result of Section 404 permitting would be the compensatory mitigation of unavoidable adverse impacts of the least damaging practicable alternative. Assuming successful mitigation, there should be no net loss regardless of the threshold used. Further, given the environmentally conservative impact assessment, a short-term impact of 2.2 percent and a long-term impact of 1.1 percent would occur. Through avoidance, impact minimization, and compensatory mitigation, no net loss would occur regardless of the threshold used.

Refer also to response 38-1 for more information.

Comment 38-4: Onshore Oil and Gas Order No.2, as summarized in section 4.4.3 of the DEIS "...proposed casing and cementing programs shall be conducted as approved to protect and/or isolate all usable water zones..." This is the primary tool by which casing programs are controlled.

When processing an APD, the BLM geologist identifies the maximum depth of usable water as defined in Onshore Oil and Gas Order No. 2. Usable water is defined as that water containing 10,000 parts per million or less of total dissolved solids. Zones containing water of this quality would be isolated.

Determining the depth to freshwater requires specific water quality data in the vicinity of the proposed well or the use of logs from nearby wells. The surface casing setting depth varies from hole to hole depending on the geological stratigraphy of usable water bearing horizons. If freshwater is identified, surface casing is required to be set below the deepest freshwater zones found. If usable water is found at a depth that is too deep to set surface casing, the operator is

RESPONSE TO COMMENTS

required to isolate those zones. Figure 2-11 represents a typical completion schematic. Note that formation, casing, and cement depths will vary depending on the well location stratigraphy.

The potential locations of springs and seeps are provided (as stated) on Figure 3-6 in section 3.5, Vegetation and Wetlands.

Please refer to responses to comments 38-1 and 38-3 for additional information.

Comment 38-5: The complete avoidance of most selected raptor nesting areas would be accomplished under Alternative A. BLM is factoring all comments and the merits and disadvantages of the Proposed Action and each of the alternatives into the decision process which will be set forth in the ROD.

The biological value of ANSs is given in the Draft EIS at pages 4-60 and 4-61. The biological value of the proposed KRA is given in the Draft EIS at page 4-68. It contributes to mitigation on the cumulative area (the GRAA) basis.

A raptor monitoring and mitigation plan is being developed and will be addressed in the ROD.

Please refer to responses to Comments 19-2 and 25-1.

TRINITY PETROLEUM EXPLORATION, INC.

Comment 39-1: See response to comment 6-1.

Comment 39-2: Designation of a proposed KRA would not constitute a "taking" of oil and gas lease rights. The existing oil and gas leases would remain available for exploration and development subject to standard lease stipulations and the land use decisions specified in the RMP with provisions for further analysis should field development be proposed. There is no taking involved if future oil and gas leases are offered subject to no surface occupancy stipulations, or if lands are not offered for oil and gas leasing.

Please also refer to response 12-1 for more information.

Comment 39-3: Thank you for your comment. See responses 12-1 and 24-1.

PHILLIPS PETROLEUM COMPANY

Comment 40-1: Public support in Natrona County for development of the natural gas resources in the project area has been substantial during the scoping period and the public comment period on the DEIS.

Comment 40-2: Thank you for your comment.

Sufficient flexibility is available in the DEIS to address the reasonably foreseeable development that might be necessary to fully recover the estimated gas reserves in the project area. The DEIS states that the "precise number of additional wells....would be directed by the success of development drilling and production technology, and economic considerations such as the cost of

RESPONSE TO COMMENTS

development of leases within the project area with marginal profitability." Further, the Proposed Action described by some of the lease operators was "....based on reasonably foreseeable spacing and drilling projections into areas within the project area...." and is "a maximum development scenario that attempts to provide for maximum recovery of the natural gas resource" (DEIS sections 2.0 and 2.1).

Comment 40-3: Potential impacts to raptors are described at page 4-57. Table 4-18 shows the number of pairs which are predicted to be displaced under each alternative, either without ANSs or with ANSs. Based upon the Significance Criteria at page 4-53, the displacement of raptor pairs (without ANSs) would be significant. However, these are only potential impacts because ANSs are identified as mitigation under each alternative.

Please refer to responses to Comments 12-1 and 30-1.

Comment 40-4: Refer to response 11-1.

Comment 40-5: The BLM realizes the importance of allowing lease holders to protect their leases from drainage that may result from development on adjacent leases. The schedule and sequence of lease development within the Cave Gulch-Bullfrog-Waltman project area was not specified in the alternatives analyzed. This allows maximum development flexibility for individual unit and lease operators, and should facilitate development to prevent drainage from adjacent lease development.

CITY OF CASPER, CASPER CITY COUNCIL

Comment 41-1: Please refer to responses to comments 12-1, 19-1, 19-2, 24-1, 25-1 and 30-1.

WYOMING OUTDOOR COUNCIL

Comment 42-1: The BLM appreciates the involvement of the Wyoming Outdoor Council (WOC) in the planning of natural gas development in the Cave Gulch-Bullfrog-Waltman project area, especially as a participant in the Cave Gulch-Bullfrog-Waltman Air Quality Impact Assessment "Stakeholder" Group. WOC (along with the WDEQ/AQD, EPA, and the USDA-Forest Service) reviewed and provided comments on the Air Quality Impact Assessment Protocol before the analysis was performed, and provided comments on the preliminary Air Quality Impact Assessment results. Early involvement by the "stakeholders" improved the quality of the analysis.

However, the Commentor's concerns that "oil and gas development is proceeding at a neck-breaking speed throughout the state without adequate consideration or understanding of its impacts," and "industrialization of the Cave Gulch area will overwhelm the area's other resources" are unfounded.

The air quality analysis was prepared under the legal requirements of the National Environmental Policy Act, in order to provide the "decision maker" a comprehensive review (and public disclosure) of potential "significant" environmental impacts prior to issuing the Record of Decision. Although applicable requirements under the Clean Air Act (and other "thresholds") were considered when determining potential "significant" air pollution impacts, the EIS is not a regulatory document under

RESPONSE TO COMMENTS

the legal requirements of the Clean Air Act (in other words: the EIS is prepared to provide support to a land management decision, not an air quality permitting decision).

The maintenance and improvement of air quality is the responsibility of the State of Wyoming air regulatory agency (WDEQ/AQD) with EPA oversight. The operators of future natural gas facilities must obtain air pollution emission permits prior to operation, and continue to demonstrate compliance with air quality permit requirements once operations begin. Since the BLM cannot conduct or approve any activity which does not comply with all applicable air quality laws, statutes, regulations, standards or implementation plans, existing BLM authorizations are subject to revocation if State and Federal air quality requirements are violated. Through active cooperation, natural gas development can occur in Wyoming without the dire consequences the commentor presumes.

Comment 42-2: The State of Wyoming is in "in attainment" for all "criteria" air pollutants (carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide), with the exception of Sheridan County which is in "nonattainment" for particulate matter. The EPA is responsible for assuring the State of Wyoming is taking the steps necessary to attain and maintain the National standards through the State Implementation Plan (SIP). If the State of Wyoming fails to adequately implement the SIP, then EPA is obligated to withdraw its approval and implement it's own plan to achieve the standards.

For the purposes of the EIS, the BLM must "succinctly describe the environment of the area(s) to be affected" (40 CFR 1502.15) including air quality, but is not required to collect on-site data in order to conduct the analysis if "credible scientific evidence which is relevant to evaluating reasonably foreseeable" impacts (40 CFR 1502.22) is available. The BLM determined the background air quality data reported in the DEIS Section 3.2.2 (Air Quality) are adequate to describe the Affected Environment in the Cave Gulch-Bullfrog-Waltman project area.

The Commentor's suggestion to establish an EPA-sanctioned monitoring station in the Cave Gulch to obtain accurate background air quality data should be addressed to the appropriate air regulatory agencies (WDEQ/AQD and EPA).

Comment 42-3: EIS Figure 1-1 is specifically used to describe the location of the Cave Gulch-Bullfrog-Waltman project area. In Appendix A (Cumulative Air Quality Impacts Analysis - Technical Support Document Addendum), Figure 1 presents the Cumulative Impacts Study Area (CISA), which identifies the project area and the locations for all sources emissions that were included in the cumulative air quality impacts analysis. Appendix A also provides a list of these sources.

Comment 42-4: Please see responses to Comment 38-2 (Section 3.2.2, Air Quality, Number 1) and comment 42-3.

The EIS analyzed potential cumulative air quality impacts for only those additional sources which are not adequately represented by the background condition (such as sources permitted but not yet operational) and have the potential to cause "cumulative" impacts for the same air pollutants with the Proposed Action and Alternatives. Since NO₂ was the only air pollutant "reasonably foreseeable" to potentially interact with other emission sources which were not adequately represented by the background condition, it was not appropriate to conduct a "cumulative" analysis for the other listed pollutants.

RESPONSE TO COMMENTS

Comment 42-5: The USDA-Forest Service "Limit of Acceptable Change" for lake chemistry and haze visibility impacts in the Cloud Peak PSD Class II Wilderness Area were included in the DEIS Section 5.3 (Cumulative Impacts Analysis - Air Quality). As stated in Section 5.3 (Cumulative Impacts Analysis - Air Quality) of the DEIS, page 5-5: "Since emissions from the proposed activities would constitute many small sources spread out over a very large area, discrete, visible plumes are not likely to be created or to impact the Cloud Peak Class II Wilderness Area."

Comment 42-6: As stated in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), page 5-20: "Organic aerosols are also secondary particulate compounds, formed through chemical reactions in the atmosphere. At present, organic aerosol formation processes are not well understood, and current modeling techniques are not available for estimating visibility degradation due to organic aerosols (IWAQM 1993). A review was conducted to determine if sufficient data exist to quantify the effects of VOC emissions on visibility. It was concluded after this review that there were no applicable data or appropriate modeling techniques that could be used to estimate the visibility effects of such emissions. Furthermore, while VOC emission may potentially affect visibility, the methodology for quantifying these effects has not been adequately developed and tested. The important conclusions from this review are summarized as follows.

"Pandis, et al. (1992) have presented data from laboratory experiments indicating an aerosol fraction for a number of VOC compounds. For example, their data indicate the aerosol yield for toluene is 424 $\mu\text{g}/\text{m}^3/\text{ppm}$. This aerosol fraction was based on laboratory chamber data using the following initial conditions: (1) hydrocarbon concentration of 0.89 ppm; (2) a background NO_2 concentration of 0.20 ppm (377 $\mu\text{g}/\text{m}^3$) and (3) ozone concentration of 0.335 ppm (656 $\mu\text{g}/\text{m}^3$); (4) an ambient temperature of 84 F; and (5) a relative humidity of 50 percent. While these meteorological conditions could occur in central Wyoming, the background pollutant concentrations would not. Pandis also concluded that the aerosol fraction was not produced directly from the hydrocarbon emissions but from secondary gaseous products. This is consistent with the work of Grosjean (1984 and 1985), suggesting toluene aerosol products form through reactions with intermediate species, such as cresol and nitrocresol. Grosjean also suggested that the net organic aerosol production rate was not correlated with the rate constant of the reaction of hydroxyl (OH) radicals. If this conclusion is true, then the rural setting of central Wyoming is not conducive to such photochemical reactions. Even if data existed that could be used to estimate the aerosol yield, models do not exist that can simulate the condensation/ evaporation processes and plume dilution which are necessary to quantify the impacts of such aerosols."

NEPA regulations state that "Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements" (40 CFR 1502.24). The DEIS clearly recognized the theory of visibility impacts due to organic aerosol, investigated its scientific basis, and determined it to be speculative and inadequate to meet the regulatory requirements of NEPA (40 CFR 1500.1b).

Comment 42-7: As stated in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), page 5-19: "Visibility impact assessments examine whether a "plume" from an emission source would be visible at the nearest sensitive location, and further, if the emissions from a group of sources in concert would contribute to increased regional haze (decreased visibility). Since the proposed well field emissions

RESPONSE TO COMMENTS

are many small emissions sources, uniformly spread out over a large area, discrete visible plumes are not likely to occur, and the issue of concern is potential increased regional haze."

The assertion that BLM should examine potential visible plumes from illegal burning is likely based upon insufficient information. In fact, even minor, infrequent burning, e.g., burning off small quantities of hydrocarbons from pits, requires prior approval from WDEQ/AQD. This approval may be granted over the telephone and documented in a communication log. Since BLM can not conduct or approve any activity which does not comply with all applicable air quality laws, statutes, regulations, standards or implementation plans, there is no basis for the BLM to examine potential environmental impacts from illegal activities.

It is recommended that such minor burning, if observed, be documented and the WDEQ/AQD notified so it may take appropriate action.

Comment 42-8: It is unfortunate the Commentor regards "the EIS's analysis and conclusions as nothing more than hollow, baseless claims," further asserting the assumed 50 per cent particulate matter control efficiency (by watering and/or other dust suppressant) is "invalid and scientifically insupportable," "unrealistic and arbitrary, and to our knowledge not being achieved in any gas field in Wyoming."

Both the estimate of potential "fugitive" particulate matter emissions from unpaved roads (dirt and gravel) and possible control measures (with their control efficiencies) have been extensively studied, documented, and implemented by EPA and other regulatory agencies.

As stated in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), page 2-2: "The emission rates from ... [construction activities] are computed in Appendix 1, using emission factors from EPA's AP-42 handbook (EPA 1995)" and "In computing particulate emissions from well pad and resource road construction, it is assumed that water and/or chemical dust suppressants would be applied in order to minimize TSP and PM₁₀ fugitive dust emissions. The control efficiency of the watering and/or dust suppressant use is computed at 50%, as shown in Appendix 1."

The BLM reviewed the scientific literature, and verified that 50 per cent control is "reasonable and achievable" with both the WDEQ/AQD and the project proponents (operators). As such, it is proper to include this assumed level of air pollution control in the Proposed Action and Alternatives. Whether or not the 50 per cent control measure is required in the land-use authorization will be determined in the "Record of Decision."

The Air Quality Mitigation (Section 2.2.2.12 Project-wide Mitigation Measures - Resource-specific Mitigation - Air Quality, Page 2-30) has been revised and is included in the FEIS Section 2 - Addendum and Errata.

Finally, whether or not additional mitigation or monitoring measures are required in the land-use authorization will be determined in the "Record of Decision."

Comment 42-9: The analysis of potential atmospheric deposition or visibility impacts was addressed in the BLM's Wyoming State Office Information Bulletin No. WY-97-055 (dated March 26, 1997), which states "Under the Clean Air Act all BLM administered land [in Wyoming] were

RESPONSE TO COMMENTS

given Class II air quality classification, which allows moderated deterioration associated with moderate, well-controlled growth. The BLM will continue to manage WSAs as Class II (H-8550-1 - Interim Management Policy for Land Under Wilderness Review).” Further, “There are not Wyoming or Federal atmospheric deposition or visibility protection regulations for Class II Wilderness or WSAs. Therefore, until circumstances change, there is no requirement to model and analyze potential air quality impacts of proposed projects upon Wyoming BLM WSAs.”

Comment 42-10: As stated in Section 4.2.4 (Analysis of Environmental Consequences - [Air Quality] Impacts Summary) of the DEIS, page 4-11: “No violations of applicable Federal or State air quality regulations or standards are expected to occur as a result of direct, indirect or cumulative project emissions (including construction and operation.) The maximum potential air pollutant concentrations would occur close to, and between, well locations, even with the densest assumed well spacing. That is, the maximum ground level concentrations occurred so close to each well that adding additional wells in the field would not increase the overall maximum concentration.” and “In reviewing these predicted impacts it is important to understand the assumptions that have been made regarding resource development. The development of this analysis includes a great deal of uncertainty in the projection of specific plans (i.e. number of wells, equipment to be used, and specific locations) for resource development for 10 years in the future. All of these factors affect air emissions as well as predicted air quality impacts.”

In addition, potential cumulative air quality impacts at the Cloud Peak Class II Wilderness Area were re-analyzed, including additional emission sources, as reported in the FEIS Section 2 - Addendum and Errata. However, even with these additional cumulative sources and given the inherent conservatism in the analysis, potential air quality impacts remain below applicable significance criteria for atmospheric deposition and would not result in any perceptible visibility impact on the cleanest days at the Cloud Peak Class II Wilderness Area.

Simply put, significant adverse (direct, indirect, and cumulative) impacts to air quality are not likely to occur from implementation of the Proposed Action or Alternatives.

Comment 42-11: Please see responses to Comment 42-2 and Comment 42-8.

Comment 42-12: Potential air quality impacts due to Hazardous Air Pollutants (HAPs) were analyzed as reported in Section 4.2.3.1 (Analysis of Environmental Consequences - Direct and Indirect Impacts - Proposed Action, Alternatives A, B, and C) of the DEIS, page 4-10 and 4-11. The potential HAPs emissions rates included formaldehyde (approximately 13.9 tons per year) from the proposed compressor station, as well as n-hexane (0.85 tons per year), benzene (0.12 tons per year), toluene (0.55 tons per year), ethyl benzene (0.12 tons per year), and xylene (0.50 tons per year) from the individual dehydrator, separator, and storage tank.

EPA defines an emission source with the potential to emit 10 ton per year of any single HAP, or 25 tons per year of all HAPs combined (aggregate), as a “major” source of hazardous air pollutants. Therefore, only the proposed compressor station qualifies as a potential “major” HAP source.

Whether or not HAP monitoring is necessary would be determined during the permitting process by the appropriate air quality regulatory agency (WDEQ/AQD and EPA review).

RESPONSE TO COMMENTS

Comment 42-13: Air quality permit requirements (including the definition and requirement of BACT) are the legal responsibility of the appropriate air quality regulatory agency (WDEQ/AQD with EPA oversight), and the BLM includes current BACT requirements in the air quality impact analyses.

Comment 42-14: WOC has erroneously concluded that the impact significance criteria for raptors requires that damage be done before the significance criterion is evoked. In fact, the reverse is true. The actions proposed in the DEIS were analyzed and judgements were made as to what the significance of such actions would be. Where it was determined that the actions proposed would result in significant impacts such conclusions were documented in the DEIS and mitigation actions to prevent or avoid such impacts were developed. All of this analysis was done prior to the approval or execution of said actions or the occurrence of significant impacts.

Comment 42-15: A raptor monitoring and mitigation plan is being developed and will be addressed in the ROD.

Comment 42-16: If oil or other harmful substances are present, reserve and produced water pits, as well as any open tanks, will be netted or secured in such a manner as to provide protection to migratory birds. (See DEIS pp. 4-55 and 4-70.) Verbiage to include open tanks has been added to the FEIS, through the Errata.

As discussed in Section 4.7.3.1.4, Page 4-62, paragraph 2, impacts to raptors from electrocution can be mitigated by designing poles according to criteria present in *Suggested Practices for Raptor Protection on Powerlines: the State of the Art in 1996*.

Comment 42-17: Year-round buffers and seasonal 1 mile buffers are being evaluated through the EIS process, and decisions will be documented within the ROD.

Existing oil and gas leases in the proposed KRA would remain available for exploration and development subject to standard lease stipulations and the land use decisions specified in the RMP with provisions for further analysis should field development be proposed.

Please refer to response to Comment 21-1.

Comment 42-18: PRRA's application of raptor mitigation from our RMP is consistent with the state policy. Other resource areas may have different specific mitigation due to different analyses within their RMPs/EISs. The Draft EIS analyzes year-round buffers and seasonal 1 mile buffers. If these mitigation techniques are selected and documented within the ROD, then RMP Decision WL7: Raptors would be updated specifically for this area.

Please refer to response to Comment 30-1.

Comment 42-19: Although gas metering is done remotely, other remote operations at Cave Gulch could compromise safety considerations and would not be practical from a purely operational standpoint. The very high volumes of gas and liquids in the gas produced by these wells create a situation where the possibilities of equipment malfunction are high and the danger of fire extreme. The use of remote facilities without the benefit of daily human checks would result in a hazardous operating condition. Downhole freezing problems are a regular occurrence and cannot be fixed

RESPONSE TO COMMENTS

or controlled through automatic means. Additionally, daily operator visits are necessary to perform normal maintenance of compressors and other pieces of production equipment.

Comment 42-20: The BLM's authority to establish and designate how funds will be managed, as you have recommended, is a federal budget allocation that is outside the scope of this planning document. As described on pages 4-60, 4-71, and 5-27 of the DEIS, significant impacts to raptors are not expected with the implementation of proposed mitigation. The need for a raptor mitigation fund is not, therefore, foreseen.

Comment 42-21: This recommendation is part of the raptor management plan, which will be addressed in the ROD.

Although a maximum of 7 pairs of raptors could be displaced by proposed actions, the DEIS calls for twice this number, or 14 ANSs, to be placed within the GRAA. The DEIS also calls for monitoring and maintenance of these ANSs and when or if necessary, replacement.

Impacts to prey base populations were analyzed at page 4-61 of the Draft EIS. Monitoring of prey base populations is part of the raptor management plan, which will be addressed in the ROD.

Comment 42-22: Raptor prey base surveys will be part of a raptor management plan, to be addressed in the ROD.

Comment 42-23: The BLM has made a good faith effort to obtain relevant information important to evaluate reasonably foreseeable significant adverse impacts on the human environment. In predicting impacts to raptors (and other resources present in the project area) accepted professional methodologies and practices were employed, and the analysis findings are disclosed in compliance with NEPA.

Please refer to responses to Comments 42-22, 42-24, 42-25, and 42-27.

Comment 42-24: A plan for conducting mountain plover surveys is being developed and will be presented in the ROD.

Comment 42-25: Swift fox surveys were recommended in the DEIS (page 4-62) and will be conducted during the spring/summer of 1997. A decision on specific mitigation for swift fox will be based upon the results of the surveys and coordination with WGFD and USFWS. The decision will be incorporated into the ROD.

No black-footed-ferret surveys are proposed because of the lack of suitable habitat for this species on the analysis area. As stated on page 4-62 of the DEIS: "No prairie dogs or prairie dog colonies were observed within the project area during three years (1994-1996) of field surveys of raptor nests and one prey base survey of rodents and lagomorphs in 1996. In addition, no black-footed ferret sightings within or proximal to the project area have been reported in the WOS, WYNDD, or the records of the FWS.

Comment 42-26: Impact Significance Criteria for big game species are listed on page 4-53 of the DEIS and involve impacts to crucial habitats. Since no impacts to any designated crucial habitats

RESPONSE TO COMMENTS

will occur under the Proposed Action or any of the alternatives, no significant impacts to these species will occur. Never-the-less detailed and quantified discussions for impacts to non-crucial big game habitats are set forth in sections 5.8.1 and 5.8.2 of the Cumulative Effects chapter in the DEIS.

The development of steps to reduce or minimize vehicle collisions with big game and poaching on the proposed project were recommended in the DEIS. The decision regarding recommended mitigation will be documented in the ROD.

See also response to Comment 42-29.

Comment 42-27: Sage grouse lek surveys were conducted during the spring of 1997. Because no leks were found on or within 2 miles of the project area and no crucial habitats were found during 3 years of field work in the project area, significant impacts to this species are not expected.

Comment 42-28: Potential impacts of noise to wildlife are addressed extensively in Section 4.14 of the DEIS. Pumpjacks are the most usual type of long-term noise associated with the development of petroleum products. However, as described in the DEIS, the use of additional pumpjacks on this project has not been proposed. Pumpjacks have been in use for many years in the south end of the project area.

Comment 42-29: As described on page 2-34 of the DEIS, all project employees will be informed of applicable wildlife laws and be discouraged from engaging in off-site activities in the vicinity of drill and construction operations.

Comment 42-30: In consideration of your comment, Figure 1-2 of the DEIS has been revised to reflect that Natrona County Road 104, an existing northern road, and three existing southern roads have served and will continue to serve the project area as collector roads for the life of the project. The remaining existing and future roads will serve as local and resource roads. There would be marginal value in trying to predict which future resource roads would temporarily serve dry holes, or which would serve producing wells on a long term basis, for the project area.

Information presented in the DEIS regarding road standards and classes; the Operators' proposed construction and reclamation techniques contained in Chapter 2 and Appendix A; the mitigation measures detailed in Chapters 4 and 5; and, the reclamation guidelines summarized in Appendix B, are sufficient for future transportation planning in the project area. Therefore, your recommendation that a separate transportation plan be developed has not been adopted.

The existing gravel sources are anticipated to be sufficient to supply the necessary gravel. However, if new sources of gravel were proposed for development, these associated activities would be addressed in a separate environmental document if the BLM has jurisdiction for the action. Since the BLM, the State, and Natrona County all have jurisdiction for authorizing gravel pits, the authorizing actions have been added to Section 1.6 of the DEIS. (p.1-16, Tbl 1-7)

Comment 42-31: Based on water quality data available for surface water resources in the region, paragraphs 1, 2, and 3 on page 3-37, and paragraphs 1, 2, and 3 on page 3-38 adequately characterize surface water quality in the project area. Mitigation measures itemized in Sections 4.3.5, 4.4.5, and 4.5.5 include measures that will protect surface water quality.

RESPONSE TO COMMENTS

Project compliance with Section 404 of the CWA requires that project impacts do not cause restriction of aquatic life movements along streams and other waters of the U.S. Surveys for aquatic life are not required to achieve compliance with CWA Section 404.

See Section 3.4.2, last paragraph (page 3-38) in regard to fish occurrence in the project area. Soil samples analyzed for selenium had no detectable quantities of selenium (see Section 3.3.5, page 3-31, second paragraph). Section 4.4 describes potential impacts on surface water quality.

No known endangered, threatened, candidate or sensitive species of aquatic animals are known to be or suspected to be associated with the wetland sites on the project area.

The commentor has misinterpreted the information in Paragraph 4, page 3-37. The DEIS at this location states "No known point sources of pollution have been documented...". Oil and gas development activities that involve discharge of water (produced or otherwise) must meet the requirements of the CWA, including the NPDES permitting program. This is the case for the proposed project.

Please refer to response to comments 38-1, 38-3, and 42-16 for additional information.

Comment 42-32: See Section 2.2.2.6.2 for Operators' proposed groundwater separation program via well casing. See Section 4.4.3.1 for information on prevention of potential impacts of reserve pits and well bore leakage and groundwater contamination. The proposed project must comply with Onshore Oil and Gas Order No. 2 which requires measures be applied that minimize the opportunity for groundwater contamination through a casing and cementing program.

With proper application of the proposed action and its mitigation, the opportunity for groundwater contamination is remote. Considering this, it is difficult to support the cost and manpower required to develop and maintain a groundwater monitoring program.

The DEIS requires all pits to be lined to prevent leakage. The BLM routinely requires monitoring of effectiveness of reserve pit liners.

Onshore Order No. 7 requires operators to submit a sundry notice outlining their closure plans prior to pit abandonment and reclamation. The method used must remove or isolate contaminants in such a manner that the public health, livestock, wildlife, and the environment are protected. Any land farming or land spreading would require DEQ approval. Testing of wastes and additional disposal requirements prior to closure of a pit may be required if there is reason to believe exempt exploration and production wastes have been commingled with hazardous wastes. The WOGCC has drafted guidance for developing detailed pit closure plans which are similar to the Colorado and New Mexico Oil and Gas Commission's guidance. The BLM concurs with the WOGCC guidance.

Please refer to responses to comments 38-1 and 38-4 for additional information.

Comment 42-33: The requested information was contained in the DEIS. See response to comment 2-1. EO 11988 and 19990 do not prohibit construction in these areas, rather they mandate that avoidance be implemented where feasible and where not feasible, impacts should be minimized. All project activities in waters of the U.S. must be fully coordinated with the COE

RESPONSE TO COMMENTS

pursuant to CWA Section 404. See Sections 3.5, 4.4.5, 4.5.2, 4.5.3.1, and 4.5.5 of the DEIS as well as ECOTONE (1997).

See Sections 4.4.2, last bullet; 4.4.3.1, page 4-37, paragraph 1; 4.5.2, bullet #6; 4.5.3.1, page 4-45, paragraph 1; and Section 4.5.5, last bullet.

Please refer to responses to Comments 38-3 and 42-31 for additional information.

Comment 42-34: All development proposals have required disclosure of the water source along with the water haul route in the APD. This has been clarified in the errata section. The water provided by Mel's Water Service is trucked via Highway 20-26, County Road 104, and lease roads. The water supplied by the Flying A Ranch is trucked over lease roads and County Road 104.

If water is surface discharged, the Wyoming DEQ, Water Quality Division permits and administers the disposal. All appropriated water would be permitted and administered by the Wyoming State Engineer's Office.

See Section 4.4.3.1, page 4-34, paragraph 2 and 3; and, Section 4.4.3.1, page 4-36, paragraphs 3 and 4, on water disposal. As discussed in Section 4.4.3.1 (page 4-36, para. 3), as the field is developed, the associated produced water will be evaluated for disposal in a manner that complies with State water quality standards.

The DEIS discloses that produced water would either be used for drilling, project construction, and hydrostatic pipeline testing. Evaporation pits may also be used to dispose of produced water. The Operators would identify more specifically how produced water would be managed for each well in an application for disposal of produced water. Onshore Order #7 requires the application be submitted within 90 days of completion of the well.

For information on water rights, see Section 4.4.3.1, page 4-36, paragraphs 2 and 3.

Please refer to response to Comment 38-1 for additional information.

Comment 42-35: Activities, such as recreational use of off road vehicles, usually do not require formal authorization and would only be restricted if there were documented disturbances to raptors or adverse impacts to soil, water or vegetation resources from such activities.

Please refer to the responses to comments 38-1 and 38-3.

Comment 42-36: The 20 percent weed threshold has been utilized by the BLM on similar gas development projects in Wyoming. Therefore, your recommendation has not been incorporated.

The seed mixes presented in Appendix B are recommended since the final set of species in the mix depend on availability and cost which are variable over time. Further, the BLM would allow the Operators to modify the recommended seed mixes to adjust for lack of availability and/or excessive cost just as long as the objectives and performance standards of reclamation are met.

Please refer to the responses to comment 38-1 and 38-3.

RESPONSE TO COMMENTS

Comment 42-37: Thus far, cultural resources that would suggest that consultation with the tribes would be necessary have not been recorded (see errata p. 3-75). However, efforts are ongoing to ensure communication with Native Americans. In addition to sending them EIS notices and copies of the documents, notice of the opportunity to review and comment were sent by certified letter.

All areas that have been proposed as specific drilling locations or that have already been disturbed by well locations, oil field facilities, roads, pipelines and powerlines have been inventoried. Between 10 and 40 acres have been examined for well locations and other areal disturbances. For linear installations, a minimum 100-foot wide corridor is the standard inventory area. All sites eligible for nomination to the National Register have been avoided by all existing road, pipeline and well location construction.

As discussed on DEIS page 5-28, one aspect of continuing or future exploration in the study area is that of beneficial cumulative impacts. On-going development with concomitant pre-construction inventories will increase survey coverage and thus provide additional cultural resources information. This will enhance our understanding of prehistoric and historic land use patterns and better enable us to delineate areas of higher or lower sensitivity. Moreover, the additional data will help clarify the cultural chronology for this region, allow for comparisons with adjacent areas (South Bighorns, Rattlesnake Mountains, and the transitions to the major drainage basins to the east and west) and increase our knowledge of cultural processes in the area.

A mitigation measure identified in the DEIS (page 4-82, para 2) is cultural resource value awareness training for the area operators. The standard cultural resource stipulation attached to all APDs and rights-of-way accomplishes some of this already.

Cultural resource work in the Cave Gulch-Bullfrog-Waltman Project Area has been, and will continue to be a dynamic process in response to the needs of the operators. A comprehensive inventory has not been conducted. While such an inventory is an invaluable tool in planning, the spatial distribution of cultural resources is such that project-by-project inventory does not preclude adequate protection of significant properties. All surface disturbing actions to date have been inventoried, documented, and consulted upon with SHPO. All future actions will go through the same process.

Comment 42-38: Paleontological resources are not damaged or destroyed by discovery unless such discovery results from an action that physically harms the specimen or its context. Discovery may, in fact, be a beneficial result if previously unknown resources are found. Surveys of paleontological literature and museum records, along with field surveys, are performed in order to identify areas for avoidance prior to surface disturbance. If these areas must be impacted during construction, sampling, salvage, or other mitigation methods are employed and the resulting specimens and data curated into a repository (BLM Instruction Memorandum 96-67, attachment 1-7).

Comment 42-39: Please refer to response 38-1.

Comment 42-40: The EIS analysis area was defined using geologic and reservoir analysis, consideration of the reasonably foreseeable future development likely to occur and the extent of

RESPONSE TO COMMENTS

the area on which development would likely occur, consideration of biological resources, and analysis of public comments received during the EIS scoping period.

The BLM's Wyoming Reservoir Management Group conducted a preliminary reservoir analysis for the Cave Gulch-Bullfrog-Waltman unit areas in February 1996. Based on that report, the BLM determined that Cooper Reservoir was geologically separate from the EIS area. The June 1996 WRMG *Cave Gulch-Bullfrog-Waltman EIS Final Geologic, Well Spacing, and Reserve Evaluation Report* confirmed this geologic/reservoir finding.

During early 1996 raptor monitoring in the Cave Gulch area, some raptor nesting activity and raptor nests were documented in and near the Cooper Reservoir Unit. The BLM's field inspections of proposed unit wells revealed the presence of other raptor nests and raptor nesting activity. In conjunction with Cave Gulch EIS raptor monitoring and formulation of Cave Gulch interim development and EIS alternatives, the BLM, Wyoming Game & Fish Department, U.S. Fish & Wildlife Service, and operator-contracted wildlife biologists determined that the Cooper Reservoir Unit area should be included in the Cave Gulch EIS area of analysis for raptor habitat cumulative impact analysis.

Public comments on the EIS did not indicate that the Cooper Reservoir Unit should be included in the area of analysis for the Cave Gulch natural gas project, except for raptor management and cumulative impact analysis.

Therefore, evaluation of the Cooper Reservoir natural gas development through an EA is being conducted concurrently with EIS analysis of the Cave Gulch-Bullfrog-Waltman Natural Gas Development Project. Because of the proximity of Cooper Reservoir to Cave Gulch, the EA and EIS will both consider the cumulative effects of development of the proposed wells in both areas.

By letter of February 9, 1996, the WOC was advised they would be included in all future mailings concerning mineral development processed by PRRA. The mailing, however, was limited to scoping notices, field development EAs, and EISs. Notices of staking and APDs were not included because, as required by the Federal Onshore Oil and Gas Leasing Reform Act (FOOGLRA), they are available for public inspection in the PRRA public area for 30 days before taking action to approve any APD.

Comment 42-41: The DEIS acknowledges that additional site-specific analyses may be required, but to the fullest extent possible the DEIS integrates the information and analysis needed for the reasonably foreseeable actions connected with the Proposed Action and alternatives. The BLM will comply with the acts referenced when assessing development proposals.

Comment 42-42: The DEIS and FEIS identify the surveys and studies required by law, and have to the fullest extent possible integrated the information and analysis needed for the reasonably foreseeable actions connected with the Proposed Action and alternatives. The BLM has made a good faith effort to obtain relevant information important to evaluate reasonably foreseeable significant adverse impacts on the human environment. The EIS states if information was not available, and discloses those instances where additional information was not sought because it is not relevant or is not critical for the decision makers.

RESPONSE TO COMMENTS

In the DEIS and FEIS, the BLM has attempted to minimize the accumulation of extraneous background data, in favor of emphasizing the real environmental issues. The EIS is intended to be analytic, and as such, discusses in greater detail the potentially significant issues, while more briefly discussing other issues. The intent is to emphasize the portions useful to decision makers and the public, and to reduce emphasis on background material.

Comment 42-43: Your recommendation that the FEIS include a map showing all the oil and gas leases in the project area, and a list of the stipulations for each lease, has not been implemented. The resource management prescriptions and land use decisions specified in Chapter 1, Section 1.5, are applied as-described in that section, and adding a map or list to the FEIS would not change the findings of the analysis.

When an active raptor nest is within $\frac{1}{4}$ to $\frac{1}{2}$ mile of a proposed well site under the proposed action, construction would be restricted during the critical nesting season for that species. There are currently 17 nests in the project area which could affect 28 of the 107 proposed well locations.

As shown on Figure 2-12 and discussed on page 4-64, the proposed 1-mile restriction for ferruginous hawk nests under Alternative A could affect 67 of the 99 proposed well locations.

Development proposed within $\frac{1}{4}$ to $\frac{1}{2}$ mile of an occupied nest would be subject to a seasonal restriction under Alternative B. It is difficult to predict the number of wells that would be affected since it is dependent upon whether birds actually occupy a nest.

The FEIS has been modified to clarify that alternative liquid processing plant locations were considered, but were not analyzed in detail.

Please refer to responses for comment 38-3 and 42-40 for additional information.

J.A. ROHN CONSULTING

Comment 43-1: The CEO regulations and the BLM regulations have no provisions for exclusive or separate involvement by one party over another to review and provide comment on a Federal NEPA/planning document. The BLM is responsible for developing alternatives to the proposed action based on public comment and input. The operators were granted the same opportunity as other members of the public to submit information for consideration.

Page S-2, paragraph 1, has been revised in the errata to address your comment that the operators did not rely on the WRMG report. Large scale versions of maps included in the DEIS were relied upon in the analysis. From a practical standpoint, smaller scale versions of the maps based on Global Positioning System (GPS) data were reproduced in the DEIS.

The biological value of the proposed KRA is described in the DEIS on page 4-68.

Ownership of land in the proposed KRA is disclosed in the DEIS (Chapter 2, Table 2-6, page 2-42). In the proposed KRA, 99 percent of the mineral estate is federal, with the remaining 1 percent being federal coal mineral estate only. In the proposed KRA, 54.3 percent of the surface estate is federal, 32.3 percent is privately owned, and 13.4 percent is held by the State of Wyoming.

RESPONSE TO COMMENTS

Only those federal surface or mineral estate activities requiring BLM authorization would be managed within the proposed KRA. The BLM does not manage the use of private or state surface or mineral estate.

The existing oil and gas leases would remain available for exploration and development subject to standard lease stipulations and the land use decisions specified in the RMP with provisions for further analysis should field development be proposed.

Information on other resource values in the proposed KRA is disclosed in the DEIS in Chapters 3, 4, and 5, as well as in technical reports referenced in those chapters. The DEIS discloses other uses, such as the designated right-of-way corridor, in the proposed KRA.

Please also refer to responses to comments 19-2, 20-1, 24-1, 30-1, 32-2, 42-40 and 42-41 for more information.

Comment 43-2: See Comment 43-1.

Comment 43-3: The DEIS states that, "For the most part, this EIS will provide sufficient analyses to allow the BLM to utilize administrative determination(s) and categorical exclusion reviews to determine if surface disturbing proposals should be approved. However, prior to surface disturbance on some drill sites.....**additional site-specific analyses may be required.**" (Emphasis added.) (See DEIS page 1-11.)

Comment 43-4: The section discussing the Chevron 43 well correlative rights issue and the process followed for resolution is included to provide background information and to disclose activities which took place while the EIS was being prepared.

Comment 43-5: The BLM appreciates and recognizes the value of the scientific data supported and funded by the operators.

Comment 43-6: Access to the most recent scientific data, logical assumptions, and existing management provide sufficient information for BLM to develop reasonable scenarios for analysis and planning purposes.

Only well locations were projected for analysis. Assumptions were made on the anticipated length/width of future roads and pipelines. Based upon these assumptions, projections were then made on the amount of surface disturbance that would occur. As future roads and pipelines are built, these assumptions along with recommended mitigation measures for the area of disturbance will be used to determine if the proposal falls within the parameters of the EIS analysis.

Title 40 CFR § 1501.2 (c) requires that agencies "Study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts . . ." At 40 CFR § 1502.1, it discusses the primary purpose of an environmental impact statement. It states "It shall provide full and fair discussion of significant environmental impacts and shall inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment."

RESPONSE TO COMMENTS

With this in mind, the EIS analyzed the proposed action and two reasonable alternatives which were designed to avoid or minimize the adverse impacts to raptors and their habitats.

Comment 43-7: The application process summarized on page 2-5, first paragraph, states that "Following the on-site evaluation, the applicant would file the application which would include site-specific construction plans **where necessary** ..." and includes detailed engineering design as one of the plans that may be necessary. This acknowledges those situations where detailed engineering design may be required.

Figure 2-9 has been corrected to reflect the additional dehydrator and separator.

Figure 2-11 shows a Typical Completed Wellbore Diagram for a Vertical Well drilled within the Cave Gulch Unit, and is intended to display how a completed wellbore would generally look. The size of casing set, the depth at which the casing is set, and the size of production tubing will likely vary by each individual well drilled in the Unit. The FEIS has been modified in the Errata where necessary to reflect changes resulting from your other comments.

Comment 43-8: Alternative A includes development of *up to 28* centralized production facilities within units or non-unitized leases and *up to 2* centralized compression stations in the project area (in addition to the proposed liquids recovery plant). The assumption used in the DEIS analysis is that individual or twin well pads would be designed or enlarged to accommodate centralized production facilities. This has been clarified in the Errata.

Comment 43-9: Alternative A does not include removal of existing production facilities in conjunction with implementation of centralized production facilities. The centralized production facilities would only apply to new wells.

Comment 43-10: Based on documented research, the provision of 1-mile buffers surrounding ferruginous hawk nests under Alternative A should, given an adequate prey base, maintain the viability of these nests.

Comment 43-11: Alternative A, on page 2-36, states that each unit, or individual lease that is not unitized, would have centralized facilities constructed. Further, it clarifies that where bottomhole well density is 20-acre or 40-acre, there would be an average of one central facility per 160 acres. Where the bottomhole well density is over 40 acres spacing, there would be an average of one central facility per 640 acres. Thus, operators would neither be forced to go off-lease and obtain rights-of-ways, nor would multiple operators be required to share central facilities.

Comment 43-12: Under Alternative A, it would be necessary to maintain a list of active "nests" and to identify occupied nests each year. These monitoring activities are the BLM's responsibility, and it is expected that these could be performed during the course of reviewing/permitting the actions, especially while field development is rapid when BLM personnel would frequently be working in the project area. The territory boundaries would not need to be defined.

The BLM does not have a written definition for field development as each situation would be unique. However, field development should be viewed as the number of wells and the production facilities determined by the operator(s) within a field or geographic area that would be necessary

RESPONSE TO COMMENTS

to orderly and efficiently extract hydrocarbons from the producible formation(s). In this case, the plan of development initially offered by the operators for development of the Cave Gulch-Bullfrog-Waltman project area could suffice as the field development. Field development plans and plans of development are subject to change as conditions warrant, provided these changes are covered within the realm of the applicable environmental document.

Comment 43-13: In addition to the information cited at page 4-64, a comparison of Figures 1-2 and 3-11 shows the existing facilities in physical relationship to the selected nests; page 3-65, paragraph 4 describes nest use for the 1996 season; Table 3-18 describes use for each of the 11 nests during the 1995 and 1996 seasons and nest condition. No specific expertise has been received to show that the selected nest buffers, if not further developed, would not be good selections.

Determination of boundaries for the selected nest buffers was done primarily through the use of topographic maps, and was partly based upon field analysis using line of sight. Variation of the height of drilling rigs was not a consideration.

See also the response to 45-9.

Comment 43-14: The text at pages 2-38 and 2-39 does not make a resource area wide requirement for analyses of these kinds of mitigation for field development, but does describe a process. At page 2-39, the text clarifies that such mitigation would be applied only if evaluated and selected in a field development environmental analysis. Rather than establish a requirement, the information is given to define that such mitigation must be appropriate and necessary for a particular development situation.

Analyses of year-round buffers, increased seasonal buffer, and other changes to the usual mitigation could be done in any NEPA analysis to provide reasonable alternatives or mitigation techniques.

The Draft EIS is not a decision document, rather its primary direction is to disclose potential environmental impacts that may result from the proposed action and consider a range of alternatives to reduce the impacts. The buffer zone for the protection of a resource is a valid consideration.

Please also refer to response to Comment 45-1.

Comment 43-15: The Proposed Action does not specify where in the project area the 23 deep test wells would be located, only that those wells would be drilled on 320- to 640-acre spacing. Although the deep test wells are to be drilled on larger downhole spacing areas, the surface well locations will fall within the 20-, 40-, 80- and 160-acre spacing areas in the project area. Similarly, Alternatives A and B do not specify locations for the deep test wells. The number of wells identified under Alternatives A and B includes the deep test wells, with the assumption being that those wells could be within any of the spacing areas identified under those alternatives. The surface disturbance estimated for surface well locations under Alternatives A and B includes that which would be involved for development of the deep test wells.

RESPONSE TO COMMENTS

Comment 43-16: The federal oil and gas lessees in the proposed KRA were identified in the BLM, WRMG's April 1996 report. The DEIS was sent to those lessees.

The socioeconomic impacts of restrictions on oil and gas development in the proposed KRA are disclosed in Chapter 4 (Section 4.11). Since no restriction of grazing use in the proposed KRA is proposed under Alternative B, analysis of socioeconomic impacts on grazing is unnecessary.

Figure 5-2 of the Draft EIS shows the importance of the proposed KRA as having 24 nests in 9.7 square miles (Draft EIS at page 4-67) of the total 170 nests in the GRAA in 273 square miles (Draft EIS pages 5-20 through 5-22). For 1996, the density of occupied nests was also greater for the proposed KRA than for the remainder of the GRAA (Draft EIS pages 5-22 through 5-25).

Please also refer to response to comments 19-2, 24-1, 43-1 and 43-15 for more information.

Comment 43-17: Permits from the USFWS and WGFD would not necessarily be available based upon the analysis and a decision within this EIS. The decisions of those agencies are discretionary, requiring that all possible avoidance and mitigation of impacts be accomplished. Even then, there would be a need to show that the loss of nests could not be avoided.

See also the response to comment 12-1.

Comment 43-18: There is no conflict. Based on the distribution of sensitive soils (Figure 3-3, page 3-17) and steep slopes (Figure 3-4, page 3-18), and the potential well locations shown in Figures 2-1 (page 2-2), 2-12 (page 2-37), and 2-13 (page 2-41), and realizing that linear facilities would need to link up these well sites, it would be unlikely that the project could totally avoid such areas.

There is no conflict. The paragraph labeled "Permeability" on page 3-23 summarizes the available soils information as summarized in Table 3-5. Areas with sandy soils (sandy loam, silty sands, etc.) generally have relatively high infiltration and permeability rates relative to reserve pits as stated in paragraph 2, page 3-36. Soils must have a very slow permeability (10^{-7} cm/sec) for liners to not be required. Therefore, liners would be required as stated in Section 4.4.5, bullet #13 (page 4-41).

There is no conflict. The total project area (25,093 acres) is comprised of either areas with poor or worse reclamation potential (39 percent) and the balance is comprised of areas with better than poor potential (i.e., fair or better, $100-39=61$ percent). Sensitive soils include approximately 65 percent of the project area re-iterates what the DEIS states.

There is no conflict. In most areas, moderate fertilizer application could effectively enhance revegetation success. This would depend on site-specific soil character and the location of project facilities. Please refer to Appendix B, page B-3. Short-term objectives require immediate stabilization of the exposed soil surface through the initiation of new vegetation. Application of fertilizer in certain areas would enhance the effectiveness of attaining this goal. As indicated in the DEIS (Section 4.5.3.1, page 4-44, last paragraph), it takes native vegetation 20 to 30 years to become established in regard to similar species composition and horizontal and vertical structure. In contrast, soil and watershed stabilization may take only as long as five years. However, since such stabilization is of major importance in regard to resource conservation, the application of

RESPONSE TO COMMENTS

fertilizer can increase the probability of attaining the short-term goal of soil and watershed stabilization within five years.

Comment 43-19: The 18 groundwater right permits are within the project area. See Appendix E of the Soils, Water, and Vegetation Resources Technical Report (ECOTONE 1997) for locations of these permits.

Comment 43-20: Table 3-8, page 3-30 summarizes an assessment of all existing soil disturbance as of June 7, 1996, based on aerial photograph interpretation and as updated through October 1, 1996. This is the most accurate and current information on soil disturbance in the project area. Most of the disturbance included in Table 3-8 may be associated with activities not authorized through a ROW process.

Comment 43-21: Page 3-59. Thank you for this correction. The FEIS text has been modified as an errata item to reflect this change.

Page 3-65. Chapter 3 includes the discussion of nesting activity and status within the Cave Gulch-Bullfrog-Waltman project area only; the proposed KRA nests are identified as part of the GRAA.

As discussed in Section 3.7.2.3 the raptor monitoring and nest inventory process was initiated in 1994; therefore, no data were available for 1993. Table 3-18 of the DEIS (page 3-66) includes existing nest data for all nests within the project area for 1994, 1995, and 1996. In addition, detailed data and discussion are provided in the Raptor Technical Report which is referenced in the DEIS.

Generally three nest inspections per season are adequate to determine fledgling success. Causes of nest failures are more difficult to document but can often be determined from the examination of indirect evidence (e.g. coyotes carry eggs off and often bury them, magpies peck holes in eggs at the nest, skunks chew ends off of eggs, humans leave tracks, etc.) at the nest site and through logical deductions.

Comment 43-22: Although motorists traveling County Road 104 don't recreate within the project area, they do vicariously "use" the visual resource they view. Scenic touring is an important use of many BLM landscapes. The BLM Visual Resource Management manual verifies the value of visual resources.

Comment 43-23: Studies are provided in numerous articles which demonstrate hunter concern about the visual quality of the resource (including big game hunters). These articles are available for review at the BLM Casper office.

The visual resource section of the DEIS strongly supports the importance and value of the scenic quality of the yet undisturbed areas in the Cave Gulch-Bullfrog-Waltman analysis area.

Comment 43-24: Please see the first paragraph of the Air Quality section (page 4-7) of the DEIS, line 10, for the reference to the Air Quality Technical Report. The word "alternate" has been deleted from the heading on page 4-9 (see the Errata section).

RESPONSE TO COMMENTS

The Air Quality Technical Report provides a discussion of the emission controls currently in use by the operators. Compressor engines with Best Available Control Technology (BACT) for No_x are currently used by the operators. In addition, for wells that have the potential to emit more than 50 tons of VOCs per year, BACT is applied. Flaring is currently used to control VOC emissions at the Cave Gulch field.

The discussion regarding use of water and/or chemical dust suppressants was not intended to imply that the operators will be exceeding the 20 percent opacity standard all the time. The discussion was intended to imply that through standard operating procedures the operators can achieve 50 percent dust control on days when adverse dust conditions exist. This was the basis for the dispersion modeling of fugitive dust emissions.

Comment 43-25: See Figure 3-3, page 3-17, and Table 3-5, Predominant Soil Texture. The information presented in the table was derived by the USDA-NRCS. Field reconnaissance of the project area verified this information. Sandy soils are prevalent in the western half of the project area. See Section 2.2.2.2, page 2-14, paragraphs 3 and 4 for a description of the Operators' proposed action in regard to liners.

Identification of mitigation measures that may have been included as standard operating procedures (SOP) in the Proposed Action is appropriate. If the analysis predicts that certain mitigation measures, even those considered SOP, would avoid or reduce predicted impacts, this finding is disclosed. Further, the identified mitigation measures usually contain more specific information or more clearly define measures which might have been included as SOP under the Proposed Action.

Mulching is required to reduce soil erosion to acceptable non-significant levels as presented in Section 4.3.3.1, page 4-17, paragraph 2 and 3, as well as to meet short- and long-term reclamation objectives as stated on page B-3. Erosion control objectives cannot be met if disturbed areas are not protected in some manner. The point of this measure is to require that all areas graded for the production phase should be immediately stabilized. It does not require drill pad surfaces that will be used for drilling or expanded for second entry drilling be stabilized. Any disturbances left unprotected increases the chance of significant erosion occurring. The BLM would be required to determine if construction activities when soil materials are wet would be allowed on a case by case basis.

Please also refer to responses 38-1 and 43-18 for more information.

Comment 43-26: The text discussing total water demand and oil based mud has been modified as requested, in the Errata.

There is legitimate opportunity to avoid sensitive soils and further minimize impacts where they cannot be avoided as discussed in Section 4.3. The impact analysis assumes the use of mitigation measures.

Barrett does have approval to dispose of produced water into the lined evaporation pit at the Bullfrog 1-6. This has been clarified in the Errata.

RESPONSE TO COMMENTS

One of the wells included for interim development was identified as being located in a sensitive soils area (the well proposal was subsequently withdrawn as noted in response to comment 43-33). The June 14, 1996 Decision Record for the interim development environmental assessment required that special soil handling techniques be employed in areas identified as containing sensitive soils. The soils information available to the BLM when interim development was being analyzed was not as specific or detailed as the information gathered in preparation of the EIS, and some differences in data presented in the 1996 EA and this 1997 EIS are to be expected.

Please also refer to responses 42-34 and 43-25 for more information.

Comment 43-27: Significance of Impacts to Raptors. See response to comment 45-3.

Page 4-57. The rationale for the application of seasonal restrictions is to prevent nest desertions and/or reproductive failure under the Proposed Action. Under section 4.7.3.1.4 of the DEIS Nest desertions and/or reproductive failure are described as a potential impact that, in the absence of mitigative measures, would occur. (See response to comment 12-1.)

Increased Public Access. Agree with comment.

Prey Reduction. A temporary reduction in prey populations would result from the physical disturbance of 788 acres of existing habitats. A detailed discussion of this moderate impact is set forth under Prey Related Impacts on page 4-61 of the DEIS.

Zone of Influence. As used in the text on page 4-57, the term "zone of influence" refers to the area surrounding a nest within which the pairs nesting behavior is likely to be affected by the occurrence of human activities. For most raptor species and circumstances, the ¼ to ½-mile seasonal buffer zone would be the zone of influence. In some species and under some circumstances the zone of influence may exceed the ¼ to ½-mile seasonal buffer zone.

The relative merits of compressing the construction phase are being considered and the outcome of the analysis will be described in the ROD.

Violation of MBTA. The U.S. Fish and Wildlife Service is the federal agency which has responsibility for law enforcement relative to the MBTA and the Bald Eagle Protection Act. BLM's responsibility under these laws is to coordinate with the USFWS, which is being done through this EIS process. Specifically, the placement of gas development facilities within close proximity to nests is being addressed as part of the raptor management plan. The USFWS is coordinating with the BLM in preparation of the raptor management plan.

Availability of Unused Territories and Nests. The total number of breeding pairs in a region is generally self regulating and will contain the maximum number of pairs that the prey base and suitable available nesting sites will support. To a large extent, the availability of prey determines the number of breeding pairs a region can support and how large each territory must be to include enough area to provide the required food items to feed young. In low prey years the territories are large and the number of chicks per nest is low. In high prey base years the territories are smaller and the number of chicks per nest is higher. With higher prey base pairs defend smaller territories to obtain a given level of food, and thus free up nest sites for additional territories. During years of low prey base when defended territories are large, many if not most of the nest sites within such

RESPONSE TO COMMENTS

territories go unused. The reason that many nests were vacant in adjacent areas of the GRAA during 1996 is probably because of the low density of prey base which has temporarily reduced the carrying capacity of the entire region.

A second factor limiting the number of pairs and territories that a given area can support is the availability of suitable nesting sites (Kennedy 1980). A shortage of suitable nesting sites often occurs in areas with little topographic relief and no trees. Nests, if they occur at all in such areas, are generally not successful because of their vulnerability to ground predators such as gopher snakes, skunks, and coyotes.

If pairs that are displaced from the EIS project area seek nesting opportunities elsewhere in the adjacent GRAA, they will probably displace existing pairs from their territories because the habitat there is likely to already be supporting the maximum number of pairs possible for the existing prey base and nest site availability. Forcing more pairs into an area without increasing the prey base or providing additional suitable nesting sites for them to use will only result in competition for the limited number of available territories and nest sites and will result in the displacement of the weakest pairs. This constitutes a loss of a breeding pair from the region. (See response to comment 45-3.)

Therefore, such displacement of birds into adjacent habitats will result in impacts unless such adjacent habitats are improved and the effects of limiting factors are reduced to the point where carrying capacity is increased to accommodate more pairs. Where suitable nesting sites are limiting on an area and prey base is adequate it is possible to improve the raptor habitat and increase the number of pairs by erecting nesting structures. To this end, mitigation has been proposed that involves the placement of ANSs in portions of the GRAA in order to increase the areas over which nesting opportunities exist.

ANSs will be placed in areas of the GRAA where: (1) there are currently no nests, such as areas where there is little or no topographic relief and therefore no nests, and (2) existing nests are on low prominances or on the ground where they are vulnerable to heavy losses by ground predators. By providing nesting opportunities in areas where such opportunities did not previously exist or were marginal, the production potential for any given level of prey base will be increased.

Territories v. Nests. As described in the paragraphs above, raptors need both adequate territory for the provision of prey and suitable nest sites within these territories for rearing young successfully. Therefore, the two must be considered together and not as separate entities. The text on page 4-60 of the DEIS has been modified to better reflect the importance of dealing with the impacts resulting from the displacement of pairs and the role suitable nest sites and territories play in the overall analysis.

ANSs. A plan for executing the ANS mitigation is being developed and will be addressed in the ROD.

Comment 43-28: Under the Endangered Species Act and BLM policy (BLM Manual 6840), the BLM is obligated to determine if individuals are present and if the proposed actions "may affect" swift foxes. Consultation and mitigation are provided for under the law and policy. This would

RESPONSE TO COMMENTS

further the efforts to preclude the official listing of swift fox as a threatened or endangered species. It is not legal to intentionally trap swift fox (Wyoming's Nongame Regulations).

Corrections have been made through the Errata to the Draft EIS at page 2-36 and at page 4-64 to be consistent with Figure 2-12 and to reflect what was analyzed in the Draft EIS. Raptor mitigation and monitoring will be addressed in the ROD.

Comment 43-29: It is unfortunate that there is no hard data on the number of recreationists that use the project area and adjacent lands for dispersed activities such as hunting, hiking, wildlife observation, rock hounding, and other activities described in Chapter 3 of the DEIS. The lack of specific user data where dispersed recreation occurs on BLM administered lands is not uncommon. The lack of data does not mean that recreation does not occur on these areas, nor does it mean that these areas are not important to those who use them.

Information provided in the DEIS regarding recreation use in the project area was taken from conversations with BLM recreation staff personnel and personal communications with individuals familiar with recreation uses in the project area. Displacing recreationists that traditionally use the area would constitute a significant impact even though there is no hard data to document recreation uses in the project area. BLM must consider these known, but un-documented uses and cannot dismiss those.

Comment 43-30: If the analysis predicts that certain mitigation measures, even those considered standard operating procedures, would avoid or reduce predicted impacts, this finding is disclosed. Please also refer to response 43-25.

As stated in Section 4.8.5 Mitigation Summary, a redesign of the existing interpretative exhibit would provide the public traveling the South Bighorn/Redwall National Backcountry Byway an explanation of the importance of developing oil and gas resources on BLM land in Wyoming. Although the actual amount of use the scenic by way route is receiving is unknown, the interpretative sign would at least explain the development activity to those that are using the byway. It is also important to orient tourists to the types of recreation and natural resources they will experience as they travel north into the South Bighorn country. Locating a new interpretative sign to the north outside of the project area in a setting that reflects the upcoming experience would be an appropriate introduction to the South Bighorn/Redwall area.

Comment 43-31: The mitigation measures proposed in Section 4.12.8 were included because they were not specified as project-wide mitigation measures in Section 2.2.2.12.

Comment 43-32: The analysis predicts that impacts from noise would result, and identifies the mitigation measures that would avoid or reduce those impacts. Mitigation measures that would avoid or reduce predicted adverse impacts are disclosed even when the impacts are not predicted to be "significant."

Comment 43-33: The Bureau of Land Management uses a number of methods to identify the members of the public who wish to remain on our mailing list. Sending response cards is an effective method and was used in developing a mailing list for the Final EIS. The requests for information on this project were never static because of numerous non-federal paid advertisements encouraging public involvement, news articles, government press releases and attendance at

RESPONSE TO COMMENTS

public meetings. In fact, requests for copies have continued. The BLM paid for the additional copies.

The Bureau of Land Management between January and July 1996, while working on the Draft EIS, completed Environmental Assessment No. WY-062-96-042, *Development of Federal Oil and Gas Leases in the Cave Gulch-Bullfrog-Waltman Area During Preparation of the Cave Gulch-Bullfrog-Waltman Natural Gas Development Project Environmental Impact Statement (EIS)*. The Record of Decision that accompanied this EA allowed for interim development. This is a listing of the federal wells and facilities that were developed during the 1996 field season.

Interim Development Wells and Facilities Developed During the 1996 Field Season

<u>Operator</u>	<u>Well Name & Number</u>
Barrett Resources	S. Cave Gulch B-1 S. Cave Gulch B-5 Cave Gulch 16 (Deep)
Chevron USA	Waltman 17 Waltman 38 Waltman 20 Waltman 43* Bullfrog 2-7 State 44/45 pipelines
Marathon Oil	Waltman 21-19
Prima Oil & Gas	POG Cave Gulch 32-12
CIG	Pipeline, meter station and staging area
KN	Pipelines and meter station

* Chevron's correlative rights issues relative to oil and gas lease number WYW042929 required a field assessment and a new Record of Decision. It was resolved on August 30, 1996. This resulted in the withdrawal of Chevron's Ralston Flats 1 well and the substitution of the Waltman 43 well as an interim development well.

Not Developed During the 1996 Field Season

<u>Operator</u>	<u>Well Name & Number</u>
Barrett Resources	Cave Gulch 17*
Barrett Resources	Bullfrog 1-6
Marathon Oil	Waltman 9-5
Prima Oil & Gas	POG Cave Gulch 32-13

*Barrett Resources did not file an Application for Permit to Drill (APD) for the Cave Gulch 17. Approvals have been granted on the remainder of these wells, but the operators have not drilled them.

Also during this time, BLM prepared EA No. WY-062-96-047 *Development of Federal Oil and Gas Leases in the Cooper Reservoir Unit during Preparation of the Cooper Reservoir Field Development Project*. The Decision Record signed in July allowed four federal mineral wells and

RESPONSE TO COMMENTS

associated facilities, including pipelines to connect to transportation pipeline systems to be developed.

CHAPMAN TRUCKING

Comment 44-1: See response to comments 6-1 and 12-1.

CHEVRON USA PRODUCTION, INC.

Comment 45-1: Analyses of year-round buffers, increased seasonal buffer, and other possible changes in the standard mitigation could be done in any NEPA analysis for which they provide reasonable alternatives. Such analyses of new proposed mitigation measures do not necessarily need to be evaluated within this Cave Gulch-Bullfrog-Waltman EIS process.

Refer also to response to comments 43-1, 43-14 and 43-33.

Comment 45-2: You have correctly stated the CEQ regulations. The CEQ also does not prohibit identifying mitigation measures when considering an array of alternatives or in the proposed action. The NEPA handbook states, "Mitigation measures, if any, should be identified. Mitigation measures are actions developed in response to impacts identified in the analysis which could be taken to avoid or reduce projected impacts."

Comment 45-3: As described at the bottom of page 4-67, displacement of raptors could, in the absence of providing alternative nest sites for them to use, produce significant impacts at the population level. For example: The loss to the GRAA if 6 pairs of displaced ferruginous hawks are unable to nest would be approximately 540 birds over the course of 30 years (assuming an average of 3 young fledged per year per pair). This cumulative loss of new birds to the population has to be considered a significant impact at the population level. Data collected in 1996 indicate that the displacement of ferruginous hawks may have already begun in that this species appears to have been replaced in areas of heavy construction activities by more tolerant red-tailed hawks during the 1996 nesting season. (See Raptor Technical Report.)

Comment 45-4: Please refer to responses to comments 43-13 and 45-9.

Comment 45-5: Thank you for your comment. If an amendment is required as part of the Record of Decision, the BLM will follow the proper process.

Please refer to response to comment 43-14.

Comment 45-6: It has been determined that leases issued without stipulations, particularly a no surface occupancy stipulation, could still be accessed even though an environmental document has been completed which precludes surface occupancy. A taking would result should the entire lease become subject to no surface occupancy. In most cases, however, the entire lease would not require no surface occupancy and portions would be available for development. This would fulfill the basic requirements because access is not necessarily guaranteed for the entire lease.

In the situation described by Chevron, substantial reserves could not be developed even with the use of directional drilling. Whether a regulatory "taking" would occur under the Fifth Amendment

RESPONSE TO COMMENTS

to the Constitution is a problematic legal question involving, among other things, reasonable investment-backed expectations in the context of a pervasively regulated industry like oil and gas operations on public lands. While findings of regulatory takings are rare, such complex legal questions are best resolved in forums established by Congress for that purpose. It is nevertheless the BLM's policy to structure its decisions in a way which will avoid any "taking" problems. That policy will be reflected in the ROD for this EIS.

Comment 45-7: A range of alternatives and mitigation strategies are being analyzed, both within the project area and away from it. A broad scale raptor mitigation plan is being developed and will be described in the ROD.

Comment 45-8: The year-round buffers would remain designated for the time that development takes place under this EIS, but are subject to review. The raptor management plan, which will be included in the ROD, will have conditions for re-evaluating the buffers.

New year-round buffer zones would not be delineated for new nests which might become established. If additional development beyond the scope of this EIS is proposed, such that a new analysis was needed, then new mitigation would be considered.

Comment 45-9: Consideration of existing facilities included the following:

The Nest 2 buffer has a facility for the CGU #1/#15 wells and a facility for the CGU #8/#13 wells, but these facilities are located at the edge of the buffer, are on the other side of the ridge from the nest, and are out-of-sight of it.

The Nests 3/4 buffer has the facility commented upon for the Waltman #3 well. The well is shut in. A consolidated facility for the Waltman Unit #20/#37/37A/42 wells is located at the edge of this buffer zone, is out-of-sight of the nests, and is nearly 1/4 mile from the nests.

The Nest 5 buffer has no existing facilities.

The Nests 12/15/25/26 buffer has no existing facilities.

The Nest 20 buffer has a facility for the Waltman #1 well, which is close (a few hundred feet) to the nest. However, the facility is on the other side of the ridge from the nest, and is out-of-sight of it. Golden eagles tended nest 20 in 1995, and laid an egg in the nest in 1996.

The Nest 33 buffer has a facility for the Waltman Unit #4 well and a facility for the Waltman Unit #14 well. The facilities are at the perimeter of the buffer zone. Several nests within the buffer zone are within a draw, and most of the nests are out-of-sight of the facilities. Ferruginous hawks were documented during the nesting season in the area of these nests in 1995, and incubated eggs in one of the nests in 1996.

The Nest 72 buffer has no existing facilities.

Comment 45-10: Not all biologists feel that a 1-mile buffer is necessary to adequately protect ferruginous hawk nests and there is considerable difference of opinion as to what size radius is

RESPONSE TO COMMENTS

required. The rationale for the use of the 1-mile buffer in this EIS was to provide in one of the alternatives (A) what everyone would agree is a large enough buffer to insulate this species and to analyze the costs and benefits associated with such an action. These costs and benefits will then be compared to those of the Proposed Action and the other alternatives to provide perspectives necessary for the BLM to render informed decisions for the ROD.

Just as in this written comment, many commentors during the public meetings for scoping and for review of the Draft EIS have shared information about raptors nesting at active well sites. However, no documentation has been provided.

We have documented 4 oil/gas well sites in or near the GRAA with raptor nesting situations at the well site. This documentation supports the literature in showing raptor nesting at inactive well sites, but not at active well sites.

In the project area, a ferruginous hawk nest (#3) is located within a couple hundred yards of the Waltman #3 well site. The well has been inactive (shut-in gas well) since September 1994, the period of time that nest visits have been documented by the contract biologists. We have no documentation of raptor use before 1994, although the size and condition of the nest makes it reasonable to deduct that it was used at least in terms of adding nesting materials. The most critical need for information would be knowledge of the raptors' producing young at the nest.

Just north of the project area, in the GRAA, a ferruginous hawk nest has been on a storage tank on the Tepee Flats #16-1 well. The well is documented to have been inactive (shut-in gas well) from August 1988 until December 1996, during which time it was reported by industry to have produced young for several years.

The Warren Enterprises 1-33 well site is in the GRAA, and has never been a producer. Golden eagles raised young to fledgling stage in 1996 on a tank at this inactive well site.

The Wild Horse Butte #28-1 well site has been inactive (shut-in gas well) since April 1994. A good condition nest, which was found on the catwalk in late July of 1996, was determined to have been recently used.

The socioeconomic effects of expanded buffer zones subject to seasonal restrictions have been clarified in the FEIS errata.

See also responses to Comments 42-18 and 43-10.

Comment 45-11: With comprehensive planning for centralized production facilities in conjunction with development of wells within units and non-unitized leases, the cost of consolidated facilities for separation, treatment, storage and gathering on a unit or lease should be similar to the cost of providing such facilities for each well on a unit or lease.

There are opportunities for reduced costs through use of shared compressors, tanks and pipelines being co-located on individual or twin well pads where all-weather access is available. There are also possibilities for increased costs in operation of pipelines needing compression or line heaters, depending upon where production is being taken for treatment or transportation.

RESPONSE TO COMMENTS

In order to conduct a meaningful economic analysis of the costs and benefits of centralized production facilities within the units and non-unitized leases, some specific information on short- and long-term unit and lease development is required. Without this information, further analysis of the costs or benefits of centralized production facilities within the area would be extremely difficult; and, without the analysis, it is unknown whether any additional costs might be incurred that would result in the less productive parts of the field being by-passed. However, the use of centralized production facilities has proven successful and cost effective in other fields and units in Wyoming.

Comment 45-12: In the project area, casual use (surveying of a well site) near a raptor nest resulted in the loss of 2 eggs during the 1996 nesting season. This occurred during a year of a low rate of well site development. It is reasonable to analyze, for years when a high rate of development would occur, a technique which would mitigate this kind of impact.

Chevron and Barrett agreed to the unusual maintenance restriction during the field development EA (FDEA) phases (20 wells in Barrett's February 1995 Draft EA and 27 wells in Chevron's August 1995 Draft EA) in May 1995. The use of this restriction is at least as valid for analysis in the EIS wherein three times as many wells are proposed.

Please refer to Response to Comment 19-1.

Comment 45-13: Please refer to Response to Comments 43-14 and 45-12.

Comment 45-14: Please refer to responses to Comments 19-2 and 45-15.

Comment 45-15: "Compensation" at page 4-68 was used as a biological term rather than as a legal term. That is, most of the biological benefit would be from increasing the raptor production from different pairs than those of the project area.

The establishment of the proposed KRA would not be "compensation" under the terminology of Instruction Memorandum because the lessees and operators would not be asked to do anything or fund anything. All existing rights would be maintained.

Comment 45-16: Unlike mining claim locations, it is at the BLM's discretion whether to authorize most land uses such as rights-of-way or salable minerals. These land uses would not be prohibited in the proposed KRA, but would be managed. Other activities, such as recreation, usually do not require formal authorization and would only be restricted if there were documented disturbances to raptors from such activities (Chapter 2, Section 2.4).

The federal grazing lessees in the proposed KRA are the same as those in the project area. The grazing lessees were notified during scoping, and the DEIS was sent to those lessees. The proposed KRA federal grazing permittees are also the owners of private surface in the proposed KRA.

Please also refer to responses 24-1, 43-1 and 43-16 for more information.

RESPONSE TO COMMENTS

Comment 45-17: Please refer to the response to comment 21-1.

Comment 45-18: In March 1996, the BLM conducted an analysis of four years of federal oil and gas lease sales (February 1992 through February 1996) (referenced in 04/96 WRMG report). Average dollar-per-acre bids for leases offered before October 1994 (Barrett's discovery well) were \$2.04/acre. Dollar-per-acre bids from October 1994 through February 1996 averaged \$19.20/acre. This increase in lease bids represents the typical lease bid activity that follows a major oil or gas discovery, and cannot be directly related to determining the oil and gas potential. However, the lease sale information was a factor considered by BLM in the April 1996 report determining the proposed KRA mineral potential.

Please refer to responses to comments 12-1 and 32-2.

Comment 45-19: The equitability of seasonal restrictions under Alternative B is being considered and will be resolved in the ROD.

Please refer to response to comments 6-1, 12-1, 31-6, 43-17, and 45-12.

Comment 45-20: Please refer to response to comment 43-17.

Comment 45-21: Please refer to response 43-15 for more information.

Comment 45-22: Most of the anticipated well locations shown in the Proposed Action, Alternative A, and Alternative B are identical. The 20 acre development scenario for sections 30, 31, and 32, T37N, R86W is identical. The difference between the Proposed Action and the Alternatives is the number of wells to be drilled at the limits of the field. The Alternatives are based on the assumption that the field will be fully developed to the maximum optimum level (all available well sites will be drilled).

The BLM does have the authority to set spacing. The regulations at 43 CFR 3162.3-1 Drilling applications and plans, state "An acceptable well-spacing program may be either: (1) one which conforms with a spacing order or field rule issued by a State Commission or Board and accepted by the authorized officer, or (2) one which is located on a lease committed to a communitized or unitized tract at a location approved by the authorized officer, or (3) any other program established by the authorized officer."

Comment 45-23: This has been corrected in the Errata.

Comment 45-24: Regardless of whether the EIS is called "site specific" or "conceptual", there is sufficient specificity and flexibility in the DEIS to address the reasonably foreseeable development that might be necessary to fully recover the estimated gas reserves in the project area. Only well locations were projected by the BLM for analysis, with assumptions made on the anticipated length/width of future roads and pipelines. These projections and assumptions are as specific as possible to allow comprehensive analysis, while still providing the flexibility needed for future development. Therefore, your recommendation has not been adopted.

Please refer to responses 42-41, 43-3 and 45-22 for more information.

RESPONSE TO COMMENTS

Comment 45-25: The FEIS text has been modified as an errata item for clarification.

Comment 45-26: As stated in Chapter 3, Section 3.8 Recreation, data on recreation visitations to the project area are not available, and overall recreation use levels in the project area are generally low. However, the reason the project area is stated as being a very important use for scenic touring is that the south entry onto the South Bighorn/Redwall National Backcountry Byway passes through the middle of the project area. This does not imply that the project area has qualities that provide for scenic touring; merely that the road that accesses areas of high scenic qualities passes through the project area.

As discussed in Section 4.0 Introduction, Impact Significance Criteria are described as the threshold or magnitude at which an impact would be considered significant, thus warranting special attention such as special mitigation. These criteria are based on government regulatory standards, available scientific documentation, previously prepared environmental documents, and the professional judgement of resource specialists. In the case of impacts to the recreation resource, significance criteria were based on previously prepared environmental documents and the professional judgement of resource specialists. It is recognized and documented in the analysis that the project area is not pristine, that in fact considerable land disturbing activity has already occurred within the project area.

Comment 45-27: The BLM requested a site specific delineation of visual resources on the project area. This delineation identified areas with Class A and Class B scenic quality, some in highly sensitive locations as described in Chapter 3. Using BLM criteria, these would be Class 2 and Class 3 areas. Impacts in these areas would exceed the level of contrast outlined in the BLM VRM for Class 2 and 3 areas. As a result, the impact would be significant.

As described in Chapter 4, the significant impacts apply only to the sites with high scenic quality and not to the entire project area, parts of which are not pristine as described in Chapter 3.

Comment 45-28: Please refer to response 43-25.

Comment 45-29: This measure is routinely applied by many federal agencies in Wyoming (i.e., FS). It is well known that the primary vector for introducing weeds into an otherwise weed-free area are vehicles and heavy equipment. This is particularly true of those that have been in mud that allow such seed to stick and be transported over long distances. Eliminating this measure would seriously impede effective weed control through pro-active preventative actions.

Comment 45-30: The RMP raptor stipulation is provided in the Addenda. The proposed mitigation by the operators is at page 2-34, 3rd bullet. Both sources refer to "active" nests. The RMP raptor stipulation defines "active" as used at least once in last 3 years. The text at page 4-59 has been changed to reflect this. The analysis within the Draft EIS does not change.

RESPONSE TO COMMENTS

YATES PETROLEUM CORPORATION

Comment 46-1: Impacts to displaced raptors include overcrowding and increased competition among the raptors with a resultant decrease in populations as described at page 4-67 and loss of production (of young) as described at page 5-27.

Please refer to responses to comments 12-1, 19-1, 25-1, 30-1, and 42-2.

Comment 46-2: The BLM is responsible for preparing the EIS. Operators, when they want to expedite the process, may elect to pay for a third party contractor to work with the BLM.

Comment 46-3: Please refer to responses to comments 20-1, 43-29, and 45-26.

Comment 46-4: Please refer to response 45-25.

Comment 46-5: Thank you for your comment. See response to comment 24-1.

Comment 46-6: Please refer to response 40-2.

Comment 46-7: Please refer to responses to comments 24-1 and 43-16.

Comment 46-8: Section 1.1.1 defines the oil and gas lease development activities for which the BLM has permitting responsibility. As stated in section 1.4, "The BLM's decision will relate primarily to public lands administered by the BLM." Therefore, it is not appropriate to incorporate your suggestion.

Comment 46-9: BLM's standard seasonal buffer zone distances are determined on a site specific basis by the AO and do take into consideration the buffering effect of natural barriers. In cases where topography and/or vegetation provide barriers to the line of sight, the buffer zone can usually be reduced to ¼ mile. Where no natural buffers obstruct the line of sight, the seasonal buffer zone usually extends to ½ mile. As stated on page 2-34, the buffer limits apply only to active raptor nests.

Please also refer to response to comment 12-1.

Comment 46-10: See response to Comments 43-8, 43-11, and 45-11.

Comment 46-11: The proposed year-round buffer zones contain 1,961 acres. Alternative A analyzes whether the minerals could be developed under these buffer zones of no surface occupancy. The possible effects of these proposed buffer zones upon lease rights is evaluated through this EIS alternative.

Comment 46-12: As described at page 2-38, casual use and unusual maintenance restrictions would be applied only in the nesting areas of active pairs of raptors, and only for as long as the pair is actually nesting. As to maintenance activity, only unusual maintenance would be restricted, and this would occur only during a 60-day period of incubation and brooding. Human activity would take place outside the selected nest buffers. A raptor management plan is being developed, and will be addressed in the ROD.

RESPONSE TO COMMENTS

Comment 46-13: Please refer to response to Comment 45-6.

Comment 46-14: Please refer to response to comment 46-12.

Comment 46-15: The federal oil and gas lessees in the proposed KRA were identified in the BLM, WRMG's April 1996 report. The DEIS was sent to those lessees.

The existing oil and gas leases would remain available for exploration and development subject to standard lease stipulations and the land use decisions specified in the RMP with provisions for further analysis should field development be proposed. Designation of the proposed KRA would not affect existing lease rights. If a decision is made within the ROD to seek a withdrawal, the prescribed procedures would be followed.

A withdrawal of the federal mineral estate in the proposed KRA would not violate section 1714(c)(1) of the Federal Land Policy and Management Act of 1976, as amended. The act specifies that withdrawals of 5,000 acres or more may not exceed a period of 20 years. The act also requires that proposed withdrawals of 5,000 acres or more be submitted for Congressional approval before the withdrawal is effected.

Please also refer to responses 12-1, 24-1, 32-2, and 39-2 for more information.

Comment 46-16: Please refer to responses to comments 25-1, 39-2, and 42-17.

Comment 46-17: Please refer to response 40-2.

Comment 46-18: This section does not deal with mitigation measures for paleontological resources, but only with the affected environment. However, mitigation is defined in 40 CFR 1508.20(a) to include avoidance.

See response to Comment 42-38.

Comment 46-19: The analysis was done in consultation and coordination with the Wyoming Department of Environmental Quality, Division of Air Quality.

Comment 46-20: Please refer to response to Comment 38-3.

Comment 46-21: The materials presented in Chapter 3, starting on page 3-52, of the DEIS describe the affected environment, in terms of the nature of the wildlife resources that are out there. No attempt to analyze impacts is made in this chapter because this is the purpose of Chapter 4. In Chapter 4 the recognition that wildlife can acclimate to human presence was a consideration throughout the analysis and was factored into the final assessment of impacts. For example, ferruginous hawks are less tolerant of human activities and less likely to accept them than are other raptor species such as the red-tailed hawk. Mule deer and pronghorn are likely to adjust to human presence and thereby create potential problems from colliding with vehicles and/or poaching.

RESPONSE TO COMMENTS

Comment 46-22: Protecting only occupied nests for the nesting season prevents the disturbance of birds, which prevents the impacts described at pages 4-57 to 4-60, and which prevents violation of the laws.

Failing to protect nesting habitat (the territory includes non-occupied nests) on a long term basis results in the impacts described at pages 4-67 to 4-68.

See also Response to Comment 12-1, 46-9, and 46-21.

Comment 46-23: Copies of the literature cited in the DEIS which are not generally available in public library systems have been filed at the District Office of the BLM and are available for viewing by the general public. Care was taken in the preparation of the DEIS to adhere to the NEPA process, avoid biases, and to present available factual data and other information pertinent to the analysis of impacts.

Comment 46-24: Surveys of existing data have already identified known fossil localities that should be avoided; field surveys located additional areas where fossils occur on the surface but do not appear to be of scientific significance. For this reason, monitoring during construction was not recommended, but significant fossils may nonetheless be found even where their occurrence cannot be predicted from the known data. If found, such fossils may be avoided, or collected by the operator if this will not cause damage to the specimens. If specimens cannot be collected without assistance from a qualified paleontologist, the operator will bear the costs of collection within the area of surface disturbance (BLM Instruction Memorandum 96-67, p. 4).

Comment 46-25: The BLM agrees that safety should not be sacrificed to limit ground disturbance. Text has been modified in the Errata.

Comments 46-26: Section 6 of the oil & gas lease terms states, "...Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor." Further, the lessee/oil & gas operator have an obligation under Onshore Order No. 1 "...to see that their operations... are conducted in a manner which (1) conforms with applicable Federal laws and regulations...(5) affords adequate safeguards for the environment..." Conducting surveys, when necessary, ensures that this obligation is met and that Federal and State laws and regulations are not violated.

The BLM requires surveys for important resources in areas where the potential for that resource is known or is likely to occur. Additionally, the BLM uses a tiered approach for NEPA compliance, and may be required to conduct site-specific surveys once exact locations of project components are determined.

The BLM is responsible to provide support in these areas, but if timely processing cannot occur by the BLM to meet the applicants schedules, then the applicant has the option to contract the survey or clearance work. Compensation for this work by the operators is voluntary.

Comment 46-27: Refer to response 46-26.

RESPONSE TO COMMENTS

Comment 46-28: Site avoidance is generally the most efficient and cost effective mitigative measure for cultural resources and will continue to be the primary measure in Cave Gulch. Site burial is an option which is used on occasion where the situation warrants it. It has drawbacks as well as benefits (such as soil compression and potential for disturbance during restoration), which is why the technique is not utilized to a larger extent. Covering sites for physical protection will always be considered where it is an appropriate option.

Regarding mitigation costs, it is the BLM's responsibility to ensure that the requirements of Sec. 106 of the National Historic Preservation Act are met. It is the project proponent's responsibility to underwrite the cost of mitigative measures under the conditions of approval on any APD, just as it is for other resource concerns (erosion control, for example).

Comment 46-29: The Operators proposed directional drilling, and provided information on directional drilling in the project area (Appendix C). The DEIS does not include directional drilling as a mitigation measure, although it is proposed under Alternative A as a means of recovering some of the gas reserves within the year round buffer zones for raptor nests. Therefore, the recommendation is not incorporated in the FEIS.

Comment 46-30: Whether a "small" or "large" operator proposes development of federal oil and gas leases, the BLM must include as part of the analysis the identification of mitigation measures intended to avoid or reduce predicted impacts. In general, and considering the lease bonding requirements, the assumption is that operators have the technical and financial capability to develop projects they propose. The economic feasibility of mitigation measures are considered, but it would be inappropriate for the BLM to provide relief from mitigation measures for some operators based solely upon the "size" of the operator. Therefore, your recommendation has not been adopted.

PETROLEUM ASSOCIATION OF WYOMING

Comment 47-1: Thank you for your comment. See comment 43-33.

Comment 47-2: The "Cave Gulch-Bullfrog-Waltman Operators," referred to as "the Operators" includes the lease operators who are parties to the Memorandum of Agreement (MOA) for preparation of the EIS, as well as "other oil and gas companies" (DEIS section 1.1.1). The use of the term "Operators" and the fact that only certain operators and companies are parties to the MOA, would not exclude other current or future operators or interest holders from developing leases within the project area.

Please refer to response 46-6 for more information.

Comment 47-3: Please refer to response 45-25.

Comment 47-4: Thank you for your comment. The recommendation to relocate certain "Issues and Concerns" to the "Opportunities" section of Chapter 1 has not been implemented. The beneficial and/or adverse impacts of the issues listed by the Commentor are identified through the analysis documented in Chapters 4 and 5, therefore revision at this point would have negligible value and your recommendation has not been incorporated.

RESPONSE TO COMMENTS

Comment 47-5: Please refer to response 43-15.

Comment 47-6: The area within the project area classified as Scenic Quality A and B is shown on Figure 3-12 (page 3-71 of the DEIS). The numbers provided in Chapter 3, page 3-70 have been further refined and clarified in the Errata.

Comment 47-7: The information presented in Sections 3.11.1 through 3.11.3 of the DEIS provides a fairly comprehensive yet not overly encyclopedic description of the economy of Natrona County. Information on employment and earnings by economic sector is provided in addition to a description of important recent economic trends in Natrona County. A brief discussion of the economic base of Natrona County is provided in Sections 3.11.3.1 through 3.11.3.3. A wide variety of economic data was utilized in the socioeconomic assessment of the Proposed Action and alternatives. The socioeconomic information presented in the DEIS is considered the most important information for the assessment of the potential positive and negative effects of the Proposed Action and alternatives. Inclusion of other economic data and comparisons of the local, regional and national trends would provide interesting information but would not alter the conclusions of the analysis.

Comment 47-8: For the purposes of this EIS, the term "best management practices" refers to the construction and reclamation methods and practices identified for protection of soils, water and vegetation resources. The best management practices are summarized in Chapter 4 and Appendix B of the DEIS, and in the Soils, Water, and Vegetation Resources Technical Report, referenced on page 4-17 of the DEIS. Definition has been added to the Glossary in the Errata.

Your recommendation that the BLM adopt the Wyoming Nonpoint Source Task Force policy is beyond the scope of this EIS, and is therefore not incorporated in the FEIS.

Comment 47-9: Regarding the request for a permanent waiver of the seasonal restriction, refer to response to comment 12-1. Regarding the recommendation for restricting placement of ANSs within the 40-mile project area, there are not a sufficient number of sites for ANSs, as described at pages 4-60 and 4-61 of the DEIS. Please also refer to responses to comments 43-27 (Availability of Unused Territories and Nests) and 55-7. The BLM is locating potential sites for ANSs, and some of the lessees/operators are voluntarily identifying proposed sites.

Please also refer to responses to comments 25-1, 30-1, and 45-3.

Comment 47-10: Please refer to the responses to comments 12-1, 19-2, 25-1, 32-2, 39-2 and 45-15.

Comment 47-11: The section number has been corrected as an errata item.

Comment 47-12: There are no "hard" data on the number of recreationists that use the project area or adjacent lands for dispersed recreation. The lack of hard data on dispersed recreation on BLM administered lands is not uncommon. However, the lack of data does not mean that recreation does not occur on these areas.

The user estimates presented in Chapter 3 of the DEIS were provided by BLM staff personnel and through discussions with Casper area sporting goods store merchants knowledgeable of the project

RESPONSE TO COMMENTS

area and vicinity. The BLM cannot dismiss impacts to recreation because there are no "hard" data. Displacing hunters and other dispersed recreation participants that traditionally use the project area would constitute a significant impact.

Comment 47-13: The interpretive exhibits are identified as possible mitigation measures to address the predicted significant impacts to recreational resources. Additional mitigation measures which might directly avoid or reduce the impacts associated with the Proposed Action or alternatives have not been identified through the scoping or EIS public review processes. The decision regarding recommended mitigation will be documented in a Record of Decision (ROD), and the ROD will specify the administrative requirements, including necessary funding for implementation should mitigation measures be selected.

Please refer to responses 38-1, 38-3, 42-1, 42-35, 42-36, 42-39, 52-2, and 52-7 for more information.

Comment 47-14: Please refer to response 11-1.

ROBIN REINTS

Comment 48-1: Thank you for your comment. See comment 24-1.

F. EARLINE HITTEL

Comment 49-1: The Final EIS is not a decision document, therefore your recommendation has not been incorporated.

Please refer to responses to Comments 38-1, 43-1, 43-16, 45-16, and 51-18.

Comment 49-2: Analysis of an alternative to extend the development beyond the 10-year projection was not considered necessary or appropriate. Development and production of the natural gas resource are driven by the market and public demand for the resource. The pace of development and production is regulated by use in the United States.

Please refer to response 46-6 for more information.

NATRONA COUNTY COMMISSIONERS

Comment 50-1: Please refer to response 11-1.

Comment 50-2: The Proposed Action provides the maximum development scenario in terms of timing and scheduling of development, as well as in the number of wells. As such, maximum development scoping concerns are addressed. Other scoping concerns from the public, and those identified as BLM management concerns, reflect the range of alternatives analyzed in the DEIS. See the Errata for Section 4.11.7 of the DEIS.

Comment 50-3: Please refer to response to comment 50-2.

RESPONSE TO COMMENTS

Comment 50-4: The BLM National Environmental Policy Act Handbook (H-1790-1) provides guidance for the preparation of environmental analyses. The focus on adverse impacts is related to two key questions: (1) Is an EA sufficient or will an EIS be required? and (2) Can a FONSI be issued or is additional mitigation required for any of the significant adverse impacts? The intent of the analysis is to identify adverse impacts as well as positive impacts as was done throughout Section 4.11. The significance criteria are intended to identify impacts which may require mitigation.

Comment 50-5: A detailed cash-flow analysis was not performed because it would have required the proponents to provide detailed seasonal production estimates for each alternative. 1996 dollars were used in this analysis (current dollars are typically used) to provide an estimate of the total value of potential tax revenues from the project. The time value of money is important to those receiving tax revenues from the project, but in order to conduct such an analysis, one would have to make estimates of monthly production from each of the operators for the Proposed Action and each of the Alternatives. Given the uncertainty of natural gas development, production and prices, this type of data is not available. It would not have altered the conclusions of the analysis.

The estimated tax revenues for Alternative B are provided in Section 4.11.5. The tax revenue estimates are based on information from the BLM WRMG that the proposed KRA has very low potential for natural gas development (WRMG 4/96). Also, see response to comment to 6-1.

Comment 50-6: Although the size of the ferruginous hawk population can be debated, it is a moot issue relative to the requirement under the law and BLM regulations that raptors be protected. Please refer to responses to comments 12-1 and 30-1.

Comment 50-7: Thank you for your comment. Please refer to the responses to comments 12-1, 19-1, 19-2, 25-1, 29-1, 30-1, 38-1, 45-3, 45-10, and 45-15.

Comment 50-8: Please refer to responses 20-1 and 30-1.

JIM GERINGER, GOVERNOR - STATE OF WYOMING

Comment 51-1: Thank you for your comments. Your concerns and suggestions are being considered and will be reflected in the results of the final analysis which will be set forth in the Cave Gulch ROD.

Please refer to the response to comment 12-1.

Comment 51-2: Please refer to the responses to comments 19-2, 24-1, and 45-15.

Comment 51-3: The population objective has been corrected as an errata item.

Comment 51-4: Regarding mitigation, the purpose of the EIS is first, to identify mitigation and monitoring that is committed to by the proponent as part of their proposed action, including what is required by law (Chapter 2). Secondly, the EIS identifies further opportunities for mitigation and monitoring to avoid or reduce resource impacts (Chapter 4). BLM is responsible for seeing that the mitigation is implemented. The Record of Decision (ROD) will be specific as to who is

RESPONSE TO COMMENTS

responsible for the actual implementation of the mitigation. All avoidance, mitigation, and monitoring procedures contained in and approved in the ROD will be enforceable and executable.

Please refer to response to comment 42-29 for the recommended mitigation measure to avoid vehicle collisions.

Comment 51-5: See response to comment 42-29 and 51-4.

Comment 51-6: See response to comment 42-26.

Comment 51-7: See response to comment 42-26.

Comment 51-8: See response to comment 42-27.

Comment 51-9: See response to comment 42-27.

Comment 51-10: Good sagebrush habitats are generally absent from the project area and were generally lacking prior to when oil and gas development began. The fact that 85.5% of the project area is occupied by mixed desert scrub doesn't mean that 85% of the ground is covered with vegetation. In fact this desert area supports a very sparse vegetation and total ground cover is relatively low. The sagebrush that occurs in this desert vegetation type is generally recumbent and/or heavily grazed and is not dense enough or tall enough to qualify as sage grouse nesting habitat. Because of the low quality of sagebrush habitats on the project area and the low incidence of sightings of sage grouse or sage grouse signs observed during three years of field work by contract biologists and BLM personnel, it is not unreasonable to conclude that cumulative impacts to this species are not expected. Additionally, no sage grouse leks were found on or within 2 miles of the project area during aerial and ground surveys conducted during the spring of 1997 specifically for the purpose of locating sage grouse leks. It was also confirmed during these surveys that although the project area contains sage brush, plants tall enough and dense enough to provide adequate nesting habitat are generally lacking.

Comment 51-11: Based on the results of sage grouse surveys conducted during the spring of 1997 and three years of ground work on the project area it was concluded that crucial sage grouse habitats do not occur on the project area and that cumulative impacts are not expected.

See response to comment 51-10.

Comment 51-12: See response to comment 42-25.

Comment 51-13: Because the Final EIS is not a decision document, the decision regarding reclamation and seed mixtures will be documented in the ROD. Please also see the last paragraph of response to comment 38-1 and response to comment 51-5.

Comment 51-14: Cumulative impacts to wildlife were addressed in the DEIS at various levels depending on the species and significance criteria introduced in Chapter 4: big game species were analyzed at the herd unit level; sage grouse at the upland game management level; and raptors

RESPONSE TO COMMENTS

at the agreed upon (BLM, FWS, WGFD, and Proponent) 273-square-mile GRAA. Clarification has been made through the Errata.

Comment 51-15: Thank you for bringing this to our attention; FEIS text has been modified as an errata item.

Comment 51-16: Please refer to response 43-37.

Comment 51-17: Please refer to response 43-37.

Comment 51-18: Thank you for advising us of the new information you have available.

Methods for management of mineral activity within the proposed KRA are specified under Alternative B. Management of nondiscretionary activities such as mining claim location and development in the proposed KRA would be accomplished through a withdrawal. A formal withdrawal of the locatable minerals (including uranium) from operation under the 1872 Mining Law would be implemented. The proposed withdrawal would have to be reviewed and approved by the U. S. Congress, after which the Secretary of Interior could authorize the withdrawal.

The DEIS discloses what is known about the potential for all minerals in the area, including the area contained in the proposed KRA (Chapter 3, section 3.1).

Please also refer to responses 12-1, 31-6 and 32-2 for more information.

USDI - FISH AND WILDLIFE SERVICE

Comment 52-1: Development of existing leases would be subject to environmental analysis, including field development analysis or an environmental impact statement, if appropriate. Information provided by BLM's Reservoir Management Group assessed the proposed KRA as having a "low" potential for development.

Please also refer to responses to comments 12-1, 31-6, and 43-16 for more information.

Comment 52-2: Please also refer to response to comments 38-1, 42-15, 51-5, and 52-6.

Comment 52-3: Please refer to response to comment 42-24.

Comment 52-4: The first impact significance criterion under Section 4.7.2 has been modified to reflect your concerns about compliance with the Migratory Bird Treaty Act and the Bald Eagle Protection Act and now reads: "Non-compliance with existing BLM, FWS, or WGFD management objectives and laws for wildlife, or BLM stipulations for surface occupancy criteria on oil and gas developments". Additionally, the type of wording you suggested already exists in the first impact significance criterion listed under "listed threatened and endangered species, species proposed for listing, FWS or state sensitive species and federal candidate species".

Comment 52-5: The 1-mile buffer zones for ferruginous hawks you suggest is included as a part of Alternative A and is available for selection by the BLM if this is determined to be the best course of action. The other courses of action that are available for selection are described under the

RESPONSE TO COMMENTS

Proposed Action and Alternative B where the standard BLM seasonal ¼ to ½-mile buffer stipulation is applied. Under either the Proposed Action or Alternative B, the DEIS analysis predicts that from 4 to 7 pairs of raptors, including ferruginous hawks, will be displaced over time by the proposed development activities and recommends the placement of at least 14 ANSs to mitigate these impacts.

See response to comment 45-10.

Comment 52-6: A plan for executing the ANS mitigation is being developed and will be addressed in the ROD.

Comment 52-7: Thank you for the more recent reference concerning raptors and powerlines. The text of the FEIS has been modified to reflect the updated material. Please also refer to responses 31-6 and 51-5.

Comment 52-8: See response to comment 42-16.

MARATHON OIL COMPANY

Comment 53-1: Thank you for your comment. The opinions and preferences expressed by the public during the EIS scoping process were considered in the impact analysis (Chapters 4 and 5), but little specific information relative to actual impacts to raptors was provided. In predicting impacts to raptors (and other resources present in the project area) accepted professional methodologies and practices were employed, and the analysis findings are disclosed in compliance with NEPA.

Comment 53-2: The fifth impact significant criterion under Section 4.7.2 is in fact stating that "Any effect, whether direct or indirect, that results in long-term decreases in recruitment and/or survival of individuals in a wildlife population "would be adverse and significant by definition" and is, therefore, stating the same thing you are suggesting. The same is true for the sixth impact significant criterion.

No conclusion was made in the DEIS stating that, in your words, "the impact of the Cave Gulch-Bullfrog-Waltman project and proposed actions are not significant". Rather, the analysis in the DEIS concluded that impacts of the actions analyzed could be mitigated, or reduced to nonsignificant levels, with the use of ANSs, in addition to other mitigative procedures as described in Sections 4.7.5.2 and 2.2.2.11.

See responses to comments 12-1, 19-2 and 25-1.

Comment 53-3: The cumulative impact section provides estimates of total tax revenues for each alternative for the life of the project. Section 4.11.3.1.11 of the DEIS provides estimates of major tax revenues by year for the ten-year drilling program and totals for the life of the project. The analysis in the DEIS assumes that the seasonal stipulations will be applied similarly for the Proposed Action and Alternative B. Thus, estimated production and tax revenues would be roughly equal for the Proposed Action and Alternative B. See the Errata for Section 4.11.4 for additional

RESPONSE TO COMMENTS

information on estimated socio-economic impacts and tax revenues related to the different seasonal and year-round restrictions for Alternative A. Also see response to comment 50-5.

Comment 53-4: The BLM has made a good faith effort to obtain relevant information important to evaluate reasonably foreseeable significant adverse impacts on the human environment. The DEIS identifies the factors considered for the elements of the environment, and discloses the impact analysis findings. Mitigation measures, or "restrictions," intended to avoid or reduce predicted impacts are specified even when the impacts are not predicted to be "significant."

HELEN SCHMILL

Comment 54-1: Please refer to comment 8-1.

WYOMING WOOL GROWERS ASSOCIATION

Comment 55-1: Please refer to comment 8-1.

Comment 55-2: Please refer to comment 47-4.

Comment 55-3: Please refer to comments 12-1 and 43-17.

Comment 55-4: Please refer to comments 43-6, and 45-22.

Comment 55-5: Please refer to comments 47-7 and 53-3.

Comment 55-6: Please refer to comment 47-8.

Comment 55-7: The bald eagle is classified as Threatened and is protected under the Endangered Species Act, the Bald Eagle Protection Act, and the Migratory Bird Treaty Act. The golden eagle is also protected under the Bald Eagle Protection Act and the Migratory Bird Treaty Act.

The rationale for the establishment of the 273-square-mile GRAA is described on page 5-20 of the DEIS. This area is not located out of the area of analysis for cumulative impacts, but is the area over which cumulative impacts were analyzed. It is necessary to apply mitigation over the GRAA in order to avoid the significant impacts to raptors that would otherwise occur if these efforts were limited to the 40-square-mile project area.

The concept of the proposed KRA was presented in Alternative B as an option for which the costs and benefits could be analyzed. These advantages and disadvantages will then be compared to those of the Proposed Action and the other alternatives to provide perspectives necessary for the BLM to render informed decisions in ROD.

Please refer to responses to comments 12-1, 25-1, 40-3, 45-15, and 47-9.

Comment 55-8: Please refer to comments 43-29 and 47-12.

Comment 55-9: Please refer to comment 43-30 and 47-13.

RESPONSE TO COMMENTS

Comment 55-10: Please refer to comment 11-1.

RENEE TAYOR

Comment 56-1: Please refer to comments 40-1, 43-30, and 47-7.

Comment 56-2: Please refer to comments 43-15 and 47-6.

Comment 56-3: The equitability of applying the combination of the proposed KRA, seasonal restrictions, and ANSs under Alternative B is being considered and will be resolved in the ROD.

Please refer to responses to comments 43-3, 45-24, and 55-7.

Comment 56-4: Within section 2.2.2.1, it clearly states that $\frac{1}{2}$ - $\frac{2}{3}$ of the pipeline length, depending on well spacing, would be constructed in new or existing roadway.

Comment 56-5: Please refer to comment 42-36.

Comment 56-6: The transportation network described in section 3.12.3 is in reference to the roads developed within the project area "to serve the oil and gas development which has occurred over the past 35 years."

Reference to the Paleo report has been corrected in the errata.

Comment 56-7: Section 4.3.2 (page 4-12) has been corrected in the Errata.

Comment 56-8: Please refer to responses to comments 12-1, 19-2, 21-1, 25-1, 32-2, 43-27, 45-18, and 46-15.

Comment 56-9: Please refer to comments 47-7 and 53-3.

Comment 56-10: Please refer to comment 51-4.

Comment 56-11: Please refer to comment 11-1.

BOB DUNDAS

Comment 57-1: Please refer to comments 40-1, 43-30, and 47-7.

Comment 57-2: Please refer to comments 43-15 and 47-6.

Comment 57-3: Please refer to responses to comments 55-7 and 56-3.

Comment 57-4: Please refer to comment 56-6.

Comment 57-5: Please refer to responses to comments 12-1, 19-2, 21-1, 25-1, 32-2, 43-27, 45-18, and 46-15.

RESPONSE TO COMMENTS

Comment 57-6: Please refer to comments 47-7 and 53-3.

Comment 57-7: Please refer to comment 11-1.

TRUE OIL COMPANY

Comment 58-1: Please refer to comments 40-1, 43-30, and 47-7.

Comment 58-2: Please refer to comments 43-15 and 47-6.

Comment 58-3: Please refer to responses to comments 43-3, 45-24, 55-7, and 56-3.

Comment 58-4: Please refer to comment 56-4.

Comment 58-5: Please refer to comment 42-36.

Comment 58-6: Please refer to comment 56-6.

Comment 58-7: Please refer to comment 56-7.

Comment 58-8: Please refer to responses to comments 12-1, 19-2, 21-1, 25-1, 32-2, 43-27, 45-18, and 46-15.

Comment 58-9: Please refer to comments 47-7 and 53-3.

Comment 58-10: Please refer to comment 51-4.

Comment 58-11: Please refer to comment 11-1.

PARK COUNTY BOARD OF COUNTY COMMISSIONERS

Comment 59-1: Please refer to comment 11-1.

Comment 59-2: The acreage already leased within the proposed KRA would be available for development under the terms of the leases.

Please refer to responses to comments 12-1, 39-2, and 46-15.

USDA, FOREST SERVICE

Comment 60-1: Copies of the DEIS were sent to the USDA-Forest Service, Douglas Ranger District and Planning Team. Copies of the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a) were also sent to all individuals, agencies and organizations who requested a copy. In addition, the USDA-Forest Service, Region 2, has been added to the Cave Gulch-Bullfrog-Waltman FEIS comprehensive mailing list.

RESPONSE TO COMMENTS

The BLM appreciates the involvement of the USDA-Forest Service in the planning of natural gas development in the Cave Gulch-Bullfrog-Waltman project area, especially as a participant in the Cave Gulch-Bullfrog-Waltman Air Quality Impact Assessment "Stakeholder" Group. The USDA-Forest Service (along with the WDEQ/AQD, EPA, and the Wyoming Outdoor Council) reviewed and provided comments on the Air Quality Impact Assessment Protocol before the analysis was performed, and provided comments on the preliminary Air Quality Impact Assessment results. Early involvement by the "stakeholders" improved the quality of the analysis.

Comment 60-2: Please see responses to comments 42-6 and 42-13.

OIL AND GAS CONSERVATION COMMISSION

Comment 61-1: Please refer to comments 12-1, 40-2, 40-5, 43-8, 47-7, and 53-3.

US ENVIRONMENTAL PROTECTION AGENCY, REGION VIII

Comment 62-1: Please see responses to comment 38-2 (Section 3.2.2, Air Quality, Number 1) and comment 42-3.

Comment 62-2: Please see response to comment 42-3.

Comment 62-3: Regarding the Commentor's "primary comments/questions" on the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), please see responses to comments 38-2 (Section 4.2.3, Direct and Indirect Impacts, Number 7), comment 42-3, and comment 42-7.

1. Potential formaldehyde emissions from compressors were listed in Table 2.3, page 2-7, of the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a).
2. Table 2.4 has been revised to read "Summary of Maximum Annual Production Emissions," and includes a corrected speciated summation of HAPs emissions. These corrections are included in the FEIS Section 2 - Addendum and Errata.
3. Please see response to comment 42-3.
4. Please see response to comment 38-2 (Section 4.2.3, Direct and Indirect Impacts, Number 4).
5. The surface-based construction and road emission sources were modeled as volume sources as recommended in the ISC3 User's Guide (EPA 1995b; Volume 2, Section 1.2).
6. The actual model input files and analysis results will be provided separately to the commentor, and to any other individual upon request.

RESPONSE TO COMMENTS

7. Figure 5.2 and Figure 5.3. have been revised to include "Note: basic receptor grid spacing is 100 meters; additional receptor spacing is less, as indicated." These corrections are included in the FEIS Section 2 - Addendum and Errata.
8. Table 5.6, third column, has been revised to read "Range of State 8-hour AACLs." This correction is included in the FEIS Section 2 - Addendum and Errata.
9. The sentence has been revised to read "Potential cancer risks are considered acceptable up to 1e-06 for determining risk-based remediation." This correction is included in the FEIS Section 2 - Addendum and Errata.
10. Table 5.7 has been revised to include "Note: n/a - non-additive." This correction is included in the FEIS Section 2 - Addendum and Errata.
11. The sentence has been revised to read "This concentration is very conservative since the nomograph was developed using meteorological conditions more conducive for forming ozone than would be found in the analysis area." This correction is included in the FEIS Section 2 - Addendum and Errata.
12. Please see response to comment 42-3.
13. The sentence has been revised to read "The Cave Gulch-Bullfrog-Waltman well field emission sources modeled for the far field analysis included only NO_x production sources -- the well site separator heaters and dehydration units, and the compressor engines, as the "worst case" emission scenario." This correction is included in the FEIS Section 2 - Addendum and Errata.

As stated in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), page A2-7: "The gas plant does not play a role in either emission scenario [near- or far-field]. The gas plant compressors would have a lower emission factors than in-field or centralized compressors. Utilization of in-field or centralized compressors to meet full compression demand is the conservative assumption." Since either the proposed gas plant or the compressor station would be built, the air quality impact analysis included the "worst case" compressor station emission assumption.

14. As stated in Section 2.1.1 (Proposed Action and Alternatives - Alternative Selection Process - Proposed Action) of the DEIS, page 2-1: "For planning purposes, the Operators divided the project area into four areas as shown on Figure 2-1 ... because they felt these areas better defined the Proposed Action than the two area map presented in the WRMG final report ..." The four areas have no special significance regarding the air quality impact analysis.
15. The sentence has been revised to read "Gaseous and particulate deposition velocities for NO, NO₂, and nitrate used in this spreadsheet were determined from data appearing in Atmospheric Science and Power Production (DOE 1984)." This correction is included in the FEIS Section 2 - Addendum and Errata.

RESPONSE TO COMMENTS

16. As stated in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), page 5-19: "Since the proposed well field emissions are many small emissions sources, uniformly spread out over a large area, discrete visible plumes are not likely to occur, and the issue of concern is potential increased regional haze."

However, a separate Visual Impact Screening Model (VISCREEN) assessment was performed (TRC 1997b) to determine if a plume from the 12,000 hp compressor would be visible inside or outside the Cloud Peak Class II Wilderness Area (EPA 1996). Based on the conservative model default assumptions (including the model's maximum allowable background visual range of 336 km), none of the screening criteria were exceeded.

17. Table A-6, page A1-13, represents the potential air pollutant emission from limited flaring during well completion and testing. Well production emissions are presented in Appendix 2.
18. All air pollutant emission assumptions were based on the information provided in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), Appendix 2, Attachment 1 (Air Quality Permit Applications).
19. NO_x emissions for the gas plant were based on the information provided in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), Appendix 2, Attachment 1 (Air Quality Permit Applications).
20. The gas plant and in-field (or centralized) compressors emissions were based on the information provided in the "DEIS: Cave Gulch-Bullfrog-Waltman Air Quality Technical Support Document: Cumulative Air Quality Impact Analysis" (TRC 1997a), Appendix 2, Attachment 1 (Air Quality Permit Applications).

Also, please see response to comment 62-3 (Number 13).

21. Please see response to comment 62-3 (Number 13).

MELVIN L. KNIGGE

Comment 63-1: Please refer to responses to comments 12-1, 19-1, 24-1, and 25-1.

WYOMING OUTDOOR COUNCIL

Comment 64-1: Please see response to comment 42-3.

WYOMING OUTDOOR COUNCIL

Comment 65-1: Please see response to comment 42-3.