2000

Record of Decision, Environmental Impact Statement for the Pinedale Anticline Oil and Gas Exploration and Development Project Sublette County, Wyoming

United States Department of the Interior, Bureau of Land Management

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RECORD OF DECISION
Environmental Impact Statement for the Pinedale Anticline Oil and Gas Exploration and Development Project Sublette County, Wyoming
July 27, 2000

Dear Reader:

This Record of Decision (ROD) for the Pinedale Anticline Oil and Gas Exploration and Development Project is provided for your information and use. The Bureau of Land Management (BLM), the administering Federal Agency for the public lands involved within the project area, is issuing this decision to approve the Pinedale Anticline Project as specified.

The Pinedale Anticline Project is located in Sublette County, Wyoming, within an area of 197,345 acres. The Project area approximate boundaries extend from Pinedale, Wyoming south 30 miles to the Jonah Field, U.S. Highway 191 on the east and the Green River and the Burma Road on the west. The Pinedale Anticline Environmental Impact Statement (EIS) was prepared pursuant to the National Environmental Policy Act and other regulations and statutes to fully disclose the potential environmental impacts which could result from implementation of the Pinedale Anticline Project and to solicit public comments and concerns. The EIS process is designed to inform the public of, and provide opportunity to comment on, an action proposed for implementation on public lands, including reasonable alternatives, and to disclose through detailed analysis, potential impacts associated with implementing the proposal or alternatives, including reasonable opportunities to mitigate potential impacts.

On November 26, 1999, the Bureau of Land Management (BLM) released the Draft Environmental Impact Statement (DEIS) and on May 26, 2000, the Final EIS (FEIS) for the Pinedale Anticline Project. This ROD is the culmination of that detailed analysis on the environmental effects of implementing the Pinedale Anticline Operators proposed exploration and development. The ROD defines the decision and discusses the rationale and key management considerations for authorization of the Pinedale Anticline Project. The BLM decision is subject to appeal as explained in the decision.

A copy of the ROD has been sent to affected government agencies and to those persons who responded to scoping, commented on the EIS, or otherwise indicated to BLM that they wished to receive a copy of the EIS/ROD. Copies of the ROD are available to the public at the following locations:

Bureau of Land Management
Wyoming State Office
3353 Yellowstone Road
Cheyenne, Wyoming 82009

The BLM thanks all the individuals and organizations who provided suggestions and comments on the Draft and FEIS, and the USDA-Forest Service, Army Corps of Engineers, and the State of Wyoming for their assistance as Cooperating Agencies in the development of the EIS.

Sincerely,

[Signature]

Alain R. Pierson
State Director

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RECORD OF DECISION
For PINEDALE ANTICLINE Oil and Gas Exploration and Development Project

Environmental Impact Statement

This document records the decision made by the Bureau of Land Management (BLM), in consultation with the USDA-Forest Service, U.S. Army Corps of Engineers, and the State of Wyoming (cooperating agencies in the preparation of the EIS), for managing the Federal surface and mineral estate in the Pinedale Anticline Oil and Gas Exploration and Development Project Area (hereinafter referred to as the PAPA or Pinedale Anticline Project Area). The PAPA comprises approximately 197,345 acres of Federal, State, and private land. Of this total, approximately 157,719 surface acres (79.9 percent) are BLM, 9,766 surface acres (5.0 percent) are State of Wyoming, and 29,860 acres (15.1 percent) are private. See Figures 1 and 2 for locations of the PAPA.

Section 1. Introduction.

The Bureau of Land Management (BLM) approves the Pinedale Anticline Operators proposal for 700 producing well pads over the next 10 to 15 years within the PAPA. This Record of Decision (ROD) recognizes that to develop 700 productive well pads in the PAPA, as many as 900 well pads may need to be constructed and drilled and that as many as 200 of these well pads may be plugged, abandoned, and reclaimed. Therefore, a majority of multiple uses within the PAPA would be dry holes or unproductive to produce. The ROD also recognizes that not all of the well pads will be located on Federal lands/minerals. Some will be located on state and private lands/minerals. Therefore, the scope of project consistency with the Multiple Use Sustained Yield Project (MUSY) will be based on the total of 700 producing well pads.

The approved development will be implemented under the "Resource Protection Plan (RP); Alternative on Federal Lands and Minerals" as modified. This plan will provide the best balance of multiple uses within the PAPA and will sustain the long-term yield of resources while promoting stability of local and regional economies, environmental integrity, and conservation of resources for future generations (NEPA Section 101 and FLPMA, Section 302). The RP Alternative on Federal Lands and Minerals will provide for the management of the PAPA in a manner that allows for natural gas exploration and development while continuing to provide for the existing principal and major uses recognized by the land use plan for this area (e.g., domestic livestock grazing, fish and wildlife habitat protection, utilization and development, mineral exploration and production, utility and road rights-of-way, visual resource protection, and outdoor recreation).

This ROD, to the extent allowed by law, incorporates restrictions and mitigative measures in consideration of the need to prevent unnecessary or undue degradation of important and sensitive resources and human values, and in consideration of Federal, State, and local agency, public, and affected Indian tribe concerns raised during scoping and in comments received on the draft and final EIS. This ROD incorporates a process recommended by the EPA, called Adaptive Environmental Management (AEM), which will provide for project implementation oversight to ensure maximum consideration for the reasonable protection of identified concerns through its development and
Figure 1
General Location of the Pinedale Anticline Project Area

Figure 2
Surface and Mineral Ownership in the Project Area
implementation (Appendix C). The AEM Process will be designed to ensure that the implementation of the Pinedale Anticline Project is managed and monitored in a manner that will guide mid-course corrections in adapting to inevitable problems or changes associated with and inherent in each authorization for the implementation, operation, and abandonment of activities to develop the mineral resource. This ROD authorizes the BLM Pinedale Field Manager (Authorized Officer or AO) to process Applications for Permit to Drill (APDs), Sundry Notices (SNs), Rights-of-Way (ROWs), and Temporary Use Permits (TUPs) on public lands administered by the BLM for the Pinedale Anticline Project. Operators and for companies contracted by the Operators. Approval of individual applications will authorize the implementation of the various components of the Pinedale Anticline Project (e.g., access road and well pad construction, gas gathering pipeline and production facilities installation, etc.).

Section 2. Approved Project Components.

- Project Components

This ROD provides the BLM Pinedale Field Manager approval to permit the following project components on BLM-administered federal lands and minerals.79.9 and 83.2 percent of the surface and mineral ownership respectively) within the PAPA (see Figure 2), subject to the constraints specified under Sections 2. J, 2. K, and Appendices A, B, C, D, and E. Development beyond the specified levels will require the preparation of a supplemental environmental impact analysis.

- 900 Initial well pad locations on all lands and minerals within the PAPA.
- 700 Producing wells and/or well pads on all lands and minerals within the PAPA.
- 700 Production facilities at individual well locations.
- Central production facilities.
- Compressor facilities.
- Water wells for drilling/completion water.
- BP Amoco Field Office.
- 121.6 Miles of pipeline corridor for multiple pipelines.
- 276.0 Miles of access road (including collector, local, and resource roads).
- 28.0 Miles of gathering pipeline system.

- Well Pads

The sandstones of the Lance and Mesaverde Formations associated with the Pinedale Anticline Project area are recognized as having low porosity and permeability. However, based on current understanding of the natural gas reservoir characteristics (e.g., geology, flow data from existing producers, expected recovery factors, and economics), it is reasonably expected by the Pinedale Anticline Operators that economically recoverable zones will be developed at a bottom-hole well spacing of 40 acres or 16 wells per section to attain maximum ultimate economic recovery of the natural gas resource with minimum waste [43 CFR 3162(a)]. Depending upon the sensitivity of surface resources within PAPA Management Areas (MA) (see Section 4), in areas of intensive development, 8 to 16 wells may be drilled from 8 to 16 pads per square mile. In other cases, where surface resource values are more sensitive, 8 to 16 wells may be drilled directionally or horizontally from 2 to 4 well pads/square mile.

Within each MA, the Pinedale Anticline Operator(s) will construct well pads and drill wells in accordance with the well pad threshold specified under Section 4 entitled "Management Area Exploration and Development Restrictions/Limitations for Resource Protection." Well pad numbers exceeding the MA well pad threshold, which BLM considers reasonable and environmentally acceptable, will require additional environmental analysis. This ROD authorizes the construction and drilling of up to 900 wells, and the completion, testing, and production of up to 700 producing natural gas wells pads within the PAPA. This ROD does not specify a well pad limitation on federal lands and minerals. Rather, BLM will track development within the project area to ensure that development does not exceed the scope of the Pinedale Anticline EIS or create unanticipated impacts.

The current BLM 0.25-mile buffer around occupied dwellings on Federal lands and minerals will continue and is expanded to also include Federal lands and minerals zoned as residential by Sublette County or from subdivisions currently approved by Sublette County. See Figures 3 and 4 for location of lands zoned (as of November 1999).

- Production Facilities

Conventional Well Site Production Facilities. Production facilities will be approved on a case-by-case basis in conjunction with each approved well location. The production facilities include the construction and installation of tanks, separators, dehydration units, remote telemetry and other equipment as needed at each site on BLM-administered lands. These facilities are needed to produce and monitor the well for the life of the well. Site-specific environmental analysis will be required which will address these facilities for each application for permit to drill (APD) and/or Sundry Notice (SN) on BLM-administered lands.

Central/Off-Site Production Facilities (COSFF vs. COSPF). This ROD will be installed by the Operators for the more efficient and economic operation of 1 or more wells and/or to avoid or minimize unnecessary and undue surface disturbance and impacts on wildlife, sensitive view-sheds, and other resource values from field development on an 80- and 40-acre well spacing. The need/appropriateness of COSPF's will be determined by BLM on a case-by-case basis when an application (NOS, APD, ROW, etc.) is received for a proposed well(s) located within an area of sensitive resource values, such as crucial wildlife habitat, sensitive view-sheds, and/or other resource values. An evaluation will be completed by BLM and the Operator(s) to assess the feasibility, location, design, etc. of the COSPF's facility. Known areas where the need/appropriateness for COSPF use is most likely are specified under Section 4, "Management Area Development Restrictions/Limitations for Resource Protection.

- Pad Drilling

Pad drilling, i.e., directionally drilling one or more wells from a single well pad, will be used by the Operators to avoid or minimize unnecessary and undue surface disturbance and impacts on wildlife, sensitive view-sheds, and other resource values. The need/appropriateness of pad drilling will be...
determined in a manner similar to that described above for COSPFP's. In some cases, PAPA Operators, to avoid or minimize unnecessary degradation on Federal lands, may be required to move a well location (consistent with policy and regulations and drill the well directionally. In other cases, to avoid or minimize unnecessary degradation on Federal lands from field development on 80- and 40-acre well spacing, an Operator will be given the choice of pad drilling multiple wells from a single pad or installing COSPFP's. An evaluation will be conducted by BLM and the Operator to determine which option will be most feasible technically and economically. Any other reasonable option identified, but outside the scope and/or not considered in the Pinedale Anticline EIS, will be analyzed in a supplemental environmental analysis to the EIS. The same areas identified under COSPFP's as most likely will also include consideration of pad drilling (see Section 4). Recommendations to the AO regarding the consideration of pad drilling may also be provided through the AEM process. The filing of a request for exception will be required, in accordance with the "Request For Exception" procedure discussed under Section 3 below, for any one-time deviation from any required use of pad drilling.

- **Water Wells**

Water for drilling, completion, hydrostatic testing of pipelines, and dust abatement will be supplied from water wells drilled on the well pad, from a nearby well pad, or from a surface water source such as the New Fork River. The use of water from water wells and river access points will be permitted through the Wyoming Oil and Gas Conservation Commission (WOGCC) and Wyoming State Engineer's Office (WSEO). Water well sites at river access points affecting BLM-administered lands and/or minerals will require site-specific NEPA analysis, a right-of-way permit from the BLM, and implementation of the specified mitigation measures.

- **Compressors**

The construction and installation of compressors at new or existing sites on BLM-administered lands will require the necessary permits from the Wyoming DEQ-AQD. Coordination with all Operators will also be required to ensure that compressor facility authorizations are consistent with the Pinedale Anticline EIS scope of analysis. Coordination among all Operators and pipeline companies is important to ensure that actual construction of compressor facilities remains within the analyzed levels of nitrogen oxide (NOx) emissions and the potential to impact air quality related values within the Bridger and Fitzpatrick Wilderness areas.

Before right-of-way grants or survey notices will be issued for any compressor site on BLM-administered lands, including sites analyzed in the Pinedale Anticline EIS as well as new sites not addressed in the EIS, additional site-specific environmental analysis will be required to address site-specific surface resource concerns and mitigation of unnecessary and undue impacts (e.g., cultural; wildlife; visual; noise impacts at dwellings; sage grouse, etc.). Sites that are less than four miles from a dwelling will require additional hazardous air pollutant analysis. This is necessary because the Pine Dale Anticline EIS used the analysis for compressors done for the Jonah II EIS which did not analyze dwellings closer than four miles from a compressor. The analysis will be conducted in conjunction with the site-specific environmental analysis and in concert with the WDEQ-AQD.

In accordance with the Joint Agreement between the BLM, Wyoming DEQ, USDA-Forest Service, and the Environmental Protection Agency, in maintaining diligence in the monitoring for the protection of wilderness air quality related values of visibility and lake acidification, the BLM, in consultation with the Wyoming DEQ-AQD, will track emissions for the Pinedale Anticline and the Jonah II projects on an annual basis.

The BLM will grant new rights-of-way for compressors based upon PAPA monitoring and tracking of actual on-the-ground calculated potential NOx emissions (i.e., the level of NOx emission from actually constructed/installed facilities based upon the DEQ-AQD permitted level of NOx emissions per compressor facility well location, etc.) to ensure conformance with the level of analysis conducted in the Pinedale Anticline EIS. This approach will allow maximum flexibility in permitting compressors at a level of horsepower greater than the proposed 26,000 horsepower identified in the EIS and still remain within the scope of the NOx emissions analyzed in the EIS. The actual level of horsepower that could be authorized depends upon the compressor emissions rating, the level of construction and drilling activity, and the number of wells producing at the time.

Table 1 summarizes how variable levels of compression horsepower could potentially be available for the PAPA while remaining within the scope of the Pine Dale Anticline EIS Analysis (the maximum NOx emission level analyzed in the EIS was 694 tons/year).

**Table 1. Variable Levels of Compression Horsepower Potentially Available for the PAPA**

<table>
<thead>
<tr>
<th>Compressor Rating (gpm/bhp)</th>
<th>Producing Wells</th>
<th>Potential Compressor</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 gpm/bhp</td>
<td>700 wells</td>
<td>76,000 bhp</td>
</tr>
<tr>
<td>4 gpm/bhp</td>
<td>150 wells</td>
<td>19,000 bhp</td>
</tr>
<tr>
<td>8 gpm/bhp</td>
<td>700 wells</td>
<td>45,000 bhp</td>
</tr>
</tbody>
</table>

[1] Potential compression assumes all construction and drilling has been completed and 700 wells are producing.}

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**Figure 3**

Sublette County Current Zoning Districts in the Project Area
BP Amoco Field Office

BP Amoco's Field Office, used during daytime working hours, evening, and nighttime emergencies, is approved at a site located east/southeast of the Luman road, out of sight of U.S. Highway 191, in T. 29 N., R. 107 W., Section 23, SW1/4. The specific location of the 5-acre building site will be determined during processing of the right-of-way application. Before the right-of-way grant will be issued for this facility on BLM-administered lands, additional site-specific environmental analysis will be required to address site-specific surface resource concerns and mitigation of unnecessary and undue impacts (e.g., cultural, wildlife; visual; noise impacts at sage grouse leks; nighttime lighting; etc.).

The BP Amoco Field Office, and all other field facilities, will be painted a BLM-approved earth tone color in accordance with Appendix A. The BP Amoco Field Office, or any other field facility, will not be authorized exterior lighting that is motion-activated. Continuous nighttime exterior lighting will be authorized for facilities only while the field facility is occupied. An exception will be considered for safety or security reasons. Exterior nighttime lighting is authorized while the field office is occupied. Exterior lights will be shrouded and directed onto the immediate facility area so that lights and glare are not projected or directed away from the facility area. This will minimize night lighting effects and impacts to wildlife, dwelling occupants, visual and recreational resources.

Access Roads

General Access. This ROD approves the construction and/or upgrade of necessary access roads on BLM-administered lands (EIS estimated up to 276 m. s.). These include collector or major arterial access roads, local access roads, and resource roads (see Transportation Plan Appendix B-2.2, Road Classification). Design and construction will comply with the standards specified in the Transportation Plan (see Appendix B-2.7, Design and Route Location). General transportation plans for the PAPA will be reviewed with the Transportation Planning Committee (TPC) in accordance with the TPC Memorandum of Understanding (MOU) (see Transportation Plan/Transportation Planning Committee in Section 3).

Access to the PAPA. As discussed and recommended by the TPC, access to the PAPA will be as follows: Exploratory Drilling Access. Initial drilling at the PAPA will concentrate on exploration to determine the areas where concentrated, intensive field development will occur. Until the concentrated, intensive field development areas are identified, exploratory access to the PAPA will continue to use the existing access as displayed in Figure 5. Exploratory Drilling Primary Access. Intensive Development Access. Once intensive field development areas are identified, primary access will be determined in consultation with the TPC. However, if intensive field development is concentrated along the crest of the Anticline, then primary access to the intensive development will be as displayed in Figure 6. Anticline Crest Field Development Primary Access.

Anticline Crest Field Development Primary Access. Close coordination with WYDOT and the TPC will be an integral part of transportation planning for the PAPA. The Transportation Plan (Appendix B) and associated Technical Support Document will be reviewed and updated annually to incorporate new information.

Industrial Park Roads. The construction of the Industrial Park Road on Federal lands will be authorized when it has been determined that development is eminent on Federal (Figure 6). State or private lands within the area between Pinedale and the Mesa at the junction of the Industrial Park Road with the Mesa Suth road. The TPC will recommend to the Pinedale Field Manager when construction of this road is necessary to avoid impacting the residents along Tyler Street and the Twin Bridges County Road.

Anticline Crest Road North of New Fork River. This segment of the Anticline Crest Road (section of road between the Paradise Road and the Mesa Road, Figure 6) will be constructed when it has been determined that development is eminent within the area described. The TPC will recommend to the Pinedale Field Manager when construction of this road is necessary to avoid unnecessarily impacting wildlife and residents along the Green River road. The need for and feasibility of a bridge across the New Fork River will be further evaluated by the TPC as development progresses. In the interim, access to the Anticline Crest Road from the south will be from the Paradise Road using Wyoming Highway 351 entrance and access to the north end of the Mesa will be from the Green River Road to BLM Road 5105 and 2102 using Wyoming Highway 351 entrance. The Wyoming Highway 351 approach to the Paradise Road and Green River Road will be evaluated by Sublette County, WYDOT, the Operators, and BLM to determine improvements needed (e.g., turn lanes, paving, etc.).

Anticline Crest Road South of New Fork River to Wyoming Highway 351. Access to the Anticline Crest area located between the New Fork River and Wyoming Highway 351 will utilize the road paralleling the "Pipeline Road" (Figure 6). The Wyoming Highway 351 approach to the "Pipeline Road" will be evaluated by Sublette County, WYDOT, the Operators, and BLM to determine improvements needed (e.g., turn lanes, paving, etc.).

North Jonah/Anticline Crest Road - Wyoming Highway 351 South to U.S. Highway 191. Access to the area located between Wyoming Highway 351 and the Jonah Field
utilize the Jonah North/Anticline Crest Road between Wyoming Highway 351 and U.S. Highway 191 (Figure 6). The entrance off of Wyoming Highway 351 will be evaluated by Sublette County, WYDOT, the Operators, and BLM to determine improvements needed (e.g., turn lanes, paving, etc.). The entrance off of U.S. Highway 191 will be improved as agreed to between the Operators (Yates, McMurry, BP Amoco), the BLM, and WYDOT. Only a west exit will be constructed at this site and the turn lanes will be the only permanent approach west off of U.S. Highway 191 between the Luman road and Wyoming Highway 351.

Seasonal Road Closure. From January 15 through April 30, the seasonal closure of the Mesa Road (Figures 5 and 6) will continue to be imposed on traffic associated with wildlife viewing, construction, drilling, and completion activity to protect wintering mule deer (see Section 2, Request for Exceptions). Operators may be required to install gates on roads specified by the BLM in consultation with the TPC to restrict unnecessary travel into deer wintering concentration areas.

For the winter of 2000-2001, Operators on the north end of the anticline will need to haul condensate and produced water from existing and potentially new wells. Until a decision is made on whether the Industrial Park Road will be constructed, the transportation of the condensate and water will have to be trucked either through Pinedale via Tyler Street to U.S. Highway 191 or via the Mesa Road (Tyler Draw Road) to the Green River Road and U.S. Highway 191. The recommendation on the route of travel that will be used for this period of time will be made through the TPC.

- Gathering Pipelines

Gathering pipelines will transport gas from individual well pads to a central location where the gas will be compressed into a sales pipeline. Project approval includes the construction and operation of (EIS estimated up to 276 miles) of 3- to 16-inch diameter natural gas gathering pipeline on BLM-administered lands. Gathering pipelines will be routed in a manner that best uses the existing topography in order to minimize surface disturbance including, surface and buried pipelines, and pipeline placement parallel to existing roads.

- Sales Pipelines

This decision approves the general route location of additional sales pipelines to transport natural gas from the PAPA to existing pipeline hubs in the area of Granger and Opal in southwestern Wyoming. A site-specific environmental analysis (including sensitive species clearances, cultural clearances, etc.) of the permit’s Construction and Use Plan for the sales pipeline, and consultation with the TPC will be required before a right-of-way grant will be issued.

Because of gathering pipeline congestion through the Jonah Field and the increased risk of safety hazards associated with numerous gathering pipeline crossings by new sales pipelines, new route deviations from the existing sales pipeline corridor to safely circumvent the existing pipelines in the Jonah Field have been identified and analyzed in the Pinedale Anticline EIS. This decision approves the existing sales pipeline route (119.9 miles), as well as the route deviations for Alternative A (Burma Road Route, 119.6 miles) and Alternative B (McMurry North Jonah Route, 121.7 miles) analyzed in the FEIS (Figure 7). All three routes, with site-specific modifications, are acceptable routes paralleling existing roads and/or pipelines. The Pinedale Anticline EIS analysis assumed an additional 200-foot wide right-of-way to accommodate multiple future pipelines. Close coordination with the gathering system Operators will be required to avoid and minimize the occurrence of safety hazards.
Section 3. Administrative Requirements And Conditions of Approval.

Implementation of the Pinedale Anticline Project will be subject to the following administrative requirements and conditions of approval:

- **Authorizing Actions**

The Pinedale Anticline Operators are responsible for obtaining all necessary federal, state, and county permits, and for implementing the Pinedale Anticline natural gas exploration and development project in an environmentally responsible manner (see Appendix A, Table I, Federal, State, and Local Permits, Approvals and Authorizing Actions Necessary for Construction, Operation, Maintenance and Abandonment of the Pinedale Anticline Natural Gas Development Project).

- **Mitigation and Monitoring**

All practicable means to avoid or minimize environmental harm have been identified and provided through the adoption of the RP Alternative on Federal Lands and Minerals. The additional opportunities identified in the EIS to mitigate impacts, which are brought forward into this ROD, are listed in Appendix A, Section A-3A. Measures not adopted, with a brief explanation of why, are also listed in Appendix A, Section A-3C.

The Pinedale Anticline Operators shall implement the Mitigation Guidelines and Standard Practices for Surface Disturbing and Disruptive Activities found in Appendix A. This includes:

- Section A-1 Mitigation Guidelines;
- Section A-2 Standard Practices (Best Management Practices); and Guidelines for Surface Disturbing Activities;
- Section A-3A Required Mitigation and Monitoring on Federal Lands and Minerals (Mitigation and Monitoring Opportunities Brought Forward from the Pinedale Anticline EIS);
- Section A-4 Environmental Analysis and Mitigation of Oil and Gas Development and Other Surface Disturbing Activities - The Tiered Approach;
- Section A-5 Erosion control, Revegetation and Restoration Plan Guidelines; and
- Section A-6 Procedures for Processing Applications in Areas of Seasonal Restrictions.

Monitoring inspections conducted by BLM and the Operators will be based upon the parameters identified in Appendix A.

The BLM and each Operator (individually or jointly) will designate an individual to serve as their Environmental Compliance Coordinator, for quality assurance/quality control, who will be responsible for ensuring that, during the life of the project, mitigation measures and monitoring activities are conducted as necessary to ensure impacts are minimized, necessary remedial action is taken, etc.

An Oversight Work Group (Operators, landowners, livestock Operators, and other affected/interested parties, and BLM), under the framework of the Adaptive Environmental Management (AEM) process, will review the implementation of construction and rehabilitation operations through a minimum of an annual field inspection to ensure that the mitigation measures are reasonable and effective.

Additional opportunities to mitigate residual impacts identified in the draft and final EIS will be implemented where and when applicable (Appendix A). Opportunities include:

- coordination of road-pipeline construction to use existing roads as joint road-pipeline corridors where feasible and where the amount of surface disturbance is reduced over conventional gathering pipeline installation practices; road and trail reclamation/closure to restore wildlife habitat by ripping and sending numerous two-track and unneeded primitive roads; reducing the extent of surface disturbance associated with well pads, access roads, and pipeline corridors but within safety standards; and

- the success of reclamation and restoration of wildlife habitat by consulting with reclamation contractors and oil and gas Operators for reclamation practices successfully applied in the Pinedale Anticline Project area.

- **Adaptive Environmental Management Process and Monitoring**

Plans and activities seldom proceed as originally planned due to scientific and other uncertainties. Therefore, comprehensive monitoring must be provided of project implementation and of the effects of implementation. Information gathered from this monitoring will guide mid-course corrections in adapting to the inevitable changes which will occur because of the new information. To assist this comprehensive monitoring program, an Adaptive Environmental Management (AEM) Plan has been developed and implemented in accordance with the guidelines provided in Appendix C. The AEM plan will function as an umbrella oversight working group for the implementation monitoring and enforcement programs adopted for the PAPA to assure that the decisions and required mitigation measures are carried out, to inform cooperating agencies on progress in carrying out mitigation measures; and to make available to the public the results of relevant monitoring. This AEM process is provided for under the Council on Environmental Quality Regulations 40 CFR 1500.2(e); 1500.3.

The AEM process will involve the participation of technical agency personnel (e.g., U.S. Fish and Wildlife Service, USDA-Forest Service, Wyoming Game and Fish Department, Wyoming Department of Environmental Quality - Air Quality and Water Quality Divisions, State Engineer, Sublette County, Town of Pinedale, University of Wyoming, and others) and a group of affected and interested public (e.g., Oil/Gas Operators, environmental groups, landowners, livestock Operators, and others). The technical agency group will draft the various monitoring plans and other management documents. The public group will review the plans for adequacy and recommend where additional monitoring may be necessary before any of the plans are implemented.

Specific monitoring plans that shall be developed by the technical agency group are: wildlife, mule deer, antelope, sage grouse, and Y/T listed, proposed candidate, and species of special concern; water quality - New York River and livestock water wells; reclamation - site reconstituting, seed planting, revegetation, construction and maintenance of roads, well pads, and pipeline installation; cultural/historic - complete an annual report on the context of the archaeological and historic resources discovered during development; and air quality - tracking actual on-the-ground calculated potential NOx emissions for air quality valuation. All monitoring, except for the tracking of NOx emissions, will be cooperatively funded by the Oil/Gas Operators and the agencies participating in the technical agency work group.

- **Site Specific Environmental Analysis**

Before authorization of individual actions on public lands (e.g., APD, SN, ROW, TIP), the final location for each well pad, access road, gathering pipeline segment, CPF compressor or other facility will be determined following a site specific environmental assessment in accordance with the BLM National Environmental Policy Act Handbook (1970-1). Documentation will be in BLM Form WY-1792-02.

- **Plans/Reports**

Authorization of multiple or single actions (e.g., road construction, well pad construction, and/or development) will require the responsible Operator to prepare and submit various approved plans and/or reports to the BLM, Pinedale Field Manager. The application/plans/report may cover multiple field activities (e.g., CPF for 8 existing wells and 8106 new wells) or cover a single field action for one well pad or access road. These applications/plans/reports will serve as the Operator's field operations guide, a copy of which will be kept on-site and in the office of the Operator. The applications/plans/reports are as follows:

  - Application for Permit to Drill (APD):
  - Right-of-way Application;
  - Transportation Plan (Appendix B1 - Survey/road Design);
  - Spill Prevention Control and Countermeasures Plan (SPCC Plan) (Appendix A);
  - Reclamation and Monitoring Plan (Appendix A, Section A-2 and A-3A);
  - Cultural Clearance Reports (Class III) (Appendix A);
  - Storm Water Pollution Prevention Plan (Appendix A, Section A-3);
  - Visual Simulation in Sensitive Viewsheds.

- **Transportation Plan/Transportation Planning Committee**

A Transportation Plan has been prepared for the Pinedale Anticline Project Area (Appendix B). The Plan describes the procedures by which transportation planning, road design, construction, and road maintenance will be conducted by the Pinedale Anticline Operators to meet their operational needs and BLM requirements for road standards, safety, and environmental resource protection. Guidance on the context and processes for Transportation Planning and road standards have been developed in accordance with the BLM 9113 Road Standards Manual and the Green River Basin Advisory Committee recommendation.

Transportation Planning Committee (TPC). A TPC was established for both the Pinedale Anticline and the Jonah Projects on November 18, 1999. A Memorandum of Understanding (MOU) has been prepared to formalize the working relationship between all parties participating in the TPC. The TPC has the purpose and responsibility to: 1) provide transportation roads and pipelines planning oversight for the pinedale anticline and Jonah Projects to provide identification of and consideration for environmental and local needs, issues and concerns; 3) formulate and recommend potential solutions and implementation strategies; and 4) evaluate monitored results of approved solutions.

Subcommittee may be established as necessary to address and recommend resolutions for site-specific issues (e.g., operational/compliance issues; individual road maintenance and/or construction; and/or development). The TPC does not have authority to require or to implement any specific action, solution, or strategy. It can only make recommendations to the responding agency (e.g., BLM for actions/solutions affecting BLM-administered lands; Sublette County Commissioners for actions/solutions affecting County roads, ordinances, etc.; State of Wyoming for actions/solutions affecting State lands, State Law or Regulations, etc.; Wyoming Department of Transportation (WYDOT) for actions/solutions affecting State Highways, etc.).

The MOU identifies several areas of cooperation including the following:

1. Right-of-way applications
2. Transportation planning
3. Spill Prevention Control and Countermeasures Plan
4. Reclamation and Monitoring Plan
5. Cultural Clearance
6. Storm Water Pollution Prevention Plan
7. Transportation
8. Visual Simulation in Sensitive Viewsheds
9. Transportation Plan/Transportation Planning Committee
10. Transportation Planning Committee (TPC)
February 2023
Crest Road.

The TPC will conduct an area according with appropriate road associations. A given agreement will be given to affected Operators. Agreements that follow the go in the implementation of existing visibility and atmospheric deposition impact monitoring programs. The need for and the design of additional monitoring will include the implementation of the AEM process (Appendix C). Based upon recommendations through the AEM process, Operators may be required to the implementation of a coordinated airport quality monitoring program.

The WDEQ-AQD emissions tracking will continue, on an annual basis, to report changes in permitted NOx, NOy emissions since 1 January 1996. In accordance with the Joint Agreement (in process) between the BLM, Wyoming DEQ, USDA-Forest Service, and the Environmental Protection Agency, in maximization of oil in the monitoring for the protection of wilderness air quality related values of visibility and lake acidification, the BLM, in consultation with the agencies, will track emissions for the Anticline and the Jonah II projects on an annual basis.

Beginning in December 2000, because of their proximity to the Bridger Wilderness boundary, the Anticline and Jonah II projects will be subject to an air quality permit from the BLM Rock Springs, Pineyales, and Kemmerer Field Offices report, on an annual basis. The BLM will track and report on actual on-the-ground calculated potential NOx, NOy emissions (i.e., the level of NOx emission from permitted, actually constructed/installated facilities based upon the permitted level of emissions per well location, compressor facility, etc.) for the Jonah II and Pineyales Anticline project areas.

The agencies agree that through continued use of the CALPUFF model in future EISs, cumulative emissions impacts will continue to be assessed in southwest Wyoming for each additional new oil and gas permits on Federal lands. The CALPUFF model is a more accurate and meaningful predictor than previously used models of potential impacts on wilderness air quality related values, such as visibility and lake acidification.

This agreement among the agencies will remain in effect until an information source provides recommendations, with

- All parties agree to meet at least twice a year to discuss transportation related issues. One of the required meetings shall be held in January and 1st of February of each year. Meetings may be held more often if agreed to by the committee.
- The TPC will review general road and pipeline transportation plans. Not every roadway, pipeline, or access road associated with an Application for Permit to Drill (APD) or Pipeline Construction Permit (PCP). If there is an issue identified or associated with a proposed roadway, pipeline, APD access road or other right-of-way, the TPC will conduct a review and recommend a solution.
- The Oil/Gas Operators will present their milling, drilling, roadway, and other construction plans to the TPC during the annual meeting (mid-January – February 1st).

Transportation planning for the Pineyales Anticline Project Area will be an ongoing activity and will incorporate consultation with the established Transportation Planning Committee (TPC).

The TPC will conduct an annual on-the-ground review of Operator well and access road development plans. The review will entail assessment of existing roads and how the planned incremental well development roads tie in with the existing network to ensure safety and protection of natural resources. As individual applications (APDs, SNs, ROWs, and/or TUPs) are prepared for submission to BLM following on-site inspection, site-specific consideration will be given to safety and environmental protection in access road location, design, construction, and maintenance in accordance with the guidance of the Transportation Plan for the Pineyales Anticline Area.

• Road Maintenance Agreements

The Pineyales Anticline Operators will utilize an extensive network of existing and new roads in the Pineyales Anticline Project area and the adjacent Jonah Project area. Collector Roads (GRs) and some of the Local Roads are shared by the field Operators. To ensure that appropriate maintenance of these roads occurs, road maintenance agreements will be provided for the shared cost of road maintenance, will be drawn up and signed by all affected Operators. Agreements could be cored according to the following areas.

1. South Pineyales U.S. Highway 191 to Green River (Co 23-110) – Mesa North - Two Creeks Road (Co 23-110); Mesa 7.8 miles Wyominy 351 to Green River (Co 23-110) – Mesa (BLM 5150 and 5102) – Crest Road. 11. South 7.8 miles Wyoming 351 to Paradise Road (Co 23-136).

- Total NOx emissions should be kept below 693.5 tons/year to ensure that permitted emissions do not exceed the Pineyales Anticline EIS scope of analysis.
- The control of NOx emissions at or below 693.5 tons/year could be achieved in a number of ways including but not limited to:
  - Establishing BACT at 0.7 grams/hr for compressor emissions.
  - Denying additional permits once the threshold is reached until additional environmental review has been completed in accordance with NEPA.
  - Using other new technologies as they become available.

Operators can reduce the amount of emissions associated with compression by using larger diameter pipelines and adopting new environmental technology as it becomes available.

The Pineyales Anticline EIS updates the Pineyales, Kemmerer, and Green River RMPs and southwest Wyoming air quality evaluation on a cumulative basis for the Forest Plan.

Emissions Control. Air pollutant emissions from operation of the Pineyales Anticline development project were based upon the analysis assumptions contained in the Pineyales Anticline EIS and Technical Report (CALMETCALPUFF Modeling). All emissions from the area are being examined to ensure that the emitter permit requirements for construction, modification and operation of existing, new, and modified oil and gas production units within Wyoming Department of Environmental Quality, Air Quality Division, Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance, revised January 2000. If activity and corresponding emission assumptions and/or impacts exceed those identified in the Pineyales Anticline EIS (76.59 tons/year of NOx emission from compressors or 693.5 tons/year NOx emissions, from the combination of construction/drilling, well production, and compression), the BLM, in cooperation with Wyoming Department of Environmental Quality Air Quality Division (DEQ-AQD), EPA Region VIII, USDA-Forest Service, and other affected agencies, will initiate additional cumulative air quality environmental review as required by CEQ regulations 40 CFR 1502.9(c)(1).

Each compressor engine undergoes Best Available Control Technology (BACT) review by WEDEQ. The appropriate controls will be determined as part of the air quality preconstruction evaluation and permitting process required by the WEDEQ.

The BLM, however, offers to Wyoming DEQ for their consideration in permitting facilities having NOx emissions within the Pineyales Anticline project new emission standards or emission limits below the BLM recognizes that the implementation of some of the mitigation measures may be outside the WEDEQ DEQ's regulatory authority.

- Total NOx emissions should be kept below 693.5 tons/year to ensure that permitted emissions do not exceed the Pineyales Anticline EIS scope of analysis.

Specific BACT analysis are conducted in an annual basis

- Air Quality Monitoring/Tracking Program. At this time no additional air quality monitoring measures have been identified as necessary to measure potential air quality impacts. As development proceeds, BLM will monitor NOx and gas lease terms. BLM may require the lessees within their lease rights granted, to take measures deemed necessary in the conduct of their operations to minimize adverse impacts to the air, as well as other resources. The BLM will continue to cooperate in the implementation of existing visibility and atmospheric deposition impact monitoring programs. The need for and the design of additional monitoring will include the implementation of the AEM process (Appendix C). Based upon recommendations through the AEM process, Operators may be required to the implementation of a coordinated airport quality monitoring program.

The WDEQ-AQD emissions tracking will continue, on an annual basis, to report changes in permitted NOx, NOy emissions since 1 January 1996. In accordance with the Joint Agreement (in process) between the BLM, Wyoming DEQ, USDA-Forest Service, and the Environmental Protection Agency, in maximization of oil in the monitoring for the protection of wilderness air quality related values of visibility and lake acidification, the BLM, in consultation with the agencies, will track emissions for the Anticline and the Jonah II projects on an annual basis.

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The agencies agree that through continued use of the CALPUFF model in future EISs, cumulative emissions impacts will continue to be assessed in southwest Wyoming for each additional new oil and gas permits on Federal lands. The CALPUFF model is a more accurate and meaningful predictor than previously used models of potential impacts on wilderness air quality related values, such as visibility and lake acidification.

This agreement among the agencies will remain in effect until an information source provides recommendations, with
The U.S. Fish and Wildlife Service (USFWS) concurs in the assessment that the project, as described, is not likely to adversely affect the listed species - black-footed ferret, bald eagles, raptors, or mountain plover, nor is it likely to jeopardize the proposed mountain plover, or the candidate swift fox. The reasonable and prudent measures described in Appendix A, pages A-19 through 21 will be implemented. These measures include the requirement that no permanent effect of the project, project-related, high-profile structures will be located within 2,000 feet of a bald eagle nest. Well pads will be located so that they are at least 2,000 feet, preferably 5,000 feet, from bald eagle nests. Wastewater discharges will be delayed if not allowed closer than 2,000 feet of a bald eagle nest. The USFWS认为 will have no human activity at the well site from February 15 through August 15 except in the case of an emergency; and will locate production facilities off-site or at a central production facility location at a distance of 2,600 feet or more from the nest.

Endangered Fish - The USFWS has determined that any withdrawal of water from the Colorado River System for surface or ground water use will significantly affect endangered Colorado pikeminnow, humpback chub, bonytail, and razorback suckers. The USFWS has determined that the reasonable and prudent alternative is for the proponent to contribute to the conservation fund for the Colorado River Fish program. The USFWS Colorado River Endangered Fish Recovery Program uses the contributions to improve habitat for these species.

Black-Footed Ferret (listed) - The reasonable and prudent measures described in Appendix A, page A-21 will be implemented. Proposed construction sites in the development area will be examined prior to surface-disturbing activities to confirm the presence of black-footed ferret colonies, and determine the size, burrow density, and any other data to indicate whether the criteria for black-footed ferret habitat, established in the USFWS (1989) guidelines, are present. If no black-footed ferret colony/complex is identified within the project area, the Mitigation Guidelines and Standard Practices may be used to minimize impacts in a prudent manner.

The results of the survey will be provided to the USFWS in accordance with Section 7 of the ESA, as amended, and Interagency Coordinating Committee on the Protection of Wildlife Resources (ICCPPW) regulations. If a black-footed ferret colony/complex is identified, the BLM will continued to follow guidelines established in the USFWS (1989) guidelines, as amended. If a black-footed ferret colony/complex is identified, the BLM will implement the schedule and requirements. The BLM will be responsible for ensuring protect and site located restriction until an approved mitigation plan is in place.

Lek Protection. Lek protection will be maintained by avoiding surface disturbance within 0.25 miles of a sage grouse lek (grazing grounds). Linear disturbances such as pipelines, seismic activity, etc., could be granted exceptions by the BLM. If the USFWS determines that a lek or the associated wetland will not be affected from November 15 through April 30 within certain areas encompassed by the BLM. The same criteria apply to the USFWS issues granting an exception that would not jeopardize the BLM.

Mountain Plover (proposed for listing) - The mitigation measures described in Appendix A, pages A-20 and A-21 will be implemented. If the effort of the project the mountain plover should be lost as an endangered or threatened species, the USFWS will initiate consultation with the USFWS. If formal consultation is necessary, all reasonable and prudent measures specified by the USFWS will be required and implemented by the Operator and his contractors.

Raptor Nest Protection The Mitigation Guidelines and Standard Practices described in Appendix A, Section A-1, pages A-2 and 3, Section A-2, pages A-19 and 20, and the mitigation measures described in Appendix A, Section A-3, pages A-30 and 31 will be implemented to protect raptors and raptor nesting.
Reclamation success depends upon many site specific factors. Reclamation will be applied as specified in Appendix A-2 and A-1, including the seed mixes on pages A-27, 28, and 29. BLM may require that Operators collect certain soil chemistry information and include it in their applications on a case-by-case basis. Endible or hard to revegetate soils should not be disturbed any more than absolutely necessary.

Project related travel is restricted to constructed, surfaced roads when soils are saturated and rutting could occur to avoid compacting the soil and accelerating soil erosion.

Sandy soils will be avoided. These soils are highly erosive, difficult to revegetate, contain buried cultural material, and support tall sage brush which is important sage grouse wintering habitat.

Soil Stabilization/Revegetation Monitoring - The operators, in cooperation with the BLM, will conduct inspections of the revegetation efforts after the second and fourth growing seasons to evaluate success. The need for in-field residual herbicide treatment or spot treat will be determined by the operator and the BLM. Successful revegetation will be based on the ability of the vegetation to stabilize reclaimed soils and to provide livestock and wildlife forage. If revegetation is judged to be necessary, based on vegetation density and composition of adjacent areas, the erosion control, revegetation, restoration plans should be reviewed for any necessary changes to improve revegetation success. Results of the monitoring efforts will be presented at the annual meeting.

The reclamation monitoring program shall include written documentation of the effectiveness and implementation of reclamation. The Operators will monitor their reclamation to ensure that revegetation meets accepted standards (e.g., 50 percent of predisurbance cover at 2 years and 80 percent at 5 years, or other standard developed specifically for the environment of the Pinedale Anticline Project area by the Pinedale Anticline E&M Oversight Committee).

In accordance with Executive Order 13112, if invasive or non-native species infest reclaimed sites, they will be controlled by mechanical, chemical, biological or other methods which are approved by BLM and the local weed control agency. Herbicide use will be limited in all areas near water and special status plant populations.

Vegetation Protection/Reclamation/Monitoring

The Standards Practices specified in Appendix A, Section A-2, Appendix A-1, and the mitigation brought forward from the EIS into Appendix A, Section A-3, pages A-29 and 30 will be implemented to protect soils and provide for proper reclamation. Surface disturbance will be kept to a minimum.

Vegetation will be protected and managed using procedures identified by the Office of State Oil and Gas Supervisor, Rules and Regulations of WOGCC and the BLM.

BLM recommends that when the Wyoming State Engineer Office and/or Wyoming Oil and Gas Conservation Commission permits any water supply wells drilled by the Operators within 1,000 feet of an existing stock or domestic well, they specify that the wells production zone (perforated interval) be at least 200 feet below that of the domestic well. BLM also recommends that the permit specify water supply wells shall not cause any disturbance to domestic water wells within the 2-mile radius of existing and proposed development, and annually monitor and maintain a complete record of water analysis for all new water supply wells drilled in the project area to evaluate the quality of source options in the event some mitigation is required. The deeper groundwater supply zone of drilling water wells is a significantly higher salinity content than existing domestic and stock wells, particularly in the southern part of the PAPA. Records will be submitted annually in accordance with the monitoring program will be reviewed with the public during the annual AEM review.

The groundwater monitoring program may follow the one currently being conducted by the U.S. and the Mesa livestock operators, but will be developed to include the entire project area. The monitoring program will be designed by a qualified hydrologist and the results reported annually during the annual development review. The groundwater monitoring program will include routine measurement of groundwater levels in existing stock wells and groundwater quality to ensure that wells are not impacted (drawdown of water table and degradation of quality) beyond their intended use as a result of the proposed project.

Surface Water Monitoring - The operators north of Wyoming Highway 235 will develop a surface water monitoring program in cooperation with the State of Wyoming and the BLM. The monitoring program will be reviewed with the public during the annual AEM development review. The groundwater monitoring program will be to establish baseline conditions in the New York and Green Rivers which are currently included in Table E of the State of Wyoming’s 303(d) program. The State of Wyoming has already initiated monitoring on these streams and will show whether the streams are currently sustaining their designated uses. The monitoring program must be robust and verified to that the rivers do or do not continue to support their designated use. If this program is not satisfactory, the operator’s certificate could be revoked or suspended to the cause of the impaired water when, in fact, it could result from other sources. In addition to chemical components, the monitoring program should include channel conditions such as velocities and long-term effects of surface disturbance on erosion in the PAPA.

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The BLM and the Historic Preservation Officer (SHPO) will enter into a Programmatic Agreement (PA) which includes discovery plans or individual project treatment plans (Appendix E). The Operators are encouraged to actively participate in the agreement. These plans will provide direction and decisions ahead of time so that actions in the field can be carried out much quicker, especially when unexpected discoveries are made.

Cultural resources potentially affected by this undertaking will be managed in accordance with the Pinedale Anticline/ Jonah project PA and in Management Plan. Until this document is completed, cultural resources will be managed in accordance with the Wyoming State Protocol Agreement for cultural resources (ratified April 1998) and regulations contained within 36 CFR 800 pertaining to discoveries. The Mitigation Guidelines and Standard Practices for cultural/historical resource management will also apply (see Appendix A).Appendix A-1, pages A-3 and A-4, Appendix A-2, pages A-16 and 17; and the mitigation brought forward from the EIS into Appendix A, Section A-3, pages A-24 and 25.

BLM will work with the Operators to minimize impacts on sensitive cultural resources and/or areas sensitive to Native Americans. Where potential impacts to these resources cannot be adequately mitigated while allowing a proposed action, the use and occupancy of these areas may be prohibited entirely.

Until the PA and Management Plan are completed, the primary means of mitigation of cultural resource impacts is to avoid these sites. If that is not practicable, then impacts must be mitigated on a case-by-case basis or via preestablished methods. Excavation is the primary form of mitigation for prehistoric sites that can not be avoided. Unexpected discoveries will be handled on a case-by-case basis but salvage excavation will normally be required because the site has been impacted. Salvage excavation recovers what information remains and allows the action to proceed.

The BLM has consulted with the Native Americans to identify areas of importance to them as required by laws, regulations, and Executive Orders.

An educational program to inform employees about the regulations concerning cultural resource management and artifact collection is required of the Operators because of the sensitivity of the resource and laws prohibiting their disturbances, and removal from public land.

Patrols by BLM will be increased to deter illegal征集 of cultural materials.

Mitigation of effects to significant historic period cultural resources will be determined subsequent to consultation with all affected and interested parties.

The Historic Lander Trail will be avoided. Surface disturbance activities will avoid areas outside 0.25 miles of a trail unless such disturbance will not be visible from the trail or will occur in an existing visual intrusion area. Historic trails will not be used as haul roads. Placement of facilities outside 0.25 miles that are within sight of the Lander Trail will be located to blend the site and facilities with the background.

Because of the potential for direct impact to the Lander Trail in State Section 36, T. 31 N., R. 109 W. (this section could be developed at up to 16 well pads/square mile and direct impacts to the trail could occur because the state leases do not contain stipulations which offer protection for the trail), the BLM recommends that the State of Wyoming and BLM investigate a land and mineral exchange for this section. As of this date, there is one non-producing well pad and access road in the section. By obtaining the surface rights, the BLM could offer some protection of the trail from direct impacts. Although the existing rights of the current lessee will need to be recognized. The state could replace any potential lost revenues from this section and insure the protection of the trail.

In the Lander Trail viewshed (defined as up to 3 miles north of the trail and south of the trail to the Wyoming Highway 351) beyond the current 0.25 mile protective buffer, the completion of a visual analysis will be required on a case-by-case basis so that well pads, access roads and pipelines can be located on Federal lands and minerals in a manner which minimizes their visibility from the trail. Visibility analysis will involve completing a visual resource contrast analysis (BLM Manual H-8431-1, Form H-800-4) and utilizing viewpoint analyses, such as in Figure 3-11 of the DEIS, and visual simulation modeling to determine the best location to screen facilities.

If extensive development occurs within the trail viewshed (i.e., more than 4 well pads/square mile) on Federal lands and minerals, CPFs or pad drilling may be required to reduce tank and other facilities from well locations visible from the trail.

**Socioeconomic**

BLM will work with the Operators to plan proposed development operations such that seasonal restrictions do not impact the associated workforce. BLM will work with the Operators to facilitate where unnecessary and undue impacts to wildlife or other resources would not occur. (See Request for Exceptions section below.)

**Land Use**

To manage and reduce the number of roads within the proposed area, in conjunction with the TPC and as deemed necessary by the AO, existing roads (including two-tracks) that are not needed by the Operators or other users will be reclaimed and revegetated by the Operators. Roads reduce the amount of forage available, causes accelerated soil erosion, and fragment wildlife habitat. Reclaiming unneeded roads is one way to reduce these impacts. Before road work and ensuring these roads a cultural resource survey will be required.

Adaptive tumouts on new crowed-and-ditched roads to provide access to existing two-tracks and other undeveloped roads will be required. Ranchers have pointed out that crowded-and-ditched roads often prevent them from accessing two-tracks with low clearance vehicles (trailers). This requirement is meant to eliminate that concern.

**Livestock Grazing**

The Standard Practices specified in Appendix A, Section A-2, page A-21 and the mitigation brought forward from the EIS into Appendix A, Section A-3, page A-30 will be implemented to protect livestock grazing within the PAPA. All pads containing fluids will be fenced, using wood brace posts, to keep livestock and big game from drinking any contaminated water. This requirement is meant to protect livestock and big game animals in the event that harmful substances are in the pit.

Access roads will avoid major drainages that are used by livestock operators for traling (e.g., Lovan Draw). No surface pipelines greater than 4 inches will be installed unless they are located along a fence or other agreed upon location. Fences that are not to install through drainages or low lying areas are required. These pipelines will be rebuilt immediately upon construction completion. Cattleguards will be installed on well field roads and maintained by the right-of-way holder.

**Hazardous Material**

The Standard Practices specified in Appendix A, Section A-2, pages A-22 will be implemented to protect public health and safety within the project area. All Operators will comply with the Hazardous Materials Management Plan and Procedure of the Hazardous Materials Summary in Appendix D. Portable sanitary facilities are required.

The Standard Practice for hazardous material containment on a well location and/or storage tank batteries (i.e., impervious barrier under storage tanks) to protect ground and surface water will be applied on a case-by-case basis throughout the PAPA as deemed necessary by the AO, with the following exceptions - all wells on Federal lands and minerals within one mile of the New River or Green Rivers and any wells within 50 feet of ground water shall implement the standard practice for hazardous material containment (see Appendix A, page A-22).

For these areas the Operators will be required to incorporate into the design of the containment structure, including walls and floor, a sufficiently impervious barrier (e.g., bentonite, cement, plastic liner, etc.) so that any spill or leakage will not drain, infiltrate, or otherwise escape to ground, surface, or navigable waters before cleanup is completed (i.e., within 72 hours of discovery). Exceptions to the one mile will be considered where conditions such as topography, slope, etc., preclude spills from reaching surface waters.

**Remedial Action/Compliance Monitoring**

Appropriate remedial action will be taken by the Operators in the event unacceptable impacts are identified.

The Operators will be required to conduct monitoring of project sites, conduct monitoring in cooperation with the BLM and other affected agencies.

Each Operator will provide a qualified individual to serve as their Environmental Compliance Coordinator, who will be responsible for assuring that, during the life of the project, mitigation measures are applied and monitoring activities are conducted as necessary to ensure impacts are minimized.

**Request for Exception**

A request for an exception to a seasonal restriction shall follow the Guidelines provided in Appendix A, Section A-1, “Guidance” and Appendix A-6, pages A-53 through 55, Procedures, for Processing Applications in Areas of Seasonal Restrictions.

A request for an exception to a requirement for use of a CPF, directional drilling, or pad drilling will require the Operator to provide the following information (i.e., “A” and “B” below) with their notice of staking (NOS) or preliminary APD submission.

**A. Technical/Economic Evaluation:** The operator will prepare and submit an evaluation of the technical and economic feasibility of CPF, directional drilling, or pad drilling including consideration of:

- Expected recoverable reserves.
- Multiple well drilling or CPF costs.
- Gas price.
- Payoffs, etc.

Upon receipt of the information, the BLM will verify the technical/economic evaluation on the basis of the information submitted by the Operator.

- **Introduction**

The PAPA contains a number of sensitive human/environmental resources which could potentially be adversely affected by natural gas exploration and development activities. Each of these resources has been designated as a Sensitive Resource Management Zone (SRMZ) based upon public input and analysis contained in the DEIS. Each SRMZ is a compilation of resource values and is described and mapped in detail in the Pinedale Anticline DEIS, Chapters 2, 3, and 4.

When combined, these SRMZs cover nearly all of the PAPA, particularly in the northern two-thirds of the project area. Many of these SRMZs overlap making management of any particular area of the PAPA complicated. For instance, on the northern part of the PAPA, areas which have been identified as visually sensitive overlap with winter and crucial winter range for deer, residential areas, sage grouse lek buffers and nesting habitat, and the Mesa Breaks. To address the overlapping SRMZs, the BLM has divided the entire PAPA into 9 distinct Management Areas (MA) shown in Figure 8. MAs 1 through 8 apply only to Federal lands and minerals. All non-Federal lands and minerals have been combined into MA 9. Each of the MAs have different management objectives based on the combination of SRMZs present. To allow for the development of the natural gas in a reasonable balance with the resource management objectives for each MA, the following development restrictions/limitations will be applied on federal lands and minerals. Table 2 summarizes the Resource Protection Mitigation Alternative maximum allowable levels of well pad development by MA. If the threshold is reached, no additional well pads will be authorized until additional environmental analysis has been completed.

- **Management Objectives and Restrictions/Limitations Common to All Management Areas**

This section describes management objectives and development limitations/restrictions (that will be applied to all federal lands and minerals in all MA) across the PAPA:

**Objectives:**

- Continue to promote active public participation in all aspects of future exploration and development.
- To the extent practicable, eliminate or minimize undue and unnecessary disturbance/impacts (direct and cumulative).
- Avoid disturbances on slopes 25% or greater, unless otherwise specified, and on sensitive soils to prevent erosion, protect water quality and reduce impacts in sensitive viewsheds.
- Protect cultural/Native American sacred sites.
- Minimize impacts on recreation use and sensitive viewsheds.
- Continue maintenance of livestock grazing and trailing operations.

**Restrictions/Limitations:**

- Proposed and cumulative development (wells, access roads, pipelines, centralized production facilities (CPF), compressors, etc.) within each MA will be reviewed at least annually within the context of the Adaptive Environmental Management (AEM) planning process. Monitoring will be developed to address both direct and cumulative impacts. All major road and pipeline plans may need to be reviewed by the Transportation Planning Officer to ensure their locations will result in the least impact.
- Prior to surface disturbing activity, site-specific environmental analysis of the action on the management objectives/resource values of the affected MA will be necessary.
- Where necessary, areas to be disturbed will require inventories or special studies to determine the extent of site-specific impacts and appropriate mitigation. Operators could be required to complete inventories or short-term special studies under guidelines provided by the BLM or as developed through the AEM planning process.
- As discussed in Appendix A, if in the conduct of operations, substantial unanticipated environmental effects to listed, proposed or candidate species are observed (whether effects are direct or indirect), formal consultation with USFWS will be immediately initiated in addition to cessation of all such operations; or if effects to paleontological values, objects of historic or scientific interest are observed, the operator will be required to immediately contact the BLM and the operator will be required to cease any operations that will result in the destruction of or adverse impact to these values.
- Each and every proposed action on public lands will be required to comply with the Mitigation Guidelines and Standard Practices for Surface Disturbing and Disruptive Activities contained in Appendix A.
- BLM will require each right-of-way, Application for Permit to Drill or other application to include a reclamation plan in conformance with the Mitigation Guidelines and Standard Practices for Surface Disturbing and Disruptive Activities (see Section 3, Soils and Vegetation Protection/Reclamation/monitoring and Appendix A). BLM will require all aboveground facilities.
Table 2. Resource Protection Mitigation: Alternative Maximum Allowable Level of Well Pad Development by Management Area.

<table>
<thead>
<tr>
<th>Management Area # Name</th>
<th>Acres</th>
<th>Average # Pads/Square Mile</th>
<th>Maximum # Pads/Square Mile</th>
<th>Total Producing Pads Threshold (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lander Trail (1)</td>
<td>3.460</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2 Mesa Breaks (1)</td>
<td>7.366</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3 Unleased Federal</td>
<td>1.347</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4 Sensitive Viewshed</td>
<td>8.666</td>
<td>2</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>5 Crucial Deer, Antelope, Sage Grouse Habitat</td>
<td>67.801</td>
<td>2</td>
<td>16</td>
<td>212</td>
</tr>
<tr>
<td>6 Crucial Sage Grouse Habitat</td>
<td>39.205</td>
<td>3</td>
<td>16</td>
<td>183</td>
</tr>
<tr>
<td>7 Ross Butter/Blue Rim Sensi tive Soils, Plants, Raptors</td>
<td>10.953</td>
<td>4</td>
<td>16</td>
<td>68</td>
</tr>
<tr>
<td>8 Minimal Conflict Area</td>
<td>26.605</td>
<td>4</td>
<td>16</td>
<td>168</td>
</tr>
<tr>
<td>9 Non-Federal Lands (2)</td>
<td>31,925</td>
<td>4</td>
<td>16</td>
<td>200</td>
</tr>
<tr>
<td>TOTAL</td>
<td>197.345</td>
<td></td>
<td></td>
<td>859 (9)</td>
</tr>
</tbody>
</table>

1. Development of easements. In this MA is provided for from wells drilled from pads located outside the MA.
2. This MA is comprised of private and state lands and minerals. BLM has no authority or control over well pad numbers/placement on private or state lands. The number of wells is based on an average of four wells/square mile.
3. There are a few areas, where the width of the breaks may exceed the technological and economical feasibility of directional drilling, in which case BLM will consider an exception under the guidelines provided in Section 3, Request for Exception. In such circumstances, production will be located off-site, outside the breaks, unless analysis shows that impacts would be less on-site than would occur at alternative locations outside the breaks.
4. Operators will be required to consider implementing CPFs and/or pad drilling to allow for additional well pads/wells to reduce unnecessary/undue MA impacts.
5. More than 4 well pads/square mile will require operators to consider implementing CPFs and/or pad drilling to allow for additional well pads to reduce unnecessary/undue MA impacts.
6. More than 8 well pads/square mile will require operators to consider implementing CPFs and/or pad drilling to allow for additional well pads to reduce unnecessary/undue MA impacts.
7. Operators will be required to consider implementing CPFs and/or pad drilling to allow for additional well pads to reduce unnecessary/undue MA impacts.
8. If the well pad threshold is reached within a MA, no additional well pads will be authorized until additional environmental analysis has been completed. A well that is a dry hole and which has been plugged and reclaimed (recontoured and seeded) for one full growing season may be credited back to that MA. Successful revegetation is expected in 3 to 5 years. Well pad numbers represent the total per MA based on the average number of well pads/square mile BLM considered appropriate for each resource protection.
9. Although the total number of producing wells equals 859, this is not the number of producing wells authorized by this ROD. This total represents the number of well pads in each MA that would occur if the average number of well pads per square mile, which is considered appropriate for reasonable resource protection, were developed. The ROD analyzes and allows 700 producing pads for the project area as a whole; to be painted with appropriate nonreflective standard environmental colors specified by the BLM.
10. Low profile tanks will be required whenever visual sensitivity is an issue and/or when there is an issue on the recognition of appropriate mitigation to help maintain the basic characteristics of the landscape. Unless excepted, BLM will allow only low profile tanks north of the New York River and within the Lander Trail viewed.
11. BLM will require productive well locations and their access roads (including access slopes and back slopes) to be reclaimed (using a BLM-approved seed mix) by the fall or spring after the well has been drilled and brought on line.
12. Best Management Practices (BMPs) will be required to control sediment from all construction sites. Because of concerns regarding potential sediment impacts to the New York and Green Rivers, BLM will require operators to provide more detailed plans, with their AFD and/or right-of-way application, for erosion control, reclamation, and restoration on sites within one mile of the Green and New York Rivers. These plans will be required prior to initiating any construction activities (see Appendix A, Section A-3, pages A-44 through 52 for examples of BMP considerations). Documentation of adequate monitoring and repair of erosion control structures will be required by WDEQ.
13. No well pads, access roads, or aboveground facilities will be allowed within 0.25 miles of a sage grouse lek. In selecting a site for a comfort facility, the distance from the edge of a sage grouse lek shall be sufficient to result in a noise level increase from operating facilities no greater than 10 decibels (dBA) above background (i.e., 10 dbA background + 10 dbA = 20 dbA). Further restrictions may be required if the species is determined by the U.S. Fish and Wildlife Service to be eligible for listing as either threatened or endangered pursuant to the Endangered Species Act. Monitoring will be required by BLM to determine which leks in the PAPA are active and which have been abandoned.
14. The placement of well pads, access roads, or aboveground facilities will be allowed within 0.25 miles of an active raptor nest, 1,000 feet of a vegetated hawk nest, and 2,600 feet of a bald eagle nest. Wells that must be located closer than 2,600 feet (that will not be allowed closer than 2,000 feet) of a bald eagle nest will be out of the direct line of sight of the nest. All wells that have human activity at the well site from February 15 through August 15 except in the case of an emergency; and will locate production facilities offshore or at a central production facility location at a distance of 2,600 feet or more from the nest or out of the direct line of sight of an eagle nest.
15. To minimize visual impacts in Visual Resource Management (VRM) Class II or III areas, authorization of well pads, new roads, CPFs, buried pipelines, etc. will require the operator to demonstrate to the AO’s satisfaction that the location and/or facilities have reasonably incorporated visual design considerations that will mitigate unnecessary visual impacts.
16. Operators will be required to consider implementing CPFs, particularly in areas of sensitive resource values, to allow for additional well pads and reduce unnecessary/undue impacts. Consequently, operator advanced planning for CPFs and gathering pipeline systems will be necessary. Where CPFs are planned, temporary surface pipelines may be required by BLM until the location of CPFs is determined. The AEM planning will provide help to determine the need/appropriateness of CPFs and when and where they should be installed.
17. If well pad thresholds are reached within a MA, dry hole plugged and abandoned well pads, successfully reclaimed for one growing season, may be credited back to that MA.
18. Abandonment procedures of the BLM and WOGCC will be followed by the Operator for plugging and abandonment of each well. Reclamation plans provided in the approved AFD or subsequently submitted at abandonment will be used for final abandonment procedures. All surface equipment will be removed from the site and the well pad area and access roads will be revegetated on a surface that is suitable for future use and is permitted. Reseeding of all disturbed areas will be accomplished in the fall or spring.
19. Each MA has an average number of square pads/threshold density restriction (see Tables 2 and 3). If the threshold is reached, no additional well pads will be authorized (except for drainage); until additional environmental analysis has been completed that includes the analysis of 1) the effects of development, to-date, upon the identified resource management objectives and concerns, 2) on any additional resource affected by further development, 3) existing or reasonable additional mitigation deemed necessary, and 4) public review and comment.

* Individual Management Area Objectives and Restrictions/Limitations

In addition to the general objectives and restrictions/limitations listed above, the BLM will implement the additional objectives and restrictions/limitations listed in Table 3 and unique to the MA’s shown in Figure 8.
Figure 8
Management Areas for Resource Protection on Federal Lands and Minerals
	
Table 3. Individual Management Area Objectives and Restrictions/Limitations

<table>
<thead>
<tr>
<th>Management Area Objectives</th>
<th>Exploration and Development Restrictions/Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MA 1 - Lander Trail</strong></td>
<td></td>
</tr>
<tr>
<td>Preserve the integrity of the trail and the trail viewed.</td>
<td></td>
</tr>
<tr>
<td>1. In compliance with the existing Oregon/California Trail Management Plan, within the 3,460 federal acres located within 0.25 miles of the Lander Trail, no new disturbance will be allowed on the trail except where existing improved roads and pipelines currently cross the trail.</td>
<td></td>
</tr>
<tr>
<td>2. To minimize impacts to the trail setting, no construction activities will be allowed within 0.25 miles of the trail on Federal lands and minerals unless screened from the trail by topography.</td>
<td></td>
</tr>
<tr>
<td>3. In the trail viewed (defined as up to 3 miles north of the trail and south of the trail to Wyoming Highway 351) beyond the current 0.25 mile protective buffer, the completion of a visibility analysis will be required on a case-by-case basis so that well pads, access roads and pipelines can be located on Federal lands and minerals in a manner that minimizes their visibility from the trail to the greatest extent practicable. Visibility analysis will involve completing a visual resource contrast analysis (BLM Manual H-8431-1: Form 8400-4) and utilizing viewed analyses, such as in Figure 3-11 of the DEIS, and/or visual simulation modeling to determine the best location to screen facilities.</td>
<td></td>
</tr>
<tr>
<td>4. If extensive development occurs within the trail viewed (i.e., more than 4 well pads/square mile on Federal lands and minerals, installation of CPPs or pad drilling may be required to reduce/minimize tanks and other facilities from well locations visible from the trail).</td>
<td></td>
</tr>
<tr>
<td><strong>MA 2 - Mesa Breaks</strong></td>
<td></td>
</tr>
<tr>
<td>Maintain the existing quality, suitability and habitat effectiveness of the Mesa Breaks deer crucial winter range. Three Breaks provide thermal cover and forage during severe winters.</td>
<td></td>
</tr>
<tr>
<td>Retain the existing character of the landscape and sensitive viewed.</td>
<td></td>
</tr>
<tr>
<td>Avoid disturbance on slopes 10 percent or greater and on sensitive soils to prevent erosion and alter the sensitive viewed.</td>
<td></td>
</tr>
<tr>
<td>1. To minimize impacts within the 7,366 Federal acres of highly sensitive wildlife habitat, soils, viewed, and seasonal recreation use area, well pads, new access roads/pipelines (particularly the area of the Breaks and Sensitive Viewshed shown as &quot;no new roads&quot; on Figures 5 and 6) will avoid being placed within the Breaks on Federal lands and minerals. However, if in the course of site-specific environmental analysis BLM determines that the consequential environmental impacts would be less within the Breaks than outside, permits may be issued in the Breaks. There are a few areas where the width of the Breaks may exceed the technological and economic feasibility of directional drilling, in which case BLM will consider an exception under the guidelines provided above in Section 3. Request for Exception. Under these circumstances, production facilities will be located off-site, outside the Breaks.</td>
<td></td>
</tr>
<tr>
<td>2. The Transportation Planning Committee will review all new access roads or proposed pipeline routes through the Breaks on Federal lands and minerals and submit recommendations to the BLM on the location considered most environmentally acceptable.</td>
<td></td>
</tr>
<tr>
<td>3. Planning for wells within this MA will require additional public involvement and monitoring under the AEM planning process. Proposed project development (e.g., well pad, pipeline, CPPs, etc.) will require site-specific NEPA analysis that addresses wildlife, soils, visibility, recreation and any other affected resources.</td>
<td></td>
</tr>
<tr>
<td>4. Disturbance on slopes 10 percent or greater will be avoided within the Breaks and on highly erodible soils or soils with a high degree of color contrast to prevent erosion, water quality degradation and visual contrast from disturbance.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3. Continued

<table>
<thead>
<tr>
<th>Management Area Objectives</th>
<th>Exploration and Development Restrictions/Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MA 3 - Unleased Federal Minerals</strong></td>
<td></td>
</tr>
</tbody>
</table>

These Federal minerals have been closed to mineral lease. They include Federal minerals under the industrial park west of Pinedale, several tracts near Boulder that were withdrawn at the request of the Department of Defense. Native American sensitive sites, etc. The management objective of this MA will be to continue to hold these parcels closed to development.

| **MA 4 - Sensitive Viewshed** |

Protect the sensitive viewshed by retaining the existing character of the landscape.

- Protect and maintain winter and crucial winter deer range.
- Protect and maintain existing raptor nesting habitat.

1. To minimize impacts within the 8,686 Federal acres of sensitive viewshed and crucial deer winter range, the threshold of producing well pads allowed will be 28 within this MA (based on an average of two square miles). The maximum number of pads/square mile will be four. However, pad drilling or CPFs could be used to allow for additional well pads if unnecessary or undue short- or long-term impacts to the sensitive viewshed will occur.

2. To the extent practicable, new roads will avoid the area of the Breaks and Sensitive Viewshed shown as "no new roads" on Figures 5 and 6. The installation of CPFs and/or employment of pad drilling will be required on Federal lands and minerals to screen tanks, other facilities and road and pipeline disturbance that could degrade the visual quality of the landscape from view points within the town of Pinedale, adjacent housing development areas and portions of U.S. Highway 191.

3. Approval of well pad locations, new roads, or buried pipelines will be conditioned upon the operator developing a visual resource protection plan, acceptable to BLM, for the mitigation of anticipated impacts.

4. Planning for wells within this MA will require additional public involvement and monitoring under the AEM planning process. Proposed project development (e.g., well pad, pipeline, CPFs, etc.) will require site-specific NEPA analysis that addresses the sensitive viewshed, wildlife, soils, visibility, recreation and any other affected resources.

5. Disturbance on slopes 10 percent or greater will be avoided on the face of the Mesa and on highly erosive soils or soils with a high degree of color contrast to prevent erosion, water quality degradation and visual contrast from disturbance.

**MA 5 - Big Game Winter Range and Sage Grouse Strutting and Nesting Habitat**

Limit surface disturbance and human activity which could displace deer and antelope from winter ranges and sage grouse from strutting and nesting habitat resulting in mortalities and reduced population levels.

Implement measures to screen activities and facilities so they do not attract the attention of a casual observer in VRM Class III areas on either side of the New York and Green Rivers (see DEIS Figure 3-9).

1. To minimize impacts within this 67,801 acre big game and sage grouse crucial habitat and visually sensitive area, the threshold of producing well pads allowed will be 312 within this MA (based on an average of two square miles). From 0 up to 16 well pads/square mile will be allowed to be constructed and drilled in any given section.

2. At more than 4 well pads/square mile, BLM may require the operators to pad drill any additional wells or to install CPFs on Federal lands and minerals. The operators will be required to demonstrate why either pad drilling or the installation of CPFs are not reasonable or practicable to eliminate production facilities (tanks, dehydration units, etc.) that require daily and weekly maintenance traffic at individual well locations. The DEIS demonstrates that it is desirable to reduce the effects of human activity upon wintering mule deer and sage grouse breeding and nesting. BLM will also use the results of monitoring/evaluation of resource impacts in determining the need/appropriateness of requiring pad drilling or CPFs.

3. To minimize impacts on Federal lands in the VRM Class III viewshed, authorization of well pad locations, new roads, CPF's, buried pipelines, compressor stations, etc. will be conditioned upon the operator developing and submitting a visual resource protection plan, demonstrating, to A.O.'s satisfaction, that the location and/or facilities meet VRM Class III management objectives to the extent reasonable and practicable.

4. Planning for project development within this MA will be processed on a case-by-case basis and will require periodic monitoring under the AEM planning process.

5. Proposed project development on Federal lands and minerals will require site-specific environmental analyses that address the impacts of the proposal on, among other resources, mule deer and antelope crucial winter range use, sage grouse strutting and nesting, highly erodible soils, and VRM Class II and III areas. Such environmental analyses will be used to locate well pads, access roads, pipelines, production facilities, CPFs, compressors, etc., in a manner that minimizes impacts to wildlife, protects erodible soils, and screens the disturbance and facilities, to the extent reasonable and practicable, from the view of residences and recreation activity along the Green and/or New Fork Rivers, U.S. Highway 191 and Wyoming Highway 351 and to determine any necessary seasonal use restrictions.
### Table 3. Continued

<table>
<thead>
<tr>
<th>Management Area Objectives</th>
<th>Exploration and Development Restrictions/Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MA 6 - Sage Grouse Scurrying and Nesting Habitat</strong></td>
<td>Protect this area from unnecessary surface disturbance and human activities which could displace sage grouse from crucial scurrying and nesting habitat resulting in mortalities and reduced population levels. Ensure protection of the Green River and adjacentsub-basins from increased erosion and sedimentation. Avoid activities and facilities that create barriers to the seasonal movements of antelope. Partially retain the existing character of the landscape, on each side of U.S. Highway 191 and the Wind River Front Special Recreation Management Area (SRMA) by implementing measures which reasonably incorporate into the surface disturbance and/or facility use design considerations that will mitigate anticipated visual impacts so they do not dominate the view of the casual observer and so they replicate the existing characteristics of the landscape.</td>
</tr>
<tr>
<td><strong>MA 7 - Ross Butte/Blue Rim</strong></td>
<td>Avoid disturbance to the fossil-bearing formations on a site-specific basis and protect palaeontological fossil resources. Avoid disturbance on highly erodible soils and maintain soil stability and productivity. Protect and maintain existing raptor nesting habitat and protect sensitive plant species. Protect the visual quality of the unique badland area.</td>
</tr>
</tbody>
</table>

1. To minimize impacts within the 39.205 Federal acres of sage grouse crucial habitat, antelope migration corridor, VRM Class III area and SRMA, the threshold of producing well pads allowed will be 183 pads within this MA (based on an average of three pads/square mile). From 0 up to 16 well pads/square mile will be allowed to be constructed and drilled. 2. If development requires more than eight pads/square mile four pads/square mile within the VRM class III and the SRMA east of U.S. Highway 191, on Federal lands and minerals, the operators will be required to either drill additional wells from existing pads (pad drilling) or install CPFs. This will reduce the effects of human activity upon sage grouse breeding and nesting by reducing the daily, weekly, and seasonal maintenance traffic at individual well locations and reduce visual impact from production facilities. BLM will also use the results of monitoring and evaluation of resource impacts in determining the need/appropriateness of requiring pad drilling or CPFs. 3. To minimize impacts on Federal lands and minerals in the VRM Class III, viewpoint of the Wind River Front SRMA, approval of well pad locations, and pad drilling, a visual impact study be conducted upon the operator developing and submitting a visual resource protection plan, demonstrating, to AO’s satisfaction, that the location and/or facilities meet VRM Class III and SRMA management objectives to the extent reasonable and practicable. 4. Proposed project development will require site-specific environmental analysis addressing, among other resources, antelope crucial winter range use, sage grouse scurrying and nesting, VRM Class III visual impacts, and SRMA objectives to best locate a well pad, access road, pipeline, production facilities, CPF, compressor, etc., in a manner that minimizes impacts to wildlife and screens the disturbance facilities, to the extent reasonable and practicable, from the view of U.S. Highway 191 and Wyoming Highway 351. |

| **MA 8 - Minimal Conflict Area** | Maintain antelope summer range and avoid activities and facilities that will create barriers to the seasonal movements of antelope. Avoid highly erodible soils. Partially retain the existing character of the landscape, on each side of U.S. Highway 191 (classified as VRM Class III and the Wind River Front SRMA, by implementing measures which reasonably incorporate into the surface disturbance and/or facility, visual design considerations that will mitigate anticipated visual impacts so they do not dominate the view of the casual observer and so they replicate the existing characteristics of the landscape. |
| **MA 9 - Non-Federal Lands** | Private and state lands not under the jurisdiction of the BLM. BLM cannot impose management objectives or restrictions/limitations on these lands. However, it was suggested during the public workshops that the operators voluntarily adopt the interrelated and interdependent objectives for these areas. Recommendations included maintenance, improvement and restoration of riparian habitat to provide enhanced wildlife and livestock forage/habitat; avoidance of disturbance to scrub-shrub or forested wetland types to protect water quality; survey for cultural and Native American sacred sites; cooperation with private landowners to avoid impacts to area residences; protecting raptor nesting habitat; and continuing the maintenance of livestock grazing and trailing operations. |

This MA of 31,925 acres includes private and state lands not under the jurisdiction of the BLM. It is assumed that the number of well pads on private and state lands would average four/square mile or 200 pads. From 0 up to 16 well pads/square mile could be constructed and drilled in any given section. Lands along the river include most of the wetland/riparian areas found in the PAPA, farm and ranch lands, and 100-year flood plains for the New York and Green Rivers. The COE regulates the discharge of dredged or fill materials into waters of the United States, and would require operators to demonstrate that impacts to special aquatic sites, including wetlands, have been avoided and minimized to the maximum extent practicable. The U.S. Fish and Wildlife Service administrators migratory bird species, threatened and endangered species, and species that are proposed for listing. Operators are required to comply with the Endangered Species Act, regardless of land ownership. In the implementation of construction, drilling, and operation of natural gas development.
FACTORS AFFECTING
THE PINEDALE RESOURCE MANAGEMENT PLAN

Amendment: This Record of Decision (ROD) does not include any amendments to decisions in the Pinedale Resource Management Plan (RMP). Any amendments to be made will be determined at a later date. Thus, this ROD does not amend the Pinedale RMP by changing the ORV designation for the Mount Airy and Desert General Use areas located within the PAPA from "Open" to "Limited to Existing Roads and Trails" (see Pinedale RMP pages 33, 36, 37 and Map 11) as proposed in the Pinedale Anticline Final EIS.

Update of the EIS for the Pinedale RMP: The analysis documented in the Pinedale Anticline EIS updates the oil and gas reasonably foreseeable development scenario and the air quality cumulative impact analysis of the EIS for the Pinedale RMP. (Note: The air quality cumulative impact analysis in the Pinedale Anticline EIS also updates the air quality analysis in the EISs for the Kemmerer and Green River RPMs.) The Pinedale Anticline EIS and the Air Quality Technical Report document the analysis of the combined effects of all on-going oil and gas field development projects, including the Pinedale Anticline project (see DEIS Chapter 5 and Table 5.1). The Pinedale Anticline EIS analysis for the BLM Pinedale Field Office Administrative Area and adjacent U.S. Forest Service lands included an oil and gas reasonably foreseeable development (RFDP) projection of 1,944 new wells (see DEIS Chapter 5 and Table 5.2), an increase of 1,044 wells over the original projections in the EIS for the Pinedale RMP. The Pinedale RMP planning file will be maintained to incorporate the updated analysis.

Future Pinedale RMP Update: The Wyoming State Director has placed a moratorium on Federal mineral leasing and associated and similar activities (e.g., rights-of-way) on all Federal lands and minerals that are unleased and/or that have expired leases in the Hoback Basin, southern foothills of the Gros Ventre Range, and the Wind River Front (see Figure 9). The moratorium will remain in effect until the impacts of leasing these lands for mineral development can be addressed in a planning review and update to the 1988 Pinedale RMP and the Bridger-Teton Leasing EIS has been completed (see DEIS Chapter 5). The RMP planning review for the identified areas will address any needed update of the analysis for Federal mineral leasing in these areas to reflect present day information and public input on air quality related values, protection of the mountain range scenic values, protection of the new and/or more densely populated rural subdivisions occurring on private surface underlain by Federal minerals, and other resource concerns. Pending budget allocations, the planning review and update process is expected to be conducted from the fall of 2000 through 2005.
MANAGEMENT CONSIDERATION

- Introduction

The decision to approve the Pinedale Anticline Project as described for the Resource Protection (RP) Alternative on Federal Lands and Minerals (Section 2), subject to the Administrative Requirements and Conditions of Approval (Section 3), the Management Area Exploration and Development Restrictions for Resource Protection (Section 4), the Wyoming BLM Mitigation Guidelines and Standard Practices for Surface Disturbing and Disruptive Activities (Appendix A), the Mitigation and Monitoring Opportunities Brought Forward From the Pinedale Anticline EIS (Appendix A), the Environ Control, Reclamation, and Restoration Plan (Appendix A), and the Procedures for Processing Applications in Areas of Seasonal Restrictions (Appendix A) will allow the exploration and development of the Pinedale Anticline Project area while providing protection of other natural resources and environmental quality.

The objectives that will be met under the RP Alternative on Federal Lands and Minerals are:

- allow maximum economic recovery of natural gas from the leasesheets;
- preserve, to the extent practicable and reasonable, unique and valuable characteristics of the natural resources present in the PAPA;
- develop migration measures, where practicable and reasonable, to offset impacts which cannot be avoided;
- develop monitoring programs to assure that predicitons made regarding impacts associated with this alternative are not understood and to allow for early resolution of predicted impacts;
- establish a mechanism by which the public can have continual and meaningful input into development in the PAPA.

Many of the issues raised by the WCGP and public during scoping and during the workshops involved the need to minimize surface disturbance and human presence (seasonally) in certain areas of the PAPA. Examples of these areas include, but are not limited to:

- big game winter ranges (minimize habitat loss and human presence during winter);
- sensitive areas to minimize visual impacts by reducing surface disturbance;
- sage grouse nesting habitat (minimize nesting habitat loss and human presence during nesting and nesting); and
- the Lander Trail viewed (minimize visual impacts by reducing surface disturbance).

The RP Alternative was designed to evaluate options that will result in reduced surface disturbance and human presence in these types of areas. Two options are addressed - pad drilling and centralized production facilities. Both options could be used to significantly reduce human presence as well as surface disturbance in sensitive areas.

The RP Alternative on Federal Lands and Minerals will continue to utilize the BLM’s standard mitigation measures. For example, the standard mitigation measures establish a 0.25-mile protective buffer around sage grouse leks. However, in addition to these requirements, the RP Alternative will add a limit on increased noise at leks during their use period to no more than 10 decibels (dBA) above background. However, BLM will monitor the dBA level to determine whether this level is appropriate. For big game winter ranges and high quality sage grouse nesting habitat, no more than an average of 2 well pads/section would be allowed within Management Area 5 under the RP Alternative. In the Mesa Breaks (Management Area 2 - see Figure 8), the RP Alternative objective is to allow no well pads or other development and the State of Wyoming would be required to directionally drill bottomholes under all of this very important deer winter habitat. However, if it is not feasible to develop portions of the Breaks from directional wells, then an exception will be considered to allow a well pad within the Breaks. Production facilities will be located outside the Breaks.

TheRP Alternative will significantly expand the protection of the Lander Trail by reducing potential impacts to the trail’s setting or viewscreen from windblow exceeding 3.0 mph. The Lander Trail is located north and south of the trail to Wyoming Highway 351. This alternative expands the current BLM 0.25 mile buffer around occupied dwellings in the area. Additionally, all lands zoned as resident use by Sublette County or from subdivisions currently approved by Sublette County. Visual resource protection is expanded to include the entire Sensitivity hierarchy. The Visual Resource Management Class II area. The Programmatic Agreement provides for the development of a trails management plan in cooperation with the Greatly California Trails Association (GCTA). NPS and SHPO to further direct proactive historic trails management efforts.

Drill Rig Limit - BLM received several comments during scoping expressing concerns regarding the pace of development in the project area. The EIS analyzed two levels of drilling rig operation under the Standard Stipulations Alternative and 5 rigs operating under the Resource Protection Alternative. The analysis showed that less impact could be expected at 5 rigs than at 8 rigs. For example a reduction in the amount of vehicular traffic and in the number of workers would occur, lower NOx, emission levels would occur, fewer acres would be disturbed at one time. Etc. BLM has concluded these limits of rigs working in the PAPA at any one time on Federal and non-Federal lands and minerals combined) would be extremely difficult administratively. However of greater consequence and importance is the fact that the Operators are already seasonally restricted over a significant portion of the PAPA, leaving a relatively small window within which to complete field development activities (i.e. May 1 through July 1 restriction in many areas due to sage grouse nesting, mountain plower nesting, raptor nesting, and elk sensitive areas). The EIS proposed action and analysis inherently provides for a control on the pace of development. Many factors enter into this including availability of rigs, availability of workers, market price of natural gas, budgetary constraints, etc. Therefore, the BLM will place no restrictions on the number of rigs drilling within the PAPA at any one time. The Operator must be able to take advantage of the drilling window available.

The RP Alternative, under the standard mitigation measures (Appendix A), includes provision for one time exception consideration to drill in areas with seasonal constraints demonstrated during periods of, e.g., big game crucial winter range between November 15 through April 30 and sage grouse leks and nesting habitat between March 1 through May 15 and April 1 through July 31, respectively) provided that it is based upon environmental analysis of proposals and, if necessary, must allow for other mitigation to be applied on a site-specific basis. No information is currently available to suggest that watering or management of the seasonal constraints in the project area would not be detrimental to the resources the seasonal restrictions are intended to protect.

The RP Alternative, as detailed by the ROD, in accordance with FLPMA provides for the minimization or elimination of unnecessary and undue impacts. BLM believes that the RP Alternative as authorized in this ROD provides the best management balance for the multiple uses within the area of the Pinedale Anticline Project while sustaining a long term viability of local and regional economies, maintaining environmental integrity, and conserving resources for future generations.

The resources with the potential to experience the greatest change or impact from the development are land use, visual resources, air quality, and wildlife habitat. Other resources that will also be affected, but to a lesser degree, are recreation, soils, vegetation, livestock grazing, and water quality.

The RP Alternative authorized in this ROD requires predisturbance planning for implementation, operation, and abandonment activities. This process will specify the means by which unnecessary and undue impacts are to be mitigated and the manner in which the natural resources are to be protected.

In all, the BLM decision to approve the Pinedale Anticline Operators field development proposal, as described under the RP Alternative and as constrained by the ROD, takes into account important management considerations, Federal and Agency missions, as well as the fact that natural gas, as directed by the U.S. Congress and the President, is this Nation’s energy resource. The Clean Air Act amendments of 1990, and to help meet the public need for cleaner burning, less polluting natural gas. The RP Alternative authorized in this ROD provides the best balance of these factors with the adverse impacts to the natural and physical environment. The development effort will help meet public needs for natural gas while at the same time allowing for environmental protection. The long-term productivity of the area will neither be lost, nor substantially reduced, as a result of approving the Pinedale Anticline Project as constrained under the ROD. The only irrecoverable resource will be natural gas.

The decision to approve the Pinedale Anticline Project includes careful consideration of the following factors:

a) Consistency with land use and resource management plans; b) cooperating agency participation by the USDA- Forest Service, Corps of Engineers, and the State of Wyoming; c) public involvement, scoping issues, and draft and final EIS comments; d) management considerations based upon relevant public comments received; e) agency statutory requirements; f) national policy; and g) measures to avoid or minimize environmental harm. A brief discussion on each of these factors follows.

a. Consistency with Land Use and Resource Management Plans. The decision to authorize the Pinedale Anticline Project is consistent with the overall planning direction for the area. The Pinedale Resource Management Plan EIS and Record of Decision (USBLM 1988) states that "The public lands and federal mineral estate will be made available for orderly and efficient development of mineral resources. All mineral actions will comply with platting and project criteria and resource restrictions (mitigation) required to protect the other resource values in the planning area. Generally, the planning area will be open to consideration for exploration, leasing, and development for allfeasible minerals, which include oil, gas, coal, oil shale, and geothermal steam, in accord with all applicable provisions (e.g., restrictions, prohibitions)." Standard and special protective measures have been identified and incorporated into the Pinedale Anticline Project appraisal to prevent or eliminate unnecessary and undue adverse impacts.
because of their special expertise in aiding in the assessment of air quality impacts; the Corps of Engineers because of their jurisdiction and special expertise over navigable waters of the US and the potential to affect these waters along the New York River; and the State of Wyoming because of their jurisdiction and special expertise over state lands, wildlife, air quality, water quality, and geologic development on state highways, and because of the essential need to ensure consistency in management of the exploration and development of the proposed resource. This was the second oil and gas development EIS that the State of Wyoming participated in as a cooperating agency. Their involvement, and that of the other agencies, has contributed significantly to the successful preparation of a comprehensive, high quality environmental impact analysis and innovative identification and development of reasonable mitigation measures.

c. Public Involvement. Scoping Issues, and EIS Assessment

Several EIS scoping workshops were held. The principal goal was to identify issues, concerns and potential impacts that might be addressed by the analysis in the EIS. The scoping process was the primary mechanism used by BLM to identify public interests and concerns about proposed development activities in the PAPA.

BLM actively and directly solicited public involvement by circulating information through mailings, public comments, and notices in local newspapers and through a series of public workshops. The public was provided ample opportunity to submit comments and recommendations. On July 9, 1998, BLM mailed a scoping statement to the media, governmental agencies, environmental organizations, industry representatives, individuals, landowners and grazing permittees. The scoping statement explained the general nature of the project and requested initial comments concerning the level of analysis to be included in this document. The normal public scoping comment period ended in August, 1998.

Meetings were held with interested members of the public on July 14, 1998 to discuss issues associated with transportation planning and grazing. The public was invited to attend a tour of the PAPA on July 23, 1998. The tour included stops at a number of important areas in the PAPA including sensitive viewsheds, the Lander Trail, reclaimed well sites, existing producing well pads, etc. At each stop, an EIS summary sheet was held with the attending public and concerns noted. On the evening of July 23, 1998 a public hearing was held in Pinedale. Six agency scoping meetings were held, including two meetings designed to allow agency participation in determining the geographic extent of the cumulative impact analysis for each resource.

Public involvement was also solicited at a series of workshops held in Pinedale during the week of December 5th, 1998 and again on August 5th, 1999. At these workshops the public was presented with descriptions of the various scenarios for continued exploration and development of the gas resource and the tools which would be used by BLM to assess and quantify the impacts associated with the alternatives (i.e., visual simulations, models to predict degradation of habitat suitability, etc.). Preliminary descriptions of the alternatives were provided at the December workshops and the public identified additional concerns. During the August workshop, additional refinement of the alternatives was described to the public. Approximately 90 members of the public attended the workshops in December. 1998 and about 12 attended the August. 1999 workshop.

BLM held a public hearing in Pinedale on January 12, 2000. A total of 86 people signed in to speak, which included a number of individuals represented by their attorneys. Some local residents spoke at the hearing.

All comments received on the DEIS and the FEIS were incorporated into the analysis of issues found in this EIS and considered in the development of the ROD. Over 100 comment letters were received during the scoping process. 235 comment letters were received on the DEIS, and 16 comment letters were received on the FEIS.

Because of on-going construction and drilling activity on private and state lands, and limited authorizations on federal lands, which were creating impacts to Town of Pinedale streets and Sublette County roads, a Transportation Planning Committee (TPC) was established for both the Pinedale Anticline and the Jonah Projects on November 18, 1999. A Memorandum of Understanding was prepared to formalize the working relationship between all parties participating in the TPC. The TPC is made up of representatives of the Town of Pinedale. Sublette County Commissioners, a representative for the residential area, recreation users, livestock users, oil and gas operators, environmental groups, State of Wyoming, Wyoming Game and Fish Department. The TPC has the mandate and responsibility to: 1) provide transportation (roads and pipelines) planning oversight for the Pinedale Anticline and Jonah Projects; 2) provide identification of and consideration for environmental and local needs, issues and concerns; 3) formulate and recommend potential solutions and implementation strategies; and 4) evaluate monitored results of approved solutions.

Transportation planning for the Pinedale Anticline Project Area will be an on-going activity and will incorporate consultation with the established Transportation Planning Committee (TPC).

d. Management Considerations Based Upon Relevant Public Comments Received - Many comments on the EIS raised similar concerns. Some of the more common concerns are summarized below. Comments expressed in comments on the DEIS and FEIS have been responded to and/or specifically provided for in the ROD.

1) Air Pollution Impacts Within High Mountain Wilderness Areas (Particularly Visibility and Acidification of Lakes). Comments expressed concern that authorization of the natural gas development project would cause serious impacts to the air quality related values of the wilderness areas within the Bridger-Teton and Shoshone National Forests.

2) Visual Impacts - Residents of the Town of Pinedale, Burgessville, and other subdivisions expressed concern over the visual impact and degradation from natural gas development on the face of the Mesa. Residents did not want to look out their windows, or when walking or biking roads south of Pinedale, see the degradation to the face of the Mesa. This would cause a significant impact to the tourism and special attraction of Pinedale and the surrounding area to recreating public. This would adversely impact the lifestyle of many residents and the overall economy.

3) Wildlife Impacts - Comments expressed concern about the impacts from natural gas development on the wintering elk and bighorn sheep population within the PAPA. Also, concern about the effects of development on sage grouse breeding and nesting activity.

4) Multiple Use Management - Many comments recognized the need and benefits of oil and gas development. They were not opposed to development nor did they expect it to stop. They were concerned, however, that values such as visual (pristine landscapes), air quality, water quality, visibility in wilderness areas, open space, scenic vistas, and health of fish and wildlife would not be taken for granted. Development and associated management should be in accordance with multiple-use management. Development should be done under strict controls which the public can review.

5) Cumulative Environmental Impacts/Industrialization of Southwest Wyoming - Some comments expressed the belief that the cumulative environmental impact statement is needed to address the cumulative effects of mineral development on the natural resources in southwest Wyoming. They believe that regional industrialization of southwest Wyoming may be occurring significantly interfering with other uses and causing impacts on game herds, air quality and other resources.

6) Transportation Planning - Transportation concerns were expressed for the future (pursuant to comments below). Concerns expressed in comments on the DEIS and FEIS have been responded to and/or specifically provided for in the ROD.

7) Economic Considerations - Residents of the Town of Pinedale expressed concern over the economic potential that the Pinedale Anticline Project could bring to the community. Concerns expressed in comments on the DEIS and FEIS have been responded to and/or specifically provided for in the ROD.

8) Agency Statutory Requirements - The BLM decision is consistent with all federal, state, and county authorizing actions required to implement the Pinedale Anticline Operators' proposed action (see DEIS Table 1-3, page 1-11). All pertinent statutory requirements applicable to this proposal were considered. These include - consultation with the USFWS regarding wild and endangered species; coordination with the State of Wyoming regarding wild and endangered species; and protection and conservation, Sublette County Commissioners for coordination of construction and use permits, and coordination with the Town of Pinedale through the Transportation Planning Committee for travel concerns through the Town of Pinedale.

9) National Policy - Private exploration and development of federal oil and gas leases is an integral part of the BLM oil and gas leasing program under authority of the Mineral Leasing Act of 1920 (30 U.S.C. 181 et seq.) and the Mineral Leasing Act Amendment Act of 1976. The United States continues to rely heavily on foreign energy sources. Authorization for lessees to exercise their rights in developing oil and gas leases is necessary to encourage development of domestic oil and gas reserves to reduce the United States’ dependence on foreign energy supplies. The development of this gas is necessary because it is clean burning and less polluting. Therefore, the decision is consistent with
national policy.

g. Measures To Avoid or Minimize Environmental Harm—The adoption of the RFP by this section includes all practicable means to avoid or minimize environmental harm. The decision, to ensure that the environmental consequences of exploration and field development activities will be minimal, includes not only the required environmental safeguards and resource protection measures prescribed by the Pinedale Resource Management Plan, but also to the additional mitigating protection measures identified in the Expanded Pinedale Anticline Natural Gas Development Project draft and final EIS. The decision has given full consideration to all Public, local, state, and other federal agency input. No substantive issues remain unresolved as raised by governmental agencies, industry, or individuals.

Rationale for Administrative Requirements and Conditions of Approval

Under 40 CFR 1505 and BLM’s National Environmental Policy Act Handbook (H-1790-1), the ROD must discuss the management considerations and rationale for the decisions. This section briefly explains the rationale for the above administrative requirements and conditions of approval.

Authorizing Actions

Before implementation may occur, all necessary federal, state, and county permits must be obtained.

Mitigation and Monitoring

This section identifies the expectations relative to the reduction of impacts to minimize any which are unnecessary and undue, and to emphasize the requirement to monitor the implementation of the project on an ongoing basis to ensure that mitigation measures are implemented and that they are effective.

Site Specific Environmental Analysis

Because the EIS does not address all resource concerns site-specifically, further environmental review is necessary before the final location, mitigation, and monitoring needs for each well site, access road, gathering pipeline segment, compressors, or other facility can be determined.

Plans/Reports

The specified plans and reports are requirements of state and federal regulation and policy to ensure orderly implementation of planned development.

Adaptive Environmental Management Process and Monitoring

The Adaptive Environmental Management (AEM) Process is a management tool. The AEM process was recommended to the BLM during the comment period on the Draft EIS by the EPA and accepted by the BLM and the cooperating agencies as valuable in the project implementation. This process provides oversight of the project implementation, including monitoring of the effectiveness of mitigation. The AEM process also includes mid-course corrections in implementation strategy and mitigation, and it provides for continued public involvement. At least an annual report and public meeting (more frequent if necessary), while active construction and drilling is ongoing, will be made to the public under this process, so to keep them informed and to provide for their input into activities occurring on the public lands within the PAPA. Because of the high degree of sensitive issues and resource values that exist within the PAPA, an AEM process is an excellent way of managing project implementation while ensuring appropriate and reasonable protection.

Transportation Plan/Transportation Planning Committee

The Operators are required to comply with the Transportation Plan for the Pinedale Anticline Project and work within the Transportation Planning Committee to ensure road locations and pipelines are orderly and planned with respect to the needs of the public and for public safety. The project will provide for the shipping public, adjacent landowners, and their property, and the natural resources.

Road Maintenance Agreement

A road maintenance agreement is necessary because of the Operators’ sharing of the use of Collector and Local roads within the project area. To ensure necessary and timely repair and maintenance of shared roads and to avoid resource impacts due to dust and increased sedimentation, operators will be required, where necessary, to enter into an agreement for road maintenance. Because county roads are included within the project area, coordination with the county will be necessary.

Air Quality

As required under the Federal Land Policy Management Act and the Clean Air Act, the federal land management agency shall not conduct, support, approve, license, or permit any activity which does not comply with all applicable local, state, and federal air quality laws, statutes, regulations, and implementation plans. In addition, the USDA-Forest Service, as the federal land manager for the affected Bridger and Fitzgerald Wildenses Area in the Wind River Mountain Range, has responsibility under the USDA-Forest Service Organic Act of 1897, the Wilderness Act of 1964, the Forest and Range Renewable Resource Planning Act of 1974, and the National Forest Management Act of 1976 to protect wilderness areas against impairment. The Wilderness Act (implementing Wilderness Area Air Quality Related Values (AQRVs)) requires that designated Wilderness Areas be managed in order to leave them unimpaired, with inconsistent uses to a minimum. The BLM decision, to be affirmative in protecting Class 1 areas under USDA-Forest Service administration, is made in response to the USDA-Forest Service concern pertaining to the potential for significant impacts to air quality related values within the Bridger and Fitzgerald Wilderness areas and to the potential of the Clean Air Act and Wilderness Act to ensure the protection of wilderness resources under Federal administration.

The Clean Air Act, 42 U.S.C. 7401, provides the framework for the protection of air quality through state programs approved by the Environmental Protection Agency ("EPA"). The 1977 amendments to the CAA established provisions for Prevention of Significant Deterioration (PSD) of air quality, including Class I areas. Thus, the State of Wyoming has the authority and responsibility to regulate air quality impacts within the state, including Class I areas. The primary goals for the National Air Quality Protection Policy that the state must follow are outlined in Section 169A of the Clean Air Act. It is the State’s responsibility, under Section 169A of the CAA, through its EPA approved State Implementation Plan (SIP), to progressively work towards achieving the national goal of preventing and remedying impairment of availability in Class I Wilderness areas. The role of the federal land manager in accomplishing this air quality related objective of the wilderness area Air Quality Related Values (AQRVs) is to participate in the development and revisions of the SIP.

The BLM recommends that the USDA-Forest Service work with the State of Wyoming to protect the air quality, helping to ensure no adverse impacts occur to PSD Class I areas administered by the USDA-Forest Service.

Emissions—The air pollutant emission levels from each well and compressor were based upon analysis assumptions contained in the "CALMET/CALPPUFF Modeling Technical Report for the Pinedale Anticline Oil and Gas Exploration and Development Project" (ENVIRON International Corporation, November, 1991), which includes the application of current Best Available Control Technology (BACT) to VOC emissions at well sites and NOx from compressors. In addition, analysis assumed compliance with Wyoming Department of Environmental Quality, Air Quality Division, Oil and Gas Production Facilities Chapter 6.

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Division, Environmental Protection Agency, and the BLM established a "level of concern" at 977 tons per year (tpy) of new NOx emissions for southwestern Wyoming and, in consultation with the Wyoming DEQ, established a "level of concern" at 158.6 tpy of new NOx emissions for the Jonah II field. In other words, new emissions of NOx could not exceed these levels without an apparent excessive exceedence of the USDA-Forest Service's 0.5% ceiling level of acceptable change.

In July of 2000, a joint agreement between the USDA-Forest Service, Wyoming Department of Environmental Air Quality Division, Environmental Protection Agency, and the BLM was signed to discontinue the use of the 977 tpy level of concern for southwestern Wyoming and the 158.6 tpy level of concern for the Jonah II project area. This was done because use of the levels of concern was no longer appropriate or meaningful due to the improved accuracy of modeling tools, recent reductions in levels of permitted potential emissions, and given the best available information used to establish the levels of concern. The incremental nitrogen oxide emissions tracking report for December 3. 1999 concluded that "The WDEQ-AQD emissions tracking report indicates that the USDA-Forest Service NOx levels of concern is not in danger of being exceeded." The emissions tracking report records permitted potential emissions. These permitted potential emissions are expected to decrease due to recent reductions in permitted levels of NOx at the Naughton Power Plant. The December report goes on to say that 

The BLM and WDEQ-AQD also feel it is appropriate to either revise or eliminate the NOx "level of concern" (i.e., for Southwest Wyoming and Jonah II Project) based on additional modeling analysis which utilized the agencies agreed upon CALMET/CALPUFF model. Results are available for the Continental Divide/Wyoming/FEIS and Pinedale Anticline DEIS air quality analyses and should be taken into account when discussing the appropriateness of the "levels of concern."

This consideration for change is consistent with the Records of Decision for the Fontenelle Natural Gas Inflfl Drilling Projects EIS (March 4, 1997), the Expanded Mesa Arch Area Natural Gas Development Project EIS (March 5, 1997), the Jonah II Natural Field Development Project EIS (April 27, 1998), and the Letter of Agreement for Tracking Nitrogen Oxide Emissions (June 20, 1997) between the BLM and Wyoming Department of Environmental Quality. These documents state that the "level of concern" may be changed (lowered, raised, or eliminated) based upon supporting technical analysis, when the BLM, RDE, EPA

Region VIII, USDA-Forest Service and any other affected agencies concur.

On January 14, 2000, the Wyoming DEQ-AQD, EPA Region VII-NEPA, USDA-Forest Service, National Park Service and BLM met to discuss the disposition of the "level of concern" (977 tpy NOx emissions for southwestern Wyoming and the 158.6 tpy NOx emissions for the Jonah II project area, above levels existing January 1, 1996). It was agreed that these levels of concern were no longer meaningful. Their deletion was required (SCSI insignificant criteria for atmospheric deposition) as a less sophisticated method of predicting air quality impacts than the modeling system (CALMET/CALPUFF) currently being used in BLM EIS's. Since the completion of the Jonah II EIS air quality analysis, modeling analysis has been completed for the Confluent Divide and Pinedale Anticline EIS's which utilized the more sophisticated and realistic agency agreed upon, CALMET/CALPUFF model.

The most recent modeling analysis incorporating all requirements for forecasting emissions increases in the Jonah area is the Pinedale Anticline DEIS (November 1999). The cumulative impact analysis contained in this EIS, which assumed the implementation of over 8,450 wells and associated compression, showed that the 0.1% decrease in NOx emissions would not be exceeded and that the 0.5% decrease in NOx emissions would be exceeded by four to nine days depending on which alternative assumptions were applied. The USDA-Forest Service reviewed the days of modeled cumulative impacts that are greater than 0.5% per year that Federal agencies would have to mitigate the impacts from the Pinedale Anticline Project, combined with other recently proposed projects in southwest Wyoming, with the subsequent reduction in visibility impairment in the Bridger Wilderness Area (Pinedale Anticline DEIS page 5-19). However, based on the application of emissions reduction mitigation tools (both permitted and actual emissions), the cumulative impacts are now below the permitted potential emissions. The BLM reviewed the projected cumulative impacts for the Jonah II project and determined that the BLM and the Jonah II project would be permitted, and that the impacts from the Jonah II project would be negligible. It was agreed that this level of regulation was not required based on Federal actions.

It was agreed that NOx emissions would be monitored at existing monitoring stations, and that the Jonah II project would exceed this level by less than 0.5% per year. The monitoring and control of NOx emissions will be the responsibility of the Wyoming DEQ-AQD. The BLM and WDEQ-AQD will continue to work with each other to ensure that the NOx emissions are monitored at the required level of performance.
management and state environmental regulatory agencies regarding receipt of applications for NO, emitting sources and maintenance of the NO, emissions inventory. Wyoming DEQ and BLM will jointly monitor and track NO, emission levels within the ashed of the Rock Springs, Kemmerer, and Pinedale Field Office Areas and share data with each other and other interested agencies as requested.

**Special Species Status**

The measures listed under this section are required to comply with the Endangered Species Act. Species listed here and in Appendix A will be afforded full protection. Changes in the scope of the project that may result in an effect to listed, candidate, or migratory bird species or their habitat will require the BLM to re-initiate Section 7 Consultation under the Endangered Species Act (ESA). Any measures developed through May 15 is imposed to preclude displacing sage grouse which affects successful breeding and the perpetuation of the species. Also to avoid a violation of the national raptor protection on nesting sage grouse, permanent, high profile structures such as buildings, storage tanks, overhead powerlines, etc., will not be allowed within 0.25 miles of a lek. Linear disturbances such as pipelines, seismic activity, etc., could be granted exceptions. The BLM and WGF will continue to gather and evaluate information on sage grouse leks in potential sage grouse habitat. These field evaluations for leks will be conducted to verify thelek activity. BLM and WGF wildlife biologists will ensure that such surveys are conducted using proper survey methods at the proper time of year.

**Big Game Crucial Winter Range Protection**

This measure is specified to emphasize the limitation on long-term acres of disturbance associated with well pads and access roads. The area of disturbance caused by implementation of the project is expected to be limited to the average long-term disturbance of 1.3 acres per well pad and 2.9 acres per mile of road (i.e., 24-foot average long-term disturbance unreclaimed roadway width).

**Water Resources Protection/Monitoring**

The water resources protective measures are required for surface and ground water protection from contamination, increased sedimentation, depletion, aquatic resource protection, domestic and livestock water use, and to comply with the Clean Water Act. A monitoring program will be implemented to ensure that the Green and New Rivers (currently on the State of Wyoming's 303(d) list) continue to support their designated use.

**Sage Grouse Protection**

The sage grouse is the predominant and most important game bird in the analysis area. There are 44 leks (nesting grounds) within the PAPA. The entire analysis area is generally considered year-round habitat for sage grouse and provides high value nesting and brood rearing habitat. Important habitat areas for these birds are shrub-grasslands (leks), brood-rearing areas, and wet-wintering areas.

**Lek Protection** - This mitigation of avoiding surface disturbance within 0.25 miles of a sage grouse lek (nesting grounds) is required to control raptor flushing from leks. Raptor flushing is defined as flushing due to human activity. Until there is conclusive research to indicate otherwise, BLM will continue to maintain these buffer zones to protect raptors.

**Soils Protection/Reclamation/Monitoring**

The measures specified are necessary to protect soil against erosion and to ensure successful reclamation. The standard practices referred to in Appendix A are the practices that BLM and the industry have routinely used to ensure soil stabilization. Highly erodible or hard to revegetate soils, sandy soils, and alkaline soils will be avoided. To ensure successful reclamation, a monitoring program will be required with documentation in the form of an annual report presented by each operator or collectively for the PAPA during the annual review.

**Vegetation Protection/Reclamation/Monitoring**

The measures specified are necessary to protect vegetation from unnecessary vegetation disturbance and to ensure successful reclamation. The same monitoring applied for soils will be applied to vegetation restoration.

**Noise and Odor**

Continuous, long-term noise and odor from field development and production activities can cause significant impacts. The potential for this to occur was identified in the EIS. The proximity of field development activity to the residences of Pinedale, Barrogelle, dwellings along the New York and Green Rivers, and sage grouse strutting and nesting areas creates the most immediate concern. The EIS showed that a noise level increase of 10 decibels (dBA) above background would cause a significant impact. To avoid this, the selection of new well and compressor locations, collector roads, and other facilities will be made to ensure that this is not exceeded at these (dwellings, sage grouse leks, raptor nests, etc.) and other sensitive receptors identified during the site specific environmental analysis process. To control short term and long term odor near dwellings closed systems can be used while drilling and long-term odor from producing well can be controlled by locating production facilities an appropriate distance away from the dwelling.

**Night Lighting**

Night lighting (long-term lights at a facility or well location) causes an unnecessary deterioration of the natural environment. This is an adverse impact to those who live nearby or who wish to experience quiet and the enhanced viewing of stars. Continuous night lighting of facilities is not necessary. Night lights at a facility are only necessary for emergencies or for a night time maintenance or a well or other facility. During non-use, no lights should be turned on.

**Cultural/Historic Resources Protection**

The mitigation identified is necessary to comply with the Antiquities Act of 1920; the Archaeological Resources Protection Act of 1979; Section 106 of the National Historic Preservation Act, and the Regulations for the Preservation of American Antiquities (43 CFR Part 5).

**Socioeconomic**

Because of the relatively short window within which several of the Operators have to construct and drill their leases, BLM will work with the Operators to plan proposed development operations such that seasonal restrictions do not negatively impact the associated workforce. BLM will work with the Operators to facilitate year round drilling where unnecessary and undue impacts to wildlife or other resources would not occur.

**Land Use**

The land use measures are put in place to help manage and reduce the number of roads within the project area. Roads not needed for well field operations (generally existing two-tracks) or for other uses like livestock operations and recreation will be reclaimed. This will be coordinated with the TPC. This effort will restore, reduce areas susceptible to soil erosion, and restore wildlife habitat.

**Livestock Grazing**

The Standard Practices and mitigation brought forward from the EIS is necessary to protect livestock grazing within the PAPA.

**Hazardous Material**


**Remedial Action/Compliance Monitoring**

This measure has been identified to ensure awareness of the need for immediate and appropriate remedial action in the event of an unacceptable impact such as accelerated erosion, failed revegetation effort, or any other unexpected event. Within the context of the AEMP process, the Operators, through their Environmental Compliance Coordinator, will conduct the required monitoring of project sites and various resources to curtail and prevent unnecessary failures such as erosion control structures, etc., and to ensure impacts are minimized.

**Request for Exception**

BLM's standard practices provide for consideration of a request for an exception to any lease stipulation, including a seasonal restriction or any other requirement such as use of a CPF, directional drilling, or pad drilling. However, supporting rationale and justification must be submitted with the request. The administrative measure describes the process for the application of exception requests and provides guidance on the content of the supporting justification.

**Authorized Officer**

Self explanatory.

**Management Area Development Restrictions For Resource Protection**

As explained in the introduction to this section, the PAPA
The well pad density threshold (see Tables 2 and 3) identified for each MA is based upon producing pads. If the threshold is reached, no additional well pads will be authorized until additional environmental analysis has been completed. BLM has selected producing pads rather than total pads because non-producing pads will be recontoured and reclaimed. BLM recognizes that successful revegetation of shrub communities cannot be achieved in 3 to 5 years on these sites. However, since the total disturbance and vegetation change associated with these non-producing, reclaimed sites represents approximately 0.3 percent of the PAPA, unnecessary undue adverse impact to wildlife species should not occur. The AEM process will provide the opportunity to periodically review the correlation between development, wildlife impact and well pad density threshold and, if deemed necessary, initiate additional environmental review.

Two mitigation alternatives are also addressed - the Standard Mitigation Alternatives (SMA) and Resource Protection Alternatives (RPA) alternatives. The SM Alternative describes the impacts associated with imposing mitigation measures and practices common to oil and gas development elsewhere on Federal lands and minerals in Wyoming. The RP Alternatives make recommendations that exceed the standard mitigation measures currently in use in the state and were designed to specifically address the manner and pace of development in the PAPA. In some portions of the PAPA, the RP Alternatives recommend reduced surface disturbance and human presence to minimize impacts to sensitive environmental resources. Two options were identified for achieving a reduced surface disturbance and human presence - pad drilling and centralized production facilities. The RP Alternatives consider the relative impacts associated with adopting these mitigation alternatives on just Federal lands and minerals as well as on all lands and minerals in the PAPA.

1 The term "well pad" is used consistently in the EIS to identify the surface location from which single or multiple bottomholes or wells may be drilled. Wells refer to well bores, several of which may be drilled from a single well pad.

SUMMARY OF THE PINEDALE ANTICLINE EIS PROPOSED ACTION AND ALTERNATIVES

The Pinedale Anticline Project Area (PAPA) is located in Sublette County, Wyoming, as shown in Figure 1. The area is located within the BLM Pinedale Field Office Area. The PAPA analysis area encompasses approximately 197,345 acres of federal, State, and private lands.

Alternatives Considered

The Pinedale Anticline Natural Gas Exploration and Development Project EIS analyzed three alternatives. They are as follows:

1. Project Wide Exploration/Development Scenario (exploration and development activities spread generally across all portions of the PAPA);
2. Anticline Crest Exploration/Development Scenario (expansion and development continued to the crest of the anticline and a few hot spots); and
3. No Action Exploration/Development Scenario (no further exploration or development allowed in the PAPA).

Also considered were 2 potential levels of development - 500 and 700 well pads developed in the PAPA over the next 10 to 15 years. The impact of each of these potential levels of development was evaluated for each of the exploration/development scenarios listed above.

Two mitigation alternatives are also addressed - the Standard Mitigation Alternatives (SMA) and Resource Protection Alternatives (RPA) alternatives. The SM Alternative describes the impacts associated with imposing mitigation measures and practices common to oil and gas development elsewhere on Federal lands and minerals in Wyoming. The RP Alternatives make recommendations that exceed the standard mitigation measures currently in use in the state and were designed to specifically address the manner and pace of development in the PAPA. In some portions of the PAPA, the RP Alternatives recommend reduced surface disturbance and human presence to minimize impacts to sensitive environmental resources. Two options were identified for achieving a reduced surface disturbance and human presence - pad drilling and centralized production facilities. The RP Alternatives consider the relative impacts associated with adopting these mitigation alternatives on just Federal lands and minerals as well as on all lands and minerals in the PAPA.

In addition to gas exploration and development activities within the PAPA, the proposal also describes construction and operation of sales pipelines. These pipelines would transport gas from the project area to existing pipeline hubs in southwestern Wyoming. Because existing pipeline capacity from the project area is insufficient to transport the quantities of gas which may be produced from the PAPA, these sales pipelines and their associated compression are considered connected actions to continued exploration and development. Alternative routes for the sales gas pipeline corridor around the Jonah II Field were also analyzed. Several route deviations from the existing sales pipeline corridor were analyzed to safely circumvent existing pipelines within the Jonah II Field. A field office, proposed by BP Amoco in the southern portion of the PAPA, was also addressed.

The EIS did not evaluate the typical "proposed action" found in many of BLM's previous southwest Wyoming NEPA documents. Insufficient information was available to understand exactly how the Pinedale Anticline should ultimately be developed i.e., it was not possible to predict where the actual productive zones are located and what well density would be necessary to drain the reservoirs or accurately estimate ultimate production. However, the operators believed that at least 8 and as many as 16 bottomholes per section may be required to adequately drain productive zones which may be discovered in the future.

At the time of DEIS preparation, most wells in the PAPA had been drilled on the crest of the anticline where the highest concentrations of gas are expected to be found. Because so little of the PAPA has been explored and much remains to be understood about the abiity of the anticline to economically produce natural gas, the operators were unable to develop a detailed proposed action that specifies locations of wells and associated facilities (e.g., roads, gathering pipelines, etc.). The lack of available information to quantify development potential required the EIS to consider a wide range of exploration/development scenarios and potential levels of development. This range included considering the impacts from wide spread development across the full extent of the PAPA to no further additional exploration or development.

Regardless of the development uncertainties, the BLM...
As explained in the EIS, an oil and gas lease grants the lessee the right and privilege to drill for, mine, extract, remove, and dispose of, oil and gas deposits in the leased lands, subject to the terms and conditions incorporated in the lease. On land leased without a Surface Occupancy stipulation, the Secretary of the Interior cannot deny the lessee the right to drill but can only impose reasonable mitigation measures. In the absence of a No Surface Occupancy stipulation covering the entire lease, restrictions based on oil and gas lease operations must be "reasonable" and cannot directly or indirectly prohibit the development of the lease. Although an individual AIP can be denied, the right to drill and develop somewhere on the leasehold cannot be denied by the Secretary. To deny all activity, absent a no surface occupancy stipulation on the lease, may constitute a breach of contract and violate an operator's right to conduct development activities on the leased lands. Authority for complete denial can only be granted by Congress, which can order the lease forfeited subject to compensation.

Also, Federal Regulation 43 CFR 3162-4 (Requirements for Operating Rights Owners and Operators) further describes that which may constitute reasonable restriction in the development of a lease. The regulation states: The operating rights owner or operator, as appropriate, shall comply with applicable laws and regulations. These include, but are not limited to, conducting all operations in a manner which protects other natural resources and environmental quality, and which results in maximum ultimate economic recovery of oil and gas with minimum waste.

During the EIS, the PAPA has raised concerns that other exploration/development scenarios be analyzed in the EIS. For the reasons listed below. BLM determined that other scenarios are not reasonable and they were not analyzed further in the EIS.

Federal No Action Exploration/Development Scenario

During scoping for this project, it was suggested that a development scenario be considered that would evaluate impacts of a prohibition of further development or exploration on Federal lands and minerals. Under this scenario, exploration and development would continue only on private and state lands and minerals. After review of the leases that have been issued to the operators for Federal minerals and for the reasons discussed under the No Action Alternative, the BLM determined that this alternative was not reasonable.

40-Acre Well Pad Exploration/Development Scenario

The operators believed that in parts of the PAPA it may be necessary to locate well pads on 40-acre centers. In these areas, 16 well pads per section would be necessary to efficiently and economically drain the reservoir. One way to evaluate potential impacts from development would be to apply this 40-acre well pad scenario to the entire PAPA. However, such a "worst-case" approach would result in the installation of nearly 5,000 well pads in the project area. Drilling of this number of wells would never happen for a number of reasons. First, the geology of the PAPA and the results of wells drilled by the operators to date indicates that gas development may be concentrated on a relatively narrow band centered on the crest of the anticline. Although it is anticipated that well pad density may reach 16 per section on portions of the crest of the anticline, well pad density is generally expected to decrease with distance away from the anticline crest. Off the anticline it is generally believed that less wells are likely. BLM believes a few hot spots may occur on the flanks of the anticline but that overall well densities off the anticline will remain relatively low. Based on these facts, the BLM determined that this alternative would grossly overstate potential impacts from the project and the alternative was dropped from further consideration.

Not conducting worst-case analysis is consistent with CEQ regulations. CEQ withdrew all reference to worst-case analysis from their regulations several years ago.
BLM interprets these seemingly inconsistent directions to mean that the agency must provide reasonable and effective mitigation to prevent unnecessary and undue degradation, but cannot unreasonably infringe on the lessee's existing rights. Further, BLM considers the economic removal of the leased resources in the leasehold right conveyed to the lessee to be subject to the terms and conditions of the lease.

Summary. BLM has mitigated impacts to prevent the loss of the lessee. PAPA must subject the terms and conditions of the lease. In unnecessary provision reasonable and undue degradation.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with the Council on Environmental Quality (CEQ) Regulations for implementing NEPA (40 CFR 1505.2(b)), the environmentally preferred alternative must be identified in the Record of Decision.

BLM considers the environmentally preferred alternative for the Pinedale Anticline Project to be the Resource Protection Alternative on All Lands and Minerals. However, since the BLM does not have the authority to implement this alternative on private and state lands, the agency environmental preferred alternative is identified as the Resource Protection Alternative on Federal Lands and Minerals. The BLM believes that the RPA on Federal Lands and Minerals will protect, preserve, and enhance historic, cultural, and natural resources on the Federal lands. In addition, the RPA on Federal Lands and Minerals: 1) meets the BLM statutory mission under the Mineral Leasing Act and the Federal Land Policy and Management Act; 2) identifies additional and required mitigation which includes all reasonable and practicable means to avoid or minimize environmental harms from the proposed development; 3) includes an intrinsic mechanism by which resources and impacts are monitored and provided further opportunity to reduce or minimize environmental harm (i.e., Adaptive Environmental Management Process: continued implementation of the Pinedale Anticline male deer, pronghorn antelope, and sage grouse studies and associated mitigation and monitoring; surface and groundwater quality monitoring, transportation planning under the oversight review of the established Transportation Planning Committee; air quality impact emissions tracking in cooperation with the Wyoming DEQ-Air Quality Division; reclamation monitoring; etc.; and 4) includes a monitoring and enforcement program which will be structured to ensure implementation and maintenance of necessary mitigation.

Also, selection of the RPA on Federal Lands and Minerals as the agency preferred Alternative is based on the analyses presented in the Pinedale Anticline Natural Gas Exploration and Development Project EIS, which updates the oil/gas reasonably foreseeable development (RFD) to comply with the Pinedale Resource Management Plan and incorporates the commitment to implement specific mitigation measures. Besides the identified additional and required mitigation and monitoring, the RPA on Federal Lands and Minerals is the agency environmentally preferred because it: 1) incorporates and emphasizes the requirement that the operator and their contractor must comply with all Federal, State, and other regulatory requirements during construction, drilling, completion, and field production operations; 2) incorporates the consideration to modify facility designs, construction techniques, operating practices, and abandonment and reclamation procedures to avoid or minimize environmental impacts; 3) incorporates EPA and Wyoming Department of Environmental Quality best management practices (BMPs) for storm water discharge prevention which will minimize off-site sedimentation and erosion by protecting soils; 4) in cooperation with the WDEQ-AQED, tracks NOx emissions to better predict potential impacts to air quality related values within the Class I wilderness areas of the Bridger-Teton and Shoshone National Forests; 5) incorporates appropriate and reasonable measures from the draft and final EIS that provide further opportunity to avoid or reduce impacts, provide for monitoring and enforcement as an on-going activity by the agencies and Operators which will ensure implementation of the mitigation, evaluation of its functional effectiveness, and ensure successful reclamation; 6) provides the relocation of project facilities and/or directional or horizontal drilling to avoid impacts to steep slopes, wetlands, historic trails, streams, sage grouse leks, raptor nests, and other sensitive surface resource values; 7) incorporates project-wide measures for preconstruction planning and design; 8) incorporates Wyoming BLM Mitigation Guidelines and Standard Practices for Surface Disturbing and Disruptive Activities (Appendix A); 9) provides procedures for processing applications in areas of seasonal restrictions; 10) provides a transportation plan for the Pinedale Anticline Project; 11) provides a hazardous materials summary; 12) provides a programmatic agreement between the BLM and the Wyoming State Historic Preservation Office regarding the treatment of cultural resource clearances, discoveries, and historic sites (Appendix E); and 13) incorporates the additional mitigation opportunities identified in the draft and final EIS for the minimization of impacts to various resources.

The RPA on Federal Lands and Minerals meets the requirements of Federal Regulation 43 CFR 3162.1(a), directing lessees and/or operators to conduct "all operations in a manner which ensures the proper handling, measurement, disposition, and site security of leasehold production; which protects other natural resources and environmental quality; which protects life and property; and which results in maximum ultimate economic recovery of oil and gas with minimum waste and with minimum adverse effect on ultimate recovery of other mineral resources."
Scoping, Consultation, and Coordination

BLM served as the lead agency because most of the lands (80 percent) in the 308 square mile PAPA are managed by the agency (hereafter referred to as Federal lands) and the BLM has regulatory responsibility for all federal-owned minerals in the area (about 83 percent of the PAPA minerals). The U.S. Army Corps of Engineers (COE). State of Wyoming (including all affected state agencies) and U.S. Forest Service (USFS) participated in preparation of the EIS as cooperating agencies.

CEQ regulations require that agencies responsible for preparing an EIS use an early scoping process to identify significant issues. Early and improved scoping, as emphasized by Green River Basin Advisory Committee (GRBAC), was the principal goal of the scoping process which included public participation to identify issues, concerns and potential impacts that require detailed analysis in the EIS. The scoping process was the primary mechanism used by BLM to identify public interests and concerns about proposed development activities in the PAPA.

BLM has actively and directly solicited public involvement by circulating information through mailings, public announcements, and notices in local newspapers and through a series of public workshops. The public has been provided ample opportunity to submit comments and recommendations by mail, over the telephone or fax, e-mail, or in person. The BLM did not only accumulate significant public comment, the agency considered and responded to the concerns expressed. Those concerns lead directly to the development of the scope of this EIS.

On July 9, 1998, BLM mailed a scoping statement to the media, governmental agencies, environmental organizations, industry representatives, individuals, landowners and grazing permitees. A Notice of Intent (NOI) to conduct public scoping and prepare an EIS was published on July 14, 1998 in the Federal Register. The scoping statement and NOI explained the general nature of the project and requested initial comments concerning the level of analysis to be included in this document. The formal public scoping comment period ended in August, 1998.

Meetings were held with interested members of the public on July 14, 1998 to discuss issues associated with transportation planning and grazing. The public was invited to attend a tour of the PAPA on July 23, 1998. The tour included stops at a number of important areas in the PAPA including sensitive viewsheds, the Lander Trail, reclaimed well sites, existing producing well pads, etc. At each of these stops discussions were held with the attending public and concerns noted. On the evening of July 23, 1998 a public hearing was held in Pinedale. Six agency scoping meetings were held, including two meetings designed to allow agency participation in determining the geographic extent of the cumulative impact analysis for each resource. A meeting was held with environmental groups on June 18, 1999 to discuss the revised mitigation alternatives and levels of development.

Public involvement was also solicited at a series of workshops held in Pinedale during the week of December 7, 1998 and again on August 5, 1999. At these workshops the public was presented with descriptions of the various scenarios for continued exploration and development of the gas resource and the tools which would be used by BLM to assess and quantify the impacts associated with the alternatives (i.e., visual simulations, models to predict degradation of habitat suitability, etc.). Preliminary descriptions of the alternatives were provided at the December workshops and the public identified additional concerns. During the August open house/workshop, additional refinement of the mitigation alternatives was described to the public. Approximately 90 members of the public attended the workshops in December, 1998 and about 24 attended the August, 1999 open house/workshop. A transportation planning workshop was also held in August during which approximately 27 people attended. The meeting was attended by general public, livestock operators, cooperating agencies, landowners, county and local government entities, and oil/gas operators to identify access into and within the Pinedale Anticline Field.

All comments received were incorporated into the analysis of issues found in this EIS. Over 100 comment letters were received during the scoping process. Issues raised by the public are summarized in the DEIS impact analysis discussion for each resource in Chapter 4.

The DEIS was mailed-out to the public on November 19, 1999 and a Notice of Availability (NOA) was published in the Federal Register on November 26, 1999. The comment period ended on February 4, 2000, including approval of a 10-day extension of time requested by several environmental organizations. Approximately 500 comments of the DEIS were distributed. Comments were received from a number of groups including the general public, operators, grazing permitees, environmental groups, industry groups, and a number of Federal agencies. A total of 235 comment letters were received. BLM responses to each comment letter are included at the end of Section 5 of the DEIS.

During the DEIS comment period the Wyoming Wildlife Federation, Greater Yellowstone Coalition, Jackson Hole Conservation Alliance, Sierra Club, and Wyoming Outdoor Council distributed notices/alerts to their membership and asked for comments on the DEIS. Because letters and e-mails from members of these groups contained essentially the same comments. BLM did not republish individual letters and e-mails in the DEIS. Rather BLM responded to the comments contained in the notices/alerts in Section 6 of the DEIS.

In addition to written comments, BLM held a public hearing in Pinedale on January 12, 2000. A total of 86 people signed in at the hearing—17 gave statements. Many local residents spoke at that hearing. A transcript of the hearing is provided in Section 7 of the DEIS.

The DEIS was issued to the public on May 26, 2000 and a NOA was published in the Federal Register on June 2, 2000. Comments received on the DEIS are contained in Section 5 of the DEIS along with responses to all substantive comments. Approximately 500 copies of the DEIS were mailed out. The comment period on the DEIS ended July 5, 2000.

**APPEAL PROCESS**

This decision may be appealed to the Interior Board of Land Appeals. Office of the Secretary, in accordance with the regulations contained in 43 CFR 3165.4(c). If an appeal is filed, your notice of appeal must be filed in this office (Bureau of Land Management, State Director, P.O. Box 1828, Cheyenne, Wyoming 82003) within 30 days of the date BLM publishes its notice of the decision in the Federal Register. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition (pursuant to 43 CFR 3165.4(c)) for a stay (suspension) of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed in 43 CFR 3165.4(c). Copies of the notice of appeal and petition for a stay must also be submitted to the Interior Board of Land Appeals and to the appropriate office of the Solicitor at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.
APPENDIX A

WYOMING BUREAU OF LAND MANAGEMENT (BLM) MITIGATION GUIDELINES AND STANDARD PRACTICES FOR SURFACE-DISTURBING AND DISRUPTIVE ACTIVITIES

SECTION A-1: Mitigation Guidelines
SECTION A-2: Standard Practices (Best Management Practices) and Guidelines For Surface Disturbing Activities
SECTION A-3: Mitigation and Monitoring Opportunities Identified in the Pinedale Anticline EIS
   A. Required Mitigation and Monitoring Opportunities on Federal Lands and Minerals Brought Forward from the Pinedale Anticline EIS
   B. Recommended Operator, State of Wyoming, Sublette County, and Corps of Engineers Mitigation and Monitoring Opportunities for State and Private Lands and Minerals Brought Forward From the Pinedale Anticline EIS
   C. Mitigation Measures Not Brought Forward From the Pinedale Anticline EIS
SECTION A-4: Environmental Analysis and Mitigation of Oil and Gas Development and Other Surface Disturbing Activities - The Tiered Approach
SECTION A-5: Erosion Control, Revegetation, and Restoration Plan (ERRP)
SECTION A-6: Procedures for Processing Applications in Areas of Seasonal Restrictions

APPENDIX A

WYOMING BUREAU OF LAND MANAGEMENT (BLM) MITIGATION GUIDELINES AND STANDARD PRACTICES FOR SURFACE-DISTURBING AND DISRUPTIVE ACTIVITIES

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INTRODUCTION
Appendix A provides mitigation guidelines and standard practices for surface-disturbing and disruptive activities on public lands. Every application authorized on public lands must be in conformance with these guidelines and standard practices. Section A-1 lists the guidelines BLM uses when considering ways to reduce surface impacts caused by surface-disturbing and disruptive human activities. The guidelines are derived from the BLM Resource Management Plan (RMP) and are presented for a given activity or program (e.g., surface disturbance, wildlife, special resource, etc.). Section A-2 provides the standard practices (best management practices) that may be applied to a given activity or program to reduce surface disturbance and/or disruptive human activity that BLM has applied as standard practice to similar types of impact.

Appendix A also includes Section A-3, an approach for environmental analysis and mitigation of oil and gas development and other surface disturbing activities; Section A-4, guidelines for erosion control, revegetation and restoration plan; and Section A-5, procedures for processing applications in areas of seasonal restriction. These additional guidelines were taken from the Green River RMP.

Mitigation Guidelines. The mitigation guidelines are primarily for the purpose of obtaining statewide BLM consistency in how requirements are determined for avoiding and mitigating environmental impacts and resource and land use conflicts. Consistency in this sense does not mean that identical requirements would be applied for all similar types of land use activities that may cause similar types of impacts. Nor does it mean that the requirements or guidelines for a single land use activity would be identical in all areas. Rather, consistency is intended to mean similar types of impact are appropriately and consistently mitigated.

Standard Practices. The mitigating standard practices are a more specific standardized set of permit or operation stipulations or conditions of approval for mitigating environmental impacts and resource and land use conflicts for a given activity or program. The determination as to the application of a standard practice is made during the site-specific environmental analysis process.

PURPOSE
The purposes of the "Wyoming BLM Mitigation Guidelines" are to reserve, for the BLM the right to modify the operations of all surface and other human presence disturbance activities as part of the statutory requirements for environmental protection, and 2) to inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered public lands.

Those resource activities or programs currently without a standardized set of permit or operation stipulations can use the mitigation guidelines as stipulations or as conditions of approval, or as a baseline for developing specific stipulations for a given activity or program.

Because use of the mitigation guidelines was integrated into the RMP EIS process and will be integrated into the site-specific environmental analysis process, the application of stipulations or mitigation requirements derived through the guidelines will provide more consistency with planning decisions and plan implementation than has occurred in the past.

APPENDIX A
WYOMING BUREAU OF LAND MANAGEMENT (BLM)
MITIGATION GUIDELINES AND STANDARD PRACTICES FOR SURFACE-DISTURBING AND DISRUPTIVE ACTIVITIES
SECTION A-1: MITIGATION GUIDELINES

1. Surface Disturbance Mitigation Guideline

Under Regulation 42 CFR 3101.1-2 and terms of the lease (BLM Form 3100-11), the authorized officer may require reasonable measures to minimize adverse impacts to other resources, land uses, and users not addressed in lease stipulations at the time operations are proposed. Such reasonable measures may include, but are not limited to, modification of siting or design of facilities, timing of construction or operations, specifications of minimizing and final reclamation measures, which may require relocating proposed operations up to 200 meters, but not off the leasehold, and prohibiting surface disturbance activities for up to 60 days. Application of reasonable measures greater than 200 meters or more than 60 days would require additional environmental analysis that identifies unnecessary and/or impacts) that would occur if such measures were not applied.

The lands within a lease may include areas not specifically addressed by lease stipulations that may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas shall be strictly controlled or, if absolutely necessary, prohibited in the following areas or conditions. Appropriate modifications to imposed restrictions will be made for the maintenance and operation of producing wells. Exception, waiver, or modification of this limitation may be approved in writing, including documented supporting analysis, by the Authorized Officer.

a. Slopes in excess of 25 percent.
b. Within 500 feet of water surface and/or riparian/wetland/flatland areas 100 feet from intermittent streams.
c. Within either one-quarter mile or the visual horizon (whichever is closer) of historic trails.
d. Construction periods when the soil material is saturated, frozen, or when washed damage is likely to occur.
e. Within 500 feet of Interstate highways and 200 feet of other existing surface disturbance activities (i.e., U.S. and State highways, roads, railroads, pipelines, power lines).
f. Within one-quarter mile of occupied dwellings.
g. Material sites.

Guidance

The intent of the SURFACE DISTURBANCE MITIGATION GUIDELINE is to inform interested parties (potential lessees, permittees, or operators) that when one or more of the above conditions are met, the above activities will be prohibited unless or until a permittee or his designated representative and the surface management agency (SMA) arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development and become a condition for approval when authorizing the action.

Specific threshold criteria (e.g., 500 feet from water) have been established, based upon the best information available. However, such items as geographical areas and time periods of concern must be delineated at the field level (i.e., surface water and/or operations, and may include both intermittent and ephemeral water sources or may be limited to perennial surface water).

Exception, waiver, or modification of requirements developed from this guideline must be based upon environmental analysis of proposals (e.g., activity plans, plans of development, plans of operation, applications for permit to drill) and, if necessary, must allow for other mitigation to be applied on a site-specific basis.

2. Wildlife Mitigation Guideline

a. To protect important big game winter habitat, activities or surface use will not be allowed from November 15 through April 30 within certain areas encompassed by the authorization. The same criteria apply to defined big game hibernating areas from May 1 through June 30.

b. Application of this limitation to operation and maintenance of a developed project must be based on environmental analysis of the operational or production aspects.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.

c. To protect important raptor and/or sage grouse breeding/nesting habitat, activities or surface use will not be allowed from February 1 through July 31 (see page A-21 for dates specific to each species) to protect breeding and nesting within certain areas encompassed by the authorization. The same criteria apply to defined raptor and/or sage grouse winter concentration areas from November 15 to April 30.

Application of this limitation to operation and maintenance of a developed project must be based on environmental analysis of the operational or production aspects.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.

d. No activities or surface use will be allowed on that portion of the authorization area identified within (legal description) for the purpose of protecting (e.g., sage/sharp-tailed grouse breeding grounds, and/or other species/activities) habitat.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.

Guidance

The intent of the WILDLIFE MITIGATION GUIDELINE is to provide two basic types of protection: seasonal restriction (2a and 2b) and prohibition of activities or surface use (2c). Item 2d is specific to situations involving threatened or endangered species. Legal descriptions will ultimately be required and should be measurable and legally definable. There are no minimum subdivision requirements at this time. The area delineated for use restrictions may be defined as necessary, based upon current biological data, prior to the time of processing an application and issuing the use authorization. The legal description must eventually become a part of the condition for approval of permit, plan of development, and/or other use authorization.

The seasonal restriction section identifies three example groups of habitat and delineates three similar time frame restrictions. The big game species including elk, moose, deer, antelope, and bears (also) require protection of crucial winter range between November 15 and April 30. Elk and bighorn sheep also require protection from disturbance from May 1 to June 30, when they typically occupy distinct calving and lambing areas. Raptors include eagles, prairie, kestrel, and marten (e.g., ferruginous and Swainson's hawks), osprey, and owls (e.g., great horned, short-eared, and snowy) for nesting. The raptors and sage and sharp-tailed grouse require nesting protection between February 1 and July 31. The same birds often require protection from disturbance from November 15 through April 30 while they occupy winter concentration areas.

The seasonal restriction section includes the following:

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.

d. Portions of the authorized use area legally described as (legal description), known or suspected to be essential habitat for (name) is a candidate, proposed, or listed as endangered species. Legal descriptions will ultimately be required and should be measurable and legally definable. There are no minimum subdivision requirements at this time. The area delineated for use restrictions may be defined as necessary, based upon current biological data, prior to the time of processing an application and issuing the use authorization. The legal description must eventually become a part of the condition for approval of permit, plan of development, and/or other use authorization.

The seasonal restriction section identifies three example groups of species and delineates three similar time frame restrictions. The big game species including elk, moose, deer, antelope, and bears (also) require protection of crucial winter range between November 15 and April 30. Elk and bighorn sheep also require protection from disturbance from May 1 to June 30, when they typically occupy distinct calving and lambing areas. Raptors include eagles, prairie, kestrel, and marten (e.g., ferruginous and Swainson's hawks), osprey, and owls (e.g., great horned, short-eared, and snowy) for nesting. The raptors and sage and sharp-tailed grouse require nesting protection between February 1 and July 31. The same birds often require protection from disturbance from November 15 through April 30 while they occupy winter concentration areas.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.

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3. Cultural Resource Mitigation Guideline

When a proposed discretionary land use has potential for affecting the characteristics which qualify a cultural property for the National Register of Historic Places (National Register), mitigation will be considered. In accordance with Section 106 of the Historic Preservation Act, procedures specified in 36 CFR 800 will be used in consultation with the Wyoming State Historic Preservation Officer and the Advisory Council on Historic Preservation in arriving at determinations regarding the need and type of mitigation to be required. In lieu of case-by-case consultations, cultural resources on large or complex projects can be managed in accordance with Programmatic Agreements, Treatment Plans, Management Plans, Data Recovery Plans or other Agreement Documents. Mitigation is performed in accordance with established research design, directed to answer specific research questions germane to the site or project under investigation.

Guidance

The preferred strategy for treating potential adverse effects on cultural properties is “avoidance.” If avoidance involves project relocation, the new project area may also require cultural resource inventory. If avoidance is imprudent or unfeasible, then appropriate mitigation may include excavation (data recovery), stabilization, monitoring, protection barriers and signs, Native American consultation, archaeological or architectural studies, or other physical and administrative measures. If the project is being managed in accordance with an Agreement Document, then groups of actions or undertakings and groups of sites or site types may be managed holistically, precluding site specific consultation or repetitious mitigation. The efficiency obtained by such approaches frequently benefits both the applicant and the BLM and ultimately the cultural resources managed.

Reports documenting results of all cultural resource investigations performed shall be written according to standards contained in BLM Manuals, the cultural resource permit stipulations, and in other policy issued by the BLM. These reports must provide sufficient information for Section 106 consultation. Reports shall be reviewed for adequacy by the appropriate BLM cultural resource specialist. If cultural properties are, or eligible for, the National Register are located within the leasehold, these site-specific impacts and cannot be avoided, the Authorized Officer shall begin the Section 106 consultation process in accordance with the procedures contained in 36 CFR 800.
Mitigation measures shall be implemented according to the mitigation plan approved by the BLM Authorized Officer. Such plans are usually prepared by a consultant under permit from BLM, constructed by the land use applicant according to BLM specifications. Mitigation plans will be reviewed as part of Section 106 consultation for National Register eligible or listed properties. The extent and nature of recommended mitigation shall be commensurate with the significance of the cultural resources involved and the anticipated or realized extent of damage. Necessary costs for mitigation will be borne by the land use applicant. Mitigation must be cost effective, realistic and take into consideration project requirements and limitations. The mitigation plan shall take into account input from concerned or interested parties and be either BLM-approved or BLM-formulated.

Mitigation of paleontological and natural history sites will be treated on a case-by-case basis. Factors such as site significance, economics, safety, and project urgency must be taken into account when making a decision to mitigate. Authority to protect through mitigation such values is provided for in FLPMA, Section 102(a)(8). When avoidance is not possible, appropriate mitigation may include excavation (data recovery), stabilization, monitoring, protection barriers and signs, or other physical and administrative protection measures.

4. Special Resource Mitigation Guidelines

To protect resource values, activities or surface use will not be allowed (i.e., within a specific distance of the resource value or between date to date in legal description).

Application of this limitation to operation and maintenance of a developed project must be based on environmental analysis of the operational or production aspects.

Exception, waiver, or modification of this limitation in any year may be approved in writing, including documented supporting analysis, by the Authorized Officer.

Example Resource Categories (Select or identify category and specific resource value):

a. Recreation Areas (e.g., campgrounds, historic trails, national monuments)

b. Major reservoirs/dams

c. Special management area (e.g., known threatened or endangered species habitat, areas suitable for consideration for wild and scenic rivers designation)

d. Other (specify)

Guidance

The SPECIAL RESOURCE MITIGATION GUIDELINE is intended for use only in site-specific situations where one of the first three general mitigation guidelines will not adequately address the concern. The resource value, location, and specific restrictions must be clearly identified. A detailed plan addressing specific mitigation and specific restrictions will be required prior to disturbance or development and will become a condition for approval of the permit, plan of development, or other use authorization.

Exception, waiver, or modification of requirements developed from this guideline must be based upon environmental analysis of proposals (e.g., activity plans, plans of development, plans of operation, applications for permit to drill) and, if necessary, must allow for other mitigation to be applied on a site-specific basis.

5. No Surface Occupancy Guideline

No Surface Occupancy will be allowed on the following described lands (legal description) because of resource value:

Example Resource Categories (Select or identify category and specific resource value):

a. Recreation Areas (e.g., campgrounds, historic trails, national monuments)

b. Major reservoirs/dams

c. Special management area (e.g., known threatened or endangered species habitat, areas suitable for consideration for wild and scenic rivers designation)

d. Other (specify)

Guidance

The NO SURFACE OCCUPANCY (NSO) MITIGATION GUIDELINE is intended for use only when other mitigation is determined insufficient to adequately protect the public interest and is the only alternative to "no development" or "no leasing." The legal description and resource value of concern must be identified and to be tied to an NSO land use planning decision.

Waiver of, or exception(s) to, the NSO requirement will be subject to the same test used to initially justify its imposition. If, upon evaluation of a site-specific proposal, it is found that less restrictive mitigation would adequately protect the public interest or value of concern, then a waiver or exception to the NSO requirement is possible. The record must show that because conditions or uses have changed, less restrictive requirements will protect the public interest. An environmental analysis must be conducted and documented (e.g., environmental assessment, environmental impact statement, etc., as necessary) in order to provide the basis for a waiver or exception to an NSO planning decision. Modification of the restrictive mitigation requirement, the record must show that consideration was given to development subject to reasonable mitigation, including "no surface occupancy." The record must also show that other mitigation was determined to be insufficient to adequately protect the public interest. A "no development" or "no leasing" decision should not be made solely because it appears that conventional methods of development would be unfeasible, especially where an NSO restriction may be acceptable to a potential permittee. In such cases, the potential permittee should have the opportunity to decide whether or not to go ahead with the proposal (or accept the use authorization), recognizing that an NSO restriction is involved.
SECTION A-2: STANDARD PRACTICES (BEST MANAGEMENT PRACTICES) AND GUIDELINES FOR SURFACE DISTURBING ACTIVITIES

INTRODUCTION

This section describes the standard practices utilized to mitigate adverse effects caused by surface disturbing activities.

Standard practices applied to surface disturbing activities are statements of guidelines and techniques for establishing standards to minimize the effects of disturbing and mitigating surface disturbing activities, environmental impacts and resource conflicts. These practices have been developed through field experience, through planning analyses, through other project specific environmental analyses, and from legal or regulatory directives. They emphasize the Bureau's responsibility to ensure that good construction practices are used on public lands, and they apply to all surface disturbing activities.

Best management practices are developed by state agencies in cooperation with their respective resource managers to control nonpoint sources of pollution. Section 303(e) of the Clean Water Act and 40 CFR 130.5 require states to maintain a "Water Quality Management Planning Continuing Planning Process." The process must establish procedures for adoption and appeals, which, among other items, address BMPs. Best management practices are advisory rather than regulatory. Best management practices are a key element in a state Nonpoint Source Management Plan with which the federal government must comply under Executive Orders 12088 and 12372, and Clean Water Act Sections 319(a) and 301(k). The standard practices in this document are designed to meet the intent of the state's BMPs.

The State of Wyoming has released draft lists of BMPs which address soil and water quality, and has issued a policy statement in lieu of BMPs for minerals and oil and gas. The WDEQ published a final draft of narrative Grazing BMPs in March 1997 and is currently publishing a color brochure highlighting grazing BMPs. The state has adopted the policy that the rules and regulations promulgated for oil and gas exploration, mineral extraction, and underground storage tanks shall be considered as the BMPs for these activities.

The Wyoming BLM policy on reclamation assumes that an area can be well drained and can be reclaimed, and requires that every surface disturbance on public lands receive attention for short-term stabilization and long-term reclamation. Surface disturbance mitigation measures reduce to the extent possible the amount of reclamation that ultimately must take place. The BLM must apply reasonable mitigation and provide guidance for all authorizations. The permit or authorization is the means provided for ensuring that mitigation measures are implemented. Compliance inspections during operations ensure that conditions of approval (COAs) and/or stipulations are being followed. Compliance inspections upon completion of work ensure that both surface and subsurface reclamation procedures have been properly followed.

Standard practices may develop through the NEPA process into stipulations prior to lease or grant issuance, or may serve as the basis for COAs. If these practices (or newly developed techniques) are already incorporated into plans for development submitted to a permitting agency, they may be approved without the addition of any COAs. The Bureau will consider any project proposal, however the burden is on the applicant to describe the design and construction techniques.

If a project's design, scheduling, and construction techniques can mitigate environmental concerns, construction may be allowed without any COAs.

The Pine Nut Anticline Project Lesses/Operators will comply with the standards, procedures, and requirements contained in this Appendix, unless provided for by the Authorized Officer. Failure to comply with the terms and conditions of a lease or permit (lease stipulations; permit conditions of approval - COAs) will constitute a violation of the written order of the Authorized Officer and subject the proponent to penalties provided for under the law.

STANDARD PRACTICES

The following standard practices are applied to surface disturbing activities. These practices are designed, when necessary, to reduce environmental impacts. Large projects may require construction and use plans and/or erosion control, revegetation, and restorations plans which would incorporate these practices. The standard practices in this document are designed to meet the intent of the state's BMPs, and may therefore be subject to revision when the state BMPs are finalized. Although the headings below address specific resources or types of development, these practices apply to all surface disturbing activities. These practices have been developed through experience working with surface disturbances in the Rock Springs, Pine Nut, and Kemmerer Field Areas. Therefore, these are believed to be the best practices available to address a variety of surface disturbance problems. These are not site specific, but represent concerns that must be addressed in any acceptable proposed surface disturbing activity.

Operators are encouraged to review these practices, incorporate them where appropriate into their proposed actions, and where possible develop better methods for achieving the same goals.

The following standard mitigation measures, design features, and procedures will be applied to all federal lands within the project area by Operators to minimize impacts to the environment. Exception, modifications, or waivers of resource requirement may be granted if a thorough analysis determines that the resource(s) for which the measure was developed will not be impacted by the proposed action or activity. Further specific site-specific mitigation measures may be identified during the application for permit to drill (APD) and/or right-of-way (ROW) application review processes.

Preconstruction Planning and Design Measures

1. The Operators and/or their contractors and subcontractors will conduct all phases of project implementation, including well location, road and pipeline construction, drilling and completion operations, maintenance, reclamation, construction, and abandonment in full compliance with all applicable federal, state, and local laws and regulations and within the guidelines specified in approved APDs and ROW permits. See Table 1-1, Federal, State and Local Permits, Approvals and Authorizing Actions Necessary for Construction, Operation, Maintenance and Abandonment of the Project. Lessors and operators shall be fully accountable for their contractor's and subcontractor's compliance with the requirements of the approved permit and/or plan (43 CFR 3160). Onshore Oil and Gas Order No. 11.

2. Implementation of site-specific activities/actions will be contingent on BLM determining that the activity/action complies with the following plans:
   - Surface Use Plan and/or Plan of Development: Transportation Plan
   - Reclamation Plan:
     - Hazardous Material Plan or Program (as required by RCRA)
     - Adaptive Environmental Management Plan: and Site-specific ADF plans/reports (e.g., road and well pad design plans, cultural clearance, special status plant species clearance, etc.)

The above plans may be prepared by the Operators for the project area or submitted incrementally with each APD, ROW application, or Notice: (SN).

An onsite predrill inspection should be scheduled and conducted by the BLM within 15 days of receiving a Notice of Staking (NOS) or complete APD. Representatives of the appropriate BLM office, the operator's representative, any other parties, and the operator's principal drilling contractor shall attend the predrill inspection. When appropriate, the operator's surveyor and/or archaeologist should also participate in the inspection. When private surface is involved, the BLM shall invite the surface owner to participate in the onsite inspection (43 CFR 3.160, Onshore Oil and Gas Order No. 11, III C).

The BLM will conduct environmental reviews for each APD, ROW application, or SN once final well or facility locations, access road alignments, and/or pipeline routes have been identified.

- Approval of individual project components (i.e., wells, roads, pipelines, and ancillary facilities) will be contingent on completion and acceptance of a site-specific cultural resource literature search. Class III inventory report and, as necessary, paleontological inventory; T&E, candidate, and sensitive species surveys; sage grouse lek and nest clearance; raptor nest clearance; and any other clearance specified by the Authorized Officer (AO).

- Operators will include in the APD, ROW, or other appropriate permit application, discussion of site-specific mitigation and environmental protection measures and a map showing specific locations where these measures will be implemented. Final locations for these measures will be confirmed by BLM and the Operators following on-site inspections of project locations (43 CFR 3160). Onshore Oil and Gas Order No. 11, III C, 4 and 5).

Roads

1. Roads will be constructed as described in BLM Manual 9113. New main artery roads will be designed to reduce sediment, salt, and phosphate loading to the Green and New York Rivers. Where necessary, running surfaces of the roads will be gravelized if the base does not already contain sufficient aggregate.

2. Recognized roads, as shown on the BLM Transportation Plan, will be used when the alignment is acceptable for the proposed use. Consequently, roads will be required to follow natural contours; provide visual screening by constructing curves etc.; and be reclaimed to BLM standards.

3. To control or reduce sediment from roads, guidance involving proper road placement and buffer areas to stream channels, graveling, proper drainage, seasonal closure, and in some cases, redesign or closure of old roads will be developed when necessary. Construction may also be prohibited during seasons when soil material is saturated, frozen, or when water drainage is likely to occur.

4. Available topsoil will be stripped from all road corridors prior to construction of erosion control activities and will be redistributed and reseeded on backslope areas of the borrow ditch after completion of road construction activities. Borrow ditches will be reseeded in the first appropriate season after initial disturbance.

5. On newly constructed roads and permanent roads, the placement of topsoil, seeding, and stabilization will be required on all cut and fill slopes unless conditions prohibit this (e.g., rock). No unnecessary side-casting of
Table 1-1

Federal, State and Local Permits, Approvals and Authorizations Necessary for Construction, Operation, Maintenance and Abandonment of the Project (1)

<table>
<thead>
<tr>
<th>Issuing Agency/Permit Name</th>
<th>Nature of Permit/Approval</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antiquities, Cultural and Historical Resource Permits</td>
<td>Approval to Dispose of Produced Water</td>
<td>Disposal of produced water from Federal leases</td>
</tr>
<tr>
<td>U.S. Army Corps of Engineers</td>
<td>Controls discharge of dredged or fill materials into waters of the United States</td>
<td>Section 404 of the Clean Water Act of 1972 (33 U.S.C.1344)</td>
</tr>
<tr>
<td>U.S. Fish and Wildlife Service Consultation Process: Endangered and Threatened Species</td>
<td>Wyoming Department of Environmental Quality</td>
<td>Controls off-site water runoff from construction activities resulting in 3 acres or more of disturbance</td>
</tr>
<tr>
<td>Water Quality Division</td>
<td>Notice of Intent</td>
<td>Storm Water Discharge Permit</td>
</tr>
<tr>
<td>Storm Water Discharge Permit</td>
<td>Air Quality Permit to construct and operate</td>
<td>Air Quality Standards and Regulations</td>
</tr>
<tr>
<td>Notice of Installation</td>
<td>Oregon Department of Transportation</td>
<td>Notification of Potential Emissions from production equipment</td>
</tr>
<tr>
<td>Transportation Observe and Overload Permit</td>
<td>Utility Permit</td>
<td>Permit for oversized, overweight and overweight loads</td>
</tr>
<tr>
<td>Wyoming Department of Transportation</td>
<td>Access Permit</td>
<td>Highway Pipeline crossing</td>
</tr>
<tr>
<td>Access Permit</td>
<td>Wyoming Oil and Gas Conservation Commission</td>
<td>Highway access construction</td>
</tr>
<tr>
<td>Commission</td>
<td>Pipeline Deep or Plug Back (APD process)</td>
<td>Pipeline for oil and gas wells in the state</td>
</tr>
<tr>
<td>Rules 302</td>
<td>Change in Depletion Plans</td>
<td>Regulations drilling of additional wells</td>
</tr>
<tr>
<td>Application for Permit to Use</td>
<td>Application for Permit for Use</td>
<td>Regulations reserve pits on drilling locations</td>
</tr>
<tr>
<td>Earnings Pit</td>
<td>Pugging and Abandonment of a Well</td>
<td>Establishes procedures for permanently abandoning a well</td>
</tr>
<tr>
<td>Wyoming State Engineer's Office</td>
<td>Water Well Permit</td>
<td>Grant permit to appropriate groundwater</td>
</tr>
</tbody>
</table>

Table 1-1 Continued

<table>
<thead>
<tr>
<th>Issuing Agency/Permit Name</th>
<th>Nature of Permit/Approval</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming State Land and Improvements</td>
<td>Right-of-way easements on state land</td>
<td>W.S. 36-9-118</td>
</tr>
<tr>
<td>Sublette County Planning and Zoning</td>
<td>Energy Pipeline Permit</td>
<td>1 = This list is intended to provide only an overview of key regulatory requirements that would govern project implementation. Additional approvals, permits and authorizing actions could be necessary.</td>
</tr>
<tr>
<td>Planning and Zoning</td>
<td>Drainage Permit</td>
<td></td>
</tr>
</tbody>
</table>

1. This list is intended to provide only an overview of key regulatory requirements that would govern project implementation. Additional approvals, permits, and authorizing actions could be necessary.

6. Reclamation of abandoned roads will include requirements for reshaping, res compacting, resurfacing with topsoil, installation of water barriers, and seeding on the contour. Road beds, well pads, and other compacted areas are to be ripped to a depth of two feet on 1.5 to 2.0 feet centers to reduce compaction prior to spreading the topsoil across the disturbed area. Stripped vegetation will be spread over the disturbed area for nutrient recycling. Fertilization or fencing of these disturbed lands will not normally be required. Additional erosion control measures (e.g., fibermatting) and road barriers to discourage traffic may be required. As deemed necessary by the Authorized Officer, gravelized road, well pads, and other sites will be stripped of usable gravel and hauled to new construction sites prior to grading. Removal of structures such as bridges, culverts, cattle guards and signs usually will be required. (See Reclamation section below.)

7. Main artery roads, regardless of primary user, will be cross-wed, ditched, drained and, if deemed appropriate by the Authorized Officer, surfaced with gravel to reduce sediment, salt, and phosphate loading to the Great and/or New York Rivers.

8. Road closings may be implemented during crucial periods (e.g., wildlife water periods, spring runoff, and calving and lambing seasons).

15. Site-specific centerline survey and construction designs will be submitted to and approved by the BLM prior to road construction.

16. Operators will comply with existing federal, state, and county requirements, and restrictions to protect road networks and the traveling public.

17. Special arrangements will be made with the WDOT to transport oversized loads to the project area. Otherwise, load limits will be observed at all times to prevent damage to existing road surfaces.

18. All development activities allowed in approved ROWS will be restricted to areas authorized in the approved ROW.
19. Roads and pipelines will be located adjacent to existing linear facilities wherever practical.

20. As deemed necessary by the Authorized Officer, Operators and/or their contractors will post appropriate warning signs and require project vehicles to adhere to appropriate speed limits on project-related roads.

21. Dumping of produced water on roads will not be allowed unless the road is more than 300 feet of the produced water line (state standard for the Colville River drainage) and the water does not contain hazardous material. No produced water will be allowed on roads in Sublette County.

22. Operators will be responsible for necessary preventative and corrective road and bridge maintenance for the duration of the project. Maintenance responsibilities may include, but are not limited to, blading, gravel surfacing, cleaning ditches and drainage facilities, dust abatement, noxious weed control, bridge inspection and repair, or other requirements as directed by the Authorized Officer.

Well Pads and Facilities

1. In conformance with Onshore Oil and Gas Order No. 1, Operators will prepare and submit individual comprehensive site design plans for BLM approval. These plans will show the drill layout location over the existing topography, dimension of the location, volumes and cross sections of cut and fill, location and dimension of reserve pits, existing drainage patterns, and access road egress and ingress. Plans shall be submitted and approved prior to initiation of construction.

2. No surface disturbance is recommended on slopes in excess of 25 percent unless erosion controls can be ensured. Where erosion control is expected, Engineering proposals for revegetation and restoration plans will be required in these areas.

3. Both produced water and reserve pits should be constructed to ensure protection of surface and ground water. The review to determine the need for installation of lining material will be done on a case-by-case basis and consider soil permeability, water quality, and depth to ground water. Oil-based muds used for drilling operations should be environmentally acceptable.

4. Earthen reserve pits will be used only after evaluation of the pit location for distance to surface water bodies and type of soil in the pit area. Earthen reserve pits will be located in areas where soil permeability is greater than 10 cm/hr. and after evaluation of the flood plane by the Authorized Officer. If the soil is subject to surface water bodies and soil permeability is greater than 10 cm/hr., the reserves will be located in areas where soil permeability is greater than 10 cm/hr.

5. Reserve pit liners must have a4 millimeter burst strength that is equal to or exceeds 300 pounds, and grab tensile strengths that are equal to or exceed 150 pounds. There shall be verified test results conducted according to ASTM test standards. The liner must be totally resistant to deterioration by hydrocarbons.

6. If clay soils are used as pit lining, they should have a liquid limit greater than 30 and a Plasticity Index of at least 20. Assuming that bentonite in drilling fluids will sufficiently seal subsurface, the bentonite will not be compacted, and uniform cover and density will not be achieved. Bentonite is also subject to cracking if it is not designed properly.

7. Uncontrolled or designed settlement of clay particles does not provide a consistently adequate seal on a pit liner. Compaction or permeability testing should be used to determine pit characteristics.

8. Reserve pits will not be located in areas where groundwater is less than 50 feet from the surface. A closed system will be required if water shows in the rat or mouse hole.

9. Produced water from oil and gas operations will be disposed of in accordance with the requirements of Onshore Oil and Gas Order 7.

10. Pits will be fenced as specified in individual authorizations. Any pits with harmful fluids in them shall be maintained in a manner that will prevent migratory bird mortality.

11. Any produced water pit or drilling fluids pit that shows indications of containing hazardous wastes will be tested for the Toxicity Characteristic Leaching Procedure (TCLP) and will be disposed of in an approved manner. The cost of the testing and disposal will be borne by the potentially responsible party.

12. Disturbances should be reclaimed or managed for zero runoff from the location until the area is stabilized. All excavations and pits should be closed by backfilling and compacting the soil surrounding the trench. On well pads and larger locations, the surface plan will include objectives for successful reclamation including: soil stabilization, plant community composition, and desired vegetation density and diversity.

13. On producing locations, operators will be required to reduce slopes to original contours (not to exceed 3:1 slopes). Areas not used for production purposes will be backfilled and blended with the surrounding terrain, reseded, and erosion control measures installed. Erosion control measures will be required after slope reduction. Facilities will be required to approach zero runoff from the location to avoid contamination and water quality degradation downstream. Mulching, erosion control measures, and fertilization may be required to achieve acceptable stabilization.

14. Abandoned sites must be satisfactorily reestablished in accordance with a plan approved by the BLM. Soil samples may be analyzed to determine reclamation potential, appropriate reseeding species, and nutrient deficiency. Tests may include: pH, major element analysis, electrical conductivity, and sodium content. Terraces or elongated water breaks will be constructed after slope reduction.

Pipelines and Communication Lines

1. No sour gas lines will be located closer than one mile to a populated area or sensitive receptor. The pipelines must use the best available engineering design (e.g., alignment, blockout, valve type and spacing, pipe grades), and use construction techniques (e.g., surveillance, warning signs) as approved by the Authorized Officer to minimize both the probability of rupture and radius of exposure in the event of an accidental pipeline release of sour gas. A variance from the one-mile distance may be granted by the Authorized Officer based on detailed site-specific analysis that will encompass the topography, piping design and/or construction measures. This analysis will ensure that populated areas and sensitive receptors will not be exposed to an increased level of risk.

2. On ditches exceeding 24 inches in width, 6 to 12 inches of surface soil will be salvaged where possible on the entire right-of-way. When pipelines and communication lines are buried, there will be at least 30 inches of backfill on top of the pipe. Backfill should not exceed above the original ground level after the fill has settled. Guidelines for construction and water bar placement are found in "Surface Operating Standards for Oil and Gas Exploration and Development" (USD 1978). Blasted surface materials will be respread upon the cleared route once construction is complete. Disturbed areas that have been reclaimed may need to be fenced when the route is near livestock watering areas.

3. Pipeline ROWs will be located to minimize soil disturbance. Mitigation will include locating pipeline ROWs adjacent to access roads to minimize ROW width or routing pipeline ROWs directly to minimize disturbance length.

4. Existing crowned and ditches roads will be used for access where possible to minimize surface disturbances. Clearing of pipelines and communication lines rights-of-way will be accomplished with the least degree of disturbance to soil. Where topsoil removal is necessary, it will be stored on site and reseeded. Where topsoil disturbance occurs, surface disturbance after construction and backfilling are completed. Vegetation removed from the right-of-way will also be required to be re-spread to provide protection, nutrient recycling, and a seed source.

5. Temporary disturbances which do not require major excavation (e.g., small pipelines and communication lines) may be stopped to vegetation to ground level using mechanical treatment, leaving topsoil intact and root mass relatively undisturbed.

6. Trees, shrubs, and ground cover (not to be cleared from rights-of-way) are required to protect construction from damage. Backfilling to reconstruction condition (in a similar sequence and density) will be required. The restoration of normal surface drainage will also be required.

7. To promote soil stability, the compaction of backfill over the trench will be required (not to exceed above the original ground level after the fill has settled). Wheel or other method of compacting the pipeline trench backfill will be required to levels to reduce trench settling and water channeling. Once 3 feet of fill has been replaced and space within 12 inches of the surface. Water bars, mulching, and terracing will be required, as needed, to minimize erosion. Instream protection structures (e.g., drop structures, adequately sized culverts, etc.) will be used as appropriate to prevent erosion. The fencing of linear disturbances near livestock watering areas may be required.

Fire

1. Guidelines for buffer areas (an area in which fire cannot spread) have been prepared to protect developed facilities and areas of highly erodible soils from the impacts of fire disposal.

a. If the development is located in a grass community, a 15-foot buffer is recommended.

b. If the development is located in a sagebrush community, a 25-foot buffer is recommended.

c. In a juniper/tall brush community (sericebrev, aspen, cottonwood, willow), a 50-foot buffer is recommended.

d. In a conifer community (lodgepole, spruce, fir), a buffer area of 25 feet plus the height of the surrounding trees is recommended.
2. The emissions which may be created directly by BLM activities are mitigated by applying best management practices. For example, prescribed fires are conducted to reduce emissions by burning only at app-pro priate fuel moistures and wind speeds (among other factors) which reduce as much as possible the smoke created. All BLM activities that may potentially cause undesirable air quality impacts are also coordinated with the Wyoming DEQ-AQD. Permits to conduct these activities are secured (where necessary) before the activity begins, to ensure compliance with all federal, state, and local air quality laws.

3. In support of prescribed fire activities, the BLM may temporarily close areas to facilitate operations and to provide for public safety.

Air Quality

1. Bureau actions must comply with all applicable air quality laws, regulations, and standards. As projects are proposed that include possible major sources of air pollutant emissions, air quality protection related stipulations are added to BLM permits and rights-of-way grants. In addition, the BLM coordinates with the Wyoming DEQ-AQD during the process of analysis. This coordination results in the technical review of applications for permits and/or identification of additional stipulations to be applied to these permits.

2. The release of hazardous air contaminants, particularly the emissions from your natural gas burning plants (a process used to remove H.S from natural gas resulting in the emissions of sulfur dioxide), is a public concern. BLM requires industry to prepare analyses of risks involved with the development of your gas pipelines and treatment facilities. These analyses are designed to project impacts both to the public and to resource values. To aid in achieving air quality goals BLM will consult with the State of Wyoming, the USFS, industry, and the public to ensure that the most technically reasonable, and economically feasible decisions are made.

3. In accordance with Wyoming Air Quality Standards and Regulations Chapter 3, Section 2(6), the emission of fugitive dust shall be limited by all persons handling, transporting, or storing any material to prevent unnecessary amounts of particulate matter from becoming airborne to the extent that ambient air standards described in these regulations are exceeded. Control measures described as follows or any equivalent method shall be considered appropriate for such control:

- Use, where possible, water or chemicals to control dust in the demolition of existing buildings, or structures.
- Construction operations, the grading of roads or the clearing of land.
- Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts.
- Installation and use of hood, fans and fiber filters to enclose and vent the handling of dusty materials, adequate containment methods shall be employed for open piles or other similar operations.
- Covering, at all times when in motion, open bodied trucks, transporting materials likely to give rise to airborne dusts.
- Conduct of agricultural practices such as tilling of land, application of fertilizers, etc. in such a manner as to prevent dust from becoming airborne.
- The paving of roads and their maintenance in a clean condition.
- The prompt removal of earth or other material from paved streets or paved roads into which earth or other material has been transported by truck or moving equipment, erosion by water, or other means.
- Imposition of fines and penalties (Wyoming Air Quality Standards and Regulations, 2000, Chapter 3, Section 2, Emission Standards for Particulate Matter).

4. Necessary air quality permits to construct, test, and operate facilities will be obtained from the WDEQ-AQD. All internal combustion equipment will be kept in good working order.

5. Operators will comply with all applicable local, state, tribal, and federal air quality laws, standards, and implementation plans, including Wyoming Ambient Air Quality Standards (WAAQS) and National Ambient Air Quality Standards (NAAQS).

6. Operators may be required to cooperate in the implementation of a supplemental coordinated air quality program or emissions control program.

7. Operators will water construction sites as necessary to abate fugitive dust.

8. No open burning of garbage or refuse will be allowed at the well sites or other facilities. Any open burning will be conducted under the permitting provisions of Chapter 10, Section 2 of the Wyoming Air Quality Standards and Regulations (WDEQ 2000).

Vegetation

1. Removal and disturbance of vegetation will be kept to a minimum through construction site management (e.g., using previously disturbed areas and existing easements, limiting equipment/materials storage yard and staging area size, etc.).

2. Well locations and associated roads and pipelines will be located to avoid or minimize impacts in areas of high value (e.g., SSSS habitats, wetland areas).

Soils

1. Current objectives focus on soil conservation planning for surface disturbance activities. Soil conservation should be addressed during the initial phase of any surface disturbance planning and ongoing action as required to maintain productivity and stability levels through the use of existing guidelines and techniques. Some areas may require more thorough soil management practices than others. However, this is dependent on the type and duration of the action and the effect on site-specific soil characteristics.

2. Management of the soil resource will continue to be based upon the following: Evaluation and interpretation of soils in relation to project design and development: Identification of surface soils for baseline data; and Identification and implementation of methods to reduce accelerated erosion.

3. Evaluation and interpretation involves identification of soil properties which will influence their use and recommendations for development while minimizing soil loss. Projects will be examined on a site-specific basis, evaluating the potential for soil loss and the comparability of soil properties with project design. Stipulations and mitigating measures are provided on a case-by-case basis to ensure soil conservation and practical management. Projects requiring soil interpretations include: construction of linear right-of-way facilities (i.e., pipelines, roads, railroads, and power transmission lines); construction of water impoundments: rangeland manipulation through fire or mechanical treatments: construction of plant site facilities, pump stations, well pads and associated disturbances; and reclamation projects.

4. Closures due to saturated soil conditions when soil resource damage will occur due to wheel raking or compaction on wet soils.

5. Salvage and subsequent removal of topsoil will be required for surface disturbance activities whereas specified by the Authorized Officer.

6. Surface disturbing activities will generally be limited on slopes greater than 25 percent.

7. Emphasis will be placed on the reduction of soil erosion and sediment into the Green River Basin watershed. Of particular importance will be those areas with saline soils or those areas with highly erodible soils.

Identification of critical erosion condition areas will continue during soil surveys, monitoring, site specific project analysis, and activity plan development for the purpose of avoidance and special management.

Before a surface disturbing activity is authorized, topsoil depth shall be determined. The amount of topsoil to be removed, along with topsoil placement areas, will be specified in the authorization. The uniform distribution of topsoil is not required, but sufficient will be required, unless conditions warrant a varying depth. On large surface-disturbing projects (e.g., gas processing plants) topsoil will be stockpiled and seeded to reduce erosion. Where feasible, topsoil stockpiles will be designed to maximize surface area to reduce impacts to soil microorganisms. Stockpiles remaining less than two years are best for soil micro-organism survival and native seed viability. It is recommended that stockpiles be no more than 3 to 4 feet high. Long term topsoil stockpiles of more than two years are not recommended. Stockpiles will be used for spoil storage will be stripped of topsoil before spoil placement. The replacement of topsoil after spoil removal will be required.

10. Operators will avoid adverse impacts to soils by:
- minimizing disturbance;
- avoiding construction with frozen soil materials;
- avoiding areas with high erosion potential (e.g., unstable soil, deep-cut channels, slopes greater than 25%, floodplains), where possible;
- salvaging and selectively handling topsoil from disturbed areas;
- adequately protecting stockpiled topsoil and replacing it on the surface during reclamation;
- leaving the soil intact (scraping only) during pipeline construction, where possible;
- using appropriate erosion and sedimentation control techniques including, but not limited to, diversion terraces, riprap and matting;
- promptly revegetating disturbed areas using adapted species;
- applying temporary erosion control measures such as temporary vegetation cover, application of mulch, netting, or soil stabilizers; and/or
- construction barriers as appropriate in certain areas to minimize wind and water erosion and sedimentation prior to vegetation establishment.

Specific measures and locations will be specified in Surface Use Plans or Plans of Development prepared during the AKP and/or ROW application processes.

11. Appropriate erosion control and revegetation measures will be employed. Grading and landscaping will be used to minimize slopes, and water bars will be installed on disturbed slopes in areas with unstable soils where
Revegetation using a BLM-approved, locally adapted seed mix containing native species will begin in the first appropriate season following disturbance. Vegetation removed will be replaced with plants of equal forage value and growth form using procedures that include:

- fall seeding (September 15 to freeze-up), where feasible.
- spring seeding (April 30 - May 31) if fall seeding is not feasible.
- deep ripp ing of compacted soils prior to seeding.
- utilization of native cool season grasses, forbs, and shrubs in the seed mix.
- interseeding shrubs into an established stand of grasses and forbs at least one year after seeding.
- appropriate, approved weed control techniques.
- broadcast or drill seeding, depending on site conditions.
- fencing of certain sensitive reclamation sites (e.g., riparian areas, steep slopes, and areas within 0.5 mi of livestock watering facilities) as determined necessary through monitoring.

Revegetation goals include:

1. Creation of conditions that will attract wildlife.
2. Combining the many functions of vegetation with its role in erosion control.
3. Creating conditions that provide food and cover for wildlife.
4. Creating sites suitable for local wildlife populations.
5. Creating an environment that is in harmony with the surrounding landscape.

Revegetation should be planned and executed in such a way that it is compatible with the other plans or measures established for the project. Revegetation should be planned and executed in such a way that it is compatible with the other plans or measures established for the project. Revegetation should be planned and executed in such a way that it is compatible with the other plans or measures established for the project. Revegetation should be planned and executed in such a way that it is compatible with the other plans or measures established for the project.

**Watershed**

1. Stream sediment, phosphate, and salinity load will be reduced where possible. In areas where ground water exists within 20 ft or less from the surface (Wyoming DEQ Solid Waste Guidelines #2) soil erosion control measures will be required. The following measures will be included in the Rock Springs District Noxious Weed Control Program (USDI 1982a) or the Regional Northwest Area Noxious Weed Control Program (USDI 1987). Herbicide application will be monitored by the BLM authorized officer.

2. Recontouring and seeded preparation will occur immediately prior to reseeding on the unused portion of north facing slopes, road ROWs, and entire pipeline ROWs outside of road ROWs. In the event of uncontrolled wells, operators will initiate reclamation of the entire well location, access road, and adjacent disturbed habitat as soon as possible. The lessors and operators have the responsibility to see that their exploration, development, production, and construction operations are conducted in a manner which results in the proper reclamation of disturbed lands (43 CFR 3160, Onshore Oil and Gas Order No. 1: 1). Operators will be expected to monitor reclamation as specified in the Reclamation Plan to determine and ensure successful establishment of vegetation. No consent to termination of any bond will be given by the authorized officer until all the terms and conditions of the lease or permit have been met (43 CFR 3104.8; 3154.3). No "set loss" is intended to mean that BLM must "ensure that (actions authorized, funded, or carried out by BLM) affecting the habitat of candidate species are carried out in a manner that is consistent with the objectives for managing those species. BLM shall not carry out any actions that will cause any irreversible or

3. Operators will finance site-specific surveys for special status plant species (SSPS) prior to any surface disturbance in areas determined by the BLM to contain potential habitat for such species (Directive USDI-BLM 1984a). These surveys will be completed by a qualified botanist as authorized by the BLM and this botanist will be subject to BLM's SSPS survey policy requirements. Data from these surveys will be provided to the BLM and if any SSPS or habitats are found, BLM recommendations for avoidance or mitigation will be implemented.

4. Herbicide applications will be kept at least 50 ft from known SSPS populations or other distance deemed safe by the Authorized Officer.

5. Where locations and associated roads and pipelines will be located to avoid or minimize impacts in areas of high value (e.g., SSPS habitats, wetland/riparian areas).

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6. Floodplain Executive Order 11988 (Section A.12) states in summary, "if the HEAD OF THE AGENCY finds that the only practicable alternative consistent with the law and the policy set forth in the Order requires siting in a floodplain, the agency shall, prior to taking action, 1) design or modify its action in order to minimize potential harm...and 2) prepare and circulate a notice containing an explanation of why the action proposed is to be located in the floodplain.

7. Floodplain Executive Order 11988 (Section 3), in reference to federal real property and facilities states that agencies shall, if facilities are to be located in a floodplain (i.e., no practicable alternatives), apply flood protection measures to new construction or rehabilitation existing structures, elevate structures rather than fill the land, provide flood height potential markings on facilities to be used by the public, and when the property is proposed for lease, easement, right of way, or disposal, the agency has to attach restriction on uses in the conveyance, etc., or withhold from such conveyance.

8. Disturbances to the soils, such as roads and well pads, can easily concentrate the flow of water increasing its erosive potential. A 500-foot buffer provides an opportunity for the flow to be dispersed before they reach a stream and often precludes construction in riparian zones. Therefore, there will be no construction within 500 feet of a stream unless it can be demonstrated on a case-by-case basis that there is no physically practical alternative. In cases where construction within the 500-foot zone is approved, additional constraints could be applied.

9. All surface disturbance, permanent facilities, etc., shall remain a minimum of 500 feet away from the edge of such flows to be dispersed, riparian areas, wetlands, and other floodplains unless it is determined through site specific analysis. approved in writing by the Authorized Officer, that there is no practicable alternative to the proposed action. If such a circumstance exists, then all practicable measures to mitigate possible harm to these areas must be employed. These mitigating measures will be determined case by case and may include, but are not limited to, linking, lowering, screening, mulching, terracing, and diversions.

Wilderness

1. A permitted use of public land will be allowed for activities within 1/4 mile of the visual horizon (whichever is closer) of the Wilderness Study Area (WSA) boundary. Actions within or adjacent to the WSAs will be evaluated on a case-by-case basis to determine if appropriate mitigation will be necessary.

Geological/Paleontological Resources

1. Wells, pipelines, and ancillary facilities will be designed and constructed such that they will not be damaged by moderate earthquakes. Any facilities designed as critical according to Uniform Building Code Standards for Seismic Risk Zone 2B will be constructed in accordance with applicable Uniform Building Code Standards for Seismic Risk Zone 2B.

2. In areas of paleontological sensitivity, a determination will be made by the BLM as to whether a survey by a qualified paleontologist is necessary prior to the disturbance. In some cases, construction monitoring, project relocation, data recovery, or other mitigation will be required to ensure that significant paleontological resources are avoided or recovered during construction.

3. If paleontological resources are uncovered during surface-disturbing activities. Operators will suspend operations at the site that will further disturb such materials and immediately contact the AO, who will arrange for a determination of significance. and, if necessary, recommend a recovery or avoidance plan. Mitigation of impacts to paleontological resources will be on a case-by-case basis, and Operators will either avoid or protect paleontological resources.

Cultural/Historical Resources

1. Operators will follow the Section 106 compliance process prior to any surface-disturbing activity and will either avoid or protect cultural resource properties.

2. Operators will halt construction activities at the site of previously undisturbed cultural resources discovered during construction. The BLM will be notified immediately, and consultation with the Wyoming State Historic Preservation Office (SHPO) and, if necessary, the Advisory Council, will be initiated to determine proper mitigation measures. Following the SPCC Plan, each treatment plan, programmatic agreements, or discovery plans that may direct such efforts. Construction will not resume until a Notice to Proceed is issued by the BLM.

3. Cultural resources and Frozen Ground Condition of Approval. In culturally sensitive soils, if cultural resources are located within frozen soils or sediments exclusively, the ability to adequately record or evaluate the find, construction work will cease and the site will be protected for the duration of construction and under natural thaw, recrystallization, evaluation and recommendations concerning further management will be made to the authorized officer, who will consult with

affected parties. Construction work will be suspended until management of the threatened site has been finalized.

4. Should future work identify any traditional Native American religious or sacred sites, consultation among the BLM, the affected Native American group, the SHPO, and the project proponent will occur to resolve conflicts. This consultation will occur on a case-by-case basis. In conformity with an approved Native American Concerns Agreement Document.

5. Operators should inform their employees, contractors, and subcontractors about relevant Federal regulations intended to protect archaeological and cultural resources. All personnel should be informed that collecting artifacts— including arrowheads—is a violation of Federal law and that employees engaged in this activity may be subject to disciplinary action, which could include dismissal.

6. Equipment operators should be informed that a cultural resource could be found anywhere; and if they uncover a site during construction, surface disturbance activities at the site must be immediately halted and the BLM notified.

7. Historic trails will be avoided. Surface disturbing activities will avoid areas within 0.25 miles of a trail unless such disturbance will not be visible from the trail or will occur in an existing visual intrusion area. Historic trails will not be used as haul roads. Placement of facilities outside 0.25 miles that are within view of the Landers Trail will be located to blend the site and facilities in with the background.

Water Resources

1. Owners or operators of onshore facilities (any facility on or off of land or drilling or workover rig) due to their location, could reasonably be expected to discharge oil in harmful quantities (as defined in 40 CFR part 110 & 112.3), into or upon navigable waters of the United States or adjoining territories, shall prepare a Spill Prevention Control and Countermeasure Plan (SPCC Plan) in accordance with 40 CFR 112.7. Owners or operators of construction or workover rigs need to make sure any SPCC Plan that was previously submitted is moved to a new site. The SPCC Plan may be a general plan, using good engineering practice (40 CFR 112.3(a), (b), and (c)).

2. Owners or operators of a facility for which an SPCC Plan is required shall maintain a complete copy of the Plan at such facility. Any SPCC Plan is not extended at least 8 hours per day, or at the nearest field office if the facility is not so attended (40 CFR 112.3(e)).

3. SPCC Plans will be implemented and adhered to in a manner such that any spill or accidental discharge of oil will be remediated. An orientation should be conducted by the Operators to ensure that project personnel are aware of the potential impacts that can result from accidental spills and that they know the appropriate response if a spill occurs. Where applicable and/or required by law, streams at pipeline crossings will be protected from contamination by pipeline shut-off valves or other systems capable of minimizing accidental discharge.

4. If reserve pit leakage is detected, operations at the site will be dictated, as directed by the BLM until the leakage is corrected.

5. All natural gas wells will be casing and cemented to protect surface and underground freshwater zones. Unproductive wells and wells that have completed their intended purpose will be properly abandoned and plugged using procedures identified by the Office of State Oil and Gas. Supervisor. Rules and Regulations of WOGCC and BLM.

6. Operators will avoid disturbance within 500 feet of wetland/riparian areas and open water areas and within 100 feet of ephemeral/intermittent drainages, where possible. To mitigate potential impacts caused by flooding during the life of the project, construction in flood-prone areas will be limited to late summer, fall, or winter when conditions are generally dry and stream flows are low or non-existent. Additional mitigation to lessen any impacts from flooding or high flows during and after construction will include the avoidance of areas with high erosion potential (i.e., steep slopes). Flushing or filling of existing or created depressions where possible; and implementation of appropriate erosion and sediment control and revegetation procedures.

7. All water used in association with this project will be permitted through the Wyoming State Engineer's Office (WSEO).

8. Erosion-prone (e.g., drainages) and high-salinity areas will be avoided where possible. Necessary construction in these areas will be done to avoid periods of runoff (e.g., in the late summer, fall, or winter prior to soil freezing).

9. Proper containment of oil and produced water in tanks, drilling fluids in reserve pits, as well as locating staging areas for storage of equipment away from drainages will prevent potential contaminants from entering surface waters.

10. Prudent use of erosion control measures, including diversions terraces, riprap, mining, temporary sediment traps, and water bars will be employed as necessary. These erosion control measures will be used to appropriate control surface runoff generated at well locations. The type and location of sediment control structure, including construction directions, will be described in APD and ROW plans. If necessary, to reduce
suspended sediment loads and remove potential contaminants. Operators may treat diverted water in detention facilities prior to release to meet applicable state or federal standards.

Channel crossings by pipelines will be constructed so that the pipe is buried at least 4 ft below the channel bottom.

Channel crossings by roads and pipelines will be constructed perpendicularly to the watercourse. Streams less than 5 ft in width will be crossed perpendicularly to flow, where possible, and all stream crossing structures will be designed to carry the 25-year discharge event or other capacities as directed by the BLM.

Disturbed channel beds will be reshaped to their approximate original configuration.

Operators or pipeline contractors will comply with state and federal regulations for water discharged into an established drainage channel. The rate of discharge will not exceed the capacity of the channel to convey the increased flow. Waters that do not meet applicable state or federal standards will be evaporated, treated, or disposed of at an approved disposal facility. The disposal of water by discharge from a pipeline will withdraw the water, stormwater, produced or flowback water will be done in conformance with WDEQ-Water Quality Division (WQD). BLM Onshore Oil and Gas Order No. 7, and WQGC rules and regulations.

Operators will prepare Storm Water Pollution Prevention Plans (SWPPPs) for their respective areas of field operations as required by WDEQ National Pollution Discharge Elimination System (NPDES) permit requirements.

Any disturbances to wetlands and/or waters of the U.S. will be coordinated with the COE, and 404 permits will be secured as necessary to prevent disturbance.

Operators will evaluate all project facility sites for occurrence of waters of the U.S., special aquatic sites, and wetlands per COE requirements. All project activities will be located outside of these sensitive areas where practical.

Where disturbance of wetlands, riparian areas, streams, and ephemeral/inertial stream channels cannot be avoided, COE Section 404 permits will be obtained by the operators as necessary, and in addition to above listed measures, the employment of the following measures will be applied where appropriate:

- Wetland areas will be crossed during dry conditions (i.e., late summer, fall, or dry winters). Winter construction would occur only prior to soil freezing or after soils have thawed.
- Streams, wetlands, and riparian areas disturbed during project construction will be restored to as near pre-project conditions as practical, and if impervious soils contributed to wetland formation, soils will be compaction to reestablish impermeable conditions.
- Wetland topsoil will be selectively handled.
- Areas will be recontoured and BLM-approved species will be used for reclamation.
- Reclamation activities will begin on disturbed wetland areas immediately after completion of project activities.

Noise

1. The Operator will be required to apply noise mitigation at all locations, as determined necessary by the Authorized Officer, on a case-by-case basis. All engines required for project activities will be properly muffled and maintained in accordance with state and federal laws.

2. Construction, drilling, clearing, testing, and production facility installation activities may be restricted due to noise proximal to active raptor nests during the nesting period and in sage grouse breeding and nesting areas. Road use and travel pattern specifications will be identified in the Transportation Plan. Noise will be reduced, in part, to keep traffic to a minimum to reduce noise impacts.

Wildlife, Fisheries, and Threatened Endangered Species

1. The Operators, in consultation with representatives from BLM, WQFD, USFWS, and other interested area such as livestock operators, will prepare and adhere to a Wildlife Monitoring/Protection Plan for this project. The plan will be kept at on-site offices or nearest operator and in the BLM Field Office.

2. To minimize wildlife mortality due to vehicle collisions. Operators should advise project personnel regarding appropriate speed limits in the project area. Also, roads no longer required for operations will be reclaimed as soon as possible. Some existing roads in the project area may be closed and reclassified by the Operator as requested by the BLM. Potential increases in poaching should be minimized through employee and contractor education regarding wildlife laws (including hunting unleashed dogs at work sites to reduce the potential for harassment of wildlife); and cit of wildlife law violations are discovered, the offending employee will be disciplined by disciplinary action, which could include dismissal by the Operator. and/or prosecution by the WQFD.

3. To protect important big game winter habitat, activities or surface use will not be allowed from November 15 through April 30 without a winter disturbed acres encompassed by the authorization. The same criteria apply to defined big game birthing areas from May 1 through June 30. The BLM can and does grant exceptions to state or federal restrictions if the wildlife agency has not responded by June 30. Consultation with the WQFD, feels that granting an exception will not jeopardize the population being protected. Wildlife biologists use a set of criteria for judging whether to grant a request for an exception (See Section A-3 Procedures for Processing Applications in Areas of Seasonal Restrictions).

4. Raptors - Operators will comply with the following guidelines for avoidance of raptor nests:

- All surface-disturbing activities (e.g., road, pipeline, well pad construction, drilling, completion, workover operations) will be conducted only from February 1 through July 31 within a 0.5-m radius of all active raptor nests except feral hawks nests, for which the seasonal buffer will be 1.0 m. (An active raptor nest is defined as a nest that has been occupied within the past 3 years.) The seasonal buffer distance and exclusion dates applicable may vary depending on such factors as the activity status of the species, species involved, prey availability, natural topographic barriers, line-of-site distances, and other conflicting issues such as cultural values, steep slopes, etc.

- Raptor nest surveys will be conducted for active nests within a 0.5- to 1-mile radius of proposed surface use or area of activity is proposed to be conducted between February 1 through July 31.

- Permanent clear of the projects and high profile structures such as well locations, roads, buildings, storage tanks, overhead power lines, etc., and other structures requiring repeated human presence will not be constructed within 250 and/or 800 feet for feral hawks 2,600 feet for bald eagles) of active raptor nests. The buffer distance may vary depending on surrounding factors such as the species involved, prey availability, natural topographic barriers, line-of-site distances, and other conflicting issues such as cultural values, steep slopes, etc. Linear barriers such as pipelines, seismic activity, etc., could be granted exceptions as long as they will not adversely affect the raptors.

5. Sage Grouse - Operators will comply with the following guidelines for avoidance of sage grouse leks and nesting areas:

- Surface disturbance within 0.25 mi of a sage grouse leek will be avoided. The limits be determined by pipelines, seismic activity, etc., could be granted exceptions since they do not have long-term, continuous activity associated with them that could impact breeding success.

- Permanent (life of the project), high profile structures such as buildings and storage tanks will not be allowed within the hours of midnight and 9:00 AM, within a 0.5 mile of active leeks (i.e., leks occupied by mowing birds).

- Operators will restrict construction activities from March 1 through July 31 within a 2.0-mile radius of active sage grouse leks in suitable sage grouse nesting habitat as determined during on-site reviews of proposed development areas. If an active lek is located, an appropriate buffer area will be established on a case-by-case basis to prevent direct loss of the nesting area. Adequate buffer distance will be established. The 2.0-mile buffer distance will be kept at the channel bottom. Distance may vary depending on topography, type of activity proposed, and duration of disturbance.

- If active sage grouse nesting or nesting is identified in an area proposed for disturbance which is outside the dates of March 1 through July 31, surface-disturbing activities will be delayed in the area until structuring or nesting is completed.

- If existing information is not current, field evaluations for sage grouse leks and/or nests will be conducted by a qualified biologist prior to the start of activities in potential sage grouse habitat. These field evaluations for leks and/or nests will be conducted of proposed project activity is proposed to be conducted between February 1 through July 31.

- Permanent clear of the projects and high profile structures such as well locations, roads, buildings, storage tanks, overhead power lines, etc., and other structures requiring repeated human presence will not be constructed within 250 and/or 800 feet for feral hawks, 2,600 feet for bald eagles) of active raptor nests. The buffer distance may vary depending on surrounding factors such as the species involved, prey availability, natural topographic barriers, line-of-site distances, and other conflicting issues such as cultural values, steep slopes, etc. Linear barriers such as pipelines, seismic activity, etc., could be granted exceptions as long as they will not adversely affect the raptors.

6. Bald Eagles - Bald eagles roost, perch, feed, and nest along the Green River and New River. To ensure continued protection of this threatened species, no surface disturbing or human activities will be conducted between November 15 through March 15 within 1 mile of known bald eagle roosts and nests. Human activities, including construction of roads, pipelines, well pads, drilling, completion, or workover operations will be seasonally restricted from February 15 through August 15 within 0.1 mile of all active eagle nests. An active nest is one that has been occupied once in the past 3 years.

- No permanent (life of the project), project related, high profile structures will be located within 2,600 feet of a bald eagle nest. Well pads will be located so that they are at
least 2,600 feet from a bald eagle nest. Wells that must be located closer than 2,600 feet (but will not be allowed closer than 2,000 feet) of a bald eagle nest will be out of the direct line of sight of the nest: will have no human activity at the well site from February 15 through August 15 except in the case of an emergency, and will locate production facilities off-site or at a central production facility location at a distance of 2,600 feet or more from the nest. Prior to surface disturbing activities during the nesting season in sensitive areas, BLM will require completion of a field survey in these areas. New roads identified as a potential adverse impact to listed species will not be constructed or BLM will initiate Section 7 Consultation.

7 Reserve, moverover, and production pits potentially hazardous to wildlife will be adequately protected (e.g., fencing, netting) to prohibit wildlife access as directed by the BLM.

8 Wildlife-proof fencing will be utilized on reclaimed areas, in accordance with standards specified in BLM Fencing Handbook 1741-1. It is determined that wildlife species are impacted significantly a vegetation establishment.

9 ROW fencing associated with this project will be kept to a minimum and, if necessary, fences will consist of four-strand barbed wire meeting WGFD approval and BLM Fencing Handbook 1741-1 standards for facilitating wildlife movement.

10 USFWS and WGFD consultation and coordination will be conducted for all mitigation activities relating to raptors and T&E species and their habitats, and all persons required for movement, removal, and/or establishment of raptor nests will be obtained.

11 Surveys for T&E and candidate wildlife species will be conducted in areas of potential habitat by a qualified biologist prior to disturbance. Findings will be reviewed by the BLM and USFWS, and construction activities will be curtailed until there is no concurrence between BLM, USFWS, and the Operator on what activities can be authorized.

12 Operators will adhere to all survey, mitigation, and monitoring requirements identified in the T&E Biological Assessment (BA) incorporated into the EIS for this project.

13 Mountain Plover (proposed for listing): If during the life of the lease the mountain plover habitat should become listed as an endangered or threatened species, and if the project may affect the plover, the BLM will initiate consultation with the USFWS. If formal consultation is necessary, a reasonable and prudent measures specified by the USFWS will be required and implemented by the Operator and his contractors.

For surface disturbing activities, surveys will be conducted within suitable plover habitat by a qualified biologist in accordance with USFWS 1999 guidelines (A copy of the guidelines may be obtained from the USFWS, BLM, or WGFD). Two types of surveys may be conducted: 1) surveys to determine the presence/absence of breeding plovers (i.e., displaying males and foraging adults), or 2) surveys to determine nest density.

- Surveys to determine presence/absence of the plover will be conducted between May 1 through June 15 throughout the breeding range.
- Surveys conducted to determine density of nesting plovers will be conducted between the first week in June through July 4th.

Visual observation of the area should be made within 200-meters (656-feet) of the proposed action to detect the presence of plovers.

A site must be surveyed 3 times during the survey period, with each survey separated by at least 14 days.

Initiation of the project should occur as near to completion of the survey as possible (within 2 days for seismic exploration: a 14 day period may be appropriate for other projects.

If active nest is found in the survey area, the planned activity should be delayed 37 days, or one week post-hatching. If a brood of flightless chicks is observed, activities should be delayed at least 7 days.

The survey type chosen for a project and the extent of the survey area (i.e., beyond the edge of the construction or operational ROW) will depend on the type of project activity being analyzed (e.g., construction, operation) and the users intent. Some techniques common to each survey method are:

- Surveys will be conducted during early courtship and territorial establishment. Distances for mountain plover surveys range from approximately mid-April through early July. However, the specific breeding period depends on latitude, elevation, and weather.

- Surveys will be conducted between local sunrise and 11 a.m. and from 3:30 p.m. and sunset (periods of horizontal light to facilitate spotting the white breast of the adult plovers).

- Drive transects within the project area to minimize early flushing. Flushing distances for mountain plovers may be defined at a distance between 3 meters (9.1 feet) for 100 feet for vehicles, but plovers often flush at 50 to 100 meters (164 to 328 feet) when approached by humans on foot.

- For all breeding birds observed, additional surveys will be conducted immediately prior to construction activities to search for active nests.

If an active nest is located, an appropriate buffer area will be established to prevent direct loss of the nest or indirect impacts from plant-related activities. The appropriate buffer distance will vary, depending on topography, type of activity proposed, and duration of disturbance. For disturbances including pedestrian foot traffic or surface disturbances; 500 feet (152 meters) buffer is required. If the USFWS concurs that a reduced buffer will still protect the nest from direct and indirect take.

14. Black-footed Ferret Listed - Proposed construction sites in the development area will be examined prior to surface-disturbing activities to confirm the presence or absence of prairie dog colonies. Confirmation will be made of white-tailed prairie dog colony/complex size, burrow density, and any data required to indicate whether the criteria for black-footed ferret habitat, established in the USFWS (1989) guidelines, are present. If prairie dog colonies are determined to meet USFWS criteria, a qualified biologist will locate and map all colony components to avoid direct, indirect, and cumulative impacts to the colony/complex. If this is not practical or possible, black-footed ferret surveys of the prairie dog colony/complex, where possible by the USFWS, will be conducted in accordance with USFWS guidelines and requirements. The results of the survey will be provided to the USFWS in accordance with Section 7 of the ESA, as amended, and Interagency Cooperative Regulations. If a black-footed ferret or its sign is found during the surveys, the BLM Authorized Officer shall stop all action on the application in hand; and/or action on any future application that may directly, indirectly, or cumulatively affect the colony/complex, and initiate Section 7 consultation with the USFWS. No project-related activities will be allowed to proceed until the USFWS issues their biological opinion. The USFWS biological opinion will specify any conditions and/or prudent measures the action could proceed or whether the action will be allowed to proceed at all.

15 Endangered Fish - The USFWS has determined that any withdrawal of water from the Colorado River System (surface or ground water) will jeopardize the endangered Colorado pikeminnow, humpback chub, hump-horned, and razorback sucker. The USFWS Colorado River Endangered Fish Recovery Program requires a dejection fee be paid to the program to help support the recovery program. The fee is required for each acre-foot of water depletion where the depletion of water is in excess of 100 acre-feet from the Colorado River system (USFWS July 5, 1996). The fee is based on the use of the Colorado River water as follows: a depletion of 0-100 acre-feet is $0.004 per acre-foot for water depletion. Payment for any depletion will be by certified check or money order to the National Fish and Wildlife Foundation.

LIVESTOCK/Grazing Management

1. Reclamation of nonessential areas disturbed during construction activities will be accomplished in the first appropriate season after well completion. Nonessential areas include portions of the well location not needed for production operations. The well will be completed and the entire portions of new road ROWs, entire pipeline ROWs outside of road ROWs, and all roads and associated disturbed areas at nonproductive well locations. Operators will repair or replace fences, cattleguards, gates, drift fences, and natural barriers to maintain current BLM standards. Cattleguards will be used instead of gates for livestock control on most road ROWs. Livestock will be protected from pipeline trenches, and livestock access to existing water sources will be maintained.

2. The BLM, Operators, and livestock permittees will review, at least annually, livestock impacts from roads or disturbances from construction activities and drilling activities. Appropriate measures will be taken to correct any adverse impacts, should they occur.

Recreation

1. Employees, contractors, and subcontractors will not occupy camp sites more than 14 days on federal lands or at federal recreation sites.

2. Employees, contractors, and subcontractors will abide by all state and federal laws and regulations regarding hunting.

Visual Resources

1. Within Visual Resource Management (VRM) Class II and III areas, disturbance (e.g., roads, the BLM and the Operators will evaluate potential disturbances and impacts to visual resources and identify appropriate mitigation. New roads will be designed so that they conform with the landscape, incorporating curves to eliminate straight, lineal impacts, every opportunity will be taken to reclaim existing road ROWs that are not used when new roads are designed over them. Road ROWs, the BLM and the Operators will be designed with appropriate non-structural environmental colors (Carlsbad Canyon or Desert Brown, or other specified standard environmental colors. Topographic screening, vegetation manipulation, project scheduling, and traffic control procedures will all be employed as deemed appropriate by the BLM to further reduce visual impacts.)
6. Hazardous Material Containment
   a. All storage tank batteries, including drain sumps and sludge holders at compressor facilities, installed on location and designed to contain any oil, glycol, produced water, or other fluid which may constitute a hazard to public health or safety, shall be surrounded by a secondary means of containment for the entire contents of the largest single tank in use plus one foot of freeboard for precipitation or 110 percent of the capacity of the largest vessel. The appropriate containment and/or diversionary structures or equipment, including walls and floor, to prevent discharged fluid from reaching ground, surface, or navigable waters, shall be impervious to any oil, glycol, produced water, or other fluid for 72 hours and shall be constructed so that any discharge from a primary containment system, such as a tank or pipe, will not drain, infiltrate, or otherwise escape to ground, surface, or navigable waters before cleanup is completed.

   b. Treating, dehydrating and other production facilities installed on location, that have a potential to leak or spill oil, glycol, produced water, or other fluid which may constitute a hazard to public health or safety, shall be placed on or within appropriate containment and/or diversionary structure to prevent spilled or leaking fluid from reaching ground, surface, or navigable waters. The appropriate containment and/or diversionary structure shall be sufficiently impervious to oil, glycol, produced water, or other fluid and shall be installed so that any spill or leakage, will not drain, infiltrate, or otherwise escape to ground, surface, or navigable waters before cleanup is completed.

   c. Notice of any spill or leakage, as defined in BLM MTL 3A, will be immediately reported by the Operator to the Authorized Operator and other such federal and state officials (e.g., Wyoming DEQs) as required by law. Any oral notice shall be given as soon as possible, but within 24 hours, and oral notices shall be confirmed in writing within 72 hours of any such occurrence.

   d. There will be no well location or production facility surface occupancy within 0.25 miles of an occupied dwelling to prevent damage to human health and safety and/or other resources. Any surface use or occupancy within such a zone shall be strictly controlled or, if absolutely necessary, prohibited.

SECTION A-3: MITIGATION AND MONITORING OPPORTUNITIES IDENTIFIED IN THE PINEDALE ANTICLINE EIS

A. REQUIRED MITIGATION AND MONITORING OPPORTUNITIES ON FEDERAL LANDS AND MINERALS BROUGHT FORWARD FROM THE PINEDALE ANTICLINE EIS

Transportation

1. Where deemed necessary and effective by the Authorized Officer (AO), locked gates will be installed on oil field roads with structures added to prevent drive-aways to reduce traffic and protect other resources (e.g., wildlife, cultural resources, etc.) from impacts caused by increased vehicle traffic and human presence. The need and location of locked gates would be determined during the transportation planning process. The selective use of locked gates, where practicable, could be used to protect any significant cultural sites found during inventories. This approach is more commonly used as a seasonal restriction to protect wildlife during winter months, but some applications may also present themselves from a cultural resources standpoint.

2. The operators shall be responsible for preventive and corrective maintenance of all BLM authorized roads in the PAPA throughout the duration of the project. This may include blading, clearing debris and culverts, dust abatement, maintenance of cattle guard, fences, drainage structures, toxic soil control, or other requirements. This requirement applies only to roads constructed and/or used by the operators.

3. Speeding vs a serious issue in the project area. Speed limits may be posted on BLM collector and local roads. If deemed necessary by the AO, to minimize speeding and associated impacts, the BLM, County, operators and their contractors will develop a program to encourage workers to obey posted speeds. Project related speeding issues will be addressed through the Transportation Planning Committee.

Residential

1. The operators will be required to install vapor recovery equipment on all production equipment in the Residential Areas (BMG Figure 3-7) where deemed necessary by the AO (e.g., 0.25 miles or less of a residence and in consultation with the Wyoming DEQ). This equipment must be designed so that it controls emissions of all VOCs (including hazardous air pollutants). The equipment must be adequately maintained and properly operated.

2. To avoid the incremental risk of exposure to carcinogenic toxins from producing wells, no well will be located closer than 0.25 miles from a dwelling or residence. At 0.25 miles, the incremental risk increase for the most likely exposure scenario is below the designated threshold level of less than 1 additional person per million.

3. To avoid incremental risk of exposure to carcinogenic toxins from compressor facilities, any compressor facility located closer than four miles to a dwelling or residence will require additional NEPA analysis prior to the final selection of the site and authorization to construct.

4. To avoid potentially significant noise impacts, compressor engines will be located 2,500 feet or more from a dwelling or residence and from sage grouse leks.

Recreation

1. A conflict with recreation use along the Pinedale South and Mesa roads appears inevitable. A number of people use these roads and adjacent Federal lands for recreation. One way to reduce the impact is to direct recreation use away from these roads. The BLM, in cooperation with the operators and the community of Pinedale, will consider development of a trail (from Pinedale to and along the top of the Mesa) which can be used by hikers and mountain bikers that will avoid roads used by oil and gas activities. Consideration will also be given to the off-site mitigation opportunity of developing a bike path to Fremont Lake or other biking, jogging and walking trails. Operators and their contractors should avoid the Pinedale South Road to access the Mesa.

2. If extensive development occurs, it is likely that there will be some limited incidences of squatting in campgrounds designated for public use and in other areas. The operators will inform their employees, contractors and subcontractors that long-term camping (greater than 14 days) on public lands or at public recreation sites is prohibited.

3. As deemed necessary by the AO in consultation with the Transportation Planning Committee, the operators will place directional signs on major access roads to inform hunters and other users that they are entering an oil and gas drilling area.
As also deemed necessary, the BLM and WGF will develop information for hunters that directs them away from areas of extensive development.

4. Traffic the project area will increase dramatically and will likely result in impacts to livestock grazing, wildlife, soils, vegetation, wetlands, etc. To allow continued open access to non-regulated ORV use in the area the exacerbate impacts these sensitive resource uses. BLM will begin the process of evaluating the Mount Airy area, Desert General "Open" ORV designations and update the Pinedale RMP to restrict all ORV use to existing roads and trails.

Visual

1. The operators and BLM, on a case-by-case basis, will investigate and evaluate whether the use of surfacing gathering pipe in the Sensitive Vegetation SRMZ would reduce visual impacts. Surface pipelines are used elsewhere in the Green River Basin to mask surface disturbing activities. Use of bermed pipeline sections and/or right-of-way clearing. Surface pipelines may be particularly important in areas where pipelines do not follow road right-of-ways.

2. One way to avoid visual impacts associated with construction of well pads, roads, and pipelines in visually sensitive areas is to avoid any surface disturbing activities on the sensitive soils shown on DEIS Figure 3-15. Locating well pads on sensitive soils or slopes greater than 10 to 15 percent can substantially reduce the total amount of disturbance caused by larger areas would be needed to accommodate the well pad, road, or pipeline. Furthermore, disturbed sensitive soils could be difficult to reclaim because soilp is limiting, effective moisture is low and erosion is a problem. In the Blue Rim Area of the BLM, sensitive soils in the Blue Rim Area are farmland and habitat for various species of wildlife. Well pads, roads and buried pipelines will avoid the sensitive soils shown on DEIS Figure 3-15.

3. Avoid the introduction of new, linear visual intrusions on the landscape. New roads and pipelines corridors, to the extent practicable, will follow contours and use topography as screening. New pipelines will be located through existing or proposed roads and, wherever possible, new cross-country pipeline corridors will be avoided.

4. Production facilities will be placed away from the edge of the Mesa, regardless of VRM class, to prevent the facilities from being silhouetted on the skyline. Silhouetted structures are more likely to draw the attention of a casual observer. Low profile tanks will be used to reduce the impacts of silhouetted tank. Low profile tanks will be considered in all visually sensitive areas to help retain the existing character of the landscape.

5. If BLM allows a well pad to be developed in any of the VRM Class II areas, roads and well pads may need to be surfaced with materials that reduce visual contrast. For example, in the VRM Class II area near Pinedale, the subsurface material (Watash Formation) can be very light in color and thus contrasts with surrounding undisturbed areas. Mixing spoils with gravel (1 inch deep) in highly visible areas will help to reduce contrast.

Operators will be required to investigate the feasibility of applying this opportunity of surfacing roads and well pads with materials closer in color and texture to the surrounding landscape.

6. BLM will solicit public input during AFDP review for wells located in the Sensitive Vegetation MA 4. BLM will also solicit public input into the disposition of expired leases in MA 4.

7. BP Amoco’s Field Office, or any field facility, will be painted a BLM-approved earthtone color. No exterior lighting that is motion activated and/or that is on continuously through the nighttime hours. Building sites will be considered for safety or security reasons. Exterior nighttime lighting is authorized while the field office is occupied. Exterior lighting will be shielded and directed away from the immediate facility area so that lights and glare are not projected or directed away from the facility area.

8. Where flares or combustion chambers are required in the Sensitive Vegetation (Management Area 4), they should be no taller than the production tanks if possible and located such that their visual impact is minimized.

9. To ensure visual protection within the sensitive vegetation and VRM Class II and III areas, BLM will implement its visual contrast rating process for each APD and right-of-way application. This will help determine mitigation options to comply with visual classification objectives.

Cultural/Historical

1. The only direct impact to the Lander Trail would occur in Section 36 T. 31 N. R. 109 W. This section could be developed at up to 16 well pads/section and direct impacts to the trail could occur because the state leases do not contain stipulations which offer protection for the trail. The BLM and the State of Wyoming will investigate; a land and mineral exchange for this section. As of this date one non-producing well is at risk of losing production to the state leases. By maintaining the surface rights, the BLM could offer some protection of the trail from direct impacts, although the existing rights of the current lessees will need to be recognized. The state could replace any potential lost revenue from this section by obtaining a Federal section of equal mineral potential (perhaps on the crest of the anticline).

2. The BLM, in consultation with the Native American tribes and the SHPO, will enter into an agreement with the tribes to develop a Native American Interests Management Plan for the project area (understood to be the larger exploratory drilling area described in the Anticline area). The BLM has initiated consultation with Native American tribes regarding Traditional Cultural Properties (TCPs) in the project area. The Shoshone and the Paiute are likely to enter into an agreement with the BLM and the operators to manage TCPs, with the added benefit being that these areas are highly interconnected. Benefits to be derived from this approach include avoiding the pitfalls of project-specific consultation on site-specific permits and managing for Native American interests proactively, ahead of pending developments. Partners to this type of approach include not only the operator/lesser, but also area ranchers, environmental groups, the public and BLM.

3. The operators and BLM will initiate an educational program to inform employees and visitors about regulations and cultural resource management and artifact collection. Interpretive and informational signage could be implemented at the major road access points entering the project area.

4. The project will generate a substantial amount of information concerning the archaeology, history and traditional use of the study area. A series of reports will be available for dissemination to the general public that inform people about what kinds of sites have been investigated, why they are important, the direction of the giving and opportunities for public participation. Viewing sites during excavation as well as hands-on volunteer efforts will be encouraged. BLM will provide an annual public presentation concerning the overall cultural resources program within the PAPA.

5. The BLM and the SHPO, in cooperation with the operators, will develop a Programmatic Agreement to develop a more efficient use of cultural resource investigations in the project area. Various treatment plans (e.g., for the Lander Trail, for discovered sites) will be part of this Programmatic Agreement.

Air Quality/Noise

1. To avoid the incremental risk of exposure to carcinogenic toxins from producing wells, no well will be located closer than 1,320 feet from a dwelling or residence. At 1,300 feet, the incremental risk of exposure to a carcinogenic toxin decreases to a level below 2.5 micrograms per hour, assuming a well contains the toxins. In addition, the risk of exposure to a carcinogenic toxin is below the designated threshold level of less than 1 additional person per million.

2. To avoid incremental risk of exposure to carcinogenic toxins from compressor facilities, any compressor facility located closer than 44 miles to a dwelling or residence will require additional NEPA analysis prior to the final selection of the site and authorization to construct.

3. To avoid potentially significant noise impacts, compressor engines will be located 2,500 feet or more from a dwelling or residence and from sage grouse leks.

Air Quality/Noise Monitoring. The affected operator/lesser, in cooperation with the State, U.S. Forest Service, BLM and other agencies, if deemed necessary by the State, could be required to install air quality and noise monitoring equipment to substantiate impact estimations and/or adequacy of impact mitigation.

Paleontology

1. The operators and BLM will initiate an educational program to inform employees and visitors about regulations concerning paleontological resource management and fossil collection and to instruct workers about the potential for encountering fossils in the project area and what to do should fossils be discovered during project-related activities. It will also be explained to the workforce that it is illegal to remove vertebrate fossil materials from Federal lands without a permit.

Groundwater

1. The operators, in consultation with the BLM and State Engineers Office, will locate the production zone (perforated interval) for any water supply well within 1,000 feet of an existing stock or domestic well, at least 200 feet below that of the domestic well. This measure will be to safeguard against immediate lowering of the water level in existing domestic or stock wells. This will be particularly important for wells drilled near the Residential Areas SRMZ shown on DEIS Figure 3-7.

2. The operators, in consultation with the BLM and the State Engineers Office, will cement behind the casing and/or seal off the upper aquifers (up to 500 feet) in water zones that supply water for domestic or livestock purposes to prevent potential drainage/drawdown or that water supply and contamination from other aquifers.

Groundwater Monitoring. The operators will conduct a survey and a complete water analysis (e.g., static water level, alkalinity, salinity, benzene, oil, etc.) of all water wells within a 1 mile radius of existing and proposed development, and a survey of the groundwater level and maintain a record of the specific conductance of all new water supply wells drilled in the project area to evaluate and access new water supply. The standards set for the determination of oil are enhanced for the affected area. The deeper groundwater supply used as drilling water has a somewhat higher salt content than existing domestic and stock wells, particularly in the southern part of the PAPA.

The groundwater monitoring program may follow the one currently being conducted by the U.S. Geological Survey and the Mesa County, but will be developed to include the entire project area. The monitoring program will be designed by a qualified person.
hydrologist and the results reported annually during the annual development review. The groundwater monitoring program will include routine monitoring of groundwater levels in existing groundwater stock wells and groundwater quality to insure that wells are not being impacted (drawdown of water table and degradation of quality) beyond their intended use as a result of the proposed project.

Surface Water

1. Operators with leases in the vicinity (5 miles) of the New York or Green Rivers will individually or jointly prepare an SWPC Plan which will set forth the methods and procedures for preventing and cleaning up and minimizing any accidental discharges to the surface. That plan should part special attention to the transport of fuel through the project area and the potential for a spill that directly or indirectly affects perennial waterways. In addition, the plan should list the types of emergency response equipment necessary to respond to such spills. This response material should be purchased by the operators and stored in the project area with easy access. The ability of the operators and their contractors to respond to a spill should be reviewed during the annual development review.

2. The Wyoming Department of Environmental Quality (WDEQ). Water Quality Division (WQD) is responsible for enforcing Federal storm water pollution prevention regulations. WDEQ/WQD requires permit for any storm water discharges associated with industrial facilities and construction activities. According to WDEQ’s general construction permit, the definition of construction discharges includes any clearing, grading or excavation project which will disturb 5 or more (not necessarily contiguous) acres surfaces. However, under recently released Federal regulations (Federal Register, 12/30/99) the 5 acre minimum for coverage under a construction storm water general permit will decrease to 1 acre by March 7, 2003. As explained in WDEQ storm water guidelines, operators wanting coverage under the permit must prepare a storm water pollution prevention plan as described in the Notice of Intent for Coverage Under WDEQ General Storm Water Permit for Construction Activities. The operator is then obligated to implement the pollution prevention plan and to perform inspections of the pollution control structures and activities weekly and whenever a storm event of 0.5 inches of precipitation occurs. Copies of the plan and inspection reports are to be retained in the field but do not have to be submitted to WDEQ for review and/or approval unless specifically requested to do so.

3. The WDEQ/WQD issues permits for and regulates off-site commercial disposal of fluids. If drilling fluids are hauled offsite for disposal at a commercial disposal facility, a permit is required from WDEQ. Storm water and temporary discharge permits are also issued by WDEQ/WQD. In addition, if produced water has the potential to be discharged to a water of the state, then an NPDES Individual Effluent Discharge Permit is required. Temporary discharge permits and individual NPDES effluent discharge permits for new discharges are not available on Class 1 portions of the Green River or any of it’s tributary drainages that are Class 1 by the tributary rule. These Class 1 tributaries may include ephemeral streams. This means that wastewater from hydrostatic testing of pipelines, produced water, construction dewatering, or any other wastewater discharge may not be discharged to a water of the state if those waters are Class 1. Other means of disposal are required in these areas.

4. The operators, in conjunction with the development of their APD Surface Use Program, where there is the reasonable expectation for sedimentation from well pad, access road, or other construction runoff to reach the New York or Green Rivers, will develop erosion control designs that treat (e.g., sediment trap) runoff before leaving the site.

5. Throughout the WAPA, the feasibility of surface pipelines will be considered, on a case-by-case basis, where steep slopes are traversed greater than 23 percent, except within Management Area 3. Sediment traps will be considered in areas of slopes greater than 10 percent to reduce visual impacts and construction-related erosion and ultimately reduce sedimentation of water. 

6. To reduce the potential for water quality degradation within the five mile region of the New York and Green rivers, the operators will be expected to reduce the time between initial well pad construction and actual drilling to the shortest time practicable (e.g., pads should be constructed no sooner than 30 days prior to actually spudding in wells). The operators will be expected to use readily available techniques for drying pads so that the time between the completion of drilling and mission will pad reclamation is reduced. The mission will pad reclamation should be complete by the end of the summer. If a well is completed late in the fall, the pad should be emplaced and the site stabilized for winter. 

7. The BLM and the operators will identify a qualified individual to serve as the Environmental Compliance Coordinator/Inspector to monitor construction activities in the field. In particular, that individual must be fully knowledgeable about techniques and BMPs to control sedimentation. The operators Environmental Compliance Coordinator/Inspector will be responsible for implementing BMPs and compliance.

Surface Water Monitoring. The operators will develop a surface water monitoring program in cooperation with the State of Wyoming and the BLM. The monitoring program will be reviewed with the public during the annual development review. The purpose of the surface water monitoring program will be to establish baseline conditions in the New York and Green rivers which are currently included in Table E of the State of Wyoming’s 303(d) program. The State of Wyoming has already begun monitoring on these streams and will show whether the streams are currently supporting their designated uses. The monitoring program must be designed to verify that the users do or do not contribute to their designated use. If this information is not established, the operator’s could be pointed to as the cause of the impaired water when, in fact, it could be results from other sources. In addition to chemical components, the monitoring program should include channel conditions near culverts and long-term effects of surface disturbance on erosion in the EPA.

Soils/Reclamation

1. The operators will be required to implement an Erosion Control, Revegetation and Restoration Plan (ERRP) in accordance with the guidelines provided in Appendix A, Section A-4 and comply with the State of Wyoming DEQ’s requirement for preparation and submission of a Storm Water Pollution Prevention Plan (SWPPP) to reduce potential project-related impacts to ground surface waters. The ERRP must address topics outlined in Appendix A, Section A-4, and include appropriate BMPs to reduce impacts from storm water runoff and subsequent sedimentation. Appendix A, Section A-4. Subsection XI contains BMPs appropriate for the project activities addressed in this EIS. During preparation of the ERPP/SWPPPs, the following potential conditions must be addressed:

- Steep slopes: Final alignment of road and pipeline routes should be examined in the field to ensure that construction on slopes in excess of 15 percent are (10 percent maximum in Management Area 4, Sensitive Viewshed) avoided to the extent feasible. Where construction-related disturbance cannot be avoided, detailed design and reclamation plans will be required by BLM to insure that cut and fill slopes are minimized and that slopes are stable. Detailed drainage design plans will be prepared for roads constructed on slopes in excess of 15 percent (10 percent in Management Area 4, Sensitive Viewshed) to insure that runoff is adequately controlled and conveyed and that appropriate BMPs are installed to prevent sedimentation.

- Salvage and Sodic Soils: While impacts to saline and/or sodic soils are minimized by reduced by avoidance of stream channels, additional mitigation measures necessary to reduce impacts will include the following:

- delay construction until the dry periods; 
- conduct soils tests, where necessary, to insure that road and well pad designs incorporate base materials which are sufficient to support traffic and well pads loads; 
- use geosynthetic fabrics, where necessary, to support the road base; 
- use a closed mud system during drilling when water shows in the rat hole. Require construction of a rat hole (40 ft deep) prior to construction of the reservoir pit in order to determine use of a closed mud system. If no water shows, then a closed mud system is not required; 
- develop plans of disposal in areas that are not saturated because many of these areas are wetlands. This is necessary for proper revegetation because the topsoil will provide important seed/propagules that are not commercially available. This is a general condition for many of the COE Nationwide Permits and will be applied to

<table>
<thead>
<tr>
<th>Species</th>
<th>Variety</th>
<th>Seed Drill Rate</th>
<th>Seed Rate/acre (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western wheatgrass</td>
<td>Rosane</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Sandberg bluegrass</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian meadow</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basketweave stipa</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkali vetch</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saltgrass</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scarlet globemallow</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garbus albus</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shadscale</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Soils With Low Reclamation Potential Mitigation measures necessary to minimize impacts to these soils and to enhance revegetation success will include the following:

- disturbance will be minimized to the smallest area necessary for safe construction; 
- topsoil will be salvaged for use in reclamation; 
- identify soil factors in the SWPPP/ERRP affecting revegetation and select a site; 
- insure that proper revegetation procedures are used (e.g. scarification, seedbed preparation, seeding methods and seeding dates); 
- two tons per acre of suitable mulch will be applied where appropriate and cleared vegetation will be returned to reclamed areas to conserve soil moisture.

Soils With A High Water Table Mitigation measures which reduce impacts to these soils include:

- delay construction until the dry periods; 
- conduct soils tests, where necessary, to insure that road and well pad designs incorporate base materials which are sufficient to support traffic and well pads loads; 
- use geosynthetic fabrics, where necessary, to support the road base; 
- use a closed mud system during drilling when water shows in the rat hole. Require construction of a rat hole (40 ft deep) prior to construction of the reservoir pit in order to determine use of a closed mud system. If no water shows, then a closed mud system is not required; 
- develop plans of disposal in areas that are not saturated because many of these areas are wetlands. This is necessary for proper revegetation because the topsoil will provide important seed/propagules that are not commercially available. This is a general condition for many of the COE Nationwide Permits and will be applied to
Table A-38
Recommended Seed Mixture on Wetland/High Water Soil Species Variety Drill Seeding Rate (Lb/Acre) (PLS)

<table>
<thead>
<tr>
<th>Species</th>
<th>Variety</th>
<th>Drill Seeding Rate (Lb/Acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tifton bermgrass</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Basin wildrye</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Slough grass</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Blue grass</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Alkali sacaton</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>

2 During project construction and reclamation it will be critical to ensure that surface disturbing activities are in compliance with BLM’s “Mitigation Guidelines and Standard Practices” (Appendix A) and with the ERRP. To ensure that impacts are minimized, erosion, controlled: disturbed areas are systematically vegetated within 3 to 5 years, there is compliance with the Appendix A “Mitigation Guidelines and Standard Practices,” and approved plans, the operators will perform adequate compliance and monitoring by designating personnel, or contracting with an outside party, that will be responsible for these activities.

3. During the APD approval process, well pads, roads and pipes are located in the vicinity of the sensitive soils shown on Figure 3-15 will be removed and the field to ensure that direct and indirect impacts are minimized.

4. Clearing of pipeline rights-of-way will be accomplished with the least amount of disturbance to topsoil. For gathering pipelines, which usually have a diameter of less than 8 inches, this will be accomplished by scalping vegetation at the ground surface and leaving the root systems intact. Staking of rights-of way will prevent disturbance of the right-of-ways.

On ditches exceeding 24 inches in width, topsoil will be salvaged, where possible, across the entire right-of-way. Topsoil salvaging will also occur in areas where grading is required. Topsoil salvaging occurs along the pipeline right-of-way, it will be wind-rowed on the edge of the right-of-way and not allowed to mix with the trench spoil. Potential topsoil salvage depths for the pipeline surface along the existing right-of-way will be estimated. The right-of-way surface, potentially, will be salvaged up to 18 inches.

5. The Erosion Control, Revegetation and Restoration Plan(s) (ERRP) will address controls to minimize wind erosion. Road and well pad surfaces, washing and chemical binding agents, which will minimize fugitive dust from these exposed surfaces, will be addressed specifically.

6. The ERRP will address the following procedures to ensure that all disturbed areas are stabilized and that revegetation efforts are enhanced so that significant impacts do not occur.

Scalping: Prior to revegetation, all compacted surfaces will be scarified by raking or scalping to loosen compacted soils. Scalping promotes water infiltration, better soil aeration and root penetration. Scalping will be done when soils are dry to promote shattering of compacted soil layers.

Seeded Preparation: Proper seeded preparation is critical for seed establishment. Seeded preparation will be conducted immediately prior to seeding to prepare a firm seeded conducive to proper seed placement and moisture retention. Seeded preparation will also be performed to break up surface crusts and to eliminate weeds which may have developed between final grading and seeding. In most cases, general plowing is sufficient because it leaves a surface smooth enough to accommodate a drill seeder pulled by a tractor and rough enough to catch broadcast seed and trap moisture and runoff.

Seed Mixtures: Seed mixtures will be specified on a site-specific basis and their selection will be justified in the ERRP in terms of local vegetation and soil conditions. The recommended native seed mixtures provided on Tables 3-37 through 4-39 were developed from observations of successful revegetation in the Jonah II field and observation of the dominant native species in the project area. These mixtures comply with EO 11987.

Table A-39
General Seed Mixture for Use in the Project Area

<table>
<thead>
<tr>
<th>Species</th>
<th>Variety</th>
<th>Drill Seeding Rate (Lb/Acre) (PLS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bunchgrass</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Western wheatgrass</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Indian wheatgrass</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Brome grass</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Scarlet gale maltes</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Winterfat</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Fourwing saltbrush</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1##</td>
<td></td>
</tr>
</tbody>
</table>

Native species which will be considered include bluebunch wheatgrass, streambank wheatgrass, brome grass, needle-and-thread grass and big sagebrush. Use of any introduced species will require prior approval by the BLM. The WQFD recommends that BLM consider shrub species in seed mixtures. BLM will coordinate with WQFD to ensure that the correct shrub species are incorporated into seed mixtures on Federal lands.

Fall seeding will occur from about September 15 until ground freeze or snow pack prevents critical seed soil salvage. Spring seeding will be completed by May 30 or as directed by the BLM. Seed will be used within 12 months of testing.

Seedling Method: Drill seeding will be used where the terrain is accessible by equipment. During drilling, the seed will be planted in a range of 1/4 to 1 inch. The seed will be separated by boxes to prevent seed from separating due to size and weight. Rice hulls or other appropriate material will be added to the seed as necessary to prevent separation. The drill will be properly calibrated so that seed is distributed according to the rate specified for each seed mix.

On areas too steep for drill seeding or where approved by the BLM, broadcast seeding will occur. Broadcasted seed will occur within a 3 to 5 foot radius and then will be lightly harrowed, crunched or raked to cover the seed. The seeding rate will be doubled for the recommended seed mixtures because size of the seed mixtures are developed for drill seeding. The method used to cover the seed will be selected so that the seed is lightly covered but maintains the surface in a rough condition. The broadcast seeder will be properly calibrated so that the seeding will occur over a calculated known area so that the proper seeding rate is applied.

7. Where deemed appropriate by the AO, the alignment of the pipeline(s) in portions of the existing corridor may be buffered so that the pipeline rights-of-way do not remove all the native vegetation between the pipelines. By maintaining a native vegetation buffer of about 10 to 15 feet between the pipelines, an important seed source for the establishment of shrub species will be maintained (MacDonald, 1999).

Soils/Reclamation Monitoring: The operators, in cooperation with the BLM, will conduct inspections of the re-vegetation efforts after the fourth and growing seasons to evaluate success. The need to reseed, fertilize or spot treat will be determined by the operator and the BLM. Successful revegetation will be based on the ability of the vegetation to stabilize reclaimed sites and to provide livestock and wildlife forage. If reseeding is judged to be necessary, based on vegetation density and composition of adjacent areas, the ERRPs should be reviewed for any necessary changes to improve revegetation success. Results of the monitoring efforts will be presented at the annual meeting.

In accordance with Executive Order 13112, if invasive or non-native species were disturbed sites they will be controlled by the mechanical, chemical, biological or other methods which are approved by BLM and the local weed control agency. Herbicide use will be avoided in all areas near water and special status plant populations.

Vegetation

1. Where reclamation success conflicts with livestock are anticipated (within 0.5 miles of live water), the operators may be required to fence the entire well pad until final restoration is complete. Only those areas currently fenced at many of the existing well pad locations and livestock can move unimpeded across the remainder of the disturbed sites. In addition to reclamation concerns, livestock on these locations also damage spoil containment berm around tanks and other equipment. Fencing will protect these from less effective alteration.

2. Operators will consider the potential for weed infestations early in project planning. Invasive and non-native species problems will be addressed at annual meetings. In accordance with Executive Order 13112 of February 3, 1999, to protect against the spread or introduction of non-native or invasive
Vegetation Monitoring. Same as Monitoring specified for soils.

Grazing

1. The transportation planning process for the PAPA, which has already been initiated, will continue to involve livestock permits so that potential transportation issues identified during public scoping can be addressed. For example, construction and drilling activities will avoid livestock watering and primary grazing periods (typically mid-June through early July).

2. Well pads will be fenced, as deemed necessary by the AO, to ensure that livestock do not have access to pits or trample spill containment berms or damage production equipment. Gates will be installed at well locations if cattleguards are installed so that cattle can be easily removed. Fencing specifications will also exclude wildlife from well pads. Fences may be installed around reclaimed areas at well pad locations where necessary to insure successful revegetation.

Grazing Monitoring. The BLM, in cooperation with the operators and livestock producers, has established a program to monitor that development and reclamation within grazing allotments and watersheds in the PAPA meet the Standards for Healthy Rangelands. This monitoring program addresses the following: SFWS, which conducts an audit annually; 2) water, nutrients and energy cycling properly; 3) water quality meets State of Wyoming standards; and 4) habitat for special species is protected. This grazing monitoring program will review project development and disturbance within each of the allotments in the project area on a periodic basis and calculate actual AUM losses or gains by allotment. BLM may need to consider adjustments to grazing where necessary so that over-grazing does not occur.

Wetland

1. On Federal lands and minerals, because a spill could result in a significant, widespread impact to wetlands and adjacent drainages (perennial, intermittent or ephemeral), the operators will consider installing product storage tanks in upland areas and off well pads located in wetlands. Wetland spill response and clean up will be addressed in SPEP plans.

Threatened/Endangered Species

1. If deemed necessary by the US. Fish and Wildlife Service and the WQFD, the BLM will close specified prairie dog towns to recreational shooting to minimize mortality of candidate and special status species (i.e. black-footed ferret, mountain plover and burrowing owls) found on prairie dog colonies.

2. As part of the transportation planning process, the BLM, in cooperation with the operators, the USFWS, and the WQFD, will identify: 1) unneeded roads and two-tracks that need to be closed and/or removed; 2) roads that need to be closed to the public, especially during winter and late spring when listed and candidate bird species are nesting; 3) roads that need to be closed to limit access to habitat utilized by wintering bald eagles; and 4) well pad locations that are at least 2,600 feet of a bald eagle nests). Wells that must be located closer than 2,600 feet (but will not be allowed closer than 2,000 feet) of a bald eagle nest will be out of the direct line of sight of the nest. This will have no human activity at the well site from February 15 through August 15 except in the case of an emergency, and will locate production facilities off-site or at a central production facility location at a distance of 2,600 feet or more from the nest. New roads identified as a potential adverse impact to listed species will not be constructed or BLM will initiate Section 7 Consultation.

3. Raptors - All surface-disturbing activity (e.g., road, pipeline, well pad construction, drilling, completion, workover operations) must be seasonally restricted from February 15 through July 31 within a 0.5-mile radius of any active raptor nest, except ferruginous hawk nests and bald eagle nests, for which the seasonal buffer will be 1.0 miles.

4. Mountain Plover [proposed for listing] - If during the life of the project the mountain plover should become listed as an endangered or threatened species, and if the project may affect the plover, the BLM will initiate consultation with the USFWS. If formal consultation is necessary, all reasonable and prudent measures specified by the USFWS will be taken and implemented by the Operator and his contractors.

For surface disturbing activities, surveys will be conducted within all variable prairie plover species, and if the project may affect the plover, the BLM will initiate consultation with the USFWS. If formal consultation is necessary, all reasonable and prudent measures specified by the USFWS will be taken and implemented.

5. Black-footed Ferret - Proposed construction sites in the development area will be examined prior to surface disturbing activities to confirm the presence or absence of prairie dog colonies. Confirmation will be made of white-tailed prairie dog colony/complex size, burrows density, and any other data to indicate whether black-footed ferret habitats are present. Guidelines established in the USFWS (1989) guidelines, are present. If prairie dog colony/complex meets the USFWS criteria, a qualified biologist will be directed on the site, and the USFWS will approve the location and any prudent measures needed for the direct, indirect and cumulative impacts to the colony/complex. If this is not practical or possible, block-footed ferret surveys of the prairie dog colony/complex, where required by the USFWS, will be conducted.

Surveys to determine presence/absence of the plover will be conducted between May 1 and June 15 through out the breeding range.

Surveys conducted to determine density of nesting plovers will be conducted between the last week in June and July 4th.

Visual observation of the area should be made within 200-200 meters (656-feet) of the proposed action to detect the presence of plovers.

All sites must be surveyed 3 times during the survey window, with each survey separated by at least 14 days.

Initiation of the project should occur as near to completion of the survey as possible (within 2 days for seismic exploration, a 24 day period may be appropriate for other projects.

If active nest is found in the survey area, the planned activity should be delayed 37 days, or 1 week post-hatching. If a proof of flightless chicks is observed, activities should be delayed at least 7 days.

The survey type chosen for a project and the extent of the survey area (i.e., beyond the edge of the construction or operational ROW) will depend on the type of project activity being considered (e.g., construction, operations and the extent of the planned activity. Some techniques common to each survey method are:

- Surveys will be conducted during early spring and territorial establishment. Throughout the breeding range, this period extends from approximately mid-April through early July. However, the specific breeding period depends on elevation, elevation, and weather.
- Surveys will be conducted between local sunrise and 10 a.m. and from 5:30 p.m. and sunset periods of horizontal light to facilitate spotting the white breast of the adult plover.
- Drive transects within the project area to minimize early flushing. Flushing distances for mountain plovers may be within "no vehicles and horse boots/plan grass (500 feet) or 200 yards (640 feet)" when approached by humans on foot.
- For project areas not observed, additional surveys will be conducted immediately prior to construction activities to search for active nest sites.
- If an active nest is located, an appropriate buffer area will be designated to the direct loss of the nest and indirect impacts from human-related disturbance. The appropriate buffer distance will vary, depending on topography, type of activity, proposed, and duration of disturbance. For disturbances including pedestrian foot traffic and commercial equipment operations, a 500-meter (1640 feet) buffer is required, unless the USFWS concurs that a reduced buffer will still protect the nest from direct and indirect take.

6. Endangered Fish - The USFWS has determined that any withdrawal of water from the Colorado River System surface or ground waters will jeopardize the endangered Colorado pikeminnow, humpback chub, boyntail, and razorback sucker. The USFWS Colorado River Endangered Fish Recovery Program requires a stream flow depletions be paid for, the program to help support the recovery program. The fee is required for each acre-foot of water depletion where the depletion of water is in excess of 100 acre-feet from the Colorado River system (USFWS July 5, 1994). The current depletion rate (July 2000), which is adjustable based on inflation, is $14.36 per acre-foot. Payment for any depletion will be by certified check or money order to the National Fish and Wildlife Foundation, U.S. Fish and Wildlife Service, 1250 Rhode Island Avenue, N.W. Suite 900, Washington, D.C. 20036.

Threatened/Endangered Listed, Proposed, Candidate, and Sensitive Species Monitoring. Where project sites would be located in potentially suitable habitats, surveys will be conducted to determine whether the area is being occupied by potentially significant species, such as the burrowing owl, or loggerhead shrikes. As deemed necessary, surveys to locate bald eagle roost trees, perch sites, and any other suitable prairie dog colony/complex sites that may be occupied. Surveys will be conducted in cooperation with the US. Fish and Wildlife Service, the WQFD and the landowners to insure that appropriate mitigation measures (e.g., in-situ, ex-situ; scheduling, etc.) are being implemented. No potential nest trees for bald eagles or other raptors will be removed during project construction in the Green River and New York River flood plains on Federal lands and minerals. If black-footed ferret or their sign are found, all activity will cease in the area (prairie dog complex) and formal consultation initiated with the US. Fish and Wildlife Service.
If candidate species are found, no activities will occur within the utilized/occupied habitat during the reproductive period. The BLM will encourage the operators and landowners to also abide by these protective measures on state and private lands.

Wildlife

1. The operators and their contractors will restrict/limit all post-construction traffic to roads specifically identified for access to project sites. Project-related traffic will avoid using all other existing roads in the project area.

2. The BLM in cooperation with the PAPA operators, livestock permittees and the WGFD will:
   a. Work through the Transportation Planning Committee to develop a road management plan that would identify roads that need to be closed to the public, especially during winter and spring. Consideration will be given to permanent or seasonal closure of the south end of the Mesa Road (State Highway 351 to BLM Road 5106). To protect antelope, mule deer and sage grouse. Consideration will also be given to seasonally closing BLM Road 5106 to protect wintering mule deer and strutting sage grouse.
   b. Identify unnecessary roads within the project area that could be reclaimed and where abandoned wells pads and other well-field facilities have not been adequately reclaimed.
   c. Identify and correct where newly constructed and existing roads within the transportation network will intersect two-track roads that create barriers.
   d. Evaluate the need to fence reclaimed sites where impact from cattle and sheep grazing or where wildlife use is a concern.
   e. Evaluate existing stock ponds within the project area and make improvements, where necessary, so they will retain water for use by wildlife. Improvements could include dam reconstruction and installation of snow fences in stock pond drainages to enhance water sources.
   f. Consider constructing wildlife gutters within key sage grouse nesting habitats and key pronghorn summer range habitats that will be fenced to prevent livestock use.
   g. Consider drilling water wells for wildlife use. Wells should have capabilties for seasonal function so that they would not retain wildlife in inappropriate seasonal ranges.

h. Operators will avoid drilling and construction activities during the sage grouse strutting period (March 1 through May 15) within 1 mile of active leks.

3. Avoid constructing roads and pipelines through locally limited vegetation types, including aspen and mountain shrub communities.

4. To the extent possible, bury powerlines. Where not possible, they should be located as suggested in Appendix A, Section A-2.

5. If roads must be plowed during winter, insure that there are frequent openings to allow wildlife trampled in terms to escape.

6. Within big game winter ranges, the operators will instruct their maintenance contractors/personnel (e.g., pumper operators) in their visits to producing wells that they will as much as possible confine well site visits to mid-day (9 a.m. to 3 p.m.) during the winter (November 15 through April 30) to avoid disrupting big game during principal feeding periods and periods of high thermal stress.

7. The operators will avoid placing roads or constructing well pads in highly suitable sage grouse nesting habitat (high density sagebrush throughout the PAPA). Visual and/or noise screens will be used to reduce impacts to these habitats, where appropriate.

8. The BLM, in cooperation with the WGFD and the operators, will evaluate existing fencines within the PAPA and Pinedale Resource Area to determine their suitability for mule deer and pronghorn passage and to modify fences that are in migration routes to provide the least deterrence to animal movements as possible. For example, the BLM, BP Amoco and WGFD will discuss modifications to the Pinedale/Rock Springs Field Area boundary fence in the vicinity of the proposed BP Amoco Field Office.

Aquatic Resource

1. To protect fisheries, particularly spawning brown trout, water withdrawals and instream construction activities on Federal lands and minerals will not occur between September 15 and November 30 in streams containing trout.

2. Consider constructing wildlife gutters within key sage grouse nesting habitats and key pronghorn summer range habitats that will be fenced to prevent livestock use.

3. Consider drilling water wells for wildlife use. Wells should have capabilties for seasonal function so that they would not retain wildlife in inappropriate seasonal ranges.

4. Through continual renewal with new biological and wildlife development data, the models will allow managers to identify site-specific opportunities for mitigation, whether through habitat enhancement, changes in land use, or avoidance of new impacts altogether.

5. As traffic levels increase throughout the PAPA and vicinity, additional animal-vehicle collisions are expected. Wyoming Department of Transportation already monitors big game mortalities and traffic volume on some area highways. By expanding that effort to include well field access roads, sites will be identified where specific mitigation could be applied to reduce mortalities.

6. Continue to monitor key biological sites and events, including, but not limited to, raptor nesting success and nesting populations. Sage grouse lek attendance and population trends, mule deer winter mortality and water distribution, occupancy and health of prairie dog colonies and use of those colonies by other wildlife species.

7. Monitor vegetation success at all reclaimed sites and initiate necessary remediation work as soon as possible.

8. Monitor level of development to ensure impacts to wildlife and other resources are consistent with the scope and analysis of the EIS. If development levels approach exceeding any thresholds, consideration will be given to modifying/culturing further activity on Federal lands while supplemental environmental impact analysis is completed.
B. RECOMMENDED OPERATOR, STATE OF WYOMING, SUBLETTE COUNTY, AND CORPS OF ENGINEERS MITIGATION AND MONITORING OPPORTUNITIES FOR STATE AND PRIVATE LANDS AND MINERALS BROUGHT FORWARD FROM THE PINEDALE ANTICLINE EIS

Socioeconomic

1. The operators could require that all contractors and subcontractors obtain a sales and use tax license specifically for Sublette County and require that all purchases of materials be made on a Wyoming license and taxes remitted under the Sublette County license. This is generally known as the Direct Payment of Tax Technique. This technique would maximize local receipts of sales and use taxes.

2. If significant development occurs, there may be a need for an additional 4-wheel drive ambulance. The operators, working with EMS, could monitor the situation. If another ambulance becomes necessary and adequate revenues are unavailable within the county, the operators could assist the county in the purchase of an additional ambulance.

3. The operators could sponsor training for all county fire departments. Response techniques for oil and gas fires are very different than the techniques used to fight other types of fires. The county fire departments and the operators would benefit tremendously if adequate training and a clear definition of roles were established. In addition, the operators may benefit from assisting the volunteer fire departments in attracting new members.

4. As with any facility that stores flammable materials, the risk exists for an emergency situation at production facilities. It will be essential that emergency medical and fire and rescue personnel in the county be thoroughly trained on how to deal with all potential incidents at production facilities. Adjacent landowners should be adequately informed to recognize an emergency situation and how to notify the proper officials. Landowner information/education should focus on both drilling and production activities.

5. The operators could track local and state tax payments from their activities on the Pinedale Anticline and report these payments during the annual development review workshops.

Transportation

1. All project-related traffic should avoid using the Pinedale South Road (Tyler Avenue) through the Town of Pinedale. This restriction should apply to both light vehicle and heavy truck traffic. Project related issues should be addressed through the Transportation Planning Committee.

2. The operators should work with Sublette County to develop maintenance agreements for county roads in the PAPA. Maintenance agreements should address the need to upgrade or surface these roads to minimize dust and road deterioration impacts (washboards). The county has specifically that paving is not an option on any of their roads, but the use of gravel (meeting county specifications) and other binding products could be considered.

3. Speeding is a serious issue in the project area. Speed limits should be posted on county roads as well as on BLM collector and local roads. To minimize speeding and associated impacts, the operators and their contractors should develop a program to encourage workers to obey posted speeds. If this fails, the operators may need to encourage the county sheriff to patrol county roads in the PAPA. Project related issues should be addressed through the Transportation Planning Committee.

Residential

1. To avoid impacts associated with noise from drilling near residential areas, care should be taken to reduce/minimize all possible sources of noise from the drilling and testing operations. Temporary noise barriers should be considered to lessen noise on adjacent property owners. Noise dampening around engines could be considered (including foam insulation around drilling rigs).

2. To avoid the incremental risk of exposure to carcinogenic toxins from producing wells, no well will be located closer than 1,320 feet from a dwelling or residence. At 1,320 feet, the incremental risk increase for the most likely exposure scenario is below the designated threshold level of less than 1 additional person per million.

3. To avoid incremental risk of exposure to carcinogenic toxins from compressor facilities, any compressor facility located closer than four miles to a dwelling or residence will require additional NEPA analysis prior to the final selection of the site and authorization to construct.

4. Lights from drilling rigs and other equipment could be managed to minimize impacts at residences to the extent possible. During drilling, lights on rigs should be shrouded and directed onto the drilling platform or floor so that lights and glare are not directed away from the drilling area. This will minimize night lighting effects and impacts to visual and recreation resources. Night lighting effects can diminish the feeling of solitude beyond the project area boundaries.

5. As a safety precaution and to reduce odors and nuisances, any wells drilled within 0.25 miles of residential areas could use a closed drilling system so that no pit is constructed. Fencing should also be considered to prevent access to the sites.
6. If drilling occurs in a residential area and it is not possible to avoid using drilling pads in the drilling site, the operators should obtain city council approval and do everything possible to minimize its impact in the area. Strict enforcement of speed limits would be necessary. Road maintenance and repair should be required of the operators.

7. The operators should install vapor recovery equipment on all production equipment in the Residential Areas SRMZ. This equipment should be designed so that it controls emissions of all VOCs: hazardous air pollutants. The equipment should be adequately maintained and properly operated. The operators should respond diligently to adjacent property owners’ complaints of odor.

8. To protect property values to the extent possible, the operators should develop a variety of schemes and treatments to hide equipment and pads so that they are not noticeable to area residents. In addition, production facilities in residential areas should be centralized and the location selected based on the least impact traditional trades. Methods of screening should extend beyond typical vegetative means and include more permanent solutions such as textured concrete walls, barriers, etc. Residents of visible areas should be involved in developing these techniques.

9. The Sublette County Planning and Zoning Commission should address the compatibility of oil and gas development in all of the zoning districts in the county. Standards should be developed and regulations adopted to address situations where oil and gas development and existing land uses are considered incompatible.

10. BLM recommends that once exploration is completed, operators consider the use of natural gas burning engines rather than direct venting engines to reduce odor, nitrogen oxide emissions, and haze. A reduction in the cost of drilling would occur since use of natural gas generated on lease is royalty free.

Recreation
1. If the operators drill the 8.5-well located on private lands and minerals in Section 5, T. 30 N., R. 109 W. adjacent to the New York River Campground, impacts could be reduced if drilling occurred during the early spring or late fall when the campground is not in use. This well would be located on the extreme fringe of the range. Drilling should be coordinated, if possible, to comply with seasonal restrictions for antelope.

2. If the 1-16-well located on state land in Section 16, T. 33 N., R. 109 W. is drilled, the location should be adjusted so that it is not visible from the float access point on the New York River.

Air Quality/Noise
1. The operators could locate all wells on private and state lands and minerals at least 1,320 feet from all residences to eliminate the potential for significant impacts for incremental cancer risk from benzene concentrations for the most likely exposure scenario.

2. The State could require, through the application of Best Available Control Technology, and the operators could install compressor engines with NOx emissions rate of 0.7 gph-hr or less to further reduce impacts to air quality even though it is not significant at 1.0 or 1.5 gph-hr.

3. The operators could install compressor engines on State or private lands and minerals so that they are located 2,500 feet or more from residences and sage grouse leks to eliminate potentially significant noise impacts.

Monitoring. - The affected operator(s), in cooperation with the State, U.S. Forest Service, BLM and other agencies, if deemed necessary by the State, could install air quality and/or noise monitoring equipment to substantiate impact estimations and/or adequacy of impact mitigation.

Groundwater
1. To safeguard against immediate lowering of the water level on State and private lands and minerals in the proposed development, any existing stock or domestic wells, any water supply well within 1,000 feet of an existing stock or domestic well should have its production zone perforated intervals at least 200 feet below that of the domestic well. This would be particularly important for wells drilled in the Residential Areas SRMZ shown on DEIS Figure 3-7.

2. The operators, in consultation with the BLM and State Engineers Office, should locate the production zone (perforated intervals) for any water supply well within 1,000 feet of an existing stock or domestic well, at least 200 feet below that of the domestic well. This measure would safeguard against immediate lowering of the water level in existing stock or domestic wells. This would be particularly important for wells drilled near the Residential Areas SRMZ shown on DEIS Figure 3-7.

3. The operators, in consultation with the State Engineers Office, should cement behind the casing and/or seal off the upper aquifers (up to 500 feet) in water zones that supply water for domestic or livestock purposes to prevent potential drainage/leak or that water supply and contamination from other aquifers.

4. If adverse impacts are observed in an existing domestic or stock well due to PAP, water supply wells, the operators, in consultation with BLM and the State Engineers Office, should offer use of the water supply well in place of the impacted well on a temporary or long-term basis, or choose to deepen the impacted well.

Monitoring. - The operators, on State and private lands and minerals, should conduct a survey and a complete groundwater analysis (e.g., static water level, alkalinity, salinity, benzene, etc.) of all water wells within 1 mile radius of existing and proposed development, and annually monitor and maintain a record of the specific conductance of all new water supply wells drilled in the project area to evaluate the quality of source options in the event some mitigation is required. The deeper groundwater supply used as drilling water has a somewhat higher salt content than existing domestic and stock wells, particularly in the southern part of the PAPA.

The groundwater monitoring program may follow the one currently being conducted by Ulta and the Mead livestock operators, but should be developed to include the entire project area. The monitoring program should be designed by a qualified hydrologist and the results reported annually during the actual land evaluation. The groundwater monitoring program should include routine measurement of groundwater levels in existing stock wells and groundwater quality to ensure contrast. For measuring the impacts of growth (erosion and degradation of quality) beyond their intended use as a result of the proposed project.

Surface Water
1. To reduce sediment impacts on non-federal land and minerals, the operators should consider restricting placement of well pads within 500 feet of a perpendicular stream, riparian area or wetland and 100 feet of an intermittent stream on state and private lands and minerals.

2. Currently, pipeline crossings of rivers in the project area are made by open cut techniques which contain none of the techniques currently available to reduce downstream water quality impacts to ensure compliance with current regulatory requirements. One way to substantially reduce downstream water quality degradation would be for the regulatory agencies which have authority to include the use of open cut techniques in the project.

Grazing
1. The operators and the livestock industry should develop a PAPA Livestock Users Group to address conflicts that are anticipated to occur between oil and gas development and traditional livestock use in the project area. Agreements should be developed to insure that damage to fences, cattle guards or other range improvements are repaired in a timely manner and that address competition for livestock losses caused by vehicle collisions, pit or pipeline trench accidents, etc.
Wetland

1. The Federal Energy Regulatory Commission (FERC) has developed a number of standard procedures for construction in wetlands and streams (FERC Procedures). Although FERC has no regulatory authority pursuant to the activities of the operators, the FERC Procedures provide excellent guidance that will significantly minimize potential construction-related impacts on non-Federal lands and minerals. The operators and Sublette County should review these procedures and adopt applicable portions.

2. Because a spill could result in a significant, widespread impact to wetlands and adjacent drainages (perennial, intermittent or ephemeral), the State and the Corps of Engineers should consider requiring the operators to consider installing product storage tanks in upland areas off well pads located in wetlands. Wetland spill response and clean up should be addressed in SPPC plans.

3. The COE should assure that everything ‘practical’ has been done to avoid impacts to wetlands, including options to route roads and pipelines away from wetlands and flood plains. Operators should provide complete economic assessments for every well pad proposed in a wetland that demonstrates why the desired bottomhole cannot be reached from an upland surface location. Pad drilling should be considered by the COE as a viable alternative to reducing wetland impacts. The BLM’s Reserve Management Group could assist the COE in evaluating the economic feasibility of development from sites outside of wetlands and pad drilling. The COE should develop a comprehensive compensatory mitigation program to replace wetlands lost to project development. That program, to the extent possible, could replace wetlands in the immediate vicinity of the area of impact. Where possible, the replacement could occur in the drainage sub-basin where the impact occurred. In no case should replacement occur outside the New York River or Green River drainage basins. The COE should carefully coordinate and monitor impacts on non-Federal lands and minerals so that replacement of lost function and value is adequate and timely. The operators could start identifying possible sites for wetland creation in the project area.

Flood Plain

1. County zoning and development regulations could require closed mud systems for rigs operating within 100-year flood plains. The County could clarify this requirement as it applies to oil and gas development within flood plains. This clarification could include a review of the appropriateness of any pit within the flood plains and the need for the operators to address contamination of shallow groundwater through SPPC planning. Also, County zoning regulations could be developed that would require protective measures on private lands similar to those applied on Federal lands.

2. Because of flood hazards and the potential for tanks to be damaged and their contents released during flooding, the operators should consider relocating all tanks outside the 100-year Flood Plain SRMZ.

Monitoring. The COE is encouraged to participate in the annual development review and provide the other agencies, operators and public with estimates of wetlands lost due to development and status of replacement efforts.

Threatened/Endangered Species and Other Wildlife

1. The operators should inform employees and contractors of all pertinent Federal and state laws, regulations, and policies that pertain to protection of listed threatened and endangered species, proposed species, candidate species, and sensitive species. This can be accomplished through brochures, literature, U.S. Fish and Wildlife Service, WGFD or BLM employees providing employee briefings, etc.

2. To minimize poaching, the operators should inform their employees, contractors and subcontractors that firearms are forbidden at work sites.

3. Similar to other projects on Federal lands in southwest Wyoming, the operators should adopt a policy of prohibiting dogs at work sites to reduce the potential for harassment of wildlife.

4. The operators and their contractors should adopt a policy to require all motorized equipment to be adequately muffled to minimize noise levels.

5. The operators and their contractors should require all workers to be housed off-site and off public lands. Squatting should be strongly discouraged by the operators and their contractors.

6. The operators should work with WGFD on a program to offer a reward for information leading to the arrest of poachers.

7. Through the Wildlife Mitigation and Monitoring Plan, the operators, in consultation with the BLM and the WGFD, could consider voluntary off-site mitigation to enhance wildlife habitats elsewhere that may compensate for habitats lost on the project area. If on-site mitigation is not possible, then consider habitat enhancement (or other appropriate mitigation) on adjacent sites before considering more distant sites. To that end the operators could establish a compensatory mitigation fund to replace lost wildlife habitat. A fee could be paid voluntarily by each operator for each well that is drilled in one or more of the wildlife SRMZ in the project area. The operators could work with environmental groups active in the area to establish the administrative requirements for managing such a program.
C. MITIGATION MEASURES NOT Brought FORWARD FROM THE PINDEALE ANG CLINE EIS

In accordance with the Council on Environmental Quality Regulations (40 CFR 1505.2[c]), the record must indicate which means to avoid or minimize env-ironmental harm were not selected. This section lists the resource and mitigation opportunity number of those measures not carried forward either as required federal measures or as recommended measures to operators, the state, county, or other federal agency. A brief explanation why is provided. To read the full measure, see the Chapter 4 resource to which the opportunity pertains.

Transportation
Mitigation Opportunity 1. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-2, page A-12, Pipelines and Communication Lines #3.

Mitigation Opportunity 5. There was not sufficient impact identified to justify requiring this measure.

Mitigation Opportunity 8. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-2, page A-17, Candidate Plants/Special Status Plants #5.

Residential
Mitigation Opportunity 6. This measure has been combined with Socioeconomic Mitigation Opportunity #3.

Visual
Mitigation Opportunity 6. This measure has been combined with Residential Mitigation Opportunity #2.

Mitigation Opportunity 7. There was not sufficient impact identified to justify requiring this measure.

Mitigation Opportunity 9. This measure was not carried forward because it would not be in keeping with the Green River Basin Advisory Committee recommendation regarding route standards.

Mitigation Opportunity 13. This measure has been incorporated into the ROD individual Management Area restrictions and limitations.

Cultural/Historical
Mitigation Opportunity 4. This measure has been combined with Transportation Mitigation Opportunity #2.

Air Quality/Noise

Mitigation Opportunity 1. This measure is already contained within Residential Mitigation Opportunity #1.

Mitigation Opportunity 2. This measure is combined with Residential Mitigation Opportunity #5.

Mitigation Opportunity 3. This measure is outside the BLM’s authority to implement. This measure has been forwarded as a recommended practice of the operators and the state.

Mitigation Opportunity 6. This measure has been combined with Residential Mitigation Opportunity #9.

Mitigation Opportunity 8. There was no exceedence of air quality related standards or thresholds to require this measure.

Paleontology

Mitigation Opportunity 2. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-2, page A-18, Geological/Paleontological Resources.

Surface Water

Mitigation Opportunity 3. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-5, page A-46, Erosion Control, Revegetation, and Restoration Plan (ERRP).

Mitigation Opportunity 7. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-2, page A-19, Water Resources. The Transportation Planning Committee will also review the routing of all major access roads.

Soils

Mitigation Opportunity 2. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-5, page A-46, Erosion Control, Revegetation, and Restoration Plan (ERRP).

Mitigation Opportunity 4. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-2, pages A-9 and R. Roads.

Mitigation Opportunity 5. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-2, page A-12, #2, Pipelines and Communication Lines.

Grazing

Mitigation Opportunity 3. This measure is the same as Vegetation Mitigation Opportunity #1.

Mitigation Opportunity 4. This measure was not carried forward because the AUMs lost would not exceed 5 percent. Also, FLPMA provides for multiple use.

Wetland

Mitigation Opportunity 1. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-2, pages A-16. Watershed and A-18 and 19. Water Resources.

VFLD

Mitigation Opportunity 9. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-1, page A-2, Surface Disturbance Mitigation Guideline.

Mitigation Opportunity 14. This measure was not carried forward because the need for nesting structures was not verified as necessary.

Mitigation Opportunity 16. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-2, page A-11, #10, Well Pads and Facilities.

Mitigation Opportunity 17. This measure is already a BLM standard practice and is found in the ROD Appendix A. Section A-2, page A-13, #3, Air Quality.
SECTION A-4: ENVIRONMENTAL ANALYSIS AND MITIGATION OF OIL AND GAS DEVELOPMENT AND OTHER SURFACE DISTURBING ACTIVITIES

- THE TIERED APPROACH -

The Tiered Approach

The Bureau of Land Management has developed a tiered approach to the analysis of oil and gas development. This approach is applicable to all surface disturbing activities, and is as follows:

- Tier One: The Resource Management Plan (RMP) or land use plan develops the necessary policy, land use decisions, and environmental analyses to lease/develop the public lands. It is during this phase of analysis that lease stipulations are determined.
- Tier Two: A more detailed evaluation of planned activity for a specific area is developed and analyzed (e.g., a field development proposal or a coordinated activity leasing plan). An environmental analysis looks at a reasonable range of alternatives and assesses the cumulative impacts of the development. Conditions of approval (COAs) may be determined at this tier.
- Tier Three: A site-specific environmental analysis will be made for each APD, right-of-way (ROW), sunray notice, etc. which will assess the impacts of the proposed development. Additional COAs may be determined at this tier.

At each tiered phase of evaluation, the appropriate level of necessary and due diligence associated with the proposed development would be assessed. Where unnecessary degradation to other resources is recognized, seasonal restrictions or the application of an activity using restrictions in this manner is consistent with the terms and conditions of existing, unexpired leases, with the provisions of the regulatory framework of 310.11, and with the Director's policy statement on this subject (WOM IM 92-67).

Lease Stipulations

Stipulations are conditions, promissory, or demands to be part of a lease only when the environmental and planning record demonstrates the necessity for the stipulations. Stipulations place specific limits on lease rights based on potential conflicts between lease development and various other land use and environmental considerations.

Stipulations, as such are neither "standard" nor "special," but rather a necessary modification of the terms of the lease. In order to accommodate the necessity of these stipulations, the COA may stipulate modifications to the lease. If these modifications are approved, the stipulations would be incorporated into the lease.

Lease notices are parallel tools to lease stipulations. Lease notices are attached to lease issuance and convey information to assist the lessee in submitting acceptable plans of operation, or to assist in the administration of leases. If a situation or condition is known to exist that would affect lease operations, full disclosure should be made at the time of lease issuance through the use of a lease notice. A lease notice does not involve new restrictions or requirements.

Permit/Grant Conditions of Approval

Conditions of approval (COAs) are conditions or requirements under which a site-specific surface disturbing or human presence activity (filed as an APD, sunray notice, ROW, etc.) is approved. The need for any surface use COA must be clearly justified and documented in the applicable site-specific environmental document. Any COA must also have waiver, exception, or modification criteria identified in the site-specific environmental document to allow for changes in environmental conditions which render the mitigation required by the COA no longer appropriate or necessary.

COAs, when applied to oil and gas activities such as APDs, must provide effective mitigation to prevent undue and unnecessary degradation, but can not infringe upon the lessee's existing rights. An activity plan may not consist of unreasonable restrictions, or the site-specific analysis necessary to show that a particular activity would result in undue and unnecessary degradation. More reference to the terms "unnecessary and undue degradation" is not sufficient justification to apply COAs. Further analysis (tiers two and three) providing clear evidence and convincing reasons for such mitigation must be prepared prior to applying COAs.

Waivers, Modifications, or Exceptions to Stipulations or Conditions of Approval (COAs)

Land use plans and/or NEPA documents establish the guidelines by which future waivers, modifications, or exceptions to stipulations or COAs may be granted. Substantial modification or waiver subsequent to lease issuance is subject to public review for at least a 30-day period in accordance with Section 60521 of the Federal Onshore Oil and Gas Leasing Reform Act of 1987. This standard would also be applied to COAs. It is important to recognize that the authorized officer has the authority to modify the site location and design of facilities, control the rate of development and timing of activities as well as require other mitigation (i.e., COAs) under Sections 2 and 6 of the standard lease terms (BLM Form 330-200). Other provisions of the regulations and the standards of practice (e.g., 314 CFR 310.1-2) and generally are not applicable. The authorized officer may rule for or against COAs.

The BLM Wyoming state director, or his representative, utilizing appropriate COAs, can exceed the 60-day/200-meter rule for site-specific actions, such as an APD, where there is site-specific environmental analysis and clear and convincing evidence in the documentation showing undue and unnecessary degradation would result if protective restrictions were not applied. This determination must address two factors: 1) a combination of alternative mitigation measures which is clearly consistent with lease rights does not reduce adverse impacts to an acceptable level; and 2) the identified impacts constitute undue and unnecessary degradation of public lands or resources. This takes into consideration that due and necessary degradation is acceptable.

Any application of mitigation (COA) to a post-lease operation is subject to state director review if requested by the operator. Such a review would consider whether the identified impact is reasonably avoidable. If so, the COA would be upheld as being consistent with the granted lease rights, and within the government's reserved authority to mitigate operations that are due and necessary. If undue and unnecessary degradation, the COA (mitigation) would not be allowed. If the disallowed mitigation was developed in an RMP, then a plan maintenance action or amendment would be necessary to correct any decisions which may infringe on valid existing rights.
SECTION A-5: EROSION CONTROL, REVEGETATION, AND RESTORATION PLAN (ERRP)

The purpose of developing an ERRP is to allow for cooperative innovation in site development and reclamation of a disturbed area to a predetermined land use for oil and gas well field and treatment plant activities. The following is an outline of topics to be covered in an ERRP. All ERRPs must address these points but they are not limited to them. Although the ERRP is a formal document, amendments can be approved by the Authorizing Officer (AO).

NOTE: The key points of the ERRP (erosion control, revegetation, and reclamation) are addressed in point 10 of the 13 point Surface Use Program submitted with a site specific application for permit to drill (APD) (see On shore Oil and Gas Order NO. 1, Section III.G.4(b)). However, a more comprehensive ERRP may be warranted using the following outline where sensitive site specific situations dictate (e.g. slopes greater than 15%, sensitive soils, within 500 ft. of riparian areas or waters, sensitive viewed, etc.).

I. INTRODUCTION

Clear identification of reclamation goal

This is to be identified by the Federal Land Management (FLM) agency concerned and should include specific goals for percent perennial cover and species diversity expected for successful reclamation. Pre-disturbance cover would be used as a guideline for establishing goals.

Short description of activity causing disturbance and project time frames

- Proposed start date
- Duration of project
- Completion date
- End of project life (estimate)

Set time frames for ERRP

Seasonal reviews to initiate change

When plan would be considered implemented

Soil surveys may be required in intensively developing areas for site development mitigation and impact analysis.

II. OBLIGATION

Exactly who (individual name, address, phone) is responsible for what in the:

- Design of plan
- Execution of plan
- Monitoring of progress

An experienced and trained professional (i.e., soil scientist, reclamation specialist) that has been approved by the AO is required to prepare and lead the implementation and monitoring of this plan.

III. SITE MAP FOR PROJECT SHOULD INCLUDE

This information should not just cover the proposed disturbed area, but should extend beyond site boundaries by approximately 150 yards.

- Soil description and boundaries symbols
- Soil outcrop
- Photo record point
- Riparian areas
- Saline areas

Location and location of proposed material stockpiles

- Time material would be stored
- Type of material in pile
- Identify existing drainage patterns
- Identify existing vegetative cover
- Identify existing ORV or two-track roads

IV. ZERO RUNOFF

Zero runoff for purposes of the ERRP means:

- No portion of natural or man-caused liquid would leave the disturbed area by either surface or sub-surface flow.

All disturbed sites, except linear rights-of-way, would maintain zero runoff until the area is stabilized. Stabilization would be a value that must be clearly defined in the plan.

Stabilization for purposes of the ERRP is to mean that point in time when neither erosion nor deposition occurs which is greater than pre-disturbance. This point must be measurable (site monitoring) and self-sustaining, i.e., not dependent on site maintenance.

The AO can approve a variance from zero runoff based on detailed site specific analysis that would consider meteorology, topography, water quality, and special site design and/or construction measures.

V. EROSION CONTROL MEASURES - BEST MANAGEMENT PRACTICES (BMP's)

- Description of proposed measures (see XI for examples of BMP's)
- Identify levels of runoff planned for, i.e., 50 year storm, etc.
- Include capacity of all retention structures and engineering design
- Map locating erosion control measures placement
- Include zero runoff measures.

VI. FUGITIVE DUST CONTROL

Washing or other approved dust abatement procedures would be implemented, when necessary, to prevent severe wind erosion and loss of soil materials during construction.

- Describe
- How and when

VII. RE VEGETATION

- Type
- Seed
- Established stock

Site Preparation

- Planting
- Planning time frames
- Planting method and equipment
- Fertilization Program
- Rationale for fertilizing or not fertilizing

VIII. MONITORING SITE RECLAMATION PROGRESS

- Methods
- Timeframes
- Photo record station (with location) of site pre-disturbance

IX. SITE ABANDONMENT

Include timeframes

X. POTENTIAL PROBLEMS

Address possible weak points

- Erosion
- Slumping
- ORV use (i.e., cover points that might conflict over ERRP implementation with area land use goals)
- Slow (management)
- Company fire policy (weed control) vs. vegetation management goals

XI. BEST MANAGEMENT PRACTICES (BMP's)

The following pages provide examples of BMP's that may be selected to control sediment.
Figure A-1
Examples of Possible Best Management Practices to Control Sediment from Well Pads

Well Pads
Control Sediment from
Management Practices to
Examples of Possible Best
DIVERSION DITCH

ROW or Other Exposed Slope

Level Bottom

Grass or Rock

Bottom Width: 2 Feet Minimum; The Bottom Width Shall be Level
Depth: 1 Foot Minimum
Side Slope: 2:1 Maximum
Grade: Maximum 5 Percent, with Positive Drainage to a Suitable Stabilized Outlet

NOTE: Typically used on the top of slopes to divert runoff away from the slope face below.
These structures can also be used to direct runoff from the right-of-way away from streams, wetlands and adjacent properties and may be constructed parallel to the right-of-way.
PLAN VIEW

NOTES

- Embed bales 4 to 6 inches.
- Drive stakes minimum 12" into ground surface.
- Silt fence fabric may be used.
- See typical drawings for installation of straw bale or silt fence sediment barriers.

STRAW BALE SEDIMENT BARRIERS IN DITCHES OR SWALES

SECTION A-A

Point D Must be 6" Minimum Higher than Point C

Two 3' Stakes in Each Bale

Overlap Edges

Stream Bank

Figure A-3

Sediment Control in Ditches

A-47
Figure A-4
Straw Bale Sediment Barrier Installation

EMBEDDING DETAIL

- 2" X 2" Stake
- Twine/Wire
- 4" Vertical Face
- Flow
- Compacted Soil to Prevent Piping
- Angle First Stake Toward Previously Laid Bale
- Wire or Nylon Twine
- Key-in Where Possible
- Bales Placed on Side so Twine is Not in Contact with the Ground

ANCHORING DETAIL
Discharge

'A a

Slable Surface
I.e. Existing Vege'tation, Rock, Rip Rap

Compacted Cup Material (Track or Wheel)

Typical Cross Section

NOTE:
Waterbars will be vegetated to stabilize the waterbar and to prevent erosion of the channel bottom.

<table>
<thead>
<tr>
<th>Percent Grade</th>
<th>Spacing</th>
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<tr>
<td>5 - 15</td>
<td>300 ft.</td>
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<td>15 - 30</td>
<td>200 ft.</td>
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<tr>
<td>&gt; 30</td>
<td>100 ft.</td>
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Use Staples or Wire Rings to Attach Fabric to Post

Filter Fabric Material
36" Wide Rolls

2" X 2" Wood Posts, Standard or Better or Equal Alternate: Steel Fence Posts

Wood or Steel Post
Staple or Wire (Prefabricated Pockets Minimize Maintenance)

Filter Fabric Material

Manually Compacted Backfill

Bury Bottom of Filter Material in 4" X 8" Trench

NOTE: Use Amoco Silt Fence Fabric, style 1380, or equivalent
Straw Bale or Silt Fence Sediment Barrier

Silt Fence

Trench

Soft or Hard Trench Plugs

Temporary Crossing Bridge

Edge of Construction ROW

Flow

Spill 10'

Spill

Depending on topography, extend bales around spoil to assure sediments are contained.

Replace Straw Bale or Silt Fence Barriers at the end of each work day where necessary to prevent sediment from entering stream.
Staked Straw Bale Energy Dissipator

Straw Bales Laid on End

2" x 2" Wood Stakes or 1/4" Rebar

Pump Hose or Pipe

Stakes

Double Layer Seamless Plastic Sheeting or Light, Woven Geotextile Fabric (i.e., 3 oz./yd²) on top of Bales.
SECTION A-6: PROCEDURES FOR PROCESSING APPLICATIONS IN AREAS OF SEASONAL RESTRICTIONS

Upon receipt of an application, the project location is reviewed against the RMP to determine conformance with the plan and to identify existing resource concerns in the project area. An APD is posted for 30 days for public review.

Gather existing NEPA documents pertinent to the proposal or the project area.

Review the proposal against existing environmental documents and the RMP to determine whether existing documentation is adequate.

If existing documentation is adequate, prepare an Administrative Determination (AD) including appropriate mitigation measures (see Wyoming Instruction Memorandum WY 90-346).

If existing documentation is insufficient or nonexistent, prepare NEPA documentation as needed using appropriate format (see BLM NEPA handbook. B 1790-1).

Issue a decision on the application consistent with the AD or tiered NEPA document as appropriate.

NOTE: In seasonally crucial wildlife habitat, an approved APD will generally include a seasonal COA because the APD is valid for one year from date of issuance and BLM does not control the start-up date for project activity; and 2) field conditions during the crucial period cannot be predicted at the time of APD approval.

When a seasonally restrictive COA is needed because a lease contains no such stipulation, the decision whether to impose the restriction must also consider the reasonableness of the restriction relative to the operator's ability to exercise the benefits of the lease (43 CFR 310.102). The need for a COA must be documented in a site-specific EA or EIS, if necessary. This analysis must provide clear and convincing evidence showing undue and unnecessary degradation would result if the COA were not applied.

Procedures for Handling Requests for Exception from Seasonal Stipulations and/or Conditions of Approval

A request for exception must be in writing by the operator. This may be done concurrently with submission of an application (typical for situations involving lease stipulations or subsequent to permit approval in the case of COAs attached to approved permit).

When requested concurrently with an application, the exception from a stipulation or from a COA is considered as part of the project proposal in RMP and NEPA compliance review.

For separate requests, the request is considered as a unique action and is analyzed and documented individually for RMP and NEPA compliance.

In both cases, processing includes coordination with WGFDA for seasonal wildlife-based lease stipulations or permit COAs.

The unpredictability of weather, animal movement and condition, and preclude analysis of requests related to wildlife far in advance of the time periods in question.

Analyses of requests include review of potential mitigation measures and alternatives (traffic restrictions, alternative scheduling, staged activity, etc.).

Criteria for Considering Exceptions to Seasonal Restricted Activity:

Presently, land use activities may be authorized with a seasonal restriction(s), 'no surface occupancy,' or a distance restriction for sensitive and crucial habitats. Stipulations were developed to provide protection of natural resources. Proactive wildlife seasonal stipulations are developed consistently with statewide dates. For example, big game crucial winter ranges are protected from November 15 through April 30. This restriction is not intended to close an area to development but is in place to protect big game if weather or other habitat needs dictate that it is necessary.

Over the past few years the public has received the impression that crucial winter ranges are off limits to any activity. This is true only when conditions dictate. The BLM can and does grant exceptions to seasonal restrictions if the wildlife biologist, in consultation with the WGFDA, feels that granting an exception will not jeopardize the population being protected. Wildlife biologists use a set of criteria when considering a request for an exception. Professional judgment plays a key part in the biologist's recommendation to the Field Manager to grant or not grant exceptions. There is no clear cut formula.

Following are some of the factors considered by the wildlife biologist to determine if a request for exception should be granted.

Big Game Winter Ranges/Raptors/Sage Grouse

The criteria used for crucial big game winter range are those areas which are available, relatively intact, and which winter most of the population at its objective level in adequate body condition, eight or more years out of ten. The most crucial time period for these animals in the is usually from January 1 through March 15, and this time period is when the stipulation dates are generally enforced. However, the remaining time frames of the standard statewide stipulation (November 15 through April 30) allows the authorizing officer the option to enforce a longer seasonal restriction if winter conditions warrant.

A. General Considerations Regarding a Request for Exception

1. Are the factors leading to the inclusion of the wildlife seasonal restriction still valid?

2. Is the request for an exception from a lease stipulation or is it for relief from a condition of approval on an application (e.g., APD, stream notice, ROW)?

3. What are the dates for the proposed exception/relief?

B. Criteria to Consider for Granting Exceptions on Winter Ranges:

1. Animal presence or absence

2. Animal condition

3. Weather severity

- snow conditions (depth, crust, longevity)
- seasonal weather patterns
- wind chill factors (indication of animals energy use)
- air temperature & variation
- duration of condition

4. Habitat Condition and Availability

- animal density, high or low
- forage condition, good or poor
- competition (livestock/other wildlife)
- forage availability
- amount of forage
- snow depth
- has livestock use decreased available winter forage is there suitable and ample forage immediately available and accessible nearby that is not being used

5. Site Location

- likelihood of animals inhabiting to activity
- presence of thermal cover, wind cover, etc.
- How proportion of winter range is affected
- where is the site located within the winter range
- is there other activity in the area and is this activity likely to increase the cumulative adverse impact

6. Timing

- early in winter season

- nearing end of winter season

- what kind of and length of disruptive activity is expected

- how much of the winter is remaining when activity is likely to occur

C. General Considerations for Granting Exceptions to Stipulations

Elk

Short-term exceptions are more likely to be considered early (November 15 through December 1) and late (April 1 through April 30) in the winter season, depending on weather conditions and animal occupancy. Exceptions would not be granted if requested from December 1 through March 1 unless unusually mild winter conditions prevail. Exceptions in elk-calving areas (May 1 through June 30) dates will not be granted due to elk sensitivity to disturbance. Displacement in open habitats is much greater than woodlots or forests, hence restricted areas will encompass larger areas in open habitat.

Moose

Exceptions will depend on weather conditions and presence of animals.

Moose habitat is given protection through riparian and stream buffer zone stipulations (500 feet from live water and riparian habitats).

Antelope

Exceptions may be granted except where physical barriers (i.e., highways, fences, canyons, etc.) limit animals ability to move into other suitable habitats. In the case of developing oil and gas fields with proposed intensive or disruptive disturbances, BLM and WGFDA coordination will be required to assure that cumulative disturbance and/or range competition with other big game and livestock will not affect herd unit objectives. Exceptions to restrictions will be closely watched during severe winters when antelope movement is restricted.

Deer

Short-term exceptions may be granted early (November 15 through December 1) and late (April 1 through April 30) depending on weather conditions and animal occupancy, using the previously discussed criteria. Exceptions can be granted for north slopes, deep snow areas, or other habitats within crucial ranges which preclude use by wintering deer and in which access roads are determined to have little adverse impact.
Raptors

The "no surface occupancy" stipulation of February 1 through July 31, within one-half or one mile of raptor nests can be shortened, depending on nesting chronology of individual species, nest site location, and topography. Inactive nests can be excepted, as may certain types of short-term, minor disruption land use activities which are not anticipated to affect nesting success.

Sage Grouse

A "controlled surface use" stipulation will be applied to a 0.25 mile radius of active sage grouse strutting grounds to include no above-ground facilities (power lines, storage tanks, fences, etc.). Linear disturbances such as pipelines, seismic activity, etc., could be granted exceptions. A "controlled surface use" stipulation will be applied from March 1 through May 15, within 0.5 mile radius of active strutting grounds from 6 p.m. to 9 a.m. daily. The actual timing of this stipulation can be modified by weather conditions such as fog and cloudy conditions, or clear, bright moonlight nights. Seasonal restrictions would be applied through July 31, within an additional 1.75-mile radius from leks to protect sage grouse nesting habitat. Areas within that radius not used for nesting can be excepted, provided actual nesting areas are not affected.

The final determination for granting an exception to wildlife stipulations will be a decision by the BLM after consultation with the WGFD.

These procedures will be utilized for any request for exception for a surface disturbing or disruptive activity.

APPENDIX B
TRANSFORMATION PLAN FOR THE PINDEALE ANTICLINE OIL AND GAS EXPLORATION AND DEVELOPMENT PROJECT
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B-1.0 INTRODUCTION

B-1.1 Purpose - This Transportation Plan (TP) supplements a proposal by the Pinedale Anticline oil and gas companies (Operators) to drill new wells in the Pinedale Anticline Project Area (PAPA) (Maps B-1.1 and B-1.2), as described in the Pinedale Anticline Oil and Gas Exploration and Development Project Draft Environmental Impact Statement (DEIS). The Operators will utilize an extensive road network in the project area, much of which is shared with other road users. Planned expansion of operations, when implemented, will result in the need for additional road and pipeline construction. This document provides an assessment of existing and future road and pipeline development, use and resource management objectives in and around the PAPA, and provides a basis for future oil- and gas-related exploration, development, and production transportation planning within the area. Potential impacts to the existing transportation system are described in the DEIS.

Additional information on road development requirements for this project will be developed as the project progresses through the Transportation Planning Committee (TPC) which has been established for this project. Annual road planning, development, maintenance, and other issues and concerns will be incorporated into a Technical Support Document (TSD), as well detailed information (including maps) on existing roads/routes and natural obstacles. The TSD and associated maps will be updated annually or as necessary as specified in Section B-4 and B-5.

The transportation planning area (TPA) for this project includes the PAPA plus adjacent areas that include roads which may be used to access the PAPA (Map B-1.1). The TPA includes U.S. Highway 191, State Highway 351, and several county, BLM, and undeveloped roads/routes within and adjacent to the area. (More detailed transportation planning maps of the TPA are available for review at the BLM PPO.)

The use of existing roads and proposed road corridors for collector and local roads are described, in this document, and applicable transportation standards will be used in the localized planning efforts for each new well location and associated access. Annual or incremental operational updates to the TSD will be made, as necessary, to detail specific localized transportation networks. All new or upgraded roads in the TPA will conform to the general provisions of this planning document.

This TP includes discussion of the following:

- The TP Process
- Public comment opportunities and the issues/concerns raised during scoping and public workshops.
- Existing roads in the TPA which are preliminarily identified as potential project-required collector and local roads. These are identified on maps, and resource, two-track, and other unimproved roads are also briefly discussed.
- Existing gathering and trunk pipelines in the TPA are identified and located on maps. The general alignment assumptions of new pipelines is indicated.
- The annual transportation planning/operational update process for the TSD is described, and this description includes scheduling, roles and responsibilities, and opportunities for continued public input.

B-1.2 Scope - The scope of the plan includes a brief description/presentation of the transportation planning process, assumptions, guidelines, road network (see Map B-1.1), and the identification of proposed high and low traffic volume roads/routes. Relevant requirements for road construction or reconstruction and the development of agreements for use, rights-of-ways (ROWs), and maintenance will be addressed, identified and outlined in the TSD following the release of the EIS ROD.

This plan also applies to the transportation of gas, condensate, or water via pipelines and possible electric power transmission (buried power lines) within the PAPA. Pipelines and buried power lines generally will be located adjacent to...
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roads to reduce new surface disturbance. In some instances paralleling roads and lines may lead to increased environmental impacts, in which case pipelines and power lines may be located along alternative routes, and these alternative routes will be evaluated and used to minimize environmental impacts. Figure 7 of the ROD shows the location of the approved sales pipeline routes and Figure 3-2 of the DEIS shows the existing gathering pipelines within the PAPA. Further detail on proposed pipelines is provided in Section 2.5.6 and 2.5.7 of the DEIS.

Existing roads to and within the PAPA are under the jurisdiction of several agencies (e.g., BLM, state, Sublette County) which approve designs and oversee required maintenance. The use of private roads in the PAPA will require an easement between operators and private landowners and may or may not include maintenance requirements or agreements. Map B-1 of this TP illustrates the general location of roads in the area. Oil and gas field roads may be under the jurisdiction of government agencies; however, maintenance of these roads will be conducted by the Operators. Maintenance responsibilities will be discussed in detail in the TSD for this project. Operators will provide the BLM and Sublette County officials with copies of road maintenance agreements that include the name of the Operators' designated contact person. Non-oil-and-gas roads will be maintained as appropriate by the BLM or other ROW holder.
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B-2.0 TRANSPORTATION PLANNING

B-2.1 Plan Process/Content - This section of the Transportation Plan describes the process by which route planning, location, design, construction, quality control, maintenance and road abandonment will be accomplished during expansion of operations within the project area. Other information relating to engineering design such as soil, drainage, grades, problem areas on existing or proposed roads, anticipated traffic volume and vehicle weights, the need for gravel or other treatment to stabilize road surfaces, and coordination required to meet county/state requirements will be addressed on a case-by-case basis for each road during the annual review process.

This Plan also serves as a design document for the gas pipelines routes within the PAPA. In the future, if condensate and water pipelines or electric power transmission (power lines) are needed, this Plan will assist in their development in the project area. Pipelines generally will be located adjacent to roads to reduce new surface disturbance. However, in some instances parallelizing roads and pipelines may lead to increased environmental impacts, in which case pipelines will be located along alternative routes, and these routes will be evaluated and sited to minimize environmental impact.

To facilitate the planning process, a Transportation Planning Committee (TPC) has been established. The TPC is composed of representatives from the BLM, operators, Sublette County Road and Bridge Department, Wyoming Department of Transportation, Wyoming Game and Fish Department, landowners, grazing permittees, and other interested groups or individuals. The TPC is responsible for annual plan reviews to identify issues and concerns as raised during scoping. This committee or a subcommittee has been established to resolve site-specific issues that are identified during the review (e.g., operational/compliance issues, individual road maintenance, and construction problems). See Section 6.0 for details on the formation and operation of the TPC.

Transportation planning involves a number of different steps or actions. These include identification of road needs, resource and other issues, road limitations, design and route location, construction and quality control, maintenance needs, road density management, and other associated actions. This section of the TP discusses these important steps.

B-2.2 Road Classification - Four BLM functional classifications for roads are associated with well field development - Arteries, Collectors, Local, and Resource. The definition of each is as follows:

Arterial Roads - These are State Highways or County roads that provide primary access to the project area. These roads are high traffic volume roads.

Collector Roads - These are BLM roads that provide primary access to large blocks of land, and connect with or are extensions of a public road system. In the PAPA these are two-lane roads that connect to the internal local road access network. Collector roads accommodate mixed traffic and serve many uses. They receive the highest traffic volume of all the roads in the BLM road system. User cost, safety, comfort, and travel time are primary road management considerations. Collector roads usually require application of the highest standards used by the BLM.

Local Roads - These are BLM roads that normally serve a smaller area than collectors, and connect to collectors or public road systems. In the PAPA these are two-lane or single lane roads with inter-visible turnouts that provide the internal access network to multiple well locations within the natural gas field. Local roads receive lower volumes of traffic, carry fewer traffic types, and generally serve fewer users. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations. Low volume local roads in mountainous terrain where operating speed is reduced by terrain, may be single lane roads with turnouts. Environmental impacts are reduced through steeper grades, sharper curves, and lower design speeds.

Resource Roads - These BLM roads are normally spur roads that provide point access and connect to local or collector roads. In the PAPA these are the single lane roads to the individual well location. They carry very low volume traffic and accommodate only one or two types of use. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. The location and design of these roads are governed by environmental compatibility and minimizing BLM costs, with minimal consideration for user cost, comfort, or travel time.
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B-2.3 Development Needs/Issues - The overall development needs of the Operators within the project area and the transportation issues raised (listed in Attachments I and II of this TP for the Anticline project) during scoping relating to the proposed action are addressed in the project EIS (Chapters 2, 3, and 4). The EIS chapters address impacts associated with the major transportation routes (state and county routes) which will be used to reach the project area and describe some BLM administered Collector and Local roads which will be used within the project area. An estimate of traffic associated with the development of the project is also provided (see Section B-5.0 of this TP).

A general "Existing Road System" map (Map B-1.1) displays existing and new main routes (state, county, and BLM administered roads) presently used for access in or near the project area. These, as well as other existing and new road needs for field development, will be studied by the operators to determine which routes should be designated as Collector, Local and Resource routes to form a usable transportation system; for access to and development of the project area. Transportation Plan Maps (Maps B-5.1 and 5.2) show "Exploratory Drilling Primary Access" and "Anticline Crest Field Development Primary Access" proposals to be used to enter into and access points within the project area. The supplemental narratives address projected traffic for each route and, ultimately, for the TSD, realignment and reconstruction necessary for safety or environmental reasons, and planned new road construction.

B-2.4 Annual Road Plan - To accommodate the uncertainty regarding proposed well locations and associated well productivity, future transportation routes within the PAPA will be developed incrementally as wells are developed in conjunction with the biannual drilling programs. An annual transportation plan (preplanned by the operators) and submitted to the BLM, will address road requirements within the PAPA for the coming field season. Annual road planning will begin in 2000, and annual updates will be available in February each year thereafter until the project is completed or until the transportation system is so well established that further annual planning is not needed.

The annual transportation update will show which roads have been constructed, existing collector and local roads to be improved, and new roads to be constructed in the specific areas of the PAPA where operations are planned for the coming year. Roads scheduled for abandonment within the project area will also be shown on the plan. Changes in access routes (both proposed and existing) necessitated by terrain, environmental factors and for other reasons, will also be identified in the annual transportation update.

B-2.5 Project Plans - Each specific development plan will include one or more USGS quadrangles as appropriate to display the specific construction program for the area(s) where development is occurring. It will show existing and planned roads by functional classification within each quadrangle and be prepared as needed while the company drilling program is being implemented. When an APD (Application for Permit to Drill), NOR (Notice of Staking) or application for a right-of-way is submitted, a copy of the plans will be included for the other wells and access roads proposed in the area. Plans for one or more roads or pipelines may be submitted as part of the NOR, APD or right-of-way application.

B-2.6 Access Road Limitations - The construction of safe and environmentally acceptable roads is a primary objective and operator priority within the project area. The operators should make every effort to provide for the safe and efficient movement of their personnel, BLM and county, with the involvement of registered engineers and land surveyors, will ensure that all plans and construction meet safety and environmental requirements.

The condition (e.g., road design, upgrading requirements) and maintenance status (e.g., plowed) of existing roads and casual use routes (e.g., two-tracks) in the TPA will be generally identified on maps and incorporated into the TSD which will be maintained and made available for review at the BLM Pineland Field Office (PFO). Existing collector roads into parts of the PAPA have been upgraded to meet minimum road standards. Some existing roads may not be passable during inclement weather or during winter months. All additional roads developed and required for this project will need upgrading, and/or maintenance and may require snow removal. Some roads will remain as two-tracks or "seismic trails" to accommodate snow accumulations close to them. Specific road upgrading, snow removal, and maintenance responsibilities will be identified in annual operational updates to the TSD.

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Some existing two-track or other roads within the TPA that cross private lands may not have public access agreements in place. Except those identified as state or county roads, access may require agreements with private landowners.

The transportation network described in this document focuses on collector and local roads and potential road corridors; however, existing and anticipated low traffic-volume resource roads and unimproved roads will be identified annually on detailed maps which will be available for review with the TSD at the BLM PFO.

B-2.7 Design and Route Location - Before routes are selected and road plans are prepared, the operator's personnel and their survey/engineering consultants will review the plans and any available resource and land use data from BLM, the TPC, or other sources specific to the project area. A joint BLM engineer, resource specialists, operator, TPC, and consultant field review will then be conducted. Depending upon the complexity of a simple road, the joint review team will determine the most feasible access routes based on the resource conflicts, soils, drainage considerations, and the terrain and engineering standards for the type of route planned. During the field review, the degree and scope of engineering and construction control required will be specifically defined.

New Roads. A "New road" is a road that is to be constructed where no "crowned and ditched" road has previously been built, except in the case where one may have been built and later obliterated or rehabilitated. To minimize road densities within the PAPA, new existing "two-tracks" or "seismic trails", which technically feasible and engineerly correct, Roads which are constructed on existing "two-tracks" or "seismic trails" will be considered "new" roads.

Location, design and construction of all new roads in the PAPA will be to the standards derived from BLM Manual 9113. The operators will use the road standards shown in Table B-1.1 unless conditions dictate otherwise.

Existing Roads. A road referred to in this Transportation Plan as an "existing" road is one which has previously been constructed to a standard which required a crowned traveled way and borrow and drainage ditches (except for some roads in the project area which were built without ditches, but met BLM requirements at the time they were constructed). "Seismic Trails" and existing "two-track trails" are not considered existing roads.

Existing roads which are classified as resource roads will not normally be upgraded or reconstructed unless it is determined they were not constructed as directed by the BLM at the time they were built.

Existing roads which are identified as part of a local or collector route will be reconstructed or upgraded (improved) as necessary to meet the current standards for the appropriate functional classification.

Route Location. During the joint field review, routes will be selected that avoid unnecessary resource conflicts whenever possible. For example, routes will avoid steep slopes and the Mesa "breaks" (crucial deer winter habitat) or other areas where there will be adverse effects to threatened, endangered and other plant and animal species of interest. Proper road alignment will minimize earthwork and balance cut and fills to minimize disturbance, erosion and potential visual impacts.

Particular attention will be given to meeting or exceeding the minimum vertical and horizontal sight distances required during road routing. Surveyors will select horizontal curves to ensure that the minimum radius requirements for the planned design speed are met or exceeded.

Geometric relationships of vertical and horizontal curves (such as reverse horizontal curves, broken back curves and horizontal curves superimposed over vertical curves), which create dangerous situations for road users, will be avoided (BLM Manual 9113). When the terrain is such that these combinations cannot be completely eliminated, signs to warn motorists or other mitigation measures will be incorporated into the road plans.

The centerline and locations of structures will be staked, color coded and clearly marked for all new roads, including those designed and constructed on steep, broken or mountainous terrain.
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Table B-1.1. Road Standards For The Pinedale Anticline Project Area

<table>
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<th>DESIGN ELEMENT</th>
<th>Resource Road</th>
<th>Local Road</th>
<th>Collector Road</th>
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<tr>
<td>Design Speed</td>
<td>20 mph (max.)</td>
<td>30 mph</td>
<td>40 mph</td>
</tr>
<tr>
<td>Width (traveled way)</td>
<td>14 ft.</td>
<td>20 ft. (min.)</td>
<td>24 ft. (min.)</td>
</tr>
<tr>
<td>Width (subgrade)</td>
<td>18 ft.</td>
<td>24 ft. (min.)</td>
<td>28 ft. (min.)</td>
</tr>
<tr>
<td>Minimum Hor. Curve Rad.</td>
<td>220 ft.</td>
<td>460 ft.</td>
<td>820 ft.</td>
</tr>
<tr>
<td>Maximum Grade</td>
<td>8 percent</td>
<td>8 percent</td>
<td>8 percent</td>
</tr>
<tr>
<td>Minimum Grade</td>
<td>0.5 percent</td>
<td>0.5 percent</td>
<td>0.5 percent</td>
</tr>
<tr>
<td>Minimum Stopping Sight Distance</td>
<td>135 ft.</td>
<td>225 ft.</td>
<td>325 ft.</td>
</tr>
<tr>
<td>Minimum Intersection Sight Distance</td>
<td>200 ft.</td>
<td>300 ft.</td>
<td>400 ft.</td>
</tr>
<tr>
<td>Minimum R/W Width Needed (construction on steep slopes will increase the R/W width needed)</td>
<td>40 ft.</td>
<td>55 ft.</td>
<td>60 ft.</td>
</tr>
<tr>
<td>Design Structural Loading H-20</td>
<td>H-20</td>
<td>H-20</td>
<td>H-20</td>
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*Width turnouts

Construction staking will be done for roads or segments of roads where the BLM or engineer/surveyor determines that slope staking for the control of construction is necessary because of terrain, grade and earthwork conditions and/or special construction needs (structures and other features).

Development Plans. All new roads and appurtenances (such as culverts, cattle guards, fences, etc.) will be constructed to the dimensions, slopes and details shown on the attached templates (Attachment III), unless agreed otherwise because of conditions or circumstances.

Surfacing specifications and depths shown on the attached templates may be adjusted because of local soil conditions, or graveling of roads may be waived (with BLM agreement) in areas where gravel is not considered necessary. Dust abatement mitigation with soil treatment additives will be considered on a case-by-case basis and at the annual review.

 Plans for all roads will show the horizontal and vertical alignment of the road and the locations of culverts and other features. Typical sections showing the road template, culvert installations, and other features will also be attached. Cross-sections of the roadway and other drawings for special design features will be included as needed.

Designs submitted by a registered civil engineer will bear the stamp and signature of the engineer when submitted to the BLM for review.

Plats and plans prepared by a registered land surveyor (these will require the participation of a BLM engineer during the route selection phase) will bear the stamp and signature of the land surveyor and the statement that the alignment, grade and other features shown on the plans accurately depict the field conditions surveyed including the route and features as actually staked in the field. Roads designed by a registered engineer and surveyed by a registered land surveyor will bear the stamp and signature of the engineer, and also the stamp and signature of the surveyor when necessary.

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B-2.8 Construction/Quality Control - To meet the objectives of resource enhancement and protection, and conform with the Pinedale RMP, monitoring will be accomplished by the operators/companies (oil and gas, right-of-way applicants, etc.). Monitoring is a requirement provided for in the Code of Federal Regulations (40 CFR 1505.2(c) and 1503.3). The regulation, in its requirements relative to NEPA and Agency decision making, states: "A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation" (1505.2(c)).

The operators/companies, in cooperation with the BLM, State and/or County, will conduct extensive monitoring inspections of construction, drilling, and rehabilitation operations, through a compliance officer and/or interdisciplinary team, to ensure acceptable attainment of objectives. The monitoring inspections will be based upon the standards listed in the ROD Appendix A (Standard Practices Applied To Surface Disturbing Activities) as well as the BLM Road Standards (BLM Manual 9113).

All roads constructed or reconstructed within the project area will be built to the approved plans, and will comply with all other applicable requirements and stipulations. The construction will be monitored by the operator's and/or company representatives, their consultants, contractor, or an independent construction inspector as required.

Any changes which may become necessary during construction will be jointly agreed to by the BLM, the design engineer, affected private landowners, and company representative before construction commences. The agreed to changes and the reasons why they are necessary will be documented in writing with copies distributed to all parties.

Within five days after completion of construction of each road, it will be inspected by the operator and/or company personnel, the contractor who performed the construction, and the BLM (at their option). This inspection will be documented on a "Post Construction Inspection Record" form (see Attachment III) and signed by those performing the inspection. Any work which does not comply with the approved plans will be immediately corrected by the contractor.

A registered civil engineer's certification that the construction was completed according to the approved road plans will generally be furnished for those roads that were designed by a registered professional engineer.

B-2.9 Maintenance - Road maintenance will be conducted as required by right-of-way grants and other permits. As a continuing monitoring effort, all existing access roads will be continually evaluated to determine if they are (1) still necessary, (2) safe, and (3) whether they have erosion problems. The roads will be reclaimed or maintained as appropriate. It will be the responsibility of the authorized users to conduct preventative and corrective road maintenance, throughout the life of their operations, on the roads permitted for their use. Joint use maintenance agreements among operators within the project area will be developed as necessary and appropriate and remain in effect for the life of the project. If needed, changes in the agreements may be negotiated at the option of the involved parties.

B-2.19 Road Density: Management - Road abandonment and rehabilitation will be performed as required by the BLM in cases where roads are determined to no longer be needed. Roads slated for abandonment will be identified during the annual transportation update. Roads that are determined by the BLM, through the TPC, to be of substantial value for access to other resources, for administrative access or for county access needs, will be identified for placement on the BLM or county road system. These roads will be identified during the annual transportation update with their appropriate new designation as soon as it is known.
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B-3.0 MANAGEMENT AREAS FOR RESOURCE PROTECTION ON FEDERAL LANDS AND MINERALS

The PAPA has been divided into management areas (MA), based upon sensitive resource management areas identified in Chapter 3 of the DEIS. Transportation planning will require that careful consideration be given the MA objectives, identified below, and the Restrictions/Limitations, identified in the ROD Section 4, in road location, construction and use.

Management Area Name of Management Area and Principal Resource Management Concerns

MA-1 Historic Lander Trail - Preservation of the historic trail. No well pads allowed within 1/4-mile of the trail on federal lands. Roads and pipelines may cross where existing disturbances exist. Management objective is to maintain the integrity of the TRAIL views within 3 miles of the trail; maintain livestock grazing and trailing operations.

MA-2 The Mesa Breaks - Management objective is to maintain the existing high quality and suitability of this deer crucial winter range; protect this area against surface disturbance and increased human activities which would cause deer to leave crucial winter range resulting in mortalities and reduced population levels; roads and pipelines should avoid this area; avoid disturbance on steep slopes and sensitive soils to prevent erosion and visual intrusions; retain existing character of the landscape and sensitive views; protect cultural/Native American respected sites; provide for the development of recreation use such as a bike trail; maintain livestock grazing and trailing operations.

MA-3 Sensitive Viewshed - This area includes the "face of the Mesa" and an area of visual resource management Class II. Management objective is to protect this sensitive viewshed by retaining the existing character of the landscape: management activities may be seen but should not attract the attention of the casual observer; roads and pipelines should avoid the "face of the Mesa"; avoid steep slopes and sensitive soils to prevent erosion and visual intrusion; maintain crucial deer winter range; protect cultural/Native American respected sites; provide for the development of recreation use such as a bike, jogging, and/or hiking trail; protect wetland/riparian areas; protect raptor nesting: maintain livestock grazing and trailing operations.

MA-4 Crucial Winter Range/Strutting and Nesting Habitat - This area includes the top of the Mesa and slopes west to the Green River and south/southeast to the New Fork River including an area of deer and antelope CWR south of the New Fork and East Fork Rivers. Management objective is to protect this area against excessive surface disturbance and increased human activities which would cause deer and antelope to leave crucial winter range and sage grouse to leave crucial strutting and nesting habitat resulting in mortalities and reduced population levels: protect cultural/Native American respected sites; and maintain livestock grazing and trailing operations. This area also includes a zone on each side of the New Fork and Green Rivers (MA-5) which is classified as visual resource management Class-III. The management objective is to partially retain the existing character of the landscape, i.e., measures should be taken to screen activities and facilities so they do not dominate the view of the casual observer.

MA-5 Wetland/Riparian Habitat - This area includes the lands located on either side of the New Fork River, Green River, and East Fork River. Management objective is to maintain, improve, or restore riparian values to provide enhanced forage, habitat, and stream quality; avoid disturbance to shrub or forested wetland types; cooperate with private landowners to avoid impacts to area residences; provide protection for concentrations of nesting raptors; maintain livestock grazing and trailing operations.

MA-6 Ross Butte/Blue Rim - This is an area of highly erodible soils and shaft beds of Wasatch Formation where erosion has created a badland topography with potential for exposed fossils. This landscape is known to provide a concentration area for raptor nesting and habitat for several State sensitive plant species. Management objective is to avoid disturbance to the fossil-bearing, sensitive, highly erodible soils; to maintain soil stability and productivity; protect and maintain existing raptor nesting habitat; protect sensitive plant species; protect paleontological fossil resources; maintain livestock grazing and trailing operations.

Mineral Conflict Area - This area includes parts of the project area located north and south of Highway 351, and east and west of Highway 191. Management objective is to provide for antelope summer range and migration; sage grouse strutting and nesting; protection of the Lander trail views; sensitive soils; and maintain livestock grazing and trailing operations. This area also includes an area on each side of Highway 191 which is classified as visual resource management Class-III. The management objective is to partially retain the existing character of the landscape, i.e., measures should be taken to screen activities and facilities so they do not dominate the view of the casual observer. This area is also managed as an antelope migration corridor by the Wyoming Game and Fish Department. Activities and facilities should avoid impeding the seasonal movement of these animals.
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B-4.0 PUBLIC INVOLVEMENT IN TRANSPORTATION PLAN SCOPING

Public scoping was initiated on July 9, 1998 with the release of a notice to the news media and distribution of the notice to a list of BLM mailing addresses. Additional input on transportation planning, from potentially affected area users and management agencies, was received during a public meeting on July 14, 1998. Those attending included livestock operators; oil and gas operators; county commissioners; state and county transportation departments; the Wyoming Game and Fish Department; recreation/conservation groups; landowners; and others commenting during scoping for the EIS. Additional input was received during a transportation planning workshop held in Pinedale on August 6, 1999 and a special Pinedale Town Council meeting held on August 18, 1999. Workshop attendees included Wyoming Game and Fish Department, Monarch Wildlife consulting, Mesa Users (grazing permittees), Wyoming Department of Transportation, Wyoming Outdoor Council, City of Pinedale, Sublette County Planning and Zoning Commission, citizens of Pinedale, and the Operators. Town Council attendees included concerned citizens, oil/gas operators, and BLM.

A summary of the concerns and issues discussed at these meetings are found in Attachments IA and II. Other concerns from interested parties will be incorporated into the TP and TSD following comments on the DEIS and annual operational updates to the TP (see Section B-6.0). Concerns identified during the preparation of past oil and gas development EISs (Attachment IB) in the region (e.g., Stagecoach, Fontenelle, Moxa Arch, Jonah II, and Continental Divide/Wamsutter II Projects) and Green River Basin Advisory Committee (GRBAC) recommendations regarding transportation planning and access road standards (Attachment IC), provide important background for the BLM PFO and the public to consider regarding the transportation needs and concerns for the PAPA and surrounding areas.
B-5.0 EXISTING AND PROPOSED TRANSPORTATION NEEDS

B-5.1 The Existing Network - Access to the PAPA is presently provided via Wyoming Highways 191 and 351. From these highways, unpaved County road access (gravel, aggregate surfaced) is provided by the Green River Road (#23-110), Mesa Road (#23-123), Paradise Road (#23-126), and Boulder South Road (#23-106). Other improved roads providing access to the PAPA include the following BLM roads: Soupasil Basin Road (#5105), Mesa Road (#5102), Sand Draw Road (#5100), Luman Road (#5409), Burma Road (#5406), and Fremont Butte Road (#5415). Most of these roads have some degree of gravel or aggregate surface and are periodically maintained. Some of these unpaved roads become impassable when wet and during winter, and, if these roads are used as access for this project, will require improvements and increased maintenance including snow removal. County roads (arterial roads) are maintained but in many cases there is no snow removal. County roads provide public access across private land; however, BLM roads or other roads which cross private lands may not have legal public access across them. All of the County roads, except the Mesa Road (#23-123), originate at either Wyoming Highway 191 or 351. The Green River, Paradise, and Boulder South County Roads will receive high-volume traffic with implementation of the PAP. The BLM and County Roads require ROWs for access and may require improvement or reconstruction before project use. In addition, some realignment of these routes may be necessary to minimize impacts to sensitive resources, ensure safety, and maximize traffic flow efficiency. Maps B-1.2, 5.1, and 5.2 show the “Exploratory Drilling Primary Access” and Anticline Crest Field Development Primary Access” recommended by the TPC and adopted by the BLM in the ROD for existing and proposed locations of high-volume roads and/or corridors within the PAPA (i.e., arterial roads and other potential collector and local road routes with high initial traffic volumes).

The existing transportation network within the PAPA is generally shown on Map B-5.1. This system includes state, county, and BLM access roads, most of which originate at Wyoming Highways 191 and 351. Historic use of the roads has been primarily by livestock operators, recreationists, and mineral developers. This use mix will continue with a substantial increase in mineral development traffic.

North Access. The north portion of the project area (New Fork River and Paradise Road north to Pinedale/Cora Junction on Wyoming 191 - Map 5.1) is currently served from Wyoming Highway 191 and 351 by the mesa road. East Green River Road and Paradise Road. The Pinedale South Road/Pinedale down Tyler Avenue to the County’s Twin Bridges Road is used by operators and connects the mesa Road to the town of Pinedale. The Pinedale South Road is the primary access being used by vehicles and equipment servicing wells being drilled on private and State lands along the New Fork River. The drill rig and other heavy equipment have accessed these well locations by way of Cora Junction-Green River County Road-Mesa Road and Twin Bridges Road.

Central Access. The central portion of the project area (New Fork River and Boulder South Road south to Wyoming Highway 351 - Map 5.1) is accessed from Wyoming Highways 191 and 351 by the Boulder South Road, and the Pipeline Road.

Southern Access. The southern portion of the project area (Wyoming Highway 351 south to the Jonah project area - Map 5.1) is accessed from Wyoming Highways 191 and 351 by the Jonah North Road and the Luman Road through the Jonah Project Area. There are also a couple of access points west of Highway 191 to well locations in that area. See the ROD (pages 9 through 12) for updated information and decisions regarding access to the PAPA.

B-5.2 Proposed Network Use/Modification - Two new access routes were identified during the public meetings/workshops/Pinedale Town Council meeting (Map 5.2). See the ROD (pages 9 through 12) for updated information and decisions regarding access to the PAPA. Residents of the town of Pinedale expressed great concern and opposition (August 18, 1999, the Pinedale Town Council meeting) to operator use of the Tyler Street (Twin Bridges road) as an access route to the north end of the project area. Residents on Tyler reported that the road has become a disaster. Truck traffic is 24 hours a day; dust is high (although it is being watered), and speed is excessive. This road was a funnel for recreational use such as walking, jogging and biking. Pinedale citizens say that it can no longer be used for this purpose because it is unsafe and dusty.

Traffic counter information gathered by the town of Pinedale and Sublette County showed the following use:
Transportation Plan - Pinedale Anticline Project EIS

August 12 - 15, 1999 (1 p.m. to 1 p.m.)
Tyler Street (within City Limits) 2080 vehicles
Twin Bridges Road (County Road) 1329 vehicles

August 16 - 18, 1999 (1 p.m. to 1 p.m.)
Tyler Street (within City Limits) 1141 vehicles
Twin Bridges Road (County Road) 684 vehicles

The traffic counter information shows that about 62.5 percent of the traffic is going to or coming from the area south of Pinedale City Limits (i.e., the Mesa and/or the two Anschnitt Wells being drilled between Pinedale and the Mesa). The concerned residents of Pinedale were adamant that an alternate route needed to be identified. It was suggested that a road be constructed between the Industrial Site (west of Pinedale) and the Mesa and/or Twin Bridges Road. This would eliminate the Tyler Street problem.

To avoid impacting residences and resident use of Tyler Street in the Town of Pinedale, one recommended new route and access road is to depart from U.S. Highway 191 at the Pinedale West Industrial Site exist and to construct a new road between the industrial site and road and the County Twin Bridges Road (approximelty 3 miles new road). Travel along this route would avoid directly impacting residential areas and resident use of Town roads. Routing of this new road would need avoid crucial deer winter range as much as possible. WGFDP input during the meetings indicated that this route would be acceptable.

The second new access road identified (Map 5.2) is the Anticline Crest Road. It was recommended that this segment of new road (approximately 6 miles) be constructed to tie the existing North Jonah Road to the Mesa Road. This would require a bridge across the New Fork River and an easement from the private land owner. Construction of this road would eliminate the need for operators to access the field via the Green River County Road (#23-102), the Paradise County Road (823-1306), the Boulder South County Road (#31-106), or the BLM Mesa Road (#3102). Avoiding these other routes would significantly reduce impacts to residents along them and reduce the miles of road that operators would be required to travel to access existing wells and new well sites and reduce annual maintenance costs. Location of the road would avoid drainage ways which are used to trail livestock.

Also, concern and complaints were expressed by residents along the Green River road (County Road 23-110) and the Boulder South Road (County Road 23-106) regarding high levels of dust and road degradation due to gas field traffic.

Additional new access roads may be identified and constructed as specified in the annual operational updates to the TSD (see Section B-6.0). Where these new roads duplicate existing two-track roads/routes, the existing two-track roads may be reclaimed. At field abandonment, many newly constructed local and resource roads are anticipated to be reclaimed unless there is an identified need for the road by the TPC and other area users. Reclamation activities will be addressed during annual planning and corresponding updates to the TSD.

B-5.3 Traffic Flow Transition Stages - The traffic flow transition stages of a typical trip into the PAPA transportation system are as follows:

1) Travel via HWY 191 or 351 to project area arterial or collector road turnoff (e.g., workers, supply trucks, drill rigs, etc. with destinations within the well field).

2) Transition from arterial or collector road to local and/or resource road to access a well site or central production facility destination.

The transportation network within the TPA is not anticipated to experience traffic congestion problems at transition points into or within the PA. However, the Wyoming Department of Transportation has recommended the need to evaluate these transition points as part lane construction from Highways 191 and 351 to ensure public safety. The volume of traffic (Table B-5.1) to more than one or two destinations at the same time within the same area of the TPA would be low, therefore precluding congestion. Development within the PAPA would be dispersed. The seven operators...
areas of leasehold are distributed such that congestion would be avoided; i.e., Ultra, Questor, and Anschutz at the north end of the PAPA; McMurry and Yates in the center, Alpine Gas west-central, and Amoco at the southern end.

Although traffic volumes will be low, heavy vehicles will use the roads throughout the life of the project, and, without road upgrades and/or maintenance, inclement weather periods may cause traffic flow problems and increase runoff and stream sedimentation. However, the implementation of this plan will minimize the potential for this problem to occur.

The estimated traffic requirements for each well are provided in Table B-5.1, and examples of potential traffic volumes on resource, local, and collector roads are provided in Table B-5.2. Construction, drilling, and completion activities have the greatest traffic requirements for the proposed project. The typical well on the Anticline will have an estimated 50 heavy vehicles and 34 light vehicles per day associated with road and location construction, drilling operations, completion and testing, and production site reclamation (702 round trips per well over a 70 to 80 day period - 30 to 35 days to drill the well and another 45 days to complete).

Localized construction and drilling activity will temporarily place heavy demands on road service. Traffic demands will be high in areas where drilling and completion activities are occurring, but will be minimal within other areas of the PAPA. Once all wells have been completed, traffic requirements will be minimal for the life of the project. Roads will be used throughout the life of the project and as wells are abandoned, disturbed areas will be reclaimed. Maintenance of roads remaining on the area after abandonment will be conducted by non-oil-and-gas entities.

In the future, un-designated two-track/roads may be upgraded and used to access well sites within the project area. These routes are presently used primarily by grazing permittees and recreationists. Grazing permittees use the routes to access water developments. Recreationists use the routes for hunting, sight-seeing, and mountain-biking.

B-5.4 Ultimate Road Disposition - When the Pinedale Anticline field is ready for abandonment (estimated to be 50 years), the transportation network within the TPA will be reclaimed to specifications developed during the annual operational updates. Reclamation protocol is described in the ROD Appendix A, Soils/Reclamation section. Improvements to most existing roads will likely be maintained, and some roads identified as necessary or desirable for other area users (e.g., grazing permittees, recreationists) during annual operational updates will be retained.

County roads will be retained in an upgraded status, as will improvements to BLM roads. All other local/collector roads potentially developed as access routes for this project are likely to be entirely reclaimed or returned to conditions similar to those occurring on the area prior to oil and gas development activities.

Road use following project completion will likely revert to existing uses (i.e., grazing management, casual recreation use, and hunting). Responsibility for maintenance of roads will revert back to Sublette County, private landowners, or BLM. A determination regarding the extent of post-project road maintenance within the Anticline project area cannot be determined at this time since the level of future area use is unknown. Decisions will be made during the later years of the project based on public input received during annual update reviews.

B-5.5 Pipelines - The gas gathering pipeline system will typically consist of a series of 3- to 12-inch diameter buried pipelines. The gathering system will transport gas from individual wells to a central location where the gas will be compressed into a sales pipeline. The design, materials, construction, operation, maintenance and abandonment of the gathering system pipelines will be in accordance with API 1104 and safe and proven engineering practices. Typically, the gathering system will be installed adjacent to existing roads. In most cases, the pipelines will be installed in a 50-foot wide permanent right-of-way, part of which overlaps the adjacent road (see DEIS Section 2.5.6).

The sales pipeline system will follow the approved route(s) specified in the ROD (Figure 7, page 13), which are existing pipeline or road corridors. Because the number of sales pipelines required to transport the gas is currently not known, the EIS assumes that an additional 200-foot wide right-of-way area will be disturbed the entire length of the existing 119-mile pipeline corridor to Opal and Granger. The sales pipelines will be designed, constructed, operated, and maintained in accordance with applicable Federal and state regulations. Construction will be similar to the techniques described for the gathering system (see DEIS Section 2.5.7).
### Transportation Plan - Pinedale Anticline Project EIS

#### Table B-3.1
Vehicle Characteristics and Estimated Number of Trips Required for Pinedale Anticline Natural Gas Project, Sublette County, 1999.

<table>
<thead>
<tr>
<th>Truck Type</th>
<th>Average Weight (× 1,000 lbs)</th>
<th>Number of Wheels</th>
<th>Average Speed (mph)</th>
<th>Average Number Round Trips per Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROJECT DEVELOPMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well Location/Road Construction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semi</td>
<td>74</td>
<td>18</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Gravel/haul</td>
<td>48</td>
<td>10</td>
<td>30</td>
<td>33</td>
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<tr>
<td>Light Vehicles (Pickup)</td>
<td>7</td>
<td>4</td>
<td>30</td>
<td>47</td>
</tr>
<tr>
<td>Drilling Operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semi</td>
<td>60</td>
<td>18</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Fuel and mud</td>
<td>48</td>
<td>10</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Logging and water</td>
<td>20</td>
<td>6</td>
<td>20</td>
<td>23</td>
</tr>
<tr>
<td>Light Vehicles (Pickup)</td>
<td>8</td>
<td>4</td>
<td>30</td>
<td>114</td>
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<tr>
<td>Completion and Testing</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Semi</td>
<td>74-80</td>
<td>18</td>
<td>20</td>
<td>26</td>
</tr>
<tr>
<td>Fracturing (6 zones per well)</td>
<td>28</td>
<td>6-16</td>
<td>20</td>
<td>186</td>
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<tr>
<td>Light Vehicles (Pickup)</td>
<td>7-8</td>
<td>4</td>
<td>30</td>
<td>170</td>
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<td>Production Equipment</td>
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<tr>
<td>Heavy Vehicles</td>
<td>44</td>
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<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Light Vehicles (Pickup)</td>
<td>7-8</td>
<td>4</td>
<td>30</td>
<td>16</td>
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<tr>
<td>Production Site Reclamation</td>
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<td>Pipeline Construction</td>
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<td>Semi Pipe Haul</td>
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<tr>
<td>Welding Trucks</td>
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<td>6</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>Light Vehicles (Pickup)</td>
<td>7-8</td>
<td>4</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Development Total</td>
<td></td>
<td></td>
<td></td>
<td>302</td>
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<tr>
<td>OPERATIONS1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work-over rig2</td>
<td>90</td>
<td>18</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>Semi Pipe Haul</td>
<td>48</td>
<td>18</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>Operations Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Assumes a well life of 30 years.

2 Workover rig would be largest vehicle required during operations. Assumes workover rig will travel to each well once every 5 years.

#### Table B-3.2

<table>
<thead>
<tr>
<th>Road Type (No. Of Wells)</th>
<th>Estimated Number of Round Trips</th>
<th>Estimated Average Daily Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Road (1 Well)</td>
<td>3.685</td>
<td>0.3</td>
</tr>
<tr>
<td>Resource Road (10 Wells)</td>
<td>30.685</td>
<td>2.8</td>
</tr>
<tr>
<td>Local Road (50 Wells)</td>
<td>184.400</td>
<td>16.8</td>
</tr>
<tr>
<td>Collector Road (100 Wells)</td>
<td>306.880</td>
<td>28.0</td>
</tr>
<tr>
<td>Collector or Arterial Road (500 Wells)</td>
<td>1,884,000</td>
<td>168.4</td>
</tr>
</tbody>
</table>
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B-60 ANNUAL PLANNING AND OPERATIONAL UPDATES TO THE TRANSPORTATION TECHNICAL SUPPORT DOCUMENT

Because of the uncertainty regarding the location(s) of wells within the PAPA due to the limited level of exploration that has occurred to date, future transportation requirements within the TPA will be developed incrementally as wells are developed and associated information on Operator transportation requirements become available. Annual planning and operational updates to the TSD for the PAPA will begin in 2000, and annual updates will be available in February each year thereafter until the project is completed or until the transportation system is so well established that further annual planning is not needed.

To facilitate the planning process, a Transportation Planning Committee (TPC) has been established. The TPC is composed of representatives from the BLM, Operators, Sublette County Transportation and Planning and Zoning, Wyoming Department of Transportation, Wyoming Game and Fish Department, landowners, grazing permittees, and other interested individuals and groups. The TPC will be responsible for overall transportation planning and for identifying and considering issues and concerns, whereas subcommittees/groups will be established for the resolution of site-specific issues (e.g., operational/compliance issues, individual road maintenance, and construction problems).

Annual transportation planning generally will be conducted to determine the location, maintenance, and design criteria for roads developed in the area. This process will involve annual Operator projects for well and ancillary facility developments, public input, and updates on sensitive resources. With this information, the TPC will review and recommend road design and road network that accommodates Operator and other area user needs, minimizes potential impacts to sensitive environmental resources, and maximizes traffic efficiency incommensurate with existing and potential needs.

The existing transportation network in the area is generally suitable for existing uses; however, as areas with natural gas resource potential are identified, changes to the existing network will be required. Therefore, Operators will be required to provide to the TPC periodic and annual projections specifying proposed well and facility site locations for associated traffic requirements (e.g., Table B-5.2 and other information such as duration of construction, timing of construction, etc.). This information will be provided to the TPC for the year of the life of the project, or until no longer required by the TPC (Table B-6.1). The TPC will evaluate this information, in light of environmental constraints and other known uses of the area, and develop recommendations for road, pipeline, and power line locations, types, and maintenance information. A draft update with maps will be developed by the TPC and submitted to Operators as well as other relevant land users (e.g., grazing permittees, landowners, county and state transportation departments, recreationists) by approximately early February of each year. Meetings will then be held with the TPC and other interested land users to discuss modifications to the proposed update to accommodate Operator and other user concerns. Broad issues potentially affecting most area users will be discussed with the *main TPC to present information and solicit additional comment. All issues associated with annual operational updates will be resolved if possible during the annual TPC meeting. A final update that considers all comments will be prepared and available for review in February of each year. Annual operational updates will be available for review at the BLM Pinedale Field Office.

The Operators will utilize available systems and technologies to assist them in the annual update of the transportation network as appropriate. Maps will be updated to incorporate new sensitive resource locations, proposed roads, wells, pipelines, and ancillary facility locations. Existing roads designated for reclamation also will be identified. This process will result in minimizing the road densities on the area while accommodating all land user requirements.

Information that may be included in annual operational updates include:

- the location of sensitive resources (e.g., drainages, raptor nest and sage grouse lek buffets) and environmental obstacles (e.g., steep slopes, erodible soils). The precise locations of some environmentally sensitive resources (e.g., cultural and paleontological resource sites) may not be presented in updates to avoid unauthorized use; however, the locations of these resources and associated buffers will be considered during the transportation planning process; and
- other identified transportation issues.

Final road location and design criteria for roads which either cross federal lands or are associated with federal wells will be included in Application for Permit to Drill (APD) and/or ROW applications and will be subject to independent environmental analyses (under the National Environmental Policy Act (NEPA)) by BLM. Some modification to proposed road locations specified in annual updates likely will occur as a result of these environmental analyses. For example, cultural resource inventories will be required for all new roads and pipelines, and these inventories may reveal the potential for significant cultural resource concerns in some areas. Roads and/or pipelines may be rerouted to avoid such instances. Once a road and/or pipeline has been constructed, its final location will be identified on maps provided in the annual operational updates.

During the later years of the project (years 30 to 50), it is anticipated that annual updates primarily will identify well locations, ROWs, and road routes designated for abandonment and reclamation. The ultimate transportation network on the TPA is anticipated to appear much like the area appeared prior to natural gas development. However, public input received during the annual update process may recommend that some roads be modified for proposed project after the life of the project (LOP). New roads that remain after the LOP will become the responsibility of BLM, County, and/or private landowner. In addition, road upgrades of primary access routes will probably remain, and most resource roads developed for this project probably will be reclaimed unless they are determined necessary for other areas as identified during annual planning.

Table B-6.1 Annual Operational Update Responsibilities and Dates, Pinedale Anticline Natural Gas Exploration and Development Project, Sublette County, 1999

<table>
<thead>
<tr>
<th>Action</th>
<th>Responsibility</th>
<th>Approximate Submittal Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provision of information regarding annual proposed well, road, pipeline, and facility site locations with traffic requirements, wells and roads to be abandoned, major pipeline and power line projects, road upgrades, landowner concerns, and other issues</td>
<td>Operators, TPC, BLM, other interested parties</td>
<td>Mid-December</td>
</tr>
<tr>
<td>Development of agenda, evaluation of proposed plans, preparation of updated maps, and review of updates and other issues</td>
<td>TPC, BLM, Operators</td>
<td>Late December/Early January</td>
</tr>
<tr>
<td>Public meetings to review development plans and associated issues</td>
<td>TPC, BLM, Operators, other interested parties</td>
<td>Mid-January</td>
</tr>
<tr>
<td>resolution of issues by TPC</td>
<td>TPC, BLM, Operators, other interested parties</td>
<td>Late January</td>
</tr>
<tr>
<td>Final update completion/public meetings to discuss resolution measures</td>
<td>TPC, BLM, Operators, other interested parties</td>
<td>Early February</td>
</tr>
</tbody>
</table>
Transportation Plan - Pinedale Anticline Project EIS

B-7.0 LITERATURE CITED


ATTACHMENT I

IA - ISSUES/CONCERNS SPECIFIC TO PINEDALE ANTICLINE

IB - REGIONAL TRANSPORTATION ISSUES/CONCERNS

IC - GREEN RIVER BASIN ADVISORY COMMITTEE: ROAD STANDARD RECOMMENDATIONS
Transportation Plan - Piney Anticline Project EIS

ATTACHMENT I

1A. ISSUES/CONCERNS SPECIFIC TO PINEDALE ANTICLINE

The following issues/concerns were identified by the public (livestock operators, oil/gas operators, general public, state, county, and local agencies, and environmental groups) through scoping letters, input at several public meetings and workshops and are specific to the Piney Anticline Natural Gas Exploration and Development Project EIS project. These issues/concerns are specific to access road, pipeline, and road use.

General Comments

• It was suggested that a transportation planning committee be formed modeled after the successful process used for the Warmer/Continental Divide area. Neither BLM nor the operators should chair the committee. A county, city, landowner, livestock permittee, or other would chair the Committee.

Road System Concerns

• Burma road is currently not identified as an access route to the Jonah field.
• Wyoming Department identified the need for turn lanes at all access points from U.S. Highway 191 and state Highway 351.
• No access to the Mesa and to the private lands south of Pineydale should be allowed on Tyler Street/Twin Bridges Road through Pineydale.
• A new route of access was suggested that would use U.S. Highway 191 and the Mesa Road through the industrial park west of Pineydale.
• A new access road should be considered that would use the North Jonah Road to the Mesa Road. Should follow an alignment that approximates the trunk pipeline route. This would require a bridge across the New Fork River.
• WGD requests that no new road should be built between Boulder and Pineydale along the west side of or crossing the New Fork River including the southern end of the breaks.
• Concerns regarding access to the Mesa should be addressed including the addition of new access points, restricting operator traffic on the Mesa Road south of Pineydale. Limiting access to the Mesa to one or two approaches and the need for additional turn lanes from highways.
• Address potential impacts from road development within the Mesa through good design including limiting road development, graveling all roads, utilization of existing two-tracks, design roads so they cause minimal intrusion, concerns of plugging roads, and sediment loading in the Green and New Fork rivers.
• There are already enough main access corridors to the Mesa and there are enough roads on the Mesa - fewer roads the better.
• Observation has been oil field related travel is much too fast.
• Transportation plan needs to consider livestock permittee needs.
• Livestock permittee’s stated that the Mesa road is a mess and should have been gravelled along time ago.
• Roads should be gravelled before well is allowed to be drilled.
• Directional drilling several wells from one pad would cut down on the number of roads needed to develop gas on the Mesa, especially in the breaks.
• Travel routes should utilize existing two-tracks as much as possible rather than develop new routes.
• Portions of two-tracks not suitable should be reclaimed. If access is an issue (e.g., livestock or wildlife harassment), consider limiting access on some of the roads to only operators by installing locked gates.
• No roads or two-tracks should be reclaimed before input is received from all interested and affected parties to avoid elimination of necessary access.
• Seasonal restrictions on some roads could also be applied to protect livestock or wildlife.
• Livestock permittee’s believe that pipelines and roads should parallel each other as much as possible, otherwise hunters and other recreationists start deviating the pipelines and create unnecessary access.
• Maintenance of cattle guards, fences, etc. should be the responsibility of the operator. Cattle guards should be cleared out each spring.
• A maintenance agreement, similar to Jonah B, may need to be developed for the Mesa.
• Address concerns over sensitive areas by requiring locked gates to control public access, controlling all oil and gas road access to the public, applying seasonal restrictions to some roads to protect livestock and wildlife, and locating roads and pipelines on top of the Mesa.
• Consideration should be given to closing new roads to public access in the project area. New roads could be opened only to service wells.
• This will avoid public becoming accustomed to traveling these roads and on abandonment of the project not want them closed.
• Identify which roads will remain open after abandonment and which roads would be reclaimed.

Livestock Concerns

• BLM should try to coordinate pipeline construction with trailing activity.
• Permittee’s need to know by May 1 what activity is planned for the area.
• Trailing occurs up and down all the major draws and thus should be a consideration when laying out roads and pipeline systems. There is a need to let operators know where permittee’s do their trailing and when it will occur.
• Permittee’s want to know where AFOs are located, when the ensuite will be held and when construction will begin.

Pipeline Concerns

• Surface pipelines vs. buried - which is most environmentally acceptable?
• Soils along the toe or east side of the Mesa are the most sensitive to erosion.
• A map should be prepared showing all surface pipelines so livestock permittee’s and other users can see where they are.
• BLM should let livestock permittee’s know when new surface pipelines are proposed and when they are installed.
• Livestock permittee’s want that all pipelines be buried.
• No clearing should be necessary for surface pipelines.
• Brush burning is all that is needed to clear pipeline ROWS in most cases.
• Problem of vehicle and livestock access across surface pipelines.
• Cattle will step over a 4’ line, but will trail along 6’ or greater surface lines.
• Livestock permittee’s concerned about pipeline leaks. Western Gas stated that physical observation of pipe done twice/year and telemetry monitors for leaks daily. Also, cathodic protection used on all buried lines.
• All pipeline users should be forced to keep cows from rubbing against them.
• Keep pipelines in a corridor so they don’t go all over the countryside.
• Surface pipelines placed along freeways will reduce livestock trailing along pipelines.
• Montana Gas Proposal - Pipelines will ultimately be buried.
• Min Gas wants a 12’ buried permanent line. Min. Gas concerned about the cost of moving lines. Possibility of both an east and west side.
• Jonah Gas Gathering will also need a route.
• Issues of fish habitat in New Fork River and erosion control.
• Collection procedures using 4’ surface lines: a. staging areas; b. can drag lines; 2000 maximum; c. weld sections together.
• Issue: Will a 12’ line be efficient in the future? Answer: Probably of compression/electric drivers are used.

Wildlife Concerns

• WGD wants minimal duplication of roads and reduction in surface disturbance and disturbance caused by human activity during critical periods of the year (winter, breeding, and nesting).
• Concerned about impacting active sage grouse leks. Sage grouse numbers are currently down and historic leks may be reestablished when and if numbers increase.
• Sage grouse nesting areas should be identified and, once identified, avoided by roads and pipelines.
• New road to the Stewart Point 3-28 well should have limited winter access.
• Options for restricting access:
  a. gating road
  b. signing
  c. use of remote well monitoring devices (telemetry)
  d. no plowing of roads in winter.
• Deer mortality studies should be conducted. Ultra-deer study on Mesa should continue.
• Raptor nests - Some data has been gathered - more is needed. Need data on Ferruginous hawks, bald eagles, barn owls, red-tailed hawks.
• Proposed routes should be surveyed during nesting season to determine occupancy by raptors.
• Mule deer and antelope crucial winter range - the "breaks" should be avoided by roads and well pads.
Transportation Plan - Pinedale anticline Project EIS

Cultural Concerns

- Area of concern around burial areas may be 1 to 2 mile radius
- Native American respected places/sites - protect 1 mile radius around these sites

Historic trails - Lander cutoff and historic wagon roads.

Visual Concerns

- Implement the visual management objectives (classes) in the design, location and rehabilitation of access roads and pipelines for the project. Particularly sensitive areas are the face of the Mesa and the viewed from Highway 191 and the Lander Trail.

Recreation Concerns

- Recreation use/concern on the Mesa:
  a. Mountain biking
  b. cross-country skiing
  c. hiking/horseback riding
  d. damage from 4-wheelers

- WDFW wants minimal duplication of roads and reduction in disturbance caused by human activity during crucial periods of the year (winter, breeding, and nesting).

- Need to consider cumulative effects of "use" on Mesa in general.

- Recreational concerns increase as you get closer to town (Pinedale). Bikers use entire area.

- Many 4-wheeler and motor bike erosion damage problems are growing throughout area.

- Total use of the Mesa has really increased in the last few years.

IB - REGIONAL TRANSPORTATION ISSUES/CONCERNS

Many of the transportation planning issues/concerns identified during the scoping and planning process for various oil/gas field development project EISs in the region (southwest Wyoming), were found to be repetitive from one project area to the next. For this reason, and to capitalize on this common phenomenon, the following list is provided to show other considerations given to the development of this TP:

Road Development Concerns

- Road standards and guidelines should be consistent across BLM Field Office boundaries and checkerboard lands
- Roads should not be over designed; build roads to minimum standards to deter use and reduce vehicle speeds.
- Do not fence roads.
- Roads with parallel drainages should be located outside the 100-year floodplain.
- Properly located loop roads can eliminate excessive use of some areas.
- Consider alternative travel corridors and road standards.
- The transportation planning process should include the state, counties, and all interested parties.
- County involvement is necessary in mainline road development and maintenance.
- County needs to be involved at AFD stage.
- Consider a "no net gain" policy for roads.
- Establish limits for road development and maintenance.
- Address private land access issues from new and existing roads and the problems associated with alternative road designs on private lands.
- Implement Green River Basin Advisory Committee (GRBAC) transportation planning recommendations.
- Consider all road development and transportation management impacts.
- Consider mineral ownership, this may affect Operator rights to construct roads on private lands.

Road Use Concerns

- Impacts from increased traffic on all roads, including federal and state highways and local roads, should be addressed in a transportation planning.
- Collector roads should be addressed individually in respect to paving or gravel surfacing to prevent mud from being carried on to existing highways.
- Operators should enforce speed limits, and vehicle speeds should be reduced.
- To avoid increasing areas of surface disturbance, use existing two-track roads to access well locations.
- Avoid improperly located looped roads to avoid increased traffic.
- Identify impacts from fugitive dust.

Road Maintenance Concerns

- Immediately identify the proposed collector roads that currently need maintenance and action.
- County roads should be maintained by the counties since they currently receive funds generated by the Operators. Operators should assist in eliminating problem areas on county roads.
- Operators acquiring ROWs over BLM roads will need to enter into cooperative agreements with each other for road upgrades and maintenance.
- Road maintenance actions require prioritization.
- Appropriate maintenance needs to be provided for cattle guards, wing ditches, and culverts.

Road Reclamation Concerns

- No roads or two-tracks should be reclaimed before input is received from all interested and affected parties to avoid elimination of necessary access.
- Closed roads should be obliterated, reclaimed, and signed as such to inform the public.
- All roads developed for this project should be reclaimed when they are no longer required.
- Existing roads should be eliminated if another road accesses the same area, and Operators should look for opportunities to close and reclaim unused and redundant roads.
- Two-track roads that are not used and which can be reclaimed should be identified.
- Roads need to be reclaimed as soon as possible after abandonment.
- The ultimate road situation (i.e., after the project is completed) should be similar to pre-development (pre-1990).

Wildlife Concerns

- Close coordination of the WDFW, BLM, and Operators is needed for development in crucial wildlife habitat.
- Minimize road densities and total miles of road to minimize impacts to wildlife populations.
- New roads increase access into areas which could increase the probability of wildlife favoring of positive/mortality (road kills).
- New roads cause habitat loss through direct conversion of habitat to road ROWs, and increased wildlife disturbance (e.g., decreased use of habitats adjacent to roads, increased stress).
- Use locked gates, signs, and seasonal closures to reduce vehicle traffic thereby protecting wildlife by restricting access.
- Field workers should visit wells during mid-day to minimize impacts to wildlife.
- Impose speed limits to reduce big game road kills.
- Consider impacts of roads on big game and upland game.

3 This list of issues/concerns is summarized and edited from the Continental Divide/Wamsutter II Draft EIS Transportation Plan.
Transportation Plan - Pinedale Anticline Project EIS

- All perennial stream crossings should be adequately designed to allow fish passage at all flows.
- Impacts to aquatic resources should be minimized to ensure compliance with Section 404 of the Clean Water Act.
- Pipelines and power lines should be parallel and not within the same ROW to avoid crossing wetlands.
- Pipeline and power line crossings of 1-80 must be isolated from the highway.
- Noise impacts to sage grouse and ferruginous hawks should be considered.
- Pipeline development may improve winter wildlife habitat by removing decaying sagebrush.
- No unreasonable restrictions on construction of utility and pipeline facilities.

Recreation Concerns

- Use of roads by the public, public road designations, and public access.
- Landowners should allow recreational use on their lands and avoid posting of lands.
- Increased access will provide increased recreational opportunity.
- Do not fence roads.
- BLM signs should be removed where they encourage unauthorized public use of private roads and lands.
- Wildlife, visual impacts are negligible for new roads.

Other Concerns

- Operators need to do a better job monitoring damage to cattle guards, closing gates, and restricting unauthorized off-road travel along road ditches, two-track trails and pipeline ROWs.
- The transportation planning committee or work force should coordinate the development of the transportation plan and address access issues (e.g., county permits, private lands, drainage, Uniform Fire Code compliance, traffic demands, county access, etc.), construction plans (e.g., permits, construction use, zone changes) and maintenance specifications (e.g., roads, cattle guards, bridges, heavy equipment).
- Difficulties associated with problem-solving by large committees for transportation planning.
- The BLM issues ROWs for all its roads.
- BLM roads are for use, development, protection, and administration of public lands and resources. and are not necessarily always public roads; although public use is generally allowed, roads may be closed or use restricted to fulfill management objectives.
BLM hosted workshop to address concerns regarding transportation planning in the Pinedale Anticline Project Area. The workshop was attended by members of the general public and representatives of the following organizations:

- Wyoming Game and Fish Department
- Monarch Wildlife Consulting
- Mesa Users (permittess)
- Wyoming Department of Transportation
- Wyoming Outdoor Council
- City of Pinedale
- Sublette County Planning and Zoning Commission
- Operators (Amoco, Questar, Alpine, Ultra, Western Gas, Anschutz, McMurry, and others)

BLM opened the workshop by providing an overview of existing access to the project area. That overview discussed where most of the traffic was currently being routed and attendees identified problems associated with particular routes.

An introduction to the transportation planning process was presented by the BLM. BLM suggested that the group form a transportation planning committee modeled after the successful process used for the Wamsutter/Continental Divide area. Steps in the process were outlined including recommendations on who should participate and what authority the committee should have. Several examples of how the committee could overcome problems with a transportation network in the project area were provided.

BLM suggested that neither BLM nor the operators chair the committee. BLM noted that the Sweetwater Planning and Zoning Department chaired the Wamsutter Committee and this worked well.

After the introduction, BLM asked for questions, comments and concerns. The following issues were identified:

Concern was raised about current access to the Jonah II Field and the problems associated with use of the Barra Road. McMurry noted that they have instructed their contractors not to use this road but McMurry cannot police who is using this road. Apparently, the road was bladed last summer and snow was removed last winter. There was confusion as to whether these activities were permitted by BLM and who actually did the work.

The Wyoming Department of Transportation expressed a need for turnarounds for all the access points from U.S. Highway 191 and State Highway 351. Also, project traffic may require the intersection of U.S. Highway 191 with State Highway 351 to be reconstructed with turning lanes. This could be particularly troublesome because of grade problems. Installing turning lanes from U.S. Highway 191 to the Green River Road west of Pinedale would be problematic because of limited visibility. Other areas where turnouts should be installed were mapped by Wyoming Department of Transportation for inclusion in the EIS.

McMurry suggested that a new access road be constructed that would tie the North Jonah Road to the Mesa Road. This new road would require a bridge across the New Fork River and would travel the anticline crest in the existing pipeline corridor. The BLM stated that they would not attempt to secure access across the river or on other parcels of private land. That would be the responsibility of the operators. The new anticline road would solve a number of problems including dust, safety, and washboarding on the Green River and Paradise Road. Discussion regarding the location of a new bridge across the river occurred but no consensus was reached. The permittees, however, advised against constructing the road in Lovett Draw as this draw is important to trailing.

Caution was suggested about allowing public access on new roads in the project area that BLM would require to be closed upon abandonment of the project. The public becomes accustomed to traveling these roads and will not want them closed. It was suggested that if there is a new anticline crest road that be private and open for industry use only. It would be much easier to close this road in the future if the public never has access to this road.
Much discussion centered around project traffic travel through the Town of Pinedale. A representative from the town noted that it was acceptable for traffic to travel through town on the Twin Bridges Road. It was noted that continued access through to the Mesa through town could eliminate a number of environmental issues with traffic on the Mesa Road in the winter. Access to the private wells in the New Fork flood plain would have to continue to use town roads during the winter.

Some issues need to be addressed regarding maintenance of roads through town. Others suggested that travel through the residential portions of the town could be very disruptive. Congestion in town is already a problem and it may be necessary to install a traffic light to allow project traffic to turn across U.S. Highway 191. The town representative suggested that additional discussion with the city council was warranted. It may be necessary to conduct a transportation study to better estimate the potential impacts on traffic flow through town.

It was suggested that the EIS identify which roads would be reclaimed after abandonment of the project and which would remain open to the public. It was noted by BLM that the only legal access to the Mesa prior to recent drilling was the Mesa Road. There was no legal access to the Mesa from the south. The Mesa Road north of State Highway 351 crosses private lands and an easement for this road has not been acquired.

Wyoming Game and Fish Department indicated that they don’t want to see another road between Boulder and Pinedale along or crossing the New Fork River including the southern end of the breaks.

During review of the maps it was suggested that a new road be evaluated in the EIS that would tie U.S. Highway 191 and the Mesa Road through the industrial park west of town. This road would need to be routed to avoid deer winter range. This road could eliminate the need for traffic to travel through town but it may be difficult to hide the road in a portion of an area that has been identified as visually sensitive. Other recommendations regarding closure of roads during the winter and potential candidates for reclamation were identified by the attendees.

A list of the questions and concerns raised during the public meeting:

August 18, 1999, at the Pinedale Town Hall of the Pinedale Anticline Well Field Development and it’s impact on the Pinedale community.

1. A concern for the increase of traffic on county road 23-123 going out of Pinedale from Tyler street. The dust and poor condition of the road. Line of site for water trucks. The excess speed of traffic with no law enforcement.

2. It was stated to be a bad idea and unwise to encourage truck use on Tyler street.

3. What would proposed alternate routes of traffic to Mesa be?

4. What is the source of increased traffic?

5. If any, what agreements between town of Pinedale and Sublette County for use of Tyler street?

6. Would any Mesa roads be made county roads?

7. Will county road 23-123 be fixed near curve at the New Fork River to prevent washouts?

8. The need to calculate the future effects of any one particular well site on the Mesa by how many well sites?

9. Is, or will the town of Pinedale and Sublette County be limiting the use of any roads? Are there any ordinances to limit traffic use of roads?

10. What would, (or could) be restrictions concerning private land leases?
Continuing list of questions and concerns from Pinedale public meeting.

11. Anschutz desires to and would participate in designing alternate routes to Mesa.
12. How to protect historic sites and not create surface disturbance.
13. How to protect our rural character and small town identity.
14. Impact of well field for Emergency Medical Services. Being a volunteer service, what will the needs be to cover the community and the well field?
15. What medical services exist in well field?
16. The noise of equipment and machinery in and toward the well field.
17. Air quality- What are the threats as well as controls?
18. Does Sublette County have authority over traffic issues on county road 23-123?
19. Not enough official (county and state) presence at the meeting. No one from county or state agencies came to meeting. “Do they take us seriously?”
20. “Who runs the show?” was a question asked. This, in response to the fear that the oil companies will do whatever they want regardless to the concerns of the citizen.
21. The purpose of the meetings and the studies being conducted was mentioned in the thought that it is too early to make up our minds about things that we are not fully informed of as yet.
### POST CONSTRUCTION INSPECTION RECORD
for
Road Construction

**Company:**  

**Project Name:**  

**Date:**  
**Time:**  
**Weather:**  

**Contractor:**  

**Construction Superintendent:**  

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### CONSTRUCTION CHECKLIST

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<tr>
<td>Does the project look good?</td>
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<td>Are sight distances to standards shown on plans?</td>
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<td>Is it comfortable to drive at design speed?</td>
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<td>Will drainage system take all water away from road?</td>
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<td>Are curves constructed as shown on plans?</td>
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<td>Has topsoil been replaced on slopes?</td>
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<td>Have disturbed/work areas been rehabbed/cleaned up?</td>
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<td><strong>Roadway/Drainage</strong></td>
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<td>Are these features as shown on plans?:</td>
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<td>Cut and fill slopes</td>
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<tr>
<td>Borrow ditch depth</td>
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</tbody>
</table>

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### Drainage

- Are culverts damaged or obstructed?  
- Are these as shown on plans?:
  - Culvert locations
  - Culvert lengths and diameters
  - Inlet basins and ditch blocks
  - Wing and drain ditches
  - Riprap
  - Borrow ditch

### Other

- Are these built or installed as designed?:
  - Turnouts
  - Guardrails
  - Guardrail drainage
  - Fences and gates
  - Signs
  - Bridges
  - Low water crossings
  - Pipeline or utility crossings

- Have shoulder, fill and/or cut slopes been flattened to allow access to sheep wagon or other "two-track" trails?  

### Permits

- Does construction of the highway approach meet all state highway department permit requirements?  
- Does construction of the county road intersection meet all county and/or permit requirements?
I have inspected this project and attest that the construction complies with the road plans, all permit requirements, the surface use plan, and the approved AFD and/or right-of-way grant stipulations.

Company’s Representative
_________________________ ____________________________
(Signature and Title)

I have supervised the construction of this project, and attest that all of the construction is in conformance with the plans, specifications and all other permit requirements which apply.

Contractor’s Representative
_________________________ ____________________________
(Signature and Title)

[ ] I have inspected this project, and find that it was constructed in conformance with the approved plans and all other BLM requirements and stipulations which apply.

[ ] I waive the requirement for a BLM representative to be present during the post construction inspection of this project.

BLM Representative
_________________________ ____________________________
(Signature and Title)

Others
(Specify)

Copies to:
Company
Contractor
BLM
Other

Date

Attachment B-III-3

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TYPICAL ROADWAY DETAILS

Attachment B-III-4
TYPICAL DRAINAGE DETAILS

Attachment B-III-5
CATTLE GUARD FOUNDATION (Tunnel)

SECTION AT ROAD C

(Wei ght and design in outline)

NOTES:
1. See specifications for width (W).
2. See specifications for length (L).
3. See specifications for weight (W).
4. See specifications for design (D).

Cattle guard weather treated with 1/4" x 1/2" Lag screw with neoprene washer to seal juncture with main sample grid.

Dill " 1/4" x 1/2" lag screw with neoprene washer to seal juncture with main sample grid.

WELDING SYMBOL LEGEND
Weld all around
Weld this side
Weld other side

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT OFFICE OF TECHNICAL SERVICES ENGINEERING DIVISION

CATTLE GUARD FOUNDATION (Tunnel)

SECTION A

DETAIL B

(See notes 1)

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT OFFICE OF TECHNICAL SERVICES ENGINEERING DIVISION

CATTLE GUARD FOUNDATION (Tunnel)

SECTION X-X

SECTION Y-Y

ALWAYS THINK SAFETY
TYPICAL PLAN VIEW

CATTLEGUARD INSTALLATION FOR R/W FENCE

NOT TO SCALE 162
APPENDIX C

ADAPTIVE ENVIRONMENTAL MANAGEMENT PROCESS
APPENDIX C
Draft Adaptive Environmental Management Planning Process for the
Pinedale Anticline Project Area

Introduction
This document outlines the planning process for Adaptive Environmental Management (AEM) of the Pinedale Anticline Project Area (PAPA). This document describes the basic components of AEM and steps involved in its implementation.

The PAPA Draft EIS contains a detailed description of the speculative nature of exploration and development in the PAPA. Indeed, based on the limited exploration that has taken place to date, it is impossible to predict how future development will proceed. The extent and nature of gas reserves in the PAPA are unknown and are expected to remain so for several years. Some believe that development potential in the PAPA is enormous and that hundreds of wells may be necessary to adequately drain all the reserves. Others believe that development potential is much more modest and essentially limited to the crest of the anticline and perhaps a few small, isolated areas away from the crest. All agree that there is a great deal of uncertainty about future development. Because of this uncertainty, a number of assumptions were necessary to predict the impacts associated with future development. Those assumptions may or may not be correct.

Purpose and Need
There is at least equal if not more uncertainty regarding how the environment will react to future development in the PAPA. For instance, will a buffer of 1,000 feet around nesting ferruginous hawk nests prevent nest abandonment in all cases? Will best management practices be adequate to prevent water quality degradation in the New River? Will deer and antelope respond to new development as predicted in the wildlife model? How can we provide answers to these questions? These questions are particularly relevant given our current ability to predict cumulative perturbations on the ecosystem. For instance, the big game animals occupying the PAPA do so year-round but many migrate into the area during the winter. Impacts occurring elsewhere on their range could affect the number of animals on the PAPA. The same applies to air quality where a number of cumulative sources affect Class I airsheds. Predictions regarding the severity of the impacts are complicated further by the fact that some of the development may occur on private and state lands where protective measures (such as seasonal restrictions to protect big game and raptor nests, no surface occupancy stipulations around wetlands, etc.) are not typically applied. What will be the cumulative impacts on the Sublette deer herd when seasonal restrictions are imposed on only that portion of their winter range that occurs on Federal lands and minerals? Will perturbations on private lands increase density on Federal lands resulting in deteriorating quality of habitat? Some very sensitive resources within the PAPA (such as wetlands and riparian areas) are located almost entirely on private and state lands where separate non-federal controls to protect the resources are applicable.

The uncertainties as to where and at what level development will proceed as well as uncertainties associated with the environmental sciences that were used to predict impacts suggest that the one-time determination of impacts that is included in the EIS may not be appropriate for this project. However, a carefully prepared and thoroughly evaluated AEM Plan and process may be suitable for dealing with these uncertainties. Such a plan process would provide a mechanism for continuously modifying management practices in order to allow continued exploration and development while continuing to protect the environment.

CEQ regulations require appropriate application of continual monitoring and assessment. Section 102(2)(B) of NEPA calls for "methods which will assure that presently unquantified environmental amenities and values may be given appropriate consideration." CEQ regulations (40 CFR 1505.2(c)): 1505.3(c) and (d) state "a monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation" aid that agencies "may provide for monitoring to assure that their decisions are carried out and should do so in important cases." The lead agency must "upon request, inform cooperating or commenting agencies on progress in carrying out mitigation measures which they have proposed and which were adopted by the agency making the decision." And, "upon request, make available to the public the results of relevant monitoring."
• Air Quality
  • Nitrogen oxide emissions
  1. Complete an annual monitoring report of actual on-the-ground calculated potential NOx emissions (i.e., the level of NOx emission from permitted, actually constructed/installed facilities based upon the permitted level of emissions per well location, compressor facility, etc.) for the Jonah Field and Pinedale Anticline project areas.
  2. Continue to cooperate in the implementation of existing visibility and atmospheric deposition impact monitoring programs. Evaluate need for additional monitoring.

• Cultural Resources
  • Discoveries
  1. Complete an annual report on the context of the archeological and historic resources discovered during development.
  2. Monitor construction to ensure design and use standards are met and maintained. Assess development patterns to determine most effective corridors for main transportation facilities.

AEM Planning Process Implementation Model

The BLM Pinedale Field Manager will implement the AEM process by establishing the Pinedale Anticline Working Group (PAWG and Task Groups (TG)). The PAWG will function as an oversight working group consisting of members from BLM, the cooperating agencies, operators, environmental community, and the public. The structure of the PAWG will be as follows:

![Diagram of AEM Planning Process Implementation Model]

AEM Membership

The membership of the PAWG may include representatives from the following federal, state and local agencies, public, and environmental community:

• Bureau of Land Management [Pinedale Field Office and personnel with special expertise from other BLM offices]
• U.S. Fish and Wildlife Service
• U.S. Army Corps of Engineers
• USDA Forest Service
• State of Wyoming agencies [Wyoming Game and Fish Department, Wyoming Department of Transportation, Wyoming Department of Environmental Quality - Air and Water Quality Divisions, State Historic Preservation Office, State Engineers Office, Wyoming Oil and Gas Conservation Commission, etc.]
• U.S. Environmental Protection Agency
• Sublette County government [particularly planning and zoning, road and bridge]
• Town of Pinedale
• Oil/Gas Operators
• Members of the public
• Environmental groups [Wyoming Outdoor Council, Greater Yellowstone Coalition, Wyoming Wildlife Federation, etc.]
• PAPA landowners and livestock operators
• University of Wyoming
• Other affected and interested parties

• Work Group Functions. An AEM public meeting will be held in Pinedale within two months of the issuance of the Pinedale Anticline ROD to establish the PAWG and select membership. The primary function of the PAWG will be to:
  1. Oversee the development and implementation of monitoring plans for the PAPA natural gas exploration and development;
  2. Meet at least once a year or more often as needed;
  3. Keep written records of meetings and disseminate to members and interested public;
  4. Conduct an annual field inspection to review the implementation of construction and rehabilitation operations;
  5. Review status quo and any new information since last meeting (e.g., monitoring results of impact mitigation effectiveness);
  6. Synthesize monitoring plan activities/expectations for the coming year, based upon operator input and new information;
  7. Review recommendations from Task Groups and submit a recommendation to BLM (e.g., management practices and monitoring needs for upcoming field season);
  8. Oversee implementation of monitoring.

Task Group Membership. The membership of the individual Task Groups will be selected during the first public meeting within two months of the issuance of the Pinedale Anticline ROD. A suggested membership for consideration is listed in Attachment I.

Task Group Functions. During the public meeting held in Pinedale within two months of the issuance of the PAWG, separate resource or activity Task Groups (TGs) will be established. The primary function of the TGs will be to:
  1. Prepare and oversee implementation of resource/activity monitoring plans;
  2. Keep written record of meetings and disseminate to members and interested public;
  3. For the second AEM meeting (February 2001), TGs will:
    • Prepare monitoring plan to include the following:
      1. Implementation protocol including who in industry will fund and conduct monitoring;
      2. Annual monitoring report requirements and meeting frequency;
      3. Resource concerns (e.g., based upon current conditions, drilling plans, etc.);
      4. To add in the preparation of the monitoring plan and for evaluation of monitoring results, review, evaluate, and summarize past/present data pertaining to the resource;
      5. Annual survey/inventory, monitoring, etc. that needs to be completed;
      6. Resource protection/mitigation measures for resource as identified in the ROD;
      7. Evaluation of mitigation measures' effectiveness;
      8. Results of monitoring and evaluation of the effect of project development on the resource;
      9. For subsequent meetings the TGs will:
        • Be responsible for overseeing the accomplishment of the following:
          1. Implement monitoring plan as approved by BLM;
          2. Review and evaluate monitoring data collected;
          3. Present and submit monitoring results annually to PAWG and BLM;
          4. Review and evaluate current monitoring plan;
          5. Modify monitoring plan and implement as approved by BLM;
          6. Recommend modifications to the development and monitoring plan to the PAWG and BLM;
          7. Recommend modifications to mitigation as needed.

AEM Planning Process Leadership and Meeting Agenda

The BLM will implement and coordinate the AEM Planning Process. The leadership for the coordination of the AEM Process will be located in the BLM Pinedale Field Office. Meetings of the PAWG and TGs will be held at least annually and will be open to the public. The PAWG meetings will be facilitated by a qualified facilitator. PAWG meetings will be held in the evening to allow maximum public involvement. The meeting agenda will include the following:

Function of PAWG at First Meeting:

• Explain Purpose and Need for AEM Planning Process;
• Explain organizational structure and functional responsibilities of PAWG and TGs;
• Establish and select PAWG membership;
• Review draft Memorandum of Understanding;
• Establish and select TG memberships;
• Set date, time, and place for next PAWG meeting.

Function of PAWG at Subsequent Meetings:
• Review minutes from previous meeting;
• Reports presented from the TGs on monitoring results;
• Review recommendations from TGs;
• Review Operator Plans;
• Receive public input;
• Develop adaptive environmental management recommendations if necessary;
• Submit recommendations and monitoring results to BLM;
• BLM specify any new directives;
• Set date, time, and place for next PAWG meeting.

TG Leadership and Meeting Agenda

The individual TG leadership for the coordination among the membership and for the development, implementation, and reporting results of the monitoring plans will be as determined by the membership. Meetings of the TGs will be held as often as deemed necessary by the membership but at least annually and will be open to the public. The TG meetings will be facilitated by the membership-selected leader. TG meetings will be held during work-day hours. The agenda will be developed by the TG leader to address the necessary items as defined under the TG Functions above.

AEM Planning Process Funding

The BLM and the cooperating agencies lack the resources to adequately fund the implementation of monitoring programs specified. While the BLM and cooperating agencies need to be thoroughly involved in all aspects of monitoring, the majority of costs to implement these monitoring programs will have to be borne by the operators. The agencies will cooperate in the funding of monitoring to the extent that budget allocations permit.

Suggested Membership - [Note: Members of the public will be added to all Task Groups]:

Reclamation Task Group
BLM, Operators, WGFD, County Weed/Pest, Livestock Operators, State of Wyoming, Sublette County

Wildlife Task Group
BLM, Operators, WGFD, U.S. Fish and Wildlife Service, Sublette County, Environmental Groups

Water Resources Task Group
BLM, Operators, State Engineer, Wyoming DEQ-Water Quality Division, U.S. Army Corps of Engineers, Livestock Operators, Sublette County

Cultural Task Group
BLM, Operators, State Historic Preservation Office

Air Quality Task Group
BLM, Operators, Wyoming DEQ-Air Quality Division, USDA Forest Service

Transportation Task Group
Already established
APPENDIX D
HAZARDOUS MATERIALS SUMMARY
FOR THE
PINEDALE ANTICLINE OIL AND GAS EXPLORATION AND DEVELOPMENT PROJECT

INTRODUCTION
This Hazardous Materials Summary is provided pursuant to Bureau of Land Management (BLM) Instruction Memoranda Numbers WC-93-344 and WY-94-059, which require that all National Environmental Policy Act (NEPA) documents list and describe any hazardous and/or extremely hazardous materials that would be produced, used, stored, transported, or disposed of as a result of a proposed project. The summary serves as a supplement to the Pinedale Anticline Oil and Gas Exploration and Development Project Environmental Impact Statement.

Materials are considered hazardous if they contain chemicals or substances listed in the Environmental Protection Agency’s (EPA’s) Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986. Extremely Hazardous materials are those identified in the EPA’s List of Extremely Hazardous Substances (40 Code of Federal Regulations [CFR] 355).

Hazardous and extremely hazardous constituents potentially occurring in these products or materials have been identified and are listed in Table E-1.

DRILLING MATERIALS
Water-based drilling fluids consisting of clays and other additives would be utilized by drilling companies for drilling each well. Drilling fluid additives potentially containing hazardous materials are listed in Table E-1. The polyacrylamides used in drilling may contain the extremely hazardous substance acrylamide. Drilling fluid additives would be transported to well locations during drilling operations in appropriate sacks and containers. Drilling fluids, cuttings, and water would be stored in reserve pits located on-site, and reserve pits would be lined as directed by the BLM to conserve water and protect near-surface aquifers. When the reserve pit is no longer required, its contents would be evaporated or solidified in place and the pit backfilled as approved by the BLM.

CEMENTING AND PLUGGING MATERIALS
Well completion and abandonment operations include cementing and plugging various segments of the well bore to protect freshwater aquifers and other down-hole resources. Wells would be cased and cemented as approved by the BLM (for Federal lands and minerals) and Wyoming Oil and Gas Conservation Commission (WOGCC) (for state and private lands and minerals). Cementing and plugging materials containing hazardous materials are listed in Table E-1. The extremely hazardous material acrylamide may be present in fluid loss additives. All casing and plugging materials would be transported in bulk to each well site. Small quantities may be transported and stored on-site in appropriate containers.

FRACTURING MATERIALS
Hydraulic fracturing is expected to be performed at all proposed wells to enhance gas flow rates. Fracturing fluids consist primarily of fresh water, but would contain some additives with hazardous constituents as shown in Table E-1. Fracturing materials would be transported to well locations in bulk or in manufacturer’s containers. Waste fracturing fluids would be collected in aboveground tanks and/or reserve pits and evaporated, or hauled away from the location and reused at another well or disposed of at an authorized facility.

PRODUCTION PRODUCTS
Natural Gas. Natural gas produced from the exploratory wells primarily would contain methane, ethane, and carbon dioxide. Hexane, polycyclic aromatic hydrocarbons, and polycyclic organic matter are hazardous substances
potentially present in the gas stream (Table E-1). No extremely hazardous materials are anticipated to be present. Small quantities of natural gas may be flared into a flare pit during well testing operations, pursuant to BLM/WOGCC rules and regulations (Notice to Lessees [NTL]-44). BLM and WOGCC approval would be necessary prior to flaring operations. Natural gas would be stored on site.

**Liquid Hydrocarbons.** Condensates and/or oil products associated with the gas streams are produced from productive wells. Hazardous materials potentially present in the liquid hydrocarbons are listed in Table E-1. No extremely hazardous materials are known to be present in the liquid hydrocarbons.

Liquid hydrocarbons would be stored in tanks at well locations and all tanks would be fenced and bermed to contain releases and make them visible. Hazardous materials periodically would be removed from 110% of the entire storage capacity of the largest tank. Liquid hydrocarbons would be removed from storage tanks and transported by truck off the project area for sale to refineries. All necessary authorizing actions for transport of liquid hydrocarbons, including the Oil Pollution Act of 1990, would be addressed prior to the initiation of production activities.

**Water Cuttings.** Hazardous materials potentially present in trace amounts in produced water and drill cuttings are listed in Table C-1. No extremely hazardous materials are expected in the produced water or cuttings.

Produced water would be stored in tanks at well locations and periodically would be removed and transported to the Wyoming Department of Environmental Quality (WDEQ) or WOGCC-permitted water disposal facilities.

Drill cuttings would be stored in reserve pits and, after evaporation, the pit would be backfilled as approved by the BLM.

**FUELS**

Diesel fuel, gasoline, natural gas, and propane would be used for the project. All contain hazardous materials (Table E-1). Gasoline and diesel would be used by vehicles providing transport to and from the project area. Diesel fuel also is used in mobile equipment and minipipelines. Gasoline would be used in drilling operations, construction equipment, and as a minor component of fracturing fluids. Natural gas would be used in well exclosures, construction equipment, and for power. Gas produced by the proposed project would be used to power pipeline compressor stations and other ancillary facilities. Propane would be utilized for miscellaneous heating purposes.

Gasoline. Gasoline is known to contain hazardous materials. Gasoline for this project would be purchased from regional vendors and would be stored and transported in vehicle gas tanks. Some additional gasoline storage would be required for mobile equipment. Nitrogen, a component of natural gas, may be provided in appropriately designed and labeled 1- to 5-gallon containers for supplement use as vehicle fuel. No large scale storage of gasoline is anticipated. Tetraethyl lead, an extremely hazardous material, is present in leaded gasoline (regular).

Natural gas. Natural gas produced on-site would be burned to provide power for compressor stations and other ancillary facilities. Hazardous materials are known to be present in natural gas. No extremely hazardous materials are known to exist in the natural gas from the project area.

Propane. The only hazardous material known to be present in propane is propylene. No extremely hazardous materials are known to be present. Propane would be purchased from regional vendors and would be stored and transported in appropriate propane tanks. No large-scale storage of propane is anticipated.

**GEOPHYSICAL SURVEY MATERIALS**

Geophysical survey operations, which are subject to separate environmental analyses for purposes of NEPA compliance, may be conducted on portions of the project area. Materials utilized for geophysical surveys that potentially contain hazardous materials are listed in Table E-1. Hazardous materials potentially contained in these projects would be handled according to applicable state and Federal regulations.

**PIPELINE MATERIALS**

Gas produced from wells would be transported from each location through pipelines linking well locations to existing natural gas gathering systems. Industry standard pipeline equipment, materials, techniques, and procedures in conformance with all applicable regulatory requirements would be employed during construction, testing, operation, and maintenance of the project to ensure pipeline safety and efficiency. All necessary authorizing actions for natural gas pipelines would be addressed prior to installation. These actions include:

- Sublette County special use permits;
- BLM right-of-way (ROWs) applications;
- conformance with Department of Transportation pipeline regulations (49 CFR 191-192); and
- Wyoming Public Service Commission Certificates to act as common carrier for natural gas.

Materials utilized for pipeline construction, operation, and maintenance that may contain hazardous materials are listed in Table E-1. Hazardous materials associated with pipeline construction, operation, and maintenance would be handled in accordance with applicable state and Federal regulations.

**EMISSIONS**

Emissions from combustion engines: well construction, completion, and production; and pipeline construction, operation, and maintenance would occur as a result of this project. Hazardous and extremely hazardous materials are known to be released directly or formed secondarily (i.e., ozone) from the construction and operation of natural gas wells and associated pipelines (Table E-1). Extremely hazardous emission materials include nitrogen dioxide, ozone, sulfur dioxide, sulfur trioxide, peroxides, and other reactive substances. No releases of these hazardous and extremely hazardous materials are anticipated to exceed quantities allowed for in Prevention of Significant Deterioration Class II areas of the WDEQ-Air Quality Division Implementation Plan, nor are combustion emissions expected to exceed Wyoming Ambient Air Quality Standards or National Ambient Air Quality Standards. Particulate matter emissions and larger unburned hydrocarbons eventually would settle out on the ground surface, whereas gaseous emissions would react with other air constituents as components of the nitrogen, sulfur, and carbon cycles.

**MISCELLANEOUS MATERIALS**

Miscellaneous materials potentially containing hazardous substances that may be used for the proposed project are listed in Table E-1. Quantities of these miscellaneous hazardous materials are unknown; however, no extremely hazardous substances are known to be present in any of these materials. Miscellaneous materials would be used during well construction and production operations, well, pipeline, and ancillary maintenance, and reclamation activities.

**MANAGEMENT POLICY AND PROCEDURE**

Each individual operator would be responsible for ensuring that all production, use, storage, transport, and disposal of hazardous and extremely hazardous materials as a result of the proposed project would be in accordance with all applicable existing, or hereafter promulgated Federal, state, and local government rules, regulations, and guidelines. All project-related activities involving the production, use, and/or disposal of hazardous or extremely hazardous materials would be conducted to minimize potential environmental impacts.

Each operator is expected to comply with emergency reporting requirements for releases of hazardous materials. Any release of hazardous or extremely hazardous substances in excess of the reportable quantity, as established in 40 CFR 117, must legally be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended. The materials for which such notification must be given are the extremely hazardous substances listed under the Emergency Planning and Community Right to Know Act Section 302 and the hazardous substances designated under Section 102 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. Any reportable quantity of a hazardous or extremely hazardous substance is released, immediate notice must be given to the BLM’s Authorized Officer and all appropriate Federal and state agencies. Additionally, the operator immediately must give notice of any spill or leakage, as defined in BLM NTL-3A, to the Authorized Officer and other such Federal and state officials as required by law.

Each operator would prepare and implement several plans and/or policies to ensure environmental protection from hazardous and extremely hazardous materials. These plans/policies would be available for review at the BLM Pinedale Field Area Office in Pinedale. The plans/policies include:
- Spill Prevention Control and Countermeasure Plans;
- Spill Response Plan (oil/condensate);
- inventories of hazardous chemical categories pursuant to Section 312 of the SARA, as amended; and
- Emergency Response Plans.

Development operations are also required to be in compliance with regulations promulgated under the Resource Conservation and Recovery Act, Federal Water Pollution Control Act (Clean Water Act); Safe Drinking Water Act, Toxic Substances Control Act, Occupational Safety and Health Act, and the Federal Clean Air Act. In addition, project operations must comply with all attendant state rules and regulations relating to hazardous material reporting, transportation, management, and disposal.
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<tr>
<th>Source</th>
<th>Approximate Quantities Used or Produced Per Well</th>
<th>Hazardous Substance</th>
<th>Extremely Hazardous Substance</th>
<th>CAS No.</th>
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<td>Barite</td>
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<td>Bentonite</td>
<td>45,000 lbs</td>
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<td>Caustic soda</td>
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<tr>
<td>Glutaraldehyde</td>
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<td>Misc</td>
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<td>Modified amm.</td>
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<td>Phosphate esters</td>
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<tr>
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<tr>
<td>Retarder</td>
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<td>Cementing and Plugging Materials</td>
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<td>Anti-framer</td>
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<td>Carboxylic fluoride</td>
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<td>Cellosolve flake</td>
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<td>Salt</td>
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<td>Silica flour</td>
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<td>Fracturing Materials</td>
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<td>Biscuits</td>
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<td>Table E-1 Hazardous Materials Summary</td>
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<th>CAS No.</th>
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<td>Fine mineral fibers</td>
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<td>Sodium hydroxide</td>
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<td>Tolane</td>
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<td>p-Xylene</td>
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<td>Production Products</td>
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<tr>
<td>Liquid hydrocarbons</td>
<td>&lt;5-65 ppm</td>
<td>Benzene</td>
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<td></td>
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<td>n-(hexane)</td>
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<tr>
<td>Natural gas</td>
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### Table E-1 Hazardous Materials Summary

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<th>Source</th>
<th>Approximate Quantities Used or Produced Per Well&lt;br&gt;Water cuttings</th>
<th>Hazardous Substance&lt;br&gt;Arsenic</th>
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**Fuels**

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**Geophysical Survey Materials**

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### Table E.1 Hazardous Materials Summary

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<th>Source</th>
<th>Approximate Quantities Used or Produced Per Well</th>
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<th>CAS No.</th>
<th>Extremely Hazardous Substance(s)</th>
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<td></td>
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<td>Lubricants</td>
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<td>Calcium</td>
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<td>n-Heptane</td>
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<td>Lead</td>
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<td>Manganese</td>
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<td>Nickel</td>
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<td>PAH</td>
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<td>Motor oil</td>
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</table>

1. lbs = pounds, gal = gallons, spft = square feet per day, min = million cubic feet per day, Unk = unknown quantities to be listed based on information availability.

Hazardous substances are those constituents listed under the Consolidated List of Chemicals Subject to Reporting Under Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 as amended.

3. Extremely hazardous substances are those defined in 40 CFR 300.

4. PAHs = polycyclic aromatic hydrocarbons.

5. POM = polynitro aromatic hydrocarbons.

6. Value includes NO (117 tons per well) and SO2 (20 tons per well) estimates only as adapted from BLM (1996b).

7. Value includes volatile organic compound emission estimates only as adapted from BLM (1996b).

8. Value includes PM emission estimates only as adapted from BLM (1996b).

9. Value includes NOx (117 tons per well) and SO2 (20 tons per well) estimates only as adapted from BLM (1996b).

10. Value includes volatile organic compound emission estimates only as adapted from BLM (1996b).

11. Value includes PM emission estimates only as adapted from BLM (1996b).
APPENDIX E

PROGRAMMATIC AGREEMENT BETWEEN
THE BUREAU OF LAND MANAGEMENT
AND
THE WYOMING STATE HISTORIC PRESERVATION OFFICER
REGARDING THE PINDELA ANTICLINE OIL AND GAS FIELD
EXPLORATION AND DEVELOPMENT PROJECT, SUBLETTE COUNTY, WYOMING

PROGRAMMATIC AGREEMENT BETWEEN
THE BUREAU OF LAND MANAGEMENT AND THE WYOMING
STATE HISTORIC PRESERVATION OFFICER,
REGARDING THE JONAH II & PINDELA ANTICLINE NATURAL GAS
FIELDS EXPLORATION AND DEVELOPMENT, WYOMING

WHEREAS, the United States Department of the Interior, Bureau of Land Management (BLM) has a program which permits, approves, and regulates the management of development projects within public lands; and

WHEREAS, the BLM has determined that exploration and development of the Jonah II and Pinedale Anticline Natural Gas Fields will have an effect upon properties eligible for inclusion within the National Register of Historic Places; and has consulted with the Wyoming State Historic Preservation Officer (SHPO) in accordance with Section 106 of the National Historic Preservation Act (16 U.S.C. 470 et seq.) and implemented through the Wyoming Protocol Agreement between BLM and SHPO as subsumed under BLM’s national Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers pursuant to 36 CFR Part 800.13 (October 1, 1986); and

WHEREAS, previous identification efforts including consultation with Native American Groups and the Oregon-California Trails Association have identified that significant historic properties including Lander’s Cutoff of the Oregon/California National Historic Trail, and Native American Sacred/Respected Places as well as traditional cultural properties are present within the defined boundaries of the gas field (see Attachment 1) and will be affected by gas field development; and

WHEREAS, the BLM is required to consult with Native American Tribes and others regarding the effects of the proposed gas field development upon resources which are of import to those entities; and

WHEREAS, the BLM has evidenced its commitment to consultation with the Eastern Shoshone, Northern Arapaho, Northern Ute, and Shoshone-Bannock Tribes on this undertaking through the numerous meetings and field visits with Tribal elders as well as the invitation of affected Tribes to invite under this Agreement; and

WHEREAS, the BLM has determined that the McMartry Energy Company, BP-Amoco, Ultra Resources, Yates Petroleum Corporation, Questar Exploration and Production, Anschutz Exploration Corporation, Alpine Gas Co. H.S. Resources, Inc., Jonah Gas Gathering Co., Western Gas Resources, Alberta Energy Co., Williams Field Services, (collectively called the Operators) hold leases or mineral interests within the Jonah II and/or Pinedale Anticline and has consulted with these leaseholders and provided them with an opportunity to become invited parties to this Agreement; and

NOW, THEREFORE, the BLM and the Wyoming SHPO agree that the undertaking shall be implemented in accordance with the following stipulations to take into account the effect of the construction, operation, and maintenance of the Jonah II and Pinedale Anticline Natural Gas Fields on historic properties.

Stipulations

The BLM will ensure that the following measures are carried out.

1. Historic Context Planning Document

The BLM will ensure that a Class I Existing Data Inventory document is, historic contexts is prepared for the Jonah II and Pinedale Anticline Natural Gas Fields study area which is the area of potential effect (APE). A map delineating the proposed APE is presented in Appendix 1. This document will summarize and synthesize previous work within the prescribed area of the field. This will provide core information for the development of a Management Plan. This document will synthesize ethnographical, historical, geophysical, soils, biological, and cultural-historical information currently available.

E-1
of this document will discuss Native American consultation efforts which have been conducted under Section 106 and other authorities and describe the results of consultation relative to cultural resource information which can contribute to the Planning Document. The BLM will assure that this document meets the guidance provided in BLM Manual 8110 as well as portions of the 1988 BLM 8110 Manual outlining necessary elements of Class I Existing Data Inventory appropriate sections of the Archaeology and Historic Preservation: the Secretary of the Interior's Standards and Guidelines for the Treatment of Archeological Properties (FR48-190) relating to preservation planning documents/historic contexts.

A. This document shall be reviewed and concurred upon by the Wyoming Historic Context Committee.

B. The planning document will be completed and submitted for review within one year of ratification of this Agreement by the SHPO. Failure to meet this deadline will result in automatic expiration of this Agreement. The parties may choose to re-nitiate the Agreement after consultation and amendment.

C. Should this Agreement expire as per Stipulation B) the BLM will consult on a case-by-case basis on all activities covered by this Agreement pursuant to the most recent version of the Wyoming State Protocol.

II. Research Design/Management Plan

The BLM will ensure that a Research Design/Management Plan is prepared for the Jonah II and Pinedale Anticline Natural Gas Fields study area within six months of finalization of the Historic Context Planning Document.

A. The BLM will submit this document for thirty (30) day review by the SHPO and concurring parties. This document shall be concurred upon by the Wyoming SHPO prior to implementation; concurrence by the concurring parties is recommended but not required for implementation.

B. If an objection is raised by the Wyoming SHPO it will be resolved as per Stipulation IX.

1. Research Design - This portion of the document will detail critical research domains, topics, questions, test implications, confidence intervals necessary to guide research, identification and inventory methods, evaluation procedures, and data recovery within the study area. The BLM will assure that this document will meet the guidance provided in appropriate sections of the Archaeology and Historic Preservation: the Secretary of the Interior's Standards and Guidelines for the Treatment of Archeological Properties (FR48-190). The Research Design will be reviewed and concurred upon by the Wyoming State Historic Preservation Office prior to implementation.

2. Management Plan - This portion of document will detail site use categories, avoidance, monitoring, site protection, and discovery and evaluation procedures to be followed within the study area. Components of the Plan will include management of property types likely to be encountered in the Jonah II and Pinedale Anticline area of effect based on the results of the Historic Context Planning Document and the Research Design. The BLM will assure that this document will meet the guidance provided in BLM Manuals. The Management Plan will establish the overall desired condition for the Jonah II and Pinedale Anticline resource base, including resources which need to be avoided.

III. Development Prior to Completion of Plans

Until the documents which are listed in Stipulations I and II are completed and accepted by SHPO, the BLM will ensure that historic properties which may be affected by any undertaking are identified and evaluated in accordance with the most recent version of the Wyoming State Protocol, with the following additional procedures:

A. Discoveries

Until which time a final Research Design and Management Plan have been developed for the Jonah II and Pinedale Anticline Natural Gas Fields study area, all discoveries of cultural resources will procedurally adhere to the Discovery Plan referred to in Appendix 2. Lacking this plan, regulations at 36 CFR 100 will be adhered to while managing discoveries.

B. Human Remains

All discoveries of human remains within the Jonah II and Pinedale Anticline Natural Gas Fields study area will procedurally adhere to the Human Remains Plan attached in Appendix 3.

C. Areas of Potential Effect

In defining APEs within the Jonah II and Pinedale Anticline Natural Gas Fields, the appropriate minimum size of APEs for specific types of activities covered in this Agreement will be as follows:

1. Well Locations/Tank Batteries - 10 acres
2. Roads/Pipelines - Width of construction right-of-way plus 50 foot-side buffer on either side of the corridor for entire length
3. Other Projects/Facilities - discretion of the BLM cultural resource specialist

IV. Public Education

The BLM will develop a program to promote public education concerning the cultural values within the Jonah II and Pinedale Anticline Gas Field. This program will provide public access to non-protected information regarding the cultural resources of this area. The public education program may include, but not be limited to: interpretive signs, brochures, lecture programs, video tours, a web site, and popular history summaries. Parties to this Agreement will be kept informed of progress in this program through receipt of copies of the Annual Report (see Stipulation VI).
BLM and the SHPO

IX. Dispute Resolution

All disputes will follow the Dispute Resolution procedures in Section X of the Wyoming Protocol Agreement.

X. Public Objection

Should any member of the public object to any activity pursuant to this Agreement, the BLM will consult with the objecting party to resolve the objection.

XI. Agreement Start

This Agreement shall become effective upon ratification by the BLM and the SHPO. The Agreement will remain in effect for five years from the day following ratification.

Ninety (90) days prior to the end of the term of this Agreement, the parties to the Agreement shall review its terms based on the results of the annual report and other such information regarding its terms as parties deem appropriate. The parties may agree to renew the Agreement to become effective upon the expiration of the Agreement.

XII. Termination

The SHPO or BLM may terminate this Agreement by providing thirty days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the BLM will follow procedures of the Wyoming Protocol Agreement with regard to individual undertakings.

Execution of this Agreement by the Bureau of Land Management and the Wyoming State Historic Preservation Officer, and implementation of its terms, evidence that the Bureau of Land Management has afforded the Wyoming State Historic Preservation Officer an opportunity to comment on the proposed undertaking and its effects upon historic properties, and that the Bureau of Land Management has taken into account the effects of the undertaking on historic properties.

Bureau of Land Management

By: __________________________ Date: __________

Wyoming State Historic Preservation Officer

By: __________________________ Date: __________

Concurring Parties:

Northern Arapaho Tribe

By: __________________________ Date: __________

Eastern Shoshone Tribe

By: __________________________ Date: __________

Shoshone-Bannock Tribe

By: __________________________ Date: __________

Oregon-California Trails Association

By: __________________________ Date: __________

Ultra Resources

By: __________________________ Date: __________

McMurry Energy Company

By: __________________________ Date: __________

Alpine Gas Company

By: __________________________ Date: __________

BP Amoco

By: __________________________ Date: __________

Anschutz Exploration Corporation

By: __________________________ Date: __________

HS Resources, Inc.

By: __________________________ Date: __________

Questar Exploration and Production

By: __________________________ Date: __________

Yates Petroleum Corporation

By: __________________________ Date: __________

Northern Ute Tribe

By: __________________________ Date: __________

Apache Gas Company

By: __________________________ Date: __________

Questar Exploration and Production

By: __________________________ Date: __________

Yates Petroleum Corporation

By: __________________________ Date: __________
Appendix 1

Jonah II and Pinedale Anticline Natural Gas Field Study Area
Appendix 2
Discovery Plan
Appendix 3

Human Remains Plan
Human Remains Plan - Jonah II Anticline PA

Upon the discovery of suspected human remains the following procedures will be implemented. Should archaeological techniques need to be employed at any stage of these procedures these must meet all applicable professional standards and be documented in a report or reports which are acceptable to the Bureau and the SHPO.

Discovery Notification:
Whenever any person discovers human remains on BLM land which may be Native American, the law requires the individual to immediately notify the BLM of such discovery. The staff archaeologist and field manager may be notified verbally, but written notification must also be made by the person who knows of the discovery. This will be done within 24 hours of the discovery. Upon notification of the discovery, BLM will take the following steps: (1) Notify the appropriate law enforcement authorities, the coroner and BLM’s NAGPRA Coordinator. (2) Take immediate further steps to protect the discovery. (3) Determine that indeed the discovery is on BLM lands that the discovery is likely Native American and (4) initiate consultation with the appropriate tribal authorities.

1. Protecting the Remains:
If the discovery occurs in connection with an authorized use, the activity which caused the discovery is to immediately cease and the materials are to be protected until the BLM can respond to the situation. Steps must be taken to secure and protect the remains. Appropriate measures may include posting a guard and/or covering the area with a tarp in adverse weather conditions. In all instances the goal is to prevent deterioration of or further damage to the remains and the area associated with those remains.

2. Notification to Law Enforcement:
The BLM will notify appropriate law enforcement agencies and the SHPO. Law enforcement personnel must be afforded priority to the discovery and determine if they feel criminal investigation is needed or warranted, i.e. the discovery represents a crime scene. Until law enforcement formally releases the scene the discovery location shall be considered a crime scene under the direct supervision of law enforcement personnel. The BLM staff archaeologist can advise law enforcement personnel regarding protection measures and information collection techniques. Upon notification that law enforcement has no further interest in the matter the following procedures are implemented.

3. Assessment of the Remains:
A. BLM will first assess if it does indeed have human remains present. If the coroner or a forensic specialist has been involved in the project as per Step 3 above, it is likely that a determination of sex, race and approximate age of the human remains will have been made. Absent this information the BLM will take appropriate steps necessary to remove this basic information. The intent here is to provide information necessary to assess the nature of the remains in a non-destructive fashion.

B. Should the remains be determined through the evidence available to not include Native American skeletal elements, disposition of the remains shall be determined by the BLM in consultation with the SHPO and potential relatives/descendants.

C. Should the remains be determined to include Native American skeletal materials then the BLM will comply with the Native American Graves Protection and Repatriation Act (NAGPRA). The Field Office will notify the BLM Deputy Preservation Officer to assist the Field Office in determining which tribes should be notified of the discovery and determine notification procedures. Appropriate tribal officials should be provided an opportunity to visit the discovery site.

4. Written Action Plan: Subsequent to Native American Consultation, any further efforts directed at protecting the discovery in situ, removing the remains from the site and/or repatriating the remains to tribal authorities will be done in accordance with a written Action Plan. This plan will be prepared or approved by BLM in consultation with SHPO, and follow procedures and standards established by BLM in compliance with NAGPRA.

5. Disposition of the Remains:
The BLM is responsible for the security of the materials until they are transferred to a tribe. Once transfer has occurred, neither BLM nor any other Federal entity or its agents are responsible for the material. If the tribe wishes to have the materials curated, the tribe is responsible for entering into any agreements that may be required by the curatorial facility.

6. Resumption of Activity:
Work at the scene may not resume without expressed written permission of the Field Office Manager. This permission can only be given after the a written, binding agreement is executed between the necessary parties that adopts a recovery plan for removal, treatment, and disposition of the human remains or cultural items in accordance with 43 CFR Part 10.4(e).

7. Decision Record:
While a transfer of material may or may not take place, in all cases, a formal decision must be prepared. The preparation of the decision record and all tribal consultation should be formally documented and retained in the project file by the authorizing field office in cases where transfer does not occur and retained in the BLM State Office in cases where transfer does occur.
APPENDIX F
U.S. FISH AND WILDLIFE SERVICE CONCURRENCE LETTER

Memorandum
To: Bill McMahan, Project Coordinator, Bureau of Land Management, Pinedale Field Office, Pinedale, Wyoming
Subject: Threatened and Endangered Species Concurrence for the Pinedale Anticline Project

This responds to your request for concurrence under the Endangered Species Act of 1973, as amended (Act), that the actions proposed in the Pinedale Anticline Project (project) in Sublette County, Wyoming are not likely to adversely affect any listed or proposed species.

The U.S. Fish and Wildlife Service (Service) has reviewed the submitted project description and evaluation of project effects, and concurs with your determination that none of the project activities are likely to adversely affect the black-footed ferret (Mustela nigripes) or bald eagle (Haliaeetus leucocephalus), and are not likely to jeopardize the mountain plover (Charadrius montanus). This concurrence is based, in part, on the mitigative measures proposed by the Bureau as provided in the Record of Decision. Our understanding of those mitigative measures are described below.

Black-footed Ferret
- Proposed construction sites in the project area will be examined prior to surface-disturbing activities to confirm the presence or absence of prairie dog colonies. If prairie dogs are present, a determination as to whether the colony/complex meet the criteria for black-footed ferret habitat as established in the Service’s 1989 guidelines will be made.
- If a prairie dog colony/complex meets the criteria for black-footed ferret habitat, all project components will be placed to avoid direct, indirect and cumulative impacts to the colony/complex. If this is not practical or possible, black-footed ferret surveys of the prairie dog colony/complex will be conducted in accordance with Service’s guidelines.
and requirements. The results of the surveys will be provided to the Service.

- If a black-footed ferret or its sign is found during the surveys, the Bureau of Land Management (BLM) Authorized Officer shall stop all action on the application in hand, and/or action on any future application that may directly, indirectly, or cumulatively affect the colony/complex, and re-initiate section 7 review with the Service. No project-related activities will be allowed to proceed until the Service issues their biological opinion. The Service’s biological opinion will determine whether the proposed activity is likely to jeopardize the continued existence of the black-footed ferret. In the case of a jeopardy biological opinion, a reasonable and prudent alternative will be provided by the Service if possible. In the case of a non-jeopardy biological opinion, the Service will provide reasonable and prudent measures and terms and conditions to minimize any anticipated take of ferrets.

Bald Eagle
- No surface disturbing or human activities will be authorized between November 15 through March 15 within 1 mile of known bald eagle winter use areas.
- All surface-disturbing or human activity, including construction of roads, pipelines, well pads, drilling, completion, or workover operations, will be seasonally restricted from February 15 through August 15 within 1.0 mile of all active eagle nests. An active eagle nest is one that has been occupied once in the past 3 years.
- No permanent, project related, high profile structures will be located within 2,600 feet of an active bald eagle nest. Well pads will be located so that they are at least 2,600 feet from, and out of the direct line of sight of, bald eagle nest(s).
- Wells that must be located closer than 2,600 feet, (but will not be allowed closer than 2,000 feet) will be out of direct line-of-sight of the nest and will have no human activity at the well site from February 15 through August 15, except in the case of an emergency. Production facilities for these wells will be located off site or at a central production facility location at a distance of 2,600 feet or more from the nest.
- Central production facilities will be located at least 2,600 feet from a bald eagle nest.
- Prior to surface disturbing activities during the nesting season or in wintering areas, the BLM will require completion of a field survey in these areas. New roads identified as a potential adverse impact to listed species will not be constructed or BLM will re-initiate section 7 consultation.

Mountain Plover
- For surface disturbing activities, surveys will be conducted within suitable plover habitat by a qualified biologist in accordance with Service’s 1999 guidelines.

Bill McMahan

- If an active nest is found in the survey area, the planned activity should be delayed 37 days, or 1 week post-hatching. If a brood of flightless chicks is observed, activities should be delayed at least 7 days.
- For all breeding birds observed, additional surveys will be conducted immediately prior to construction activities during the breeding season to search for active nest sites.
- If an active nest is located, an appropriate buffer area will be established to prevent direct loss of the nest or indirect impacts from human-related disturbance. The appropriate buffer distance will vary, depending on topography, type of activity proposed, and duration of disturbance. For disturbances including pedestrian foot traffic and continual equipment operations, a 200-meter (656-foot) buffer is required, unless the Service concurs that a reduced buffer will still protect the nest from direct and indirect take.
- If, during the life of the project the mountain plover should become listed as an endangered or threatened species, and if the project may affect the plover, the BLM will initiate section 7 consultation with the Service. If formal consultation is necessary, all reasonable and prudent measures specified by the Service will be required by the Bureau and implemented by the Operator and their contractors.

We also concur that this project is not likely to jeopardize the whooping crane (Grus americana) due to the minimal availability of migratory habitat on the project area, the low numbers of birds potentially migrating through the project area, and the mobility of this species. Whooping cranes are not known to nest in, or near, the project area. Likewise, due to the lack of suitable habitat on the project area, we concur that this project is not likely to adversely affect the Canada lynx (Lynx canadensis).

For impacts to the four endangered Colorado river fish (Colorado pikeminnow, humpback chub, bonytail, and razorback sucker) from anticipated depletions to the Colorado River system, the project proponents have agreed to pay a depletion fee in compliance with the reasonable and prudent alternative described in the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin. Nonetheless, formal consultation must still be completed prior to initiation of any project-related activity that would cause a depletion.

Should project plans change, additional information on listed or proposed species become available, or a new species is listed or critical habitat designated that may be affected by the action, these determinations may be reconsidered and re-initiation of consultation may be required.

Adaptive Environmental Management Planning Process
Due to time limitations, we were unable to review the adaptive environmental management planning process. Therefore, we are unable to provide concurrence with this plan at this time.
Bill McMahan

The above comments are provided in accordance with the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). If you have any comments, please contact Pat Deibert of my staff at the letter head address, or by calling (307) 772-2374, ext. 26.

cc: G. Towns, ES, FWS, Denver, CO
    Dir., WGFD, Cheyenne, WY

APPENDIX G
PUBLIC COMMENT LETTERS
ON
THE PINEDALE ANTICLINE OIL AND GAS EXPLORATION AND DEVELOPMENT FEIS
AND
BLM'S RESPONSES TO THE COMMENTS
Bill McMahan  
Project Manager  
280 Highway 191 North  
Rock Springs, WY 82901

Dear Mr. McMahan:

I am the Southwest Field Representative for the Wildlife Management Institute. The Institute is a private, nonprofit, scientific and educational organization founded in 1911 and dedicated to the restoration, conservation, and sound management of natural resources, especially wildlife, in North America. I have the following comments on the FEIS for the Pinedale Anticline Natural Gas field Exploration and Development Project. We would like these comments considered as the Record of Decision is made on this project.

The alternative selected in the EIS for use in proceeding with development on the Pinedale Anticline is improved over earlier proposals of how the project would proceed. The challenge for BLM is to really do all of the monitoring and project adjustment it calls for. We remain concerned that you do not have and have not been seeking the fiscal and human resources needed to do this work.

We also wonder how proposed projects like Jonah II and Pinedale Anticline that are similar and only 20 miles apart can result in findings of such differences in environmental impacts. At least in the Pinedale FEIS the Bureau admits to the large environmental consequences of the development.

The acknowledged detrimental environmental impacts of the Pinedale Anticline Project stimulate us to make these final comments. In particular, as we stated in our earlier letter we are especially concerned about the limited biological data inventories that are being done or proposed to be done by the Bureau. Our main concern, given this limited effort is how well will the BLM know if restrictions and limitations imposed on this project are sufficient? Your response to this concern was that the BLM was committed to implement the AEM planning process. We are not convinced or optimistic that this process will result in any significant results. We strongly urge

the Bureau to increase biological resource inventories to better monitor this project. This will take more fiscal and human resources.

Attached are our recent comments on BLM planning guidelines. These comments describe how we think resource plans and implemented development projects should deal with monitoring, and how project changes should follow. We suggest these ideas would improve protection of the public’s interests.

We are concerned that the fast track and wide spread development of energy resources in Wyoming are headed for a train wreck. Too many promises for resource stewardship are being made to effectively be achieved. Unfortunately, we are becoming convinced that the only way resources other than energy are going to get their necessary attention and protection is through the court system. We do not advocate this approach. We would urge the BLM to take steps necessary to avoid this result.

We also urge BLM officials to become diligent in seeking additional fiscal and human resources to deal with these growing impacts. The end result does not have to be listed species and court actions! The American people deserve better public land management than they are currently receiving.

Thanks for the opportunity for comment.

Sincerely,

Len H. Carpenter  

R. Sparrowe, WMI  
A. Pierson, BLM
Dear Bill,

June 30, 2000

I, L. McMahan
Rock Springs BLM Office
790 Highway 191 North
Rock Springs, WY 82901

Please accept the following comments regarding the Pinedale Anticline FEIS on behalf of the Greater Yellowstone Coalition (GYC) and Jackson Hole Conservation Alliance (JHCA). GYC is a regional conservation organization dedicated to the sound health and protection of ecosystems in and around Greater Yellowstone. JHCA provides responsible land stewardship in Jackson Hole and the southern Greater Yellowstone Ecosystem (GYE) to ensure that human activities are in harmony with the area’s irreplaceable wildlife, scenic and other natural resource values.

We support the Bureau of Land Management’s (BLM) Preferred Alternative of the Resource Protection Alternative as an attempt to mitigate the inevitable impacts of widespread leasing and development on federal lands with additional stipulations. Clearly with this level of development involving a proposed 700 wells, the only way that a significant reduction in impact may occur will be through proper mitigation by restrictions and limitations. The cumulative impacts of leasing on all federal, state and private lands will be significant wildlife resources in the PAPA at any level of development as BLM admitted in the Draft EIS. The importance of the Green River Basin in general and the Pinedale Anticline in particular as critical wildlife winter range and migration corridor is just now being documented with radio-telemetry studies on mule deer, pronghorn and sage grouse and cannot be overstated.

Recent studies sponsored by the BLM, Wyoming Game & Fish Department, University of Wyoming’s Cooperative Wildlife Research Unit and Ultra Petroleum have revealed even more about the importance of wildlife habitat and migration routes on the Pinedale Anticline, Pinedale Mesa, Breaks and Trapper’s Point bottleneck between the New Fork River and the Green River at the northern end of the Mesa (See: "The Long Trail" and "Trapper’s Point" in Wyoming Wildlife 5/2000). These studies and historical evidence points to the fact that the Green River Basin, Red Desert, and Little Colorado Desert were the wintertime grounds for thousands of ungulate species which summer in the southern GYE from Yellowstone National Park, Grand Teton National Park and the surrounding national forests. The specific studies on pronghorn antelope and mule deer have demonstrated where the critical winter range and migration corridors and restrictions are. Studies on sage grouse are demonstrating the effects of natural gas exploration and development on breeding areas (leks), nesting areas and winter range. These studies are incredibly important to help the BLM land and resource managers make timely decisions BEFORE the damage is done to this critical habitat.

Although much of the Pinedale Anticline Project Area (PAPA) is already leased, stipulations such as the five well per year limit are important to limit rampant development to prevent a boom situation from occurring in this critical area. But this limit should be imposed fairly so that one operator does not secure the majority of the well sites in any one year. The withdrawal of the Wind River Front and Gros Ventre Foothills is essential to protection of key remaining wildlife habitat areas. These areas of the GR Basin and Red Desert were historically considered for wildlife refuges and national parks during the past century or more because of their importance. That has not changed. We should build on that strength, not undermine it by leasing it in the future. We appreciate the BLM’s plans to limit future leasing in southwest Wyoming and recommend that a moratorium be imposed on all new leasing during the exploration and development stages of this and other large-scale BLM leased lands in SW WY.

While there is a difference in the spacing and siting of the minimum number, we still support one well per section according to the Sensitive Resource Management Zones (SRMZ). We believe that there SHOULD more latitude for spacing wells less densely as needed to protect crucial wildlife habitat and perhaps more densely in less important non-wildlife areas as needed to develop the subsurface minerals. The well thresholds under the potential management scenario of big game range and sage grouse nesting/lek habitat are high at 16 well pads/square mile for a threshold of 212 well pads 40 acre spacing is excessive for adequate protection of critical wildlife winter range and should be reduced to one well/acre. In addition, no wells should be less than two miles from a sage grouse lek. The 1/4 mile buffer is inadequate according to sage grouse lek use and surrounding nesting habitat research.

"TAKINGS" - The DEIS language "that all operations be conducted in a manner which protects other natural resources and environmental quality... results in the maximum recovery of oil and gas (43 CFR 3161.2)" is inconsistent and contradictory. There must be environmental restrictions on natural resource development if there is to be orderly extraction rather than traditional boom & bust development. The BLM (and we) disagrees with the contention that there is currently sufficient information available to conclude that implementation of the RPA would result in a federal taking of even a portion of the leases. We do too and should elaborate on the point that there is a distinct contradiction between the requirement that "all activities must contain adequate safeguards to protect the environment" per BLM Onshore Order No 1 (p 1-10).

In developing only two development scenarios in the DEIS, the BLM is essentially relying on the mitigation proposed to limit the impacts of such potentially massive development. The proof of how well this decision works on the PAPA lies in the mitigation measures required. In addition to mitigation is the monitoring and evaluation that will be most essential as development proceeds. Those monitoring plans must include, but not be limited to, air/water quality in Class 1 areas, wildlife numbers and habitat, range condition to assure adequate forage for sage grouse, ungulates and other wildlife.

In Table 2-2, the Individual Management Area Objectives and Restrictions/limitations SHOULD be included in the ROD. It is apparent from the introduction and state Office of Federal Land Policy letter p 5-16 that the state has made inappropriate, and in our opinion illegal, changes in this FEIS that weaken the intent of this NEPA document by inserting "could" instead of "should" for possible restrictions/limitations in the Management Area Objectives. This is a federal land management agency decision about federal lands. While the state may have input in the process, they may not drive the process. As admitted in the OFLP letter p 5-16, the decision to allow them as a cooperating agency at the process table is precedent setting. We do...
not agree with this dangerous precedent and recommend that the state be removed from this role. In addition, for all mitigation listed in Table 2-2, the word "should" must replace the word "could" to remove any question that the restrictions/limitations will be imposed and enforced appropriately.

In reviewing the Analysis of Revised Sales Gas Pipeline Alternatives (Section 3 FEIS), we are surprised at the lack of planning and communication with operators and resource managers for the proposed pipeline corridor. We prefer Alternative B proposed by McMurray Oil Company which would follow existing utility corridors, roads, pipelines, etc. which would result in less surface disturbance and seemingly less resource impact.

We agree with the BLM selection of the RPA as a preferred alternative with the following additional stipulations or recommendations:

1. Require an evaluation of all past, proposed and cumulative development annually for each Management Area (MA) within the PAPA to ensure that the management goals of the FEIS are being met. Prior to any permitting any surface disturbing activity, site-specific environmental analysis of the proposed action on the management objectives and resource values of the affected Management Area should be required.

2. The operator/lessee should be required by the Department of Environmental Quality and Environmental Protection Agency according to the Clean Air Act and Clean Water Act to monitor emissions on site and downwind of the wells and related facilities monitoring should be designed to determine the short and long-term pollution effects on air and water quality on the immediate and surrounding lands (including the downwind Class 1 wilderness areas).

3. The BLM should require the operators to complete inventories or special studies to determine the extent of the site-specific or cumulative impacts through adaptive environmental management (AEM). All operating plans should be drafted and approved by BLM to mitigate identified impacts. In MA 3 Unleased Federal Minerals, we applaud the BLM for closing all new leasing for minerals on these lands.

4. BLM should require operators to limit well pad density to a maximum of one well per section on all Management Areas within the PAPA except in the Mesa Breaks where the BLM should prohibit any new pads or new access roads for wildlife habitat protection. The BLM should require operators to submit a plan for centralized production facilities and gathering pipeline systems prior to initiating any further production-related surface disturbing activities other than those necessary and already permitted to explore for leased minerals. The BLM should require the operators to demonstrate why either pad drilling or the installation of centralized production facilities could not be used to eliminate production and ancillary facilities in order to mitigate or eliminate adverse impacts to Management Area objectives and values.

5. Federal and state wildlife biologists should determine the appropriate maximum open road density to less than one mile per square mile to prevent excessive road densities in critical wildlife habitat. Limits must be set for road density and travel corridors. No access should be allowed in winter restrictions on winter ranges No access should be allowed in winter restrictions on winter ranges.

6. The Pinedale Anticline development could be a test case for federal eco-royalties to enhance industry's incentives to protect surface resources. The BLM should add incentives or at least be receptive to a Royalty Reduction on the directional wells to encourage more environmental protection. Instead of only to ensure activity if otherwise it is too expensive drilling won't occur. How this would work economically would be up for discussion, but the purpose would be to fund mitigation of mineral development impacts.

7. Industry has discussed the possibility of an offset mitigation fund to offset the costs of surface disturbance problems. We would like to see the idea of a mitigation fund worked into the Conservation Alternative. Presently reclamation is required on all federal leases at industry's expense. We would expect that surface disturbance mitigation could reduce habitat destruction and therefore wildlife displacement, thereby lowering Subsequent costs following production. Conservation easements and offset mitigation areas should be used to mitigate the impacts to the resident antelope, mule deer, sage grouse or other species. Appropriate offset mitigation should be based on information from the ongoing wildlife monitoring studies and trend analyses in the PAPA, as in the Adaptive Environmental Management Plan to allow monitoring impacts and evaluating them to prescribe adjustments as development proceeds is an important change for BLM management.

8. In MA's 5 & 6 Big Game Winter Range and Sage Grouse Leks and Nesting Habitat All big game winter ranges and migration corridors should be off-limits to industrial facilities that create barriers to seasonal movements. Grouse leks and nesting habitat should also be off-limits to industrial facilities. This includes but is not limited to fences, roads, pipelines, drill rigs, pumps, teaters, etc.

9. In MA 9 Non-Federal Lands We encourage the BLM to require the operators to enter into a Memorandum of Understanding (MOU) to adopt and implement the enclosed recommendations. Including the RPA on all lands, on private and state lands within the PAPA. This MOU should be a recommendation to the Wyoming Oil and Gas Conservation Commission of what management should occur in Wyoming to minimize cumulative effects of large scale drilling projects such as the Pinedale Anticline, Jonah Field, etc.

10. Gas Pipeline Alternative B proposed by McMurray Oil Company should be selected for natural gas transport to follow existing utility corridors, roads, pipelines, etc. Since it would result in less surface disturbance and seemingly less resource impact.

We appreciate the opportunity to work with you on this potentially high impact development. We look forward to seeing our recommendations adopted in the final Record of Decision.

Sincerely,

Meredith Taylor
Greater Yellowstone Coalition

Pam Lichtman
Jackson Hole Conservation Alliance
Thank you for the opportunity to comment on the Final Environmental Impact Statement on the proposed Pinedale Anticline Natural Gas Exploration and Development Project.

The introduction to the FEIS identifies the need for an amendment of the Pinedale Resource Management Plan off-road vehicle designation. I thoroughly agree that mitigating this form of potential stress on wildlife and allowing the use of abundant local roads for ORVs is a practical and necessary step to reducing some impacts. However, if it happens that a recreational trail is developed in the PAPA, I would like to see it reserved for non-motorized use only. I therefore recommend that language regarding this amendment be changed to "limited to existing roads."

In Section 2, it is clear that there are many conflicts associated with meeting the demand for multiple use of BLM lands. It is a good idea to impose smaller Management Areas on the larger PAPA to define ecosystem types, however, it is still an assigment that is normally done in the context of the Resource Management Plan, and has been done in the Bridger-Teton National Forest Plan. As with the proposed ORV designation change, the suggestion of creating new Management Areas does, in fact, constitute an amendment to the RMP and is subject to protocol outlined in the Code of Federal Regulations. Because DEIS states that changes made in the PAPA are also applicable in other places in the Resource Management Area, I request that this new management direction be given adequate time for public comment.

As to the content of the suggested MAS, I focus primarily on MAs 5 and 6. DEIS at 5.34 states that "more than three times as many leks with at least one oil or gas well within a 0.50-mile radius are inactive than are active." Since this is the closest we have at this point to published documentation of the effect of gas wells on sage grouse leks, let us use it as an important indicator to the sensitivity of sage grouse to wells. An average of 2 or 3 wells and up to 16 wells per square mile is too many, in big game winter range as well. Again, one per square mile will allow for pad drilling, say one for each direction of the compass, and allow sage grouse room for a home and family. What a tremendous step it would be for the BLM to take this proactive measure against potential, range-wide listing of sage grouse as a threatened or endangered species.

The concept of the Adaptive Environmental Management planning process makes good sense, especially if the BLM can find the funding for it. I see this as the greatest potential drawback. It would be a shame not to be able to follow through with implementation and adjustments after planning such a progressive document. I would suggest that BLM find funding commitments for an AEM plan, and review those in the ROD for public comment.

Of the Section 3 alternative routes for the sales gas pipeline corridor, I prefer Alternative A despite possible soil damage on Blue Rim. This route is preferable because it follows existing roads, which has been a primary concern of mine throughout this project. I believe that any additional scraping that is done is an open invitation to further intrusive and unnecessary disturbance to wildlife habitat. For instance, Alternative B suggests a route along an existing 2-track seismic road. That route, more an arrow-straight swath cut through sagebrush than a 2 track, demonstrates the seismic company's failure to reclaim said "road", nor the opportunity to usher in more development.

On the subject of sales gas pipelines, I would like to see an addition to the transportation plan that would allow for the delivery of clean-burning, inexpensive natural gas and other by-products to the people of Sublette County. Perhaps this could be a pipeline from the Luman Compressor Station to a centrally-located sales point. By and large, the people of Sublette County do not see direct financial benefit from the advent of a gas field so tremendous that it changes all other aspects of their lives. What they see are strangers in the post office and grocery, and a new-found desire to lock their doors. A local "discount outlet" would be a great compensation for a disrupted community and the loss of our hundred-mile gaze.

Again, thank you for this opportunity and your consideration of my comments.

Sincerely,

(signed)
Linda F. Baker
Dear Bill,

WOC appreciates the opportunity to comment on the PAPA FEIS. As we all know, the potential size of this project is large and the likely impacts very significant because of the abundance of sensitive resources in this area. Thus the management decisions are of utmost importance. We also appreciate the forthrightness of the EIS which honestly identifies and admits significant impacts that are likely to occur.

WOC supports the BLM’s choice of the Resource Protection Alternative as the preferred alternative and believes implementation of the mitigation opportunities to the fullest extent is essential. The restrictions and limitations as outlined in Table 2-2 FEIS should be adopted in the ROD and the wording should be changed to reflect the necessity of those limitations, i.e. “could” should be changed to “shall.”

As the DEIS acknowledges, the impacts will be significant even with mitigation (Executive Summary – 1). Thus it is crucially important that the BLM vigilantly monitor the resources and enforce the mitigation measures which are established. If not, an already acknowledged bad situation from the perspective of impacts and failure to meet mandates of “all activities must contain adequate safeguards to protect the environment” (BLM Onshore Order No. 1), would get even worse, possibly catastrophic.

WOC recognizes the difficulties of controlling development and mitigation where, as here, approximately 20% of the surface area and minerals are either state or private. The FEIS nonetheless acknowledges that “BLM can recommend to the Wyoming Oil and Gas Conservation Commission, Corps of Engineers, etc. that the construction, drill...and development mitigation measures identified in the DEIS be imposed on non-Federal lands.” We request that the BLM do so and, additionally, that the BLM enter into a Memorandum of Understanding with the operators that they will adopt the RPA limitations and mitigation measures on all private and state land within the PAPA.

Wildlife

This resource is at significant risk under the present plan. The PAPA includes crucial winter range for pronghorn, mule deer and moose and important migration corridors for the pronghorn and mule deer. The PAPA also contains one of the largest populations in Wyoming of sage grouse, whose numbers have been declining notably in the last 20 years.

Deer and Pronghorn

As the DEIS acknowledges, both pronghorn (p. 372) and mule deer (p. 374) populations have been suffering since the winter of 1992-1993. Because they are already in a diminished state, management actions need to be particularly alert and sensitive to their needs. The director of the Utah Division of Wildlife Resources, John Kimball, has said at a recent mule deer symposium: “The most important issues affecting mule deer are loss of habitat and loss of carrying capacity on that habitat.” See Casper Star Tribune, 3/24/2000.

WOC recommends the RPA position that the Mesa Breaks, crucial winter range, would be closed to surface development. The BLM should also continue to enforce seasonal restrictions on travel and construction in the area from January 1-May 1.

Another concern focuses on the migration corridors of the deer and pronghorn. Recent radio telemetry studies, referenced as on-going in the DEIS, 3.74, have shown that pronghorn and mule deer migration corridors that have been used for 6000 years lie in the PAPA (see Wyoming Wildlife, May 2000, pp. 36-41). Data indicate that at least 2000 mule deer and 1000-1500 pronghorn migrate twice yearly through the “bottleneck” – a one mile wide stretch between the Green and New York Rivers at the junction of US Highway 191 and Wyoming Highway 352, 7 miles west of Pinedale. The key, of course, with bottlenecks is that the deer and pronghorn must go through that one spot because the geography itself limits other options. In addition to the restrictions/limitations relevant to big game listed in FEIS Table 2-2, the ROD must clearly identify this bottleneck and expressly limit development so that the deer and pronghorn migrations will not have a “stopper” put in the bottleneck. Otherwise that “stopper” could lead to catastrophic impacts on the herds as their historical migration patterns are blocked.

A second important bottleneck for mule deer is the area between Fremont Lake and Pinedale. This area has temporarily been withheld from leasing and should be permanently withdrawn.

Sage Grouse

Sage grouse studies do not support a 0.25 mile buffer zone free from disturbance as adequate. In fact, a BLM Technical Note (BLM, 1979, 24-29), the Wyoming Game and Fish Department and Clatt E. Braun, the acknowledged expert on sage grouse, have all stressed the importance of limiting activity within 2-miles/3 kms of an occupied lek. This area is significant and high quality habitat for sage grouse very carefully managed.

The BLM’s 25 mile buffer for surface disturbance is a plain violation of BLM’s responsibility under 40 CFR 1502.24 to “insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements.” BLM’s 25 mile buffer is contrary to the bulk of the scientific evidence, and is arbitrary, capricious and contrary to law pursuant to the Administrative Procedure Act. See Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1151 (9th Cir. 1998) [absence of

Wyoming Conservation Action Since 1967
analytical data to support proposed mitigation measures violated NEPA’s public disclosure requirements).

Clearly, larger buffer zones are necessary, even more so given the real concern that unless further decline of the sage grouse is immediately stopped, it could become a listed species under the Endangered Species Act. Additionally, because the 2 mile radius from an occupied lek is so vital and there is some question as to which leks are occupied, site-specific environmental analysis of a proposed action should be required prior to permitting any surface disturbing activity.

Withdrawal of Wind River Front and Gros Ventre Foothills
The current temporary withdrawal of all unleased federal lands and minerals along the Wind River Front and the Gros Ventre foothills must become permanent. Much of these areas is crucial winter range. It also includes an important migration corridor and bottleneck (see above). These are some of the few areas where there are no pre-existing rights to develop minerals and provide one small buffer zone for the sensitive resources being impacted elsewhere. The BLM has already over-committed the resources in the PAPA; the entire area can not survive any further commitment of resources to the possibility of development.

Because these areas are immediately adjacent to Class I airsheds it is also essential that no development occur there; any air quality degradation would be immediately sensed in the Class I airsheds.

On a related note, WOC supports the closure to mineral lease of the federal minerals in MA-3. Additionally, BLM should adopt DEIS Wildlife Mitigation Opportunity 19 and not reissue leases in crucial winter ranges if they expire.

Five Well per Year Limit
We applaud this limitation on the speed of development as set forth in the RPA. In a situation like the PAPA where much of the minerals are already leased, the development is inevitable but the decision to slow the pace is critical to mitigating the impacts, especially on the wildlife. We also agree with the BLM that limitations on development, such as this but also others proposed as part of the RPA, do not constitute a “taking”, but merely reasonable limits on the speed and methods of extraction of minerals necessary to mitigate impacts on the other natural resources that the BLM is mandated to protect.

Off-site Mitigation, Royalty Reduction
The operators should consider off-site mitigation to enhance wildlife habitats elsewhere to compensate for habitats damaged/lost due to development. Appropriate off-site mitigation should be based on on-going wildlife studies, possibly in conjunction with the Adaptive Environmental Management Plan.

WOC would support an incentive-based royalty reduction for operators. Those who employ notable and costly environmental protection measures, such as directionally drilling in certain areas, could be assessed a lower royalty.

Adaptive Environmental Management Plan
WOC agrees that successful management of the development and its impacts in the PAPA will involve flexibility in responding to new information about the environment and the impacts made upon it. This adaptive management must be based on ongoing scientific studies and have an accurate pre-development baseline. WOC advocated in the past for continued citizen involvement in the management of the PAPA development and hopes the AEM process will provide that opportunity while also being based on sound science.

Air and Water Quality
We were pleased to see and we commend the BLM that the EPA listed the DEIS as LO (lack of objections, adequate). We do believe that the operators/lessors should be required to monitor emissions on-site and downwind of wells and related facilities as well as monitor the water quality downstream of any of the associated development. While the expected and intended effects on air and water quality seem to be within acceptable bounds, it is essential that constant monitoring take place so that mitigating adjustments can be immediately implemented if the effects are found to be greater than anticipated. Both the surrounding air and water sheds are of high but fragile quality and so must, under the Clean Air and Clean Water Acts, be aggressively protected.

Pad Drilling and CPFs
The BLM should require operators to demonstrate why either pad drilling or the installation of centralized production facilities could not be used to mitigate or eliminate adverse impacts to the various natural resources in the PAPA.

Revised Sales Gas Pipeline
We were surprised at the sudden change in the proposed route of the gas pipeline. Presumably, Alternative A is the BLM’s preferred alternative since it was the one BLM proposed. But it is neither entirely clear that it is the preferred alternative, and if so, why it is. Given the information presented in the FEIS, WOC supports Alternative B proposed by McMurray. This alternative will result in less surface disturbance and seemingly less other natural resource disturbance.

Road Density and RMP ORV designation change
The inevitable increase in road density continues to be a concern, especially in respect to its impact on wildlife, erosion, and air and water quality. We strongly support the proposal to amend the Pinedale RMP Mount Airy and Desert General ORV “open” designations to “limited to existing roads and trails.”

Amendment to RMP Necessary for RFD Change
WOC objected earlier that the non-conformance with BLM’s Pinedale Resource Management Plan with respect to oil and gas reasonably foreseeable development which the additional drilling proposed in this project would result in should have received separate notice and a more extended (90 day) comment period. We re-state that objection to the process used to “update” the RFD. This updating is an amendment to the RMP and should be handled accordingly, receiving notice and comment time provided under NEPA.
We appreciate the opportunity to be involved in the planning of this project and look forward to the adoption of our recommendations in the ROJ.

Sincerely,

Christine Lichtenfels
Associate Director
Wyoming Outdoor Council

Bill McMahan, Project Manager
BLM
280 Hwy 191 North
Rock Springs, WY 82901

Dear Bill:

Please accept these comments regarding the Pinedale Anticline Oil & Gas FEIS on behalf of the 6,000 members of the Wyoming Wildlife Federation (WWF). The WWF has been advocating for healthy wildlife populations, habitat, recreation, and wildlands for over 63 years.

Preferred Alternative

We are gratified that the BLM has read and listened to many of the comments submitted by the public during the comment period after the draft EIS in 1999. As stated in the FEIS (p. 1-2) the BLM has identified the Resource Protection Alternative on Federal Lands and Minerals as their preferred alternative, and the same alternative but applicable to private lands as well to be the environmentally preferred alternative. We request that the BLM implement the Resource Protection Alternative on All Lands and Minerals as their decision alternative with the following additions and exceptions.

1) Require a review of proposed and cumulative development at least annually for each Management Area (MA) within the Project Area (PA) to ensure facilities and roads will result in the least impact;

2) Prior to any permit-requiring surface disturbing activity, site-specific environmental analysis of the proposed action on the management objectives and resource values of the affected Management Area SHOULD BE required;

3) Where it is determined by the BLM through adaptive environmental management analyses to be necessary and beneficial to the Management Area values and objectives, the operators SHOULD BE required to complete any
inventories or special studies to determine the extent of site-specific or cumulative impacts, and operating plans SHOULD BE formulated and approved by BLM to mitigate identified impacts;

4) BLM SHOULD REQUIRE operators to limit well pad density to a maximum of one (from which can be drilled multiple wells) per section on all Management Areas within the Project Area and SHOULD REQUIRE operators to compile a plan for Centralized Production Facilities and gathering AND SALES pipeline systems prior to initiating any further production-related surface disturbing activities other than those necessary and already permitted to explore for leased minerals; the BLM SHOULD REQUIRE the operators to demonstrate why either pad drilling or the installation of centralized production facilities could not be used to eliminate production and ancillary facilities in order to mitigate or eliminate adverse impacts to Management Area objectives and values;

5) In MA 2- Mesa Breaks: The BLM SHOULD PROHIBIT placement of any well pads or new access roads or pipelines within the Breaks;

6) In MA 3- Unleashed Federal Minerals: The WWF applauds the BLM closing leasing for minerals on these lands;

7) In MA's 5 & 6- Big Game Winter Range and Sage Grouse Strutting and Nesting Habitat: All important big game winter ranges and migration corridors should be off-limits to industrial facilities that create barriers to seasonal movements of wildlife or utilization of habitat by wildlife; grouse leks and nesting habitat should also be off-limits to industrial facilities;

8) In MA 9- Non-Federal Lands: We encourage the BLM, the State of Wyoming, and the operators to enter into a Memorandum of Understanding (MOU) to adopt and implement the above, including the Resource Protection Alternative On All Lands, on private, state, and federal lands within the PA.

Previous Concerns From DEIS Comments:

During the comment period for the DEIS, we submitted lengthy comments (dated January 28, 2000) to the BLM on behalf of our members. The following selections from our comments, and the response(s) from the BLM still need to be adequately addressed to benefit the public's need for informed NEPA involvement and participation in this important issue.

"Some of the answers and resources that the BLM needs to include in this and similar documents include:

1) Offer the public easy to read and up-to-date graphs, charts, and explanatory text about where America's energy supplies come from, as well as what percentages of our total energy usage is from coal, oil, natural gas, hydro, nuclear, and alternative energies such as wind, solar, and compost or waste incineration;

2) The public also needs to know how domestic energy production and consumption compares to foreign production and consumption, and how much (of all our energy sources) we obtain from foreign countries;

3) What are the estimated recoverable reserves of oil, natural gas, and coal in the U.S.? The world?

4) Will the U.S. ever be self sufficient in any of our energy sources? When, or why not? For how long?

5) Where are existing operational natural gas fields within the United States, and what are their expected lives and production?

6) If those fields were to be fully utilized, when would additional fields (such as the Pinedale Anticline) be needed?

The BLM document, "Oil & Gas Activity on Wyoming Public Lands" (Unknown date, from BLM State Office in Cheyenne; contact Rob Coleman [307-775-6193]) is
a good start for easy-to-read graphs and charts, but it does not go far enough to
answer some of the most basic questions needed for the public to decide if this
type of development on the Pinedale Anticline is in fact even necessary.

All of the necessary information to adequately inform the public about the above
topics is available by moderate research on the internet. It is the job of the BLM
as lead agency on this EIS to facilitate the information gathering and to present it
in appropriate fashion to the public."

The response offered by the BLM, "....(We) cannot now condition development of
(the Pinedale Anticline) on some sort of index of global demand, as this comment
seems to suggest," misses the intended and explicit request that the BLM use the
DEIS and other NEPA documents and processes to assist the public in acquiring
the proper context to make informed comments. The BLM, and the contractor
compiling the documents, has the ability to do just that. It is already being done
for some issues and topics in various sections of the document, as well as in the
ancillary documents such as the Technical Report. Our request still stands that
the BLM offer the public the information requested in italics above.

Further issues brought by our January 28 comments, and not addressed
adequately by the BLM in the FEIS follow:

1) "The WWF, along with other organizations, has long advocated for staged
development of our BLM lands for resource extraction. We strongly urge the BLM
to continue to develop these treasured public lands in the same haphazard
manner until a systematic plan is developed that identifies recoverable
hydrocarbons and minerals throughout appropriate public lands, and a plan to
recover those hydrocarbons and minerals in as small an area as meets the
nation's needs at a time, and not to industrialize other lands without restoration
of the lands impacted has proceeded. A programmatic series consisting of
development of the smallest segments possible of public lands followed by
restoration would avoid the vast landscape destruction that is current BLM
protocol. Leasing and seismic exploration of BLM lands should also follow staged,
sequential patterns. Only in this pragmatic manner can the cumulative impacts
of industrial development be identified and possibly effectively mitigated."

Nothing in the FEIS indicates that true staged development is considered or
facilitated by the BLM. Merely slowing down development, or calling for studies
on mitigation of impacts, or depending on chance occurrence or absence of
mineral resources equates to pragmatic planning involving development/restoration sequences on the minimum of acreages. It is still
haphazard and ecologically risky.

2) "Liner (referred to @ DEIS p.2-19) should be removed at the time of
reclamation and properly disposed of outside the project area".

The BLM states in reply that the WWF offered, ".....no justification as to why this
would be necessary or environmentally preferable." Such a cavalier response
from the BLM does not engender public confidence in our hired stewards and
managers of coveted public lands and wildlife. We would stipulate to the obvious
that leaving literally thousands of square yards of heavy black, industrial-
strength liner material out on public lands, almost initially covered with soil, is
wrong for a host of reasons: How about littering? Unsightliness? (they do not
stay buried); Retention of toxins such as petro-chemicals with which some of the
liners are saturated? And the very simple reasoning that users of public lands
should be required to pick up and remove their mess? Scenic, environmental,
wildlife, and recreational values would certainly be adversely impacted by
leaving pit liners throughout the Project Area.

Air and Water Quality

The BLM should require the operators to monitor emissions of NOx, SO2, VOC's, O3,
and particulate matter on site, and downwind of the project area.
Monitoring should be designed to determine the short and long term effects on air and water quality not only on the Project Area, but on adjacent lands, surrounding environs, and downwind Class 1 & Class II Airsheds.

**Offsite Mitigation**

Much discussion has occurred in the past about the possibility of offsite mitigation funding mechanisms. The WWF stands ready to assist industry and the BLM in working towards a cooperative offsite mitigation effort. This effort may take the form of habitat enhancement projects, conservation easements or fee purchase of property(ies) with important wildlife habitat values, or a conservation fund with contributions determined by a per-facility formula. Criteria for locations of projects or property protections could be determined by stakeholders. The State of Wyoming could even consider contributing from the revenues they normally receive from the operators and then pay out to livestock permittees for surface damages on state sections.

**Revised Sales Gas Pipeline**

On page 3-1 of the FEIS there begins an “analysis” of revised sales gas pipeline routes, including three proposed new routes. From the public’s standpoint this new pipeline route proposal is surprising considering that, as we read it, a major theme of the DEIS for the Pinedale Anticline Oil and Gas Exploration and Development Project is to get “ahead of the curve” on impacts and development scenarios so’s to avoid situations like this where proper planning between the Pinedale Anticline and the adjacent Jonah II Field for well connection pipelines relative to sales gas pipelines was not adequately analyzed. Further, the FEIS reads, “The DEIS assumed that sales pipelines from the PAPA would travel south through the middle of the Jonah Field.” It would seem that such an assumption concerning such a significant federal action was done in haste and without proper consideration.

Now the BLM evidently wants to permit a sales pipeline, complete with 200 foot-wide corridor, 22.3 miles of deviation from the originally planned route, and hundreds of acres of “short-term disturbance” to surface soils and vegetation and habitat. Further, on page 3-5 of the FEIS at “Wildlife Resources,” it reads, “Alternative A would remove approximately 54.5 acres of sagebrush-dominated vegetation within that crucial winter habitat. Since sagebrush may take 20 years or more to regenerate, removal of that important winter browse plant species would be a long-term impact to wintering pronghorns.”

The BLM’s Alternative A would also allow the pipeline to cross “several wetlands” (FEIS p. 3-3 & 3-5), and pass “through white-tailed prairie dog colonies...” (FEIS p. 3-5), and “...pass through crucial winter habitats used by pronghorns...” (FEIS p. 3-4). The proposed pipeline routes would also undoubtedly pass through, and obliterate, sage grouse nesting habitat. Considering the potential impacts to valuable wildlife resources and habitats associated with this change in sales pipeline route, despite some analysis of the impacts from the original proposed route included in the DEIS, it would seem that the brief treatment of this proposal included in the few pages within the FEIS is hardly sufficient.

It is also difficult, if not impossible, for the public to be adequately informed of the alternatives and respective impacts to public resources by such a cursory treatment. None of the public field trips conducted during the scoping and compilation of alternatives stages of the DEIS offered the public a first hand look at these proposed newly identified pipeline corridor routes.

We do notice, at page 3-1 that the BLM’s Alternative A has the pipeline route “...adjacent to the existing disturbed rights-of-way associated with roads...” for the 22.3 mile route deviation. Intuitively, it would indeed seem better from an ecological perspective to use existing disturbed routes such as road borrow pits versus damaging undisturbed terrain.

We wonder where exactly the 54.5 acres of sagebrush winter range is (FEIS p. 3-5) that would be removed if the pipeline follows existing roads.

Given that this “eleventh hour” tactic to get approval for a huge and potentially
environmentally harmful sales pipeline is a rush job at best, we recommend the BLM not approve the sales pipeline route until adequate public involvement and information gathering can be accomplished, and until the potential harmful effects can be adequately identified and analyzed.

**Conclusion**

The Wyoming Wildlife Federation is, on the one hand, heartened that in comparison to other BLM industrial project EIS's the BLM's treatment of the Pinedale Anticline EIS seems to include more consideration for inevitable adverse environmental impacts arising from industrializing a previously relatively undisturbed landscape. However it is somewhat disconcerting that in the FEIS it also includes the obvious snafu of not coordinating the planning of adjacent significant federal actions (Jonah Field Project and the Pinedale Anticline) concerning the route of a large and long, and undeniably harmful sales gas pipeline. Again, this mistake barely in the exploration phase of one huge project and perhaps a quarter of the way into production of the other does not speak well of the future management of the public's treasured wildlife, habitat, scenic, and recreational values. We hope for better.

In closing, the WWF wishes to reiterate some more concerns from our January 28, 2000 comments on the DEIS that the BLM did not sufficiently address in the FEIS Section 2 "Potential Management Scenario For Continued Exploration And Development", or in FEIS Section 5 “Response To Comments”. Merely to acknowledge comments or recommendations, or to point out where in the DEIS it may have “discussed” or mentioned similar concerns without also pointing out or offering any sort of dispensation of issues or concerns is inconclusive. Therefore we will repeat below some of our closing suggestions for additional mitigation and monitoring opportunities in hopes that the BLM will offer either closure or explanation why they will or will not be a part of the management scenario for the Pinedale Anticline Natural Gas Project:

There are several “Additional Mitigation Measures” (DEIS o 4.19.4) which should all be implemented. They include:

1) Minimize wildlife poaching by avoiding firearms at worksites and supplying operators and employees with state and federal game laws;

2) All motorized equipment should be adequately muffled;

3) Squatting by employees should be eliminated by operators;

4) The WGF should make available and publicize a reward leading to arrest and conviction of wildlife poachers;

5) Industrial roads should not be available to the public;

6) No dogs at the worksites;

7) Utilize wildlife habitat models to identify needed road closures in the project area, and to identify and implement effective reclamation of industrial sites;

8) Permanently close the south end of Mesa Road (State Hwy 351 to BLM Road 5106) to protect antelope, mule deer, and sage grouse. Seasonally close BLM Road 5106 to protect wintering mule deer and strutting sage grouse;

9) Construct all roads to standards that minimize vehicle speeds and surface disturbances;

10) Fence out livestock from reclaimed sites, but allow use by wildlife;

11) Improve or build new watering sites for use by wildlife where wildlife habitat models indicate it would be appropriate;

12) Do not build pipelines or roads through locally limited vegetation types such as aspen and mountain shrub communities;
13) Powerlines should be buried;

14) If industrial roads must be plowed in the winter, make sure there are escape openings at regular intervals for wildlife use;

15) Industrial activity, including well site visits, in big game wintering areas should be limited to mid-day to minimize disturbance during principal feeding hours and periods of high thermal stress;

16) Do not place roads or facilities in sage grouse nesting habitats with high probabilities of suitability;

17) Where needed, and where no adverse impacts to strutting grouse occur, the WGFD, BLM, and operators should evaluate and place nesting sites for ferruginous hawks and golden eagles;

18) All fences within the project area should be evaluated and adjusted for ease of mule deer and pronghorn passage;

19) Waste pits should be netted where they may pose a hazard to songbirds and waterfowl;

20) Fugitive dust from use of roads by operators should be effectively controlled by operators;

21) If on-site mitigation of adverse impacts to wildlife is not complete, the operators should establish a compensatory mitigation fund to replace lost wildlife habitat at off-site locations to be determined in consultation with agency biologists and conservation groups. The operators should work with conservation groups to establish the administration of such a program. This mitigation fund could be along the same lines as the “Surface Damage Payments” made by industry to the State of Wyoming and grazing permittees on state lands where industry operates as reparation for direct loss of livestock forage and for disruption of operations to the livestock permittee. Direct loss of forage from industrial activity also impacts wildlife, and it also adversely affects the functionality of habitat, and impacts wildlife enthusiasts and hunters who utilize wildlife both consumptively and nonconsumptively. Industry has a direct and adverse impact on all this and should be held financially accountable;

22) An opportunity for industry mitigation could be a program to address adverse impacts throughout the region to big game migrations; e.g., the added impacts to migrating mule deer and pronghorn from recent housing development along Hwy 191 between Pinedale and Daniel;

Monitoring for the Life of Project

Additionally, monitoring of the progress of the project and the adverse impacts to the scenic, wildlife, and recreational values is needed for the life of the project. Therefore the following actions (DEIS @ 4.19.5) are needed:

1) Monitoring programs should be financed by the operators; Ultra Petroleum has already helped finance three ongoing and very important studies in the region involving sage grouse, mule deer, and pronghorn antelope, in cooperation with federal and state agencies and the University of Wyoming. There are maybe 30 or more other operators in this particular project area that need to step up to the plate and help fund a multitude of study and monitoring efforts to be conducted by agencies and universities. Some of the PAPA operators are among the wealthiest in the region and the nation. Some are well-known multinational corporations. This project area contains some of the last remaining relatively untrammeled sagebrush-basin-steppe biomes on the continent. These corporations, who stand to gain many millions of dollars from exploiting this valuable area, need to offer substantial resources to fund mitigation projects.
studies, and monitoring efforts. Ultra Petroleum, a small independent operator, has answered this need, but so much more is called for. The many other operators are long overdue in adequately answering this call.

2) GIS data and biological information should be continually updated in order that modeling can be used with the latest information and so that all agencies, companies, organizations, and the public can avail themselves of current information;

3) BLM should require operators to submit all locational information for their facilities in a format compatible with GIS analysis;

4) BLM and the WGFD should develop a partnership program with WyDOT to increase monitoring of roadkilled wildlife on all roads in the project area;

5) Continue to monitor key biological sites and events including but not limited to raptor nesting success and sites, sage grouse leks and population trends, mule deer winter mortality and winter use, occupancy and health of prairie dog colonies;

6) Monitor success of reclamation efforts and initiate remediation work as soon as possible.

7) As explained in the DEIS (@ 2.7.3), the Resource Protection Alternative on All Lands and Minerals would involve voluntary compliance on the part of the operators. BLM should convene a group consisting of area conservation groups, landowners, and operators and facilitate an MOU from the operators agreeing to this alternative.

8) State and federal biologists should survey the PAPA for opportunities to initiate appropriate habitat enhancement projects for wildlife species.
July 5, 2000

Mr. Bill McMahan, Project Manager
Bureau of Land Management
280 Highway 191 North
Rock Springs, Wyoming 82901

RF: BP Amoco Comments
Pinedale Anticline Natural Gas Field Exploration & Development Project
Final Environmental Impact Statement

Dear Mr. McMahan:

BP Amoco Production Company (BP Amoco) appreciates this opportunity to provide these comments for BLM consideration on the Final Environmental Impact Statement (FEIS) for the Pinedale Anticline Natural Gas Exploration & Development Project. BP Amoco provides the following comments on this FEIS.

General Comments

BP Amoco still clearly understands the abundance of sensitive resources that occur in many parts of this proposed project area. BP Amoco also understands its responsibility to operate in a prudent and world class fashion when developing its oil and natural gas resources in these potentially sensitive environments. However, do not mandate, in your decision making process, unreasonable mitigation based upon the uncertainties in the level of ultimate development and therefore the possible overestimation of project related impacts. As BP Amoco stated in its comments on the DEIS for this project area, while the natural resources found in the Pinedale Anticline Project Area (PAPA) are abundant, none of the resources found in this project area are unique to this area. Standard stipulations were developed to protect each of these specific natural resources and without scientific based information indicating that a greater level of protection is warranted, additional and potentially more restrictive and mandated mitigation should be closely evaluated prior to inclusion in this project area Record of Decision (ROD).

Page 2.

Mr. Bill McMahan

The underlying theme of these comments are that BP Amoco understands the importance and sensitive nature of portions of this project area. Do not mandate mitigation that cannot be scientifically justified. Instead, allow flexibility for the field office BLM staff working with the oil and gas operators to develop site specific mitigation that makes sense for the resource in question and at the same time allows for sound and economic development of the natural gas resources in the area.

Section 1 - Introduction

The BLM in Section 1 of the FEIS has identified the Resource Protection Alternative (RPA), that has been analyzed in the NEPA documentation, to be its preferred alternative. As identified in BP Amoco's comments to the DEIS, there are certainly a number of aspects of the RPA that are concerning to our organization. Those concerns will be reiterated again in the comments provided below.

Number of Rigs Operating - Table 2-8 DEIS - Resource Protection Alternative

BLM should not include in its ROD a limitation on the number of rigs that could be operating on the project area at any one time. This mitigation, which was suggested to limit the pace of development, would be virtually impossible for BLM and the oil and gas operators to manage. BP Amoco strives, for economic and consistency reasons, to maintain a "level loaded" drilling program by limiting the number of rigs that could be operating at any one time, it would be impossible to maintain such a program. This would result in BP Amoco releasing a drilling rig when it is unable, due to this stipulation, to drill. Once a drilling rig is released it is often very difficult to get the rig back for continued use or to find a suitable replacement when the BLM decided BP Amoco could again drill. This mitigation must not be included in the ROD.

Special Resource Management Zones(SRMZ) - Mesa Breaks & Sensitive Viewshed

Table 2-1 of the PAPA FEIS defines, by management area, limits on the average number of well pads/square mile and maximum number of well pads/square mile for the Mesa Breaks Management Area those limits have been very specifically defined as zero (0). This limitation is new information that was not defined in the DEIS. BP Amoco believes this limit of zero requires some level of BLM justification. BP Amoco again understands the sensitive nature, both visually and for wildlife, of this management area. BP Amoco does not however understand the need, not the basis for the BLM establishment of a zero limit on allowable well pads. We hope that if a limitation for this area is brought forward, careful consideration be given to allowing BLM field office flexibility in potentially sites locations in this management area establishing a set and defined limit of zero well pads in this management area is truly unacceptable and could easily constitute a taking of mineral owner lease rights.
In the Sensitive Viewshed Management Area defined in Table 2-1 of the FEIS, the BLM is proposing as part of its RPA Potential Management Scenario the establishment of a maximum limit of four (4) well pads/square mile. As BP Amoco described in its comments in the DEIS, simply limiting the number of well pads in this VRM II management zone will not necessarily accomplish visual resource management objectives. If visual resource impacts can be mitigated through some economic and technical means, such that VRM II integrity is maintained, the number of well locations that exist in that VRM II management area should not matter. Establishing a maximum number of well location per square mile and total number for the management area is arbitrary and capricious should not be included in the ROD. Development in this area should be left to the flexibility of the BLM field office and the oil and gas operator.

Lander Cutoff Trail
The BLM RMP offers the Lander Cutoff Trail a ¼ mile buffer from the installation of well locations. Extending visual impact restrictions, as described in the RPA of the DEIS, could result in the potential for significant loss of natural gas resource recovery and potentially a taking of mineral lease owner rights. BLM ROD granted protection for the Lander Cutoff Trail should not extend beyond that provided it in the area RMP.

Big Game Winter Range and Sage Grouse Strutting & Nesting Habitat - Table 2-1 FEIS
In Table 2-1 of the FEIS the BLM has established a maximum number of well pads/square mile at sixteen (16) with the following footnote: "More than four well pads/square mile could require operators to consider centralized production facilities (CPF's) and/or pad drilling to allow for additional well pads to reduce unnecessary/undue management area impacts".

BP Amoco again clearly understands the critical nature and importance of the big game wintering habitat in this proposed project area. The BLM must also understand the potential significant economic burden that such a limitation may place on the operators in this area. The BLM must also understand that this additional economic burden could result in the operators inability to economically recover the PAPA natural gas resources within these management areas. BLM admitted in the DEIS (at 2-45) that, "economic questions which remain to be answered could make directional drilling unreasonable." "If these economic hurdles cannot be overcome, reserves will be left in the ground and maximum ultimate recovery of the reserve would not be accomplished if well density is restricted to "4 wells per section." Based on relatively recent attempts to directionally drill on the PAPA, it would appear the some of the economic viability questions are being answered and it would also appear that there is a potential for reserves to be left in place, resulting in a taking of mineral lease owner rights.

The BLM has offered in the footnote for this management area in Table 2-1, a potential alternative to limiting the number of well pads per section. This alternative would provide the ability to allow up to 16 well pads/section if centralized production facilities are constructed, so that only emergency trips would be required to the satellite well locations during the crucial winter period. BP Amoco appreciates the alternative the BLM has presented that would allow for a greater number of vertical wells to be drilled in these areas. Unfortunately the centralizing of production facilities also comes with some inherent difficulties. Most of which may be able to be overcome, but certainly at some increased incremental cost. The BLM has stated in this alternative that only emergency trips would be allowed to those locations which feed (produce to) the centralized facility. In the western Wyoming winter climate, it may be necessary to have some equipment at the satellite well locations. Things like fine heaters and potentially methanol storage would be required for proper operation during the winter season. This equipment must be checked periodically to ensure that equipment is functioning and well operations are continuing. This could require more frequent visits to the satellite well locations than believed necessary by the BLM and therefore less of a perceived benefit to wintering big game. In summary, this alternative means of allowing wells to be drilled vertically in these critical habitats may not be feasible if the perceived benefit of limited trips to the satellite well locations cannot be accomplished. Unfortunately, this leaves the operator with only the directional drilling option and the potentially significant incremental cost increases associated with this option.

Without the scientific basis for the mitigation that is being proposed for this management area, the BLM must move cautiously forward in preparing an ROD addressing the implementation of an oil and gas management strategy for this management area.

Sage Grouse Leks - Resource Protection Alternative - Noise Restrictions
The NEPA documentation in the PAPA states that Sublette County nor the State of Wyoming have noise limits and there are no standards of noise protection for wildlife. The document merely comments that the 10 dBA above background proposed sage grouse lek protection is "likely acceptable." Since there is not scientific basis for this proposed mitigation, the proposed mitigation can be defined as nothing but arbitrary and capricious and therefore should not be carried forward to be included in the ROD.
Adaptive Environmental Management - Annual Development Review & Monitoring

BP Amoco has many concerns regarding the proposal that has been identified in the DEIS and the FEIS as Adaptive Environmental Management (AEM). In general terms BP Amoco agrees with the concept of continuously modifying management practices in order to allow continued exploration and development while continuing to protect the environment. However, BP Amoco is not convinced that AEM as outlined in Appendix F of the DEIS is the most appropriate mechanism to accomplish this goal. As this concept and plan is brought forward to the ROD, the BLM must evaluate and consider a number of questions. How will the Pinedale BLM Field Office, that already has staffing and work load issues, manage the AEM as proposed? Where will the funding that will be necessary to accomplish and implement AEM planning be secured? How many of the proposed resource values identified in the PAPA DEIS will be placed under the AEM process?

These issues were raised by BP Amoco in its comments on the DEIS and we believe that a more defined and prioritized process must be spelled out in the text of the ROD. A collaborative and prioritized implementation plan must be proposed. This should not and cannot be a cost that is borne 100% by the operators. Staffing and implementation must be discussed. A prioritization and selection of the resource values that will be placed under the AEM process must also be clearly identified.

Table 2-1 FEIS

The Table 2-1 includes a column described as Total Producing Well Pad Threshold. This column provides a total number of well pads that would be allowed per management area. This number is defined simply as the average number of well pads per square mile in the management area multiplied by the total number of acres in the management area. BP Amoco does not believe that this formula provides any correlation at all to the potential for significant impacts that may or may not result in the management area. This column, representing the total number of producing well pads by management area, should be removed and the cap should simply be the total number of producing well pads analyzed for the entire project area.
June 30, 2000

Bureau of Land Management
Attn: Mr. Bill McMahan
280 Highway 191 North
Rock Springs, WY 82901

RE: Comments on Pinedale Anticline Natural Gas Exploration and Development Project Final EIS

Dear Mr. McMahan:

This letter is to re-iterate the comments presented by Western Gas Resources, Inc., on behalf of its subsidiaries Mountain Gas Resources, Inc., and Lance Oil & Gas Company, Inc. with regard to the Draft Pinedale Anticline EIS Project in a letter to the Bureau of Land Management dated February 3, 2000.

We respectfully request the Bureau of Land Management reconsider the concerns raised by Western, Mountain, and Lance, along with other operators, in previous letters in connection with the Pinedale Anticline EIS Project. We still believe these are important issues that need to be addressed prior to the issuance of a Record of Decision.

Very truly yours,

Diane Hoe
Senior Attorney

Mountain Gas Resources, Inc.
Subsidiary of Western Gas Resources, Inc.
17707 East 24th Avenue • Denver, Colorado 80234 • (303) 822-5911

July 5, 2000
By Facsimile 107-352-0329

Bill McMahan
Bureau of Land Management
280 Highway 191 North
Rock Springs, WY 82901

Re: Comments on Pinedale Anticline Final EIS

Dear Mr. McMahan:

Thank you for the opportunity to comment on the Final EIS for the Pinedale Anticline Anschutz Exploration again strongly encourages the BLM to implement the Standard Stipulations in the Record of Decision, which will more than adequately protect the environment around Pinedale while removing many of the unneeded burdens of the Resource Protection Alternative.

We have reviewed BLM comments to our February 1, 2000 letter addressing elements of the Draft EIS and disagree with several points. In your response to Comment 6, you note that "BLM believes the mitigation measures proposed by the RP Alternative are reasonable" Anschutz does not believe these mitigation measures are reasonable. As proposed, the RP alternative will preclude operators from economically recovering hydrocarbons that could otherwise be recovered, as outlined in our prior letter. Although individual restrictions by themselves generally do not create unworkable situations, the cumulative impact of numerous restrictive measures will severely restrict development and reduce the value of Anschutz. Federal leasehold. While we do not wish to again debate the issue of takings, thus requiring a RPM response and additional delay in issuing the ROD, we stand by our prior comments.

One of our greatest concerns remains the rig limitations imposed under the RP alternative. The rig limitations remains an unworkable proposal that has no demonstrated environmental benefits. The BLM notes that they "understand the problems associated with limiting rigs in the PAPA". You additionally note that "a unit in the northern end of the project area would overcome many of the problems." A unit with rig and seasonal restrictions would still be developed over multiple decades, resulting in degradation of value due to deferred drilling, as noted in our prior letter. In order to allow operators the right to effectively develop their federal leasehold, the BLM must not place any
numerical rig restrictions on top of the already stringent seasonal restrictions. We again strongly encourage the BLM to remove this stipulation from the ROD.

The BLM noted several times that many of the restrictions proposed are not new restrictions being imposed by BLM as part of the RP Alternative. While this is true, it does not make the restrictions any less onerous. Because Anschutz inherited the large number of burdensome stipulations and proposals outlined in the EIS, we should not be prevented from voicing our concerns and opinions during the EIS process. We are merely trying to illustrate the cumulative effect on operators of all stipulations, something that is not readily apparent in the DEIS. We sincerely hope that the BLM will consider our viewpoint despite the fact that we did not participate in the EIS process prior to acquiring our Federal leases.

The BLM has also not taken into account operators' experience gained over the last few years in areas such as directional drilling. Operators' comments to the Draft EIS illustrated the costs and risks associated with directional drilling. Despite this knowledge, the BLM continues to mandate a great deal of directional drilling in the RP Alternative. As noted in our letter of February 3, 2000, many locations that must be directionally drilled will no longer be economic to drill, creating a loss in value to operators, reduced taxes and royalties to government groups, and a reduced supply of gas to the American consumer. The BLM notes that operators may have the option to utilize central facilities in lieu of drilling directional wells. The numerous surface restrictions proposed will make directionally drilled wells the only alternative in many cases. Anschutz analysis concludes that for 17% of our Federal acreage we will be obligated to drill a deviated well due to surface restrictions. The central facilities option would likely be only partially useful to operators' efforts to reduce the costs and risks of directional drilling. We need the ability to operate under the Standard Stipulations Alternative, which will allow operators' more control over operations and reduce the detrimental impact of directional drilling.

The BLM notes that Anschutz has not requested information and maps of cultural and Native American sites. Laurie Goodman, on behalf of all operators, has verbally requested this information, which the BLM has declined to provide. Anschutz requests that detailed information regarding the location of known cultural sites on or adjacent to Anschutz acreage be provided for use in planning purposes. We are unable to comment on the impact of unknown sites. Additionally, the setback from cultural and Native American sites remains unstated in many cases and subject to the whim of the BLM. We object to this approach and are unable to comment on the impact of unknown setbacks from unknown cultural and Native American sites.

We hope the BLM will take a balanced approach to the difficult task of managing development of the Pinedale Anticline and issue the Record of Decision using the Standard Stipulations Alternative.
Ultra Resources, Inc.

Bureau of Land Management
Bill McMahan, Project Manager
280 Highway 191 North
Rock Springs, Wyoming 82901

RE: FEIS Pinedale Anticline Natural Gas Exploration and Development Project

Dear Bill:

Thank you for the opportunity to comment on the Pinedale Anticline Final Environmental Impact Statement (EIS). We appreciate the diligent efforts that you and the entire BLM team has put forth to prepare a comprehensive and timely analysis document for this natural gas exploration and development project. We look forward to continuing to work with you and the entire BLM office in Pinedale toward effective permitting in this area commensurate with the analysis contained in the EIS. The following are our comments:

The Resource Protection Alternative in the FEIS contains an analysis based on a limitation of 5 rigs operating in the project area, only 2 of which would be allowed to work on new locations at any one time north of the New Fork River. Ultra Resources has adamantly opposed this rig limitation in the analysis in all past discussions and documents, and we continue to do so. We would also oppose any such limitation being carried over to the Record of Decision. The original purpose for the limitation in the analysis was to address the public's concern about pace of development of the Pinedale Anticline. In reality, the pace of drilling will be severely curtailed by several other limiting factors: the winter stipulations, the wildlife stipulations that delay activity in some areas until mid summer, the cost and length of time it takes to drill and complete these wells, management of the conflicting resources that have been identified in the various resource management zones, and the predominance of federal mineral ownership in the area. Limiting activity to 5 rigs on 83% of the 108 square mile area would result in an average of 1 rig per 61.6 square miles and nothing in the analysis has proven the need for such restriction, particularly given the many other mitigating measures. Finally, Ultra opposes the rig limitation because it would be impossible for the BLM to manage and not jeopardize a company's ability to actively drill in the PAPA and meet its lease obligations, drilling obligations, and corporate and stockholder goals and responsibilities.

Ultra Resources continues to have concerns with the specific permitting process that will undoubtedly be grossly complicated by the many suggested mitigations for the identified overlapping resource conflicts. Although we remain fully committed to working closely with the Pinedale BLM Field Office to operate in a manner that is compatible with the other resources in that area and does not have an adverse impact on wildlife, habitat, air and water quality or cultural sites, we would appreciate all efforts by the BLM to be as clear as possible in the Record of Decision with the prioritized requirements for permitting. In addition, we would appreciate a restated commitment by the BLM to adhere to its regulation for a 30-day permitting process.

Regarding wildlife monitoring, Ultra Resources would like the BLM to clarify in its ROD that the costs of wildlife monitoring will be shared by the operators, Wyoming Game and Fish, the National Fish and Wildlife Service, the Bureau of Land Management and any other affected agency.

As stated in our comments on the DEIS, Ultra supports the concept of an Adaptive Environmental Management Plan (AEMP) as an appropriate mechanism to work with the public on oil and gas activities. We anticipate that this committee will operate much in the same way, indeed with many of the same members, as the current Transportation Planning Committee We would like to restate our concerns that the AEMP not become a mechanism under which the BLM abdicates its land management decision-making authority to a committee. We also do not believe that a full-time BLM employee funded by the operators is necessary to effectively participate with the public in an AEMP.

Ultra Resources has previously commented on and encouraged the BLM to support a royalty reduction provision to be applicable to directional wells that will be required in the Pinedale Anticline Field solely to minimize environmental impacts to the surface. It is clear that in many areas in the Pinedale Anticline Field, in order to maximize resource recovery, additional costs are going to be required by the operator either for centralized facilities or directional drilling to minimize surface impacts solely for environmental reasons. We believe that this is a relatively precedent setting requirement and is eligible for a royalty reduction under the discretion granted the Secretary of the Interior.

Section 10 of the Mineral leasing Act (30 U.S.C. Section 209) grants the Secretary of the Department of Interior with the authority to grant royalty reductions to meet two specific goals: for the purpose of encouraging the greatest ultimate recovery of coal, oil and gas, and in the interest of conservation of natural resources. Therefore, with regards to the Pinedale Anticline:

1. The Secretary of Interior has the discretion to grant royalty reductions, absent an Act of Congress, when a royalty reduction is necessary to "promote development and when a lease cannot be successfully operated."

2. GRBAC recommended that royalty reduction efforts be supported by (i.e. environmentalists), and (2) the Governor.

3. The restricted pad drilling scenario proposed in the FEIS (4 locations/section unless centralized facilities are utilized) could cause sufficient additional financial investment in the operation that would not occur if traditional development was allowed (16 locations/section).

4. To-wit: 41 CFR 3103.4-1(b) requires an operator to submit an application to the BLM containing specific information in order to be granted a case-by-case royalty reduction. Although the EIS ROD is not the appropriate mechanism to actually provide a blanket royalty reduction for all directionally drilled wells on the Anticline,
Dear Bill:

The following comments are submitted on behalf of Yates Petroleum Corporation as operators of federal leasehold in the PAPA. Yates still have several concerns which were expressed in our comments in our DEIS comments. They are as follows:

1. Rig limits in Table 2-8: Yates agrees that the BLM has many authoritative sources for limiting rig activity. Because there are already so many limitations such as wildlife stipulations and ground frost, stating an actual number limit is probably not necessary. Any BLM method of allocating who gets the rig and when they could drill would have to be arbitrary. We again ask that the ROD not include such a rig limit. With rig and/or crew availability, it is not possible to always get a rig just when the BLM might allow a specific operator to drill.

2. Visual Resource Management Limitations
   A) Lander Cutoff Trail: Yates has a federal lease which they purchased knowing that they would have to avoid surface disturbance within ½ mile on either side of the Trail. Figure 3-11 of the Draft shows that only two surface locations would be left in Yates' leased section under the RPA. The Trail crosses much of the anticline and in areas where lower production rates are expected. The costs of directional holes and/or centralized production facilities may render the well uneconomic. Yates requests that the ROD allow for the flexibility to work with the Field Office and the operators to prevent a takings of lease rights.
   B) Mesa Breaks and Sensitive Viewshed: Table 2-4 of the FEIS shows no wells allowed in the Breaks. Several operators have found locations that satisfy the Field Office personnel. Please allow for this kind of cooperation in the ROD. The same applies to the sensitive viewshed areas.

3. Noise Limitations Adjacent to Sage Grouse Leks: Yates maintains that the limitation of 10 dBA above nighttime background is not founded in...
Dear Mr. McMahan:

McMurry Energy Company (MEC) appreciates the opportunity to participate in the public review of and comment on the Final Environmental Impact Statement for the Pinedale Anticline Oil and Gas Exploration and Development Project (hereafter referred to as FAPEIS).

For your information, McMurry Energy Company is the parent company of McMurry Oil Corporation (MOC) Alberta Energy Company (AEC) acquired MOC on June 1, 2000. AEC also acquired and now operates Jonah Gas Gathering Company (JGGC). For purposes of this letter, the comments of all these entities: MEC, MOC/AEC, and JGGC, are represented. However, for the sake of brevity, the comments will be attributed to MEC throughout. As a point of clarity, please add McMurry Energy Company to the list of operators for this project area.

MEC applauds the BLM for including the description of the potential management scenario in Section 2 of the FAPEIS. MEC appreciates BLM's effort in including this section in the FAPEIS because it helps to focus and clarify the possibilities of management approaches in developing oil and gas resources in the project area.

Like other operators, MEC believes that innovative solutions to resource conflicts, where they exist, can be found. In fact, the recently completed Modified Jonah EA is a good example of a collaborative process that resulted in numerous, new operator commitments to mitigating impacts, especially to wildlife, in the project area. MEC sincerely hopes that this spirit of cooperation and efforts to reach mutually acceptable goals can continue on other projects in southwest Wyoming.

While still concerned with the possible mitigation along the Lander Trail that is described in the EIS, MEC believes that with the cooperation of BLM and the operators, most of these concerns can be addressed. One specific area of
Concern is that there may not be enough areas visually shielded from the trail segment to allow CPFs to replace "pad" drilling (see Figure 3.11 of the PAFEIS).

MEC is encouraged by the language in the PAFEIS on page 2-6 which states that facilities would be located "in a manner that minimizes their visibility from the trail to the extent practicable" (emphasis added). MEC believes flexibility and common sense are the key to implementing successful mitigation measures. All mitigation should be cost-effective and efficient. Certainly, if mitigation is not shown to be cost-effective, the measures should not be implemented. If mitigation is determined to be inefficient or unsuccessful, the measures should be modified to better ensure success.

MEC does not intend to reiterate all of the issues raised by the comment letter submitted by MOC on the PAFEIS. Nor does MEC intend to engage the BLM in an oratorical sparring match by responding to the response to comments contained in the PAFEIS. Rather, MEC simply suggests that BLM's responses did not alleviate nor in most cases, refute the concerns expressed by those earlier comments, and those concerns still exist.

Sincerely,
Robin M. Smith
V.P. of Exploration and Regulatory Affairs
McMurry Energy Company

Via email: billmcmahan@blm.gov
(Original by mail)

Bureau of Land Management
Rock Springs Field Office
280 Highway 191 North
Rock Springs, WY 82901

Attention: Mr. Bill McMahan
Project Manager

Re: Pinedale Anticline EIS

Dear Mr. McMahan:

We are submitting these comments on the Final EIS on behalf of our client, HS Resources, Inc., which owns valid existing rights in the form of issued federal leases in the northern part of the Pinedale Anticline Project Area ("PAPA"). Based on BLM's responses to HS's comments on the draft EIS and to those of other oil and gas operators, it appears that BLM intends to impose unprecedented restrictions on the ability of these lessees to develop their valid existing rights. The rationale for imposing most of these restrictions appears not to be based on the BLM's statutory authority to prevent unnecessary and undue degradation. To the contrary, these onerous restrictions appear to be based largely on BLM's apparent desire to protect aesthetic values for the benefit of expanding residential use in the area. As you might imagine, HS is very disappointed by the bias against oil and gas development, a legitimate use of BLM multiple use lands, which is evidenced by the EIS.

We discourage BLM from adopting a Record of Decision which resembles Section 2, the "potential management scenario for future exploration and development," for the following reasons:

1. Uncertainty

If the record of decision ("ROD") looks like Section 2 in the EIS, then, for all practical purposes, BLM and the lessees will be in much the same position as they were at the start of this more than two year old process. Section 2 contains so many contingencies that it will provide
mapped on the Visual Resource Management Map of the RMP to protect Class I and II VRM areas. If the Section 2 management scenario is adopted in the ROD, HS' rights under its leases will be greatly diminished and the rationale for this restriction appears to be only to prevent a casual observer from noticing HS' drilling operations. These proposed restrictions are not consistent with the lease rights granted to HS and thus would be in violation of 43 C.F.R. §3101.1-2.

4. Slopes

HS' leases provide that surface use on slopes in excess of 25% "will be strictly controlled or, if absolutely necessary, prohibited." The DEIS (Table 2.8) provides that mitigation would require lessees to avoid disturbance on slopes greater that 15%; FEIS at 2-3. In the Mesa Breaks, this restriction would be extended even further to slopes greater than 10%. Table 2.2. FEIS. Once again, the EIS suggests that BLM intends to alter the lease rights granted to HS by limiting drilling on slopes greater than 15%. Safety and reclamation are not cited as reasons for this change; rather, the change is based on the perceived needs of the casual observer who is apparently more likely to notice drilling operations on slopes in excess of 10% or 15%.

5. Sage Grouse

The FEIS states that BLM would prohibit any facilities, including roads, within 25 miles of a sage grouse lek. FEIS at 2-4. Does that mean all the leks identified on Figure 3-22 in the DEIS? The DEIS acknowledges that not every lek identified in Figure 3-22 is currently active. There is no reason to restrict operations around an unused lek and the ROD should so provide. The FEIS states that the BLM could require monitoring to determine which leks in the PAPA are active and which have been abandoned. Will each lessee have to monitor all leks in the PAPA, or only those within 1/4 mile of its propose drill site or road? On Lease WY-130234, the stipulation restricts surface occupancy within 1/4 mile of a sage grouse strutting ground only in the S25W4 of Section 8, Township 33 North, Range 199 West. Figure 3-22 in the DEIS shows no lek in Section 8.

6. PAPA-Wide Restrictions

The FEIS states that BLM could require only low profile tanks north of the New York River. FEIS at 2-4. This requirement will increase HS' costs and, because such tanks are not commonly available, could delay production.

With respect to raptor nests, the FEIS provides that BLM will prohibit well pads, access roads or other above-ground facilities within 825' of an active raptor nest, 1,000' of a ferruginous hawk nest, and 2,000' of an eagle nest. FEIS at 2-4. Presumably, these restrictions should be limited to active ferruginous hawk and eagle nests, as they are with other raptors. The FEIS does not explain why this should be a year-round restriction, rather than just during nesting season. For example, the Decision Record for the Lost Creek Gathering System, which was signed by the Lander Field...
Manager on January 24, 2000, restricts construction around ferruginous hawk and eagle nests only if the nest is active at the time of construction. See Table 1-2 in Attachment D to Decision Record. The PAPA EIS does not offer a rationale for year-round restrictions on surface use.

The FEIS states that “BLM could require operator evaluation and consideration of the use of CPFs, particularly in the northern portion of the PAPA.” FEIS at 2.4. HS’ leases are all in the northern portion of the PAPA. BLM has not addressed how CPFs could be required where different operators own the wells. Administrative, metering and liability issues make that recommendation completely impractical insofar as it concerns wells operated by competitors.

7 Unleased Lands

BLM should offer for lease the remaining unleased land within the PAPA so that federal minerals can be fully developed.

Summary

The Final EIS solicits comments on the potential management scenario outlined in Section 2. If the ROD adopts Section 2, HS’ ability to develop its valid existing leases will be greatly restricted and therefore we urge BLM to adopt the Standard Stipulations Alternative. BLM offered these leases for competitive sale, subject to stipulations in conformance with the RMP, and accepted the bonus and rentals paid by the lessees. HS and its predecessors purchased the leases in reliance upon the terms of those leases and their stipulations. BLM cannot now change the terms of the leases which HS and others purchased in good faith. The Supreme Court just recently instructed the Department of the Interior, in the context of offshore leases, that it cannot change the rules after the leases have issued. The Court explained, in Mobil Oil v. United States, 517 U.S. 178, 116 S. Ct. 1280, 134 L. Ed. 2d 354 (1996).

We recognize that the lease contracts gave the companies more than rights to obtain approvals. They also gave the companies rights to explore for, and to develop, oil. But the need to obtain Government approvals so qualified the likely future enjoyment of the exploration and development rights that the contract, in practice, amounted primarily to an opportunity to try to obtain exploration and development rights in accordance with the procedures and under the standards specified in the cross-referenced statutes and regulations. Under these circumstances, if the companies did not at least buy a promise that the Government would not deviate significantly from those procedures and standards, then what did they buy?

If Section 2 in the FEIS is adopted as the ROD, BLM will have deviated significantly from the procedures and standards which HS reasonably expected would be applied to the development of its leases. As in Mobil, such a deviation would constitute a breach of the leases. The Pinedale...
considered alternatives (RP) must be adopted for application to the entire PAPA, to the exclusion of others, rather than employing the Standard Stipulations alternative in those instances where appropriate in the PAPA and employing the Resource Protection alternative where a competing, sensitive resource in the PAPA requires heightened protection.

Three of the five objectives of the RP Alternative, as outlined in Section 2.7.2 (page 2-42) of the DEIS, are to:

- allow maximum economic recovery of natural gas from the leaseholds;
- preserve, to the extent practicable and reasonable, unique and valuable characteristics of the natural resources present in the PAPA;
- develop mitigation measures, where practicable and reasonable, to offset impacts which cannot be avoided. (Emphasis added)

The striking omission of maximizing oil and gas recovery from the management plan objectives at Section 2.2 of the FEIS without explanation, after its inclusion as an objective in the DEIS at Section 2.7.2, brings into question the BLM’s commitment to reach a reasonable accommodation between oil and gas development and competing uses.

Apparently, we disagree as to whether maximum economic recovery of oil and gas will be allowed and whether practicable and reasonable mitigation will be employed to preserve unique and valuable natural resources, under the RP Alternative.

Questar engaged in a detailed effort to explain in its DEIS comments, which are incorporated herein by reference, the gap between: i) the restrictions under the RP Alternative limiting oil and gas lessees’ ability to conduct reasonable exploration and development in the PAPA and the weak scientific and economic bases for that alternative, and ii) the scientifically and economically better supported accommodation reached between oil and gas development and competing natural resource uses under the admittedly extensive restrictions of the Standard Stipulations alternative. In its DEIS comments, Questar also indicated its willingness to operate under the RP Alternative stipulations, to the extent practicable and reasonable, so long as same are limited in application to only those specific and unique cases where a competing, highly sensitive resource use could not be reasonably accommodated in proximity with oil and gas operations. See paragraph I. General Comments; paragraph II, Section 1.2, Section 2.3.3, Section 2.1.7, Section 2.7.2, Section 2.7.4 and final paragraph of Questar’s DEIS comment letter. This willingness exists despite the fact that, with the exception of a single 40-acre lease, all of Questar’s leases in the PAPA were issued in the early 1950’s.
and none contain any specific restriction upon the lessee's ability to drill and develop its leases (contrary to assumptions made in BLM’s responses to Questar’s DEIS comments).

II. SPECIFIC REMARKS

Questar offers the following specific comments on the FEIS and the formulation of the ROD document.

1. **Takings**

   While the definition of a "substantial" deprivation of property rights may not be a readily drawn bright line (see BLM response #4 to Questar DEIS comment at page 5-218 of FEIS), the case law is nevertheless quite clear that a complete deprivation of property rights is not required to make out an actionable and compensable taking of lawful, vested property rights. As a result, if BLM proceeds with the RP Alternative in a manner which precludes access to otherwise economically recoverable hydrocarbons through either the layerd mix of restrictions in that alternative (see Section 2.2 of FEIS) or the outright prohibition of wells in specific management areas such as the Mala Breaks (see Table 2-1 of FEIS), successful takings claims can be made. Contrary to the suggestion in the FEIS (see BLM response #4 to Questar DEIS comment at p. 218 of FEIS) Questar has never advanced the frivolous notion that a takings case would be made out if it is denied access to every last molecule of hydrocarbon underlying its leases. As satisfying as that simplistic formulation of the takings issue may be, it has no basis in any comments by Questar and is not an accurate portrayal of the law in this area. The legal corollary to the takings issue where a lessee is denied access to portions of its lease, is the lessee's obligation to protect the lessor against drainage from adjoining wells or pay compensatory royalty. In the event BLM's access restrictions, due either to outright prohibition or mere delayed access, cause drainage of federal leases the only reasonable trade-off will be to excuse such lessor-caused drainage and waive any claim to compensatory royalty.

2. **Two Rig Limitation**

   It is unclear in the FEIS whether the recommended RP Alternative includes the limitation of no more than two exploratory drilling rigs operating at one time north of the New Fork River which appeared in the DEIS (see Section 2.72 of DEIS). Because the DEIS is incorporated into the FEIS by reference except as specifically revised in the FEIS, the prudent course is to assume that this prohibition is part of the FEIS and could appear in the ROD. As the FEIS acknowledges (see Section 2.1 of FEIS), the mix of access restrictions proposed in the RP Alternative for Sensitive Resource Management Zones (SMRZ) covers nearly the entire northern two-thirds of the PAPA which is more or less coincidental with the area north of the New Fork River. Those restrictions already preclude access for exploratory drilling purposes for all but approximately 4-4½ months of the year. See also BLM response #32 to comment of Gene George on behalf of Yates Petroleum at p. 5-197 of FEIS.

   One would think that the reasonable balance BLM so often references in the FEIS would already be achieved by the outright exclusion of drilling activities on federal lands for 4-4½ months out of the year without arbitrarily limiting the number of rigs operating on access is finally made available. Other than the generalized reference to its authority to stage or delay drilling access (see p. 2.72 DEIS), BLM provides no scientific basis nor any economic or technical justification for the two rig limitation. Assuming any rig limitation is appropriate for the area north of the New Fork River during the limited window in which access is allowed, the rig limitation could just as easily be one rig or ten rigs given the absence of justification for the number proposed. If BLM adopts that concept in the ROD, it will have handed operators their strongest legal argument that the accommodation proposed by BLM between oil and gas operations and other resource uses under the RP Alternative was achieved arbitrarily, without a sound scientific, legal, technical and economic basis. It is difficult to reconcile the two-rig limitation and the prohibition of all wellsites in the Mala Breaks with the lessee's expectation of a reasonable opportunity to explore its leases. That limitation is so restrictive as to constitute a clear taking as to the unaccessable portions of the lease.

3. **Gathering Compression Proposals**

   In response to Comment #17, p. 5-220, Questar has no fundamental objection to the use of the term "sales pipeline." Questar's concern about the term is related to establishing the point where "production facilities" end for purposes of calculating royalties. Questar has no objection to describing the facilities leaving the lease as a "sales pipeline" or any other designation, provided that the designation is not used to deny the appropriate deduction of costs associated with those facilities when calculating royalties. Questar believes the facilities described in the DEIS as a "sales pipeline" provide a "transportation service." As such, costs associated with the service provided by those facilities may be lawfully deducted when calculating royalties. If the term "sales pipeline" conveys any other meaning or
impression. Questar renews its original position that the term "sales pipeline" is a
misnomer and should be described as a "transportation pipeline."

Your response at Comment #18, p. 5-221, that Questar Gas Management was
asked by Ultra to provide specific gathering proposals, and declined to do so, is false. Ultra did no more than request funding from Questar Gas Management for
preparation of the draft EIS. Questar did provide comments and information to
BLM about both gathering systems and compression prior to the issuance of the
DEIS in a meeting with Bill McMahon and other BLM staff, although that
information may not have constituted a distinct proposal. For reasons known only
to the BLM, it chose to ignore most of the information and commentary provided
by Questar. Questar also provided timely commentary to the DEIS on gathering
plans and related compression. The present difficulty in scoping the proposed
action under the EIS is a direct result of BLM proceeding to a full-fledged EIS
prematurely, before the likely development scenario is sufficiently concrete to
study in a meaningful manner. This is true for both the drilling of wells and
construction of gathering facilities to serve these wells. By way of example, one
of the companies (Jonah Gas Gathering Company) BLM references as being
particularly concerned about Questar's application (for 27,000 horsepower) to
WDF/Q/AQD (Jonah Gas Gathering Company) has applied to WDF/Q/AQD for a
total of 33,000 horsepower at 3 compressor sites. Two of the sites, the Paradise
Compressor Station (Sec 2, T31N, R109W) and the Falcon Compressor Station
(Sec 23, T31N, R108W) are within the PAPA. These 2 sites are not at locations
that were included or analyzed in the DEIS. As BLM seems to believe that any
gathering compression proposed by Questar at locations different than those
originally proposed by Jonah and MGR and analyzed in the DEIS would require
additional NEPA analysis before BLM rights of way could be granted (see p. 5-
222 of FEIS), surely that understanding should apply equally to any proposal by
Jonah and/or MGR to install compression at locations not previously proposed or
studied in the DEIS.

On a related issue, Questar would like to respond to certain comments made by
McMurry Oil Company. See recommendation at page 5-62 of the FEIS. In doing
so, Questar reiterates comments it has previously made to BLM and to the other
operators in the area (including McMurry's affiliate gathering company Jonah Gas
(Gathering) about Questar's application to WDF/Q/AQD. Questar has been very
clear in its statements and its application to WDF/Q/AQD that it is neither
Questar's intent nor its desire to control the process of allocating horsepower.
Conversely, Questar does not intend to become a victim of any allocation process
Questar encourages and will support a fair horsepower allocation process.

However, Questar will vigorously oppose any process that grants a competitive
advantage based on the view that "providing funds to prepare the EIS conveys
superior rights or the view that "date of entry" in the DEIS process conveys
superior rights.

4. Centralized Production Facilities

With respect to BLM's Response #20 to Questar's DEIS comments on page 5-
222, apparently BLM misunderstood Questar's point. Questar's comments went
to the fact that prudent design necessary to satisfy the operating rights owners'
obligations under 43 CFR 3162, will require certain well site equipment for
operational, environmental and safety reasons. This equipment will need to be
checked with some regularity and the expectation that visits can be limited to
roughly 5% of the well pads during an extensive period of the year is not realistic.
Contrary to BLM's assertion that Questar is alone in its opinion comments by a
number of other operators are consistent with those of Questar. Questar is
encouraged by BLM's recognition of this in its response to BP Amoco, at
Comment 11 page 5-243. Questar supports the concept of evaluating the most
efficient way of reducing impact rather than simply adopting a "broad-brush"
approach. Whatever solution or combination of solutions is employed, it will be
important to stay focused on the objective. The objective is to reduce traffic, not
to achieve some arbitrary limit on the number of visits to the wells.
Consequently, Questar strongly suggests that any reference to the frequency of
well site visits be viewed as a target for accomplishing an objective and not as a
limit. If the 5% limitation is required, operators must assume that BLM will
wave whatever liability would ordinarily accrue to operators for failure to comply
with the BLM operating regulations when such compliance is prevented by
BLM's own directive as to frequency of well site visits.

Although Questar does not believe the technical and economic feasibility of CPI's
has been proven for application throughout the PAPA, it is willing to consider
usage of CPI's on a case by case basis where feasibility can be demonstrated as
we expect it will be in specific cases. However, it is willing to do so only if the
requirement of pad directional drilling is eliminated as a required mitigating
element at specific locations where CPI's are implemented after being
demonstrated as feasible.
5. **Sage Grouse Lek Restrictions**

Regarding restrictions related to the presence of sage grouse leks, the overwhelming appearance of the RP Alternative is that BLM intends to draw a quarter-mile buffer around not only active leks, but also inactive or abandoned leks as well as leks of uncertain current status. Apparently, the rationale is that sage grouse might return to abandoned leks because those locations were suitable at a prior time. See BLM Response #36 to Questar’s DEIS comments at p. 5-225 of FEIS. The record of the DEIS and FEIS is devoid of scientific justification for imposing such buffers around leks which are either inactive or of uncertain status. Because the sage grouse are neither threatened nor endangered as those terms are defined under federal law, we are dubious that imposition of the lek buffer at all sites will withstand administrative and judicial scrutiny or appeal. Taken to its logical extreme a decision to place such buffer around all current and potential lek sites, on the basis that sage grouse could return to a suitable area, could justify denying access to the entire Mesa in which the vegetation is generally suitable for sage grouse utilization.

Questar hereby renews the offer it has made to BLM on two previous occasions to construct an artificial lek or leks at locations chosen by BLM on Questar’s leasehold within the PAPA to permit some amelioration of the sage grouse restrictions now outlined in the FEIS.

6. **Maximum Allowable Level of Well Pad Development**

Of the various restrictions included in the RP Alternative, the one which is most dubious technically and economically and potentially the most confiscatory if applied on a blanket basis, is the maximum number of well pads allowed by management area. See Section 2.1 and Table 2.1 of FEIS). As we understand the tradeoffs or linkage proposed in the RP Alternative between CPFs and number of well pads per section, up to 16 pads per section would be permissible in Management Areas 5-8 if CPFs are utilized. Assuming this is true and is applied, for example, in the Big Game Winter Range management area, it would prohibit further well pads once 212 well pads had been constructed. At 16 pads per section, that maximum number could be consumed when 13.25 sections (or only 8,480 acres) sections of that management area had been developed (i.e., 13.25 x 16 = 212), leaving the remainder of the management area (approximately 87.5%) inaccessible and denying oil and gas lessees’ access to hydrocarbons under their leases. As that possibility creates clear potential for a takings claim in the remainder of the management area, an inflexible limit on total allowable well pads per management area is arbitrary and should not be adopted on the ROD. Hopefully, the ROD will clarify that such result was not intended. One method of making that clarification would be to revise footnote #7 to Table 2.1 of the FEIS to include recognition of the benefit of CPFs within each MA by crediting back locations within that MA for CPFs utilized, as appropriate.

Also, based on the location of most of the non-federal lands in the PAPA, it is unreasonable to assume that 200 of the total authorized wells will be on those lands. The number of wells allowed in each MA should be reallocated to acknowledge that BLM evaluated a likely scenario of development on only the crestal portion of the anticline.

Regarding the Mesa Breaks Management Area, MA-2, BLM’s current recommendation of zero well pads leaves no discretion in BLM’s management of the area. If adopted in the ROD, that recommendation will eliminate all locations for vertical wells and will eliminate even some directionally drilled bottom hole locations in that management area. It is also inconsistent with the rationale of CPFs which is to permit the drilling of more wells by reducing the number of production facilities and attendant visits.

Questar’s representatives have worked closely with Pinedale BLM staff to find a suitable location in the Mesa Breaks in Section 29, T13N-R109W. Despite Pinedale BLM’s acknowledgment that a particular location is otherwise acceptable, that location could not be drilled if the ROD concludes, as the FEIS recommends, that zero wells can be drilled in this area. We strongly recommend that the ROD 1) should drop the zero well prohibition in that MA and 2) provide Pinedale BLM staff and industry representatives with reasonable flexibility to work out common sense solutions for well sitting in the Mesa Breaks. Please note the discussion of takings above, as it applies to the recommended treatment of the Mesa Breaks management area.

7. **Formation of Federal Exploratory Unit**

BLM repeatedly notes, in its responses to industry comments (e.g., Response #13, to Questar comment at p. 5-234 of FEIS) that formation of a federal exploratory unit represents one way of accomplishing some of the objectives of the NEPA planning process at Pinedale. As the largest leaseholder on the Mesa, Questar proposed the Stewart Point Unit to other lease owners in September 1999, after an area and depth meeting with the BLM on July 22, 1999. As of this date, Questar has had no success in persuading all necessary working interest owners to commit to the proposed unit, despite its concerted efforts. Accordingly, we must ask
whether BLM is willing to exercise its residual authority over the leaseholders under the Mineral Leasing Act to require their joinder to the reasonable plan of unit development proposed by Questar. Questar remains willing to support formation of the Stewart Point Unit and would not object to that possibility being included in the ROD if other working interest owners continue to refuse to ratify the Unit

8. Application of Adaptive Environmental Management
As Questar advised in its DEIS comments, the role of the Adaptive Environmental Management (AEM) planning process in future activities in the PAPA is only summarily described in the FEIS document. Accordingly, no comment or lack of comment herein should be considered an acceptance of, or a waiver of right to object to, the application of that process as development occurs in the PAPA. Our concern is that the vague reference to AEM, and its ill-defined nature in the FEIS, will be considered by BLM as a concurrence to its use whenever convenient to halt or delay otherwise lawful activities, the impacts of which were analyzed or contemplated in the FEIS. The specific provision for AEM in the FEIS implicitly acknowledges that the "proposed action" analyzed is so premature that the FEIS is likely to miss some important aspect or impact now recognized but requiring AEM as a back-up for that oversight. Inclusion of AEM in the FEIS and potentially in the ROD is a frank admission that a full EIS is premature and the "proposed action" is insufficiently defined at the current time in the PAPA.

Let us clarify that we have no objection to, and do not dispute that BLM and operators should, monitor impacts to other resources as required under NEPA. Rather, the concern is that BLM will use AEM arbitrarily to stop or delay activities, despite the absence of unintended, unanticipated impacts all at the unlimited expense of the operators. Contrary to the implication in BLM's Response #63 to Questar's DEIS comments and its response #7 to Yates DEIS comments, NEPA and CEQ regulations do not require use of the AEM method. Rather, they require an effort to monitor impacts and permit enforcement without specifying a method. The open-ended, ill-defined requirement for the AEM method in this FEIS is purely a creature of BLM's wishes. Questar's recommendation is that AEM not be included in the ROD and that NEPA required monitoring be achieved through currently utilized methods.

9. Unleased Federal Minerals
At Table 2.2, on page 2.6, the stated objective for Management Area 3 - Unleased Federal Minerals is to close such minerals to future mineral leasing and development. Specific sites identified are at an industrial park west of Pinedale.

III. CONCLUSION
A significant legal question exists as to whether the provisions of the 50-year old federal oil and gas leases held by Questar and now in force in most of the PAPA north of the New York River can be subjected to the extensive restrictions of the RP Alternative throughout the entire PAPA. BLM responses #9 and #44 at pp. 5.219 and 5.226 of the FEIS suggest that explicit provisions of Questar's oil and gas leases authorize BLM to forgo whatever stipulations it deems appropriate upon oil and gas activities within the PAPA. As BLM notes at Section 4.2 of the DEIS, many leases including Questar's contain no such stipulations. Questar has not have commenced adding such stipulations to later-issued leases and was convinced it had legal authority to unilaterally impose such provisions on already-issued leases not containing those stipulations. Notwithstanding the absence of such stipulations in Questar's leases, Questar has indicated its willingness to subject its leases to the requirements of the RP Alternative so long as its application is limited to those unique cases where competing resources can be accommodated in no other reasonable fashion. The RP Alternative should not be adopted in the ROD on a blanket basis. Instead, the ROD should delegate to the BLM Pinedale Resource Area maximum flexibility to work out appropriate protections with operators at specific locations. Surely, a cooperative process to tailor environmental mitigation to specific needs at specific sites is more likely to accomplish both the operators' and BLM's objectives than would an appeal through both the administrative and judicial processes of an ROD adopting the RP Alternative throughout the PAPA.

As stated in Questar's DEIS comments, we look forward to working closely with BLM to fashion mutually acceptable oil and gas operating parameters which are both economically and technically feasible and legally defensible. Assuming the ROD preserves maximum flexibility to the staff of the BLM Pinedale Resource to work out
appropriate, site-specific protections. Questar is more than willing to demonstrate a reciprocal level of flexibility as we move forward.

Sincerely,

[Signature]

G.D. Nordhoff
President and CEO

cc: Alan Pierson
B.H.M, Wyoming State Director
Cheyenne, WY

Alan Kesterke
B.H.M, Wyoming Assistant State Director
Cheyenne, WY

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Mountain-Prairie Region

Memorandum

To: Project Manager, Bureau of Land Management, Pinedale Field Office, Pinedale, Wyoming

From: Assistant Regional Director, Ecological Services, Region 6

Subject: Final Environmental Impact Statement for the Pinedale Anticline Project

Thank you for providing the Final Environmental Impact Statement for the Pinedale Anticline Project in Sublette County, Wyoming.

In Chapter 2, Restrictions and Limitations (page 2-4), the Bureau of Land Management discusses management alternatives if there are impacts to threatened, endangered, proposed or candidate species, as well as paleontological and archaeological resources. However, the Bureau only states the operator may need to cease any operations that would result in destruction of these resources. If the operations will result in any adverse impact, including nonfatal impacts, to any threatened or endangered species, formal consultation pursuant to section 7 of the Endangered Species Act will be necessary.

In numerous discussions regarding impacts to Colorado River fish from depletions, a one-time monetary contribution to the recovery program is identified as the reasonable and prudent alternative. Our understanding is that this fee payment would occur on an annual basis, using the average number of wells drilled per year as the basis for calculating the fee amount. If we are incorrect in this, please advise, and identify how the amount of the fee will be determined. A one-time fee is appropriate for development of support facilities, such as pipelines, if it is the construction activity that results in the depletion.

We understand the Bureau can not predict development on private or State lands that is likely to occur without direct involvement of the Bureau. However, if natural gas is developed on these lands as a result of development on Federal lands or minerals (e.g., a well is developed on private

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land and mineral because of the ability to tie into a pipeline constructed as part of the Pinedale Anticline Project), and this development will impact a listed species, this will be considered an interrelated and interdependent effect. Section 7 consultation will need to be reinitiated, as this private land development will constitute new information.

The discussion on page 4-16 regarding black-footed ferrets is unclear. For example, the first sentence includes the phrase "...there would have to be a guarantee that no further ground-disturbing activity would proceed within the affected habitat with assurance that the species was absent." If the area has been cleared for black-footed ferrets and other listed or proposed species (i.e., the species was absent), it is unclear why further ground-disturbing activity would be prohibited? Likewise, if current ferret sign is located, a determination of "not likely to adversely affect" would be very hard to justify given the precarious status of this species.

The Fish and Wildlife Service does not "guarantee" a "not likely to adversely affect" determination. If measures are identified that will remove potential adverse impacts to any listed species, prior to project development, we may concur with a determination of not likely to adversely affect. However, if a listed species is located, and will be negatively impacted by any project activity, that is an adverse effect and we will need to enter into formal section 7 consultation. The result of that consultation will include reasonable and prudent measures (for a nonjeopardy biological opinion) or reasonable and prudent alternatives (for a jeopardy biological opinion), which outline how the project may proceed in compliance with the Endangered Species Act.

The formal consultation period is 135 days (including preparation of the biological opinion), not 180 days as reported in numerous locations throughout the EIS. Formal consultation begins once all necessary information is received.

The change on page 5-27 regarding applicability of wildlife laws regardless of land or mineral ownership is correct (page 4-18). However, in our preliminary review of this new language, we failed to notice the statement that "monitoring and enforcement are less frequently applied on non-Federal lands or minerals." We are unaware of any statistics that support this statement, and we are concerned that it incorrectly implies persons need not worry about potential violations of State and Federal wildlife laws on non-Federal lands. Including this statement is inappropriate and should not be used in future environmental documents.

The adjustment in the depletion fees for the Colorado River Fish Program is based on inflation, not the Consumer Price Index. Additionally, the current fee is $14.36. However, this amount may change and should be verified at the time of depletion payment.

The whooping crane information presented in the responses to comment letters is incorrect (page 5-185). There are at least two whooping cranes of the Grays Lake population alive as of June 2000 (W. Jobman, USFWS, pers. comm.), and these birds may migrate through the project area.

If you have any questions, please contact Pat Deibert of our Wyoming Field Office in Cheyenne at the letterhead address or phone (307)-772-2374, extension 26.

cc: Director, WGFD, Cheyenne, WY
Field Supervisor, FWS, Cheyenne, WY

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Field Supervisor, FWS, Cheyenne, WY

Field Supervisor, FWS, Cheyenne, WY
June 13, 2000

Director (210)
Bureau of Land Management
Attn: Brenda Williams
1849 C Street NW
Washington, DC 20240

RE: Pinedale Resource Management Plan - Proposal to Close Area to Off Road Vehicles (ORV)

Dear Ms. Williams,

I wish to express my strong opposition to the BLM proposed closing of public lands being referred to as the Mount Airy and Desert General areas as they pertain to the Pinedale Anticline FEIS. Additionally, the proposal of having the only ORV Open Area remaining to be a 1600 acre tract located near Big Piney is a ludicrous position for the County's largest landholder (the BLM) to even consider.

A trade on my part about the ever continuing erosion of access to Public Lands by the "People" likely falls on deaf ears. However, I am increasingly frustrated that this erosion of access continues to encroach on the people who try to make a living, and enjoy the the recreational opportunities, found in this harsh environment.

Bureaucrats in Washington making decisions that affect my life seldom see the hypocrisy that I perceive. If I drive my 4-Wheeler on the sage brush desert (less pressure per square inch than a human footstep) that is seen as "bad". However if some developer plows up several hundred acres of Maryland farmland for a shopping mall that is seen as "progress". Where is the real adverse impact on the environment? Wyoming, with it's small population, has little say in decisions that affect our life. The BLM which has little, if any, Public Lands under it's jurisdiction East of the Mississippi River has a disproportionate effect on the lives of the the sparsely populated Western States. That places the BLM in a special position of power and influence that must be judiciously applied.

Barry Johnson
51 Par Ave, Box 1414
Pinedale, WY 82941
Response to Comments Received on the Pinedale Anticline FEIS

Wildlife Management Institute

1. Both the DEIS and FEIS state that the costs of monitoring will have to be borne by the applicants. Additional BLM staff, with the exception of perhaps the AEM planning coordinator, are not currently considered necessary. The need for additional staff will be reviewed during the AEM planning process following exploratory drilling. The level of development may be less than proposed.

2. Chapter 3 of the DEIS illustrates clearly the types of sensitive natural resources found in the PAPA. The same information is contained in the Jonah EIS. Many of the sensitive resources found in the PAPA are lacking in the Jonah Field. For instance:

   - The Jonah Field is not bisected by the NeX Fork and Green rivers. In fact, there are no perennial waters located in the Jonah Field.
   - There is no critical winter range in the Jonah Field - the PAPA contains critical winter ranges for deer, antelope and mule.
   - The Jonah Field does not contain areas which have been identified as visually sensitive by adjacent residences or areas used extensively by the public for recreation.
   - Residential areas are not located in close proximity to the Jonah Field - the PAPA is adjacent to and/or partially contains the Towns of Pinedale and Boulder.
   - The Jonah Field does not contain the Lander Trail which bisects the PAPA.
   - The Jonah Field is easier to develop (i.e., less steep slopes) and the potential for sediments to reach area waters is greatly reduced.
   - The geology is well understood in Jonah and reserves will likely be more easily developed with less impact (i.e., faster drilling, shallower reserves).
   - The Jonah Field is more secluded and therefore less noticeable to tourist traffic on major routes to the national parks.
   - The Jonah Field makes much less produced water than the PAPA.
   - The Jonah Field is much deeper than the PAPA. In addition, groundwater quality in the Jonah Field is less of an issue.

3. Based on these and other factors, it is reasonable to conclude that many of the impacts from development of the two areas would be different because the sensitive natural resources located in or proximate to the two fields are so different.

4. We see no reason to conclude that the AEM planning process will not "result in any significant results." Quite to the contrary, BLM is optimistic that the AEM approach will allow for quick and meaningful response to development issues. The comment provides no substantive information as to why the AEM planning will fail.

5. We have reviewed the comments on BLM's Draft Manual and Handbook Guidance for Land Use plans submitted by the Wildlife Management Institute (attached to the letter). The comments contained in this letter are consistent with and addressed by the framework provided in Appendix F of the DEIS for the AEM planning process - particularly Steps 2 through 6 described on pages F-6 through F-8. It would be most helpful if the Wildlife Management Institute would review Appendix F and state where the framework is flawed. Specifically, Appendix F addresses the need for the AEM planning process to develop scientifically sound monitoring and to correct practices based on the results of that monitoring, as necessary.

Greater Yellowstone Coalition

1. We believe it is important to point out that no new leasing is addressed in the PAPA EIS.

2. It is inappropriate to assume that any level of development would result in significant impacts. Only the levels specified in the DEIS were addressed. It is likely that very limited development in the PAPA would not result in significant impacts.

3. Such a recommendation is beyond the scope of the PAPA EIS. However, BLM will take your concerns into consideration in future planning and leasing.

4. All of the issues regarding limiting well pad density to one per square mile were addressed in the FEIS comment responses. We are aware of no studies that indicate the 2 mile buffer around leased sites should be modified to a year-round no surface occupancy. Nor is information provided to identify which research reports suggest the 0.25 mile buffer is inadequate?

5. The need for monitoring each of these resources has been identified in the ROD and will be addressed in the AEM planning process.

6. BLM believes that this comment is an over-reaction and is based on a lack of understanding of the NEPA process and the requirements of the CEQ Regulations. We are thrilled with the state being a cooperating agency in the process and believe their participation has made innumerable contributions to the successful completion of the process. This is consistent with the CEQ Regulation in 40 CFR 1501.6 and 1506.2. It is apparent that everyone differs regarding the use of the words should and could in the NEPA context. If the last statement in this comment is followed, then the EIS would become pre-decisional.

7. These steps will also be addressed in the annual development review incorporated in the AEM planning process.

8. BLM has passed this information on to the cooperating agencies with authority to require monitoring of emissions. However, as noted in the ROD at page 17, no additional air quality monitoring of emissions is deemed necessary by the Agencies.

9. Each of these issues, limiting well pads to 1 per square mile. CPES, etc., are thoroughly addressed in the response to comments in the FEIS.

10. Likewise, these issues are addressed in comment responses in the FEIS. Road density limitations can not be practically applied in oil/gas field development. In addition, in many cases minimizing road mileage in an area, regardless of consideration of other resource values (such as cultural resources, visual resources, sedimentation potential) could result in a significant increase in detrimental impacts. The no access to well pads in the winter component of this comment is addressed in the RP Alternative. However, to require no access anywhere in crucial winter range in the winter would preclude the inspection and monitoring of existing and newly developed wells within a majority of the northern part of the PAPA. To extend the need to reduce traffic in the winter to such an extreme can not be required.

11. Statutory limits on BLM’s authority to grant royalty reductions are discussed in the DEIS.

12. Off-site mitigation is listed in the DEIS as a possible mitigation opportunity. However, we are unaware of industry proposing off-site mitigation. A conservation fund alternative would be strictly voluntary on the part of industry. This might be something the environmental community could work with the Petroleum Association of Wyoming on for all of Wyoming.

13. We agree that fences may be migration barriers to big game if improperly designed. However, we disagree that roads, pipelines and the other facilities listed in this comment are barriers to migration. Sage grouse leks currently have a 0.25-mile buffer that essentially equates to a no surface occupancy. Although nesting habitat is seasonally protected, it is not protected year-round through no surface occupancy.

14. BLM has identified the RP Alternative on All Lands and Minerals as the environmentally preferred alternative. However, the state alone will identify which portions of that alternative, if any, are adopted on non-Federal lands and minerals.

Linda Baker

1. If a recreational trail is developed in the PAPA, limiting its use to non-motorized only would be an objective that should
be addressed. However, this will be a public involvement process and the ultimate outcome will depend on that involvement. The word “trail” in the term “limited to existing roads and trails” generally means two-track trails.

Because BLM received a protest letter to the proposed designation change, the Pinedale Anticline ROD. However, when addressing this in the future we will clarify the use of the word “trail”.

2. We fail to see how designating MA's in the PAPA requires additional time for public comment through a formal RMP update. What the MA's do is provide a more organized way of managing implementation and tracking of the exploration and development. The MA's reflect the intensity of potential impacts from one activity - oil and gas exploration and development. This constitutes an “activity plan” level of resource planning for the oil and gas program and does not require RMP update or amendment. Essentially, the MA's carry forward RMP management objectives based on unique and dominant characteristics of the landscape in the MA. Implementation of management objectives designed to reduce the impacts of oil and gas development in the PAPA does not need to be delayed until the RMP update is complete as this comment suggests.

3. The problems associated with limiting development to 1 or 2 well pads/section are thoroughly discussed in the DEIS and in numerous responses to comments in the FEIS. The BLM has determined that such a restriction is not reasonable nor prudent.

4. As stated in the DEIS and in response to comments in the FEIS, the operators will be required to fund the monitoring required under the AEM planning process.

5. This recommendation is beyond the authority of the BLM. We disagree that people of Sublette County will not directly benefit from development. A great deal of discussion regarding the importance of oil and gas in the county’s economy is provided in the DEIS.

Wyoming Outdoor Council

1. This statement is an over-simplification. It implies that BLM has failed to comply with BLM Onshore Order #1. The comment ignores BLM's obligation to balance development with protection of the environment.

2. As stated in the DEIS, BLM lacks authority to enter into any agreement that would require the operators to adopt the RP Alternative on All Lands and Minerals.

3. This “bottleneck” is adjacent to the extreme northwestern portion of the PAPA. No project developments are anticipated to result in restrictions to migration in this bottleneck.

4. The bottleneck addressed in this comment is outside the PAPA and a permanent withdrawal of leasing in this area is outside the scope of the EIS.

5. This comment is very confusing. First, albeit just for the nesting season, BLM does provide a 2 mile buffer around leks to protect nesting sage grouse. This buffer is consistent with the recommendations contained in the BLM Technical report and published recommendations by Mr. Braun that are described in the first paragraph of this comment. Second, the Wyoming Game and Fish Department has reviewed the recommendations for sage grouse buffers and concurred with the appropriateness of the buffer distances. Site-specific analysis are conducted before permitting any surface disturbance of public lands.

6. These recommendations for permanent withdrawal from leasing in the Wind River Front and Gros Ventre foothills are beyond the scope of this EIS.

7. This comment is mistaken - there is no analysis of a 5 well per year development scenario in the EIS.

8. BLM fully intends to encourage wide participation in the AEM planning process.

9. BLM's objection to the notification process was addressed in response to comments in the FEIS.

Wyoming Wildlife Federation

1. As was discussed in the DEIS and in comment responses in the FEIS, BLM cannot adopt the RP Alternative on All Lands and Minerals. BLM lacks regulatory authority to address non-Federal lands and minerals.

2. Annual reviews are anticipated as part of the AEM planning process.

3. This is a standard requirement - site-specific analysis is conducted as part of the APD process.

4. As was explained in the DEIS and in response to comments in the FEIS, limiting well pad density to 1 or 2 per square mile in not reasonable or prudent. Nor is development of reserves technically feasible with only 1 well pad per square mile. Plans of development will be required for any pipelines and CFLP's developed on Federal lands.

5. Standard stipulations have been developed that address each of these concerns (see Appendix A of the DEIS).

6. We again reiterate that the EIS is addressing a specific proposal to develop leased minerals. The information requested by the comment is not germane to the project at-hand. The area is leased and the operators have been provided a right to develop minerals in the PAPA. Whether or not America is energy independent or dependent and whether or not there is a glut of natural gas is irrelevant in this case.

7. Again, we believe our initial response to this comment was correct. We don't understand how burying pit liners results in significant impacts to scenic, environmental, wildlife and recreation values as this comment suggests. The practice of burying pit liners has been scrutinized by a number of state and Federal agencies and the practice is still allowed because of the failure to demonstrate environmental advantages associated with the removal of the pit liners.

8. BLM cannot require the monitoring of emissions. That authority rests solely with the Wyoming Department of Environmental Quality.

9. The entire purpose of including the sales pipeline alternatives in the FEIS was to provide the public the opportunity to comment, as WWF has done. The FEIS provides adequate opportunity to comment on the proposed alternatives and BLM will consider the comment received prior to selecting a preferred alternative.

10. All of the issues/mitigation recommendations that follow this comment are addressed in the response to comments in the FEIS. What WWF appears to be asking for in this comment is BLM commitment to either include or discard the recommendations in the ROD. However, such a commitment would be pre-decisional. We do not believe it is again necessary to reiterate the responses to the individual recommendations. Each has been addressed in either the DEIS, response to comments originally submitted by WWF or in Appendix A of the DEIS.

BP Amoco

1. This comment provides additional information, i.e. problems with rig loading, regarding the difficulties in imposing a limit on the number of rigs operating in the PAPA. The comment suggests that costs of drilling would increase if a rig limit is imposed - we agree. As noted in the RDP, page 36, BLM has concluded that to limit the number of rigs working in the PAPA at any one time on Federal and non-Federal lands and minerals combined would be extremely difficult administratively. However, greater consequence and importance is the fact that the Operators are already seasonally restricted over a significant portion of the PAPA, leaving a relatively small window within which to complete full field development activities (i.e., May 1 through July 1 restriction in many areas due to sage grouse nesting, mountain plover nesting, bald eagle nesting, July 1 through November 15 restriction). The Operator must be able to take advantage of the drilling window available.

2. The statement that the DEIS does not discuss prohibiting well pads in the breaks is not correct. Table 2.8 on page 2-38 of the DEIS discusses the prohibition under the RP Alternative for Deer winter and crucial winter range. The DEIS explains that the technology exist to develop the 40-acre spacing through the alternative of pad drilling, except for a few areas that may be too far. See ROD at page 26, Table 2 and page 29, Table 3.

3. The taking issue brought up regarding the breaks has been thoroughly and completely addressed in the FEIS. Further
clarification is provided in the ROG on page 26. Table 2: footnote 9 and on page 29. Table 3, The Breaks.

4. The VRM argument presented in this comment is convoluted. The first statement suggests that limiting the number of well pads in the Visual SRMZ might still not meet VRM objectives. The second sentence in the comment argues that the number of well pads in the SRMZ "should not matter". The well pad restriction discussed in the FEIS is reasonable and prudent and no information is provided as to why it won't be effective.

5. Use of CPFs, as discussed in the FEIS comment responses, could be used to reduce the loss of gas recovery. Takings are addressed in the FEIS comment responses.

6. The economic "burden" suggested in this comment needs to be evaluated on a case-by-case basis. No justification has been provided, nor could it be provided based on current understanding of the antecedent, to suggest that CPFs and directional drilling are "categorically" uneconomic as this comment suggests.

7. The fact that reserves are left in the ground does not, in-and-of-itself, constitute a taking. This issue was addressed in detail in the FEIS comment responses.

8. The Amoco comment on the CPF concept seems inconsistent with comments provided in the DEIS. Certainly we recognize there will be difficulty in developing a well-functioning CPF system for the Anticline. This comment rehashes problems with CPF fully addressed in responses to other operator comments found in the FEIS. Amoco and the other operators are encouraged to meet and discuss with Texaco the success of their CPFs in the Stagecoach Field.

9. The environmental benefits associated with less traffic in crucial winter ranges during winter periods is irreducible. No one has provided any rational argument to the contrary.

10. The 10-dB noise buffer for sage grouse leks was discussed in comment responses in the FEIS. No new information is provided by this comment.

11. As was stated in the comment responses in the FEIS, the operator proposals necessitate the AEM planning process and the operators will be required to cover the costs of implementing the AEM plan. This will not be 100 percent of the cost, but the cost of conducting monitoring and reporting on the results of that monitoring. Also, it is important to reiterate that it is not possible to outline fully what is necessary for inclusion in the AEM planning process at this time. Appendix C in the ROD describes the collaborative process which will be used to design the planning process. Broad participation in the design of the process is necessary to develop the resource value monitoring as well as experimental designs to test mitigation efficiency.

12. The "cap" referenced in this comment is in fact a level established at which additional NEPA review may be required in a MA. Amoco appears to have misinterpreted information provided in the table. The threshold number represents a level of development beyond which the impact prediction is uncertain. If and when the specified level is reached, a further environmental review will be completed addressing the resources of concern.

Mountain Gas Resources, Inc.

No responses are necessary for this letter. BLM has no new response to MGR’s comments on the DEIS.

Anschutz Wyoming Corporation

1. BLM disagrees with Anschutz’ contention that the inability to remove every molecule of gas from the PAPA somehow makes the RA alternative “unreasonable.” We have discussed this issue in the FEIS comment responses. Anschutz simply disagrees with BLM’s position regarding the reasonableness of the alternative.

2. The DEIS documents the environmental benefit of the W limit. This is a relatively simple concept. Limiting the number of rigs working in an area reduces a number of impacts associated with human presence and emissions, traffic, fugitive dust, noise, light pollution at night, water use, etc. However, as noted in the ROD, page 36, BLM has concluded that to limit the number of rigs working in the PAPA at any one time on Federal and non-Federal lands and minerals combined would be extremely difficult administratively. However of greater consequence and importance is the fact that the Operators are already seasonally restricted over a significant portion of the PAPA, leaving a relatively small window within which to complete field development activities (i.e., May 1 through July 1 restriction in many areas due to sage grouse nesting, mountain plover nesting, bald eagle nesting; July 1 through November 15 no restrictions). The Operator must be able to take advantage of the drilling window available.

3. BLM understands Anschutz concern regarding burdensome stipulations that may be placed on them under the RP Alternative. BLM has the responsibility to balance oil/gas development with the protection of the natural resources. In doing so, there will be burdensome restrictions on development. However, by law, BLM must make sure that these are reasonable. The ROD reflects BLM’s interpretation of reasonable and practicable measures to protect the resources while allowing for development.

4. BLM is uncertain how Anschutz sees surface restrictions favoring directional drilling over CPFs? It is reasonable to expect that CPF’s can be located in an area where the impact from multiple wells with productions facilities requiring daily visits and periodic tankers can be substantially reduced by centralizing this activity at one point.

5. This statement ignores BLM’s obligation to develop the leases while at the same time protecting the environment. It suggests that development be controlled solely by what is necessary to maximize economic return to the operators.

6. The location of cultural sites on public lands administrated by BLM is considered proprietary information and therefore is not subject to release under a Freedom of Information Act (FOIA) request. There are areas of "cultural sensitivity", containing sites that are sensitive, sacred or respectful, by modern-day Native Americans. Additionally, by modern day Native American standards, sites that are referred to as "significant" sites that are Eligible or may be Eligible to the National Register of Historic Places. BLM Wyoming normally shares locational information specific to any given project in an informal way with operators and permitting agents on a "need to know" basis. Also, the proponent usually receives a copy of the cultural resource report generated in support of their application.

BLM will make available to the operators the general locational data concerning these sites for their planning purposes. We suggest that the operators meet with Fonnale BLM cultural resource specialist, Dave Vlcek, to review the locational data and discuss protection opportunities. Standard operating procedures exist for Eligible cultural resources covered on a case by case basis in each AFD. These resources are site specific and are usually not known or evaluated until the site specific inventory is performed for the drilling location.

Gene R. George & Associates, Inc. for Ultra Resources

1. The DEIS documents the environmental benefit of the win limit. This is a relatively simple concept. BLM agrees that seasonal restrictions place the pace of development in the winter months. Limiting the number of rigs working in an area reduces a number of impacts associated with human presence and emissions, traffic, fugitive dust, noise, light pollution at night, water use, etc. However, as noted in the ROD, page 36, BLM has concluded that to limit the number of rigs working in the PAPA at any one time on Federal and non-Federal lands and minerals combined would be extremely difficult administratively. Yet of greater consequence and importance is the fact that the Operators are already seasonally restricted over a significant portion of the PAPA, leaving a relatively small window within which to complete field development activities (i.e., May 1 through July 1 restriction in many areas due to sage grouse nesting, mountain plover nesting, bald eagle nesting; July 1 through November 15 no restrictions). The Operator must be able to take advantage of the drilling window available.

2. As was stated in the comment responses in the FEIS, the operator proposals necessitate the AEM planning process and the operators will be required to cover the costs of implementing the AEM plan. This will not be 100 percent of the cost, but the cost of conducting monitoring and reporting on the results of that monitoring. Other agencies participating in the process will also be sharing in the funding in the form of personnel devoted to the development of the monitoring plans and reviewing results. The requirement for the proponent to fund these costs is not new nor unexpected.

3. BLM concurs, in many ways the AEM process should function as the Transportation Planning Committee did.

4. The issue of royalty-reduction was address in the DEIS as well as in the response to comments in the FEIS. To address the points raised in your comment will take considerable time and involve the Wyoming State Office, the
Washington Office of the BLM and the Office of the Secretary of the Interior. BLM recommends that the Operators pursue this under separate action from the Pinedale Anticline ROD to avoid further delays.

5. This clarification has been made. See ROD page 29, Table 3.

6. This clarification has been made. See ROD page 30, Table 3. However, we disagree with inserting only "long-term" in the restriction/limitation. The point is that MA objectives (particularly protecting crucial winter range) need to be protected in both the short- and long-term. "Short-term" impacts could last for up to 5 years.

7. The additional site-specific NEPA analysis referred to is the same as the site-specific NEPA analysis that is already required for the permitting of each individual well. However, the site-specific analysis for permitting within the Sensitive Viewshed will have to be more detailed and it will be necessary to for the EA to address the listed issues and solicit public comment for actions in the WA. The same explanation applies to MA 5, paragraph 5.

8. This comment is incorrect. It applies specifically to MA 6 (see MA objectives). MA 6 contains VRM Class III areas.

Yates Petroleum Corporation

1. BLM understands the Operators concern regarding rig limitations. As noted in the ROD, page 36, BLM has concluded that to limit the number of rigs working in the PAPA at any one time (on Federal and non-Federal lands and minerals combined) would be extremely difficult administratively. Yet of greater consequence and importance is the fact that the Operators are already seasonally restricted over a significant portion of the PAPA, leaving a relatively small window within which to complete field development activities (i.e., May 1 through July 1 restriction in many areas due to sage grouse nesting, mountain plover nesting, bald eagle nesting; July 1 through November 15 no restriction). The Operator must be able to take advantage of the drilling window available.

2. It is speculative to state that CPFs may render a well uneconomic. Information provided by Ultra and Texaco shows a cost savings using CPFs. The cost ramifications of these mitigation measures need to be considered on a case-by-case basis with actual costs. The use of CPFs offer tremendous flexibility in drilling wells.

3. Noise limits on sage grouse leks have been addressed thoroughly in the FEIS comment responses. Given the existing standard restrictions (e.g., no well pads, roads, or high profile structures within 0.25 miles from a lek), the only proposed facilities that will be restricted more than 0.25 miles from a lek will be compressor facilities.

4. BLM did not intend to imply that the AEM planning process was a NEPA requirement. Monitoring is a NEPA requirement if the EIS deems it necessary. The AEM process is a way of administering a complex program of monitoring and for providing a means for making mid-course corrections in planned activities. The AEM process identified in the EIS is simply a mitigating opportunity that, if properly and diligently applied, will result in less impacts from development in the PAPA over the long-term. It is not "phased development" as this comment suggests. The remainder of the issues identified in this comment will be addressed during development of the planning process, as is outlined in the revised, more simplified plan framework presented in Appendix C of the ROD.

5. The referenced table has been included in the ROD and has been clarified. The guidelines for implementing this table are clearly laid out in the ROD in Table 2 with its 9 footnotes and in Table 3.

6. This is the first time that we have heard safety used as a reason not to directionally drill. No additional information is provided as to why elevated pressure makes the use of directional drilling unsafe. The issues associated with cold temperatures and elevation and their impact on CPFs has been discussed in response to other comments in the FEIS. Yates does not explain why CPFs are not needed in VRM III areas. The footnotes to the table recognize that additional well pads may be allowed if pad drilling or CPFs are installed. Yates and the other operators are encouraged to meet and discuss with Texaco the success of their CPFs in the Stagecoach Field.

McMurry Energy Company

1. This is a valid point. There are portions of the Lander Trail viewshed where "hiding" CPFs may be difficult. This
concern is provided for in the ROD and flexibility included where CPFs may be visible because of lack of topographic relief. The intent is to screen well locations, roads/pipelines, CPFs and other facilities to the extent reasonable and practicable. BLM recognizes that it will not be possible to screen or hide everything associated with the field development.

2. It is anticipated that the cost-effectiveness of mitigation would be addressed and reviewed as part of the AEM planning process.

Bjork, Lindley, Danielson & Baker for HS Resources

1. The purpose for evaluating the mitigation measures for the various alternatives was to satisfy BLM’s obligation to avoid unnecessary and undue impacts. Protecting visually sensitive areas was only one of the management area objectives described in Table 2-1 of the FEIS. The commenter needs to carefully review that table to fully understand the full scope and breadth of the management objectives incorporated in the RP Alternative. Even a cursory review of the table indicates that sensitive visual area protection is only one of many management objectives.

2. The FEIS presents a reasonable approach to mitigating impacts in the PAPA. The section referenced by this comment was provided to solicit public comment on an approach BLM was evaluating for possible inclusion in the ROD. As such, it is not the full table, as could and should be appropriate. The subject table has been included in the ROD but with considerable clarification and actual direction provided.

3. The point of unnecessary and undue impacts is missed by this comment. Undue and unnecessary refer to the need to minimize environmental impact while still allowing development of the lease. The primary concern is provided in determining whether any impact was undue or unnecessary was could the lease be developed using a means that resulted in a significant impacts to the environment? Also, after applying the standard mitigation measures, BLM evaluated the impact remaining (or residual impact) in determining whether it could be reduced further by applying other or additional mitigation measures? BLM concluded that both pad drilling and CPFs were measures that could satisfy this primary criteria.

4. This comment is complaining about a standard stipulation that is contained in BLM’s statewide mitigation guidelines included in Appendix A of the DEIS. This is not a new requirement included in the RP Alternative.

5. The comment is misinterpreting the stipulation (again standard stipulation). The stipulation does not contemplate reclamation of the road surface - only the ditches.

6. The inability to screen certain locations may indeed render some locations undevelopable under this provision. However, BLM anticipates the use of directional drilling and CPFs may be successful in reducing impacts to this area to screen instead of still allowing development of the gas reserves. BLM is well aware of its limitations under the law. The ROD reflects BLM’s interpretation of reasonable and practicable measures to protect the resources while allowing for development.

7. BLM understands the Operators concern regarding ng limitations. As noted in the ROD, page 36. BLM has concluded that to limit the number of rigs working in the PAPA at any one time (on Federal and Non-Federal lands and minerals combined) would be extremely difficult administratively. Yet of greater consequence and the fact is that the Operators are already seasonally restricted over a significant portion of the PAPA, leaving a relatively small window within which to complete field development activities (i.e., May 1 through July 1 restriction in many areas due to sage greening, mountain bluebird nesting, bald eagle nesting, July 1 through November 15 restriction). The Operator must be able to take advantage of the drilling window available.

8. BLM understands the concern HS has identified relative to the sensitive viewed. The Pinedale RMP was completed in the mid 80’s at which time the public had not identified concern over development on the face of the Mesa. During public meetings for the Pinedale Anticline Project, the public was loud in expressing concern over visually scarifying and degrading the face of the Mesa from oil and gas development. BLM cannot ignore this concern. Thus development will proceed carefully, with public involvement, and will incorporate visual impact reduction and screening to the maximum extent reasonable and practicable. Two methods of mitigation identified in the EIS for reducing this impact are pad drilling or installing CPFs. The appropriateness of either of these measures will be considered on a case-by-case, APD-by-APD basis.

9. This statement is not entirely true. While the slope restriction developed for the RP Alternative would indeed reduce visual impacts, the DEIS also points out that limiting development on steep slopes would also reduce impacts from sedimentation and further protect water quality and aquatic resources in the New York River and other sensitive waterways.

10. Yes, the restriction would apply to all leases, active and inactive. As the DEIS states, the status of many leases in the PAPA is uncertain - systematic surveys of leas attendence have not been rigorously performed. Also, it is not valid to assume that a lease that has been recently abandoned will not be used again in the near future. In addition because a lea has been abandoned does not necessarily mean the nesting habitat adjacent to the lea has similarly abandoned.

11. It would be prudent for the operators to share the cost of an annual survey of the entire PAPA. The cost for each operator would be reduced significantly if a single survey was performed.

12. Known leks recorded at the time Lease WYW-130234 was issued indicated that there was a lek within the described area on the lease. Current BLM records in the Pinedale Field Office show that there is not a lek within Section 8. T33N R9W9. Therefore BLM would not request HS to comply with that stipulation on your lease. The reason for this discrepancy could be that at some time in past, the legal description was confirmed and found to be different than the previously thought to be in Section 8. or the lek was declared by the USGS as officially abandoned and thus removed from the record. Your lease can be corrected by requesting a waiver to remove this stipulation. Please contact the BLM Pinedale Field Office to initiate the paperwork to have this done.

13. BLM understands that low profile tanks could be more expensive than standard tanks. However, we do not believe the difference in cost will make a substantial difference in the economics of wells drilled in the PAPA. On-the-other-hand, as can be seen in the Jonah Field, tanks can be the most visible piece of equipment associated with production. The requirement for low profile tanks to reduce visual impacts is not unreasonable a requirement.

14. Further information regarding this standard stipulation is provided in Appendix A of the DEIS. The buffer is a requirement of the USFWS to ensure perpetuation of the species. (Note: The USFWS has increased the distance that wells or production facilities need to be from bald eagle nests from 2,000 feet to 2,600 feet.) Only active nest sites are included in this stipulation. In essence, this standard stipulation is a no surface occupancy stipulation. It prevents permanent facilities which require human presence (i.e., roads, a compressor station, well pad, etc.) from causing nests to be abandoned. Facilities, such as buried pipelines, which do not require intensive human presence, can be constructed within the buffer so long as construction occurs when nesting is not occurring. It is important to note that many species have multiple nesting sites any one year. Therefore, just because one nest site is not used in one year does not mean the nest is not active. It could be used the following year. The requirements contained in the FEIS are consistent with the Land and Field Office decision described in this comment.

15. As was stated several times in the FEIS response to comments, unitization would be the simplest way to solve these problems. However, other ways to address meteering to do so on location through a “T-Pack” before the gas is transported to the central facility or a high pressure line from the well to the CPF can be used with meteering occurring at the CPF.

16. These lands will remain unused for the reasons given in the DEIS. The decisions to not lease these lands was made prior to the Pinedale Anticline EIS.

17. As was stated in response to similar comments in the FEIS, the mitigation measures outlined for the RP Alternatives do not “change the terms of the leases” as this comment contends. The restrictions/limitation prescribed specify how operations will be conducted which are consistent with Section 6 of your lease terms, i.e.,

"Section 6. Conduct of operations - Lessee shall conduct operation in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources and to other land users or users. Lessee shall take reasonable measures deemed necessary by lesser to accomplish the intent of this section..."
17. The Federal leases placed in the project area have been addressed and analyzed for environmental consequence in accordance with the NEPA and the CEQ Regulations, and in accordance with the FLPMA, Section 302(h), which states: "In managing the public lands the Secretary shall, by regulation or otherwise, take any action necessary to prevent unnecessary degradation of the lands." Within the constraints of these laws and regulations, including lease terms and the rights granted the lessee, BLM has presented what it believes to be the best balance between resource protection and natural gas field development under conditions of approval that are reasonable and practicable. 

Questar Market Resources Group

1. This statement is absurd. If no attempt had been made to balance natural resource damage with development, BLM would have chosen the No Action Alternative. Within the constraints of the FLPMA, NEPA, and CEQ regulations, and the lease terms and the rights granted the lessee, BLM has presented what it believes to be the best balance between resource protection and natural gas field development under conditions of approval that are reasonable and practicable.

2. The scenario described here is exactly what the management areas achieve. It places the restrictions in areas commensurate with impacts that are expected based upon the EIS. In management areas where conflicts are expected to be less severe, restrictions are much more similar to those included in the standard stipulations in Appendix A of the DEIS.

3. The argument that maximum recovery is to occur regardless of resource damage is addressed in a number of responses to Questar's comments on the DEIS. At 43 CFR 3162.1 states, "...Conducting all operations in a manner which protects other natural resources and environmental quality..." is also part of the equation to "maximizing oil and gas recovery." BLM apologizes for any misunderstanding expressed in its responses to Questar’s comments on the DEIS. Nevertheless, BLM believes the mitigation measures prescribed in the ROD (as modified from those in the FEIS) are reasonable and do not constitute a takings.

4. BLM understands the Operators concern regarding rig limitations. As noted in the ROD, page 36, BLM has concluded that to limit the number of rigs working in the PAPA at any one time (on Federal and non-Federal lands and minerals combined) would be extremely difficult administratively. Yet of greater consequence and importance is the fact that the Operators are already seasonally restricted over a significant portion of the PAPA, leaving a relatively small window within which to complete field development activities (i.e., May 1 through July 1 restriction in many areas due to sage grouse nesting, mountain plover nesting, bald eagle nesting; July 1 through November 15 no restriction). The Operators were able to take advantage of the drilling window available.

5. BLM believes the mitigation measures prescribed in the ROD (as modified from those in the FEIS) are reasonable and do not constitute a takings.

6. The DEIS documents the environmental benefit of the rig limitation. This is a relatively simple concept. BLM agrees that seasonal restrictions limit the pace of development in the winter months. Limiting the number of rigs working in an area reduces a number of impacts associated with human presence and emissions, traffic, fugitive dust, noise, light pollution at night, water use, etc. BLM’s decision is explained in response to Questar’s comment number 5 above.

7. The term “sales pipeline” refers to the specific pipeline corridor(s) identified in the DEIS and on Figure 3-1 of the FEIS. The terminology used was intended to help the lay person understand and to differentiate between gathering pipelines and the main trunk line taking gas to marketing hubs, and to relate to the potential environmental consequences of each. In the future BLM will look for other terms that are not so confusing.

8. BLM apologizes for any misunderstandings in its response regarding specific gathering pipeline proposals. BLM simply conveyed what it understood. As far as difficulties in scripting the proposed action being a result of BLM proceeding to a full-fledged EIS prematurely is certainly a matter of opinion. This was fully recognized and discussed in the DEIS at page 4-2, left column, 2nd paragraph. This paragraph explains why the EIS is required. It did not explain the part of the discussion between BLM and the Operators where the choices were discussed, i.e., choice 1) prepare and EIS analyzing exploratory drilling of 50 to 100 wells and then in 3 to 5 years prepare a second EIS on field development, or choice 2) do one EIS analyzing exploration and development in the same document. It was agreed that in the long run, doing the one document analyzing exploration and development would be the most time and cost effective. It was understood (DEIS Section 1.2, page 1-2) that many unknowns existed relative to where development would occur, the feasibility of pad drilling, ultimate compression needs, compressor site locations, etc.

The compressor locations that Jonah Gas Gathering applied to WDEQ for emission permits will also require rights-of-way from BLM. Yes, the requirement also applies for additional site-specific NEPA analysis addressing site-specific resource concerns and required mitigation to reduce impacts, just as it will for the Questar sites. The response to comments on the DEIS regarding this did not state, nor did it intend to imply "a competitive advantage based on the view that "providing funds" to prepare the EIS conveys superior rights or the view that "date of entry" in the DEIS process constitutes superior rights." What was intended is that any action proposed which was not analyzed site-specifically in the EIS will require additional NEPA analysis.

9. We concur that the 5 percent figure should not be a limit but rather a goal or target.

10. Use of CFPs to avoid directional drilling is consistent with most of the management objectives identified in Table 2-2 of the FEIS. Questar and the other operators are encouraged to meet and discuss with Texaco the success of their CFPs in the Stagecoach Field.

11. Yes, the restriction would apply to all leks, active and inactive. As the DEIS states, the status of many leks in the PAPA is uncertain - systematic surveys of lek attendance have not been rigorously performed. Also, it is not valid to assume that a lek that has been recently abandoned will not be used again in the near future. In addition, just because a lek has been abandoned does not necessarily mean the nesting habitat adjacent to the lek has been similarly abandoned. This is an example of where directional lease development may be necessary on a case-by-case basis for lease development. The sage grouse is currently being considered for listing by the USFWS. BLM will take the conservative approach to ensure appropriate protection.

12. This proposal will require the involvement of the WGFD. The feasibility of constructing new leks to allow impacts to existing leks will be the type of issue the AEM planning process would be well-suited to undertake.

13. The comment is misquoting the table. In the second column on page 2-1 of the FEIS, total producing well thickness is carefully and completely explained. The threshold represents a level of development at which additional NEPA analysis would be required - not an absolute cap as this comment suggests.

14. We disagree. The allocation was not performed only on the crestal portion of the anticline as this comment suggests. Alternatives analyzed were No Action, Project Wide, and Anticline Crest. See Figures 1-1, page 1-3 of the DEIS.

15. The discussion of take issues associated with the well restrictions in the Mesa Breaks is provided in response to operator comments in the FEIS. BLM has recognized in the ROD the potential need for allowing some wells within the Breaks. However, the objective is still to strive for zero wells. Further public involvement will be required for wells in the Breaks. This may be in the form of that which we have had for the proposed well in Section 29, T33N R109W through the Transportation Planning Committee. However, more public notice will be necessary if future wells are proposed in the Breaks or within the Sensitive Viewshed.

Formation of a Federal Unit - BLM will take your recommendation under advisement to require leaseholder jointed to the plan of unit development proposed by Questar.

16. The AEM process is a way of administering a complex program of monitoring and for providing a means for making mid-course corrections in planned activities. This process should not result in any stopping or delay of activities. The AEM process identified in the EIS is simply an opportunity that, if properly and diligently applied, will result in less impacts from development in the PAPA over the long-term. The issues identified in this comment will be addressed during development of the planning process, as is outlined in the revised, more simplified plan framework presented in Appendix C of the ROD.

17. This concern is clearly explained in the ROD.

US Fish and Wildlife Service

1. The way the bullet item is phrased, the USFWS concern is correct. This has been clarified under the Restrictions and Limitations section of the ROD.

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2. Payment would not occur on an annual basis. It would be a one-time payment based on the annual average use as per the "Recovery Implementation Program for Endangered fish Species in the Upper Colorado River Basin" (3-11-96); the US Fish and Wildlife Service Biological Opinion (i.e., PG&E Project, 8-14-91); and Solicitor Opinion dated 8-16-91. The calculated payment for the Pinedale Anticline Project Operators is as follows: The PAPA will require 3.2 acre feet of water use per well (for construction, well drilling, dust abatement, etc.) and the average annual number of wells drilled would be 90 wells or 288 acre-feet of water use. The current depletion rate (July 2000), which is adjustable based on inflation, is $14.36 per acre-foot. Therefore, the PAPA Operators will be required to submit a payment of 4.135.68 by certified check or money order, to the National Fish and Wildlife Foundation, 11230 Connecticut Ave., N.W., Suite 900, Washington, D.C., 20036.

3. The scenario provided by USFWS where natural gas developed on Federal lands or minerals would be conveyed through a pipeline constructed as part of the Pinedale Anticline Project would be a "Federal nexus" similar to the one described for access across BLM land to well sites on non-Federal lands/minerals (see page 4-16 of the FEIS). With such connected actions, potential impacts to listed species would require consultation with USFWS.

4. The paragraph for errata. Page 4-119 to 120, First Column. End of Page has been changed (changes in bold):

Conditions that must exist to support a conclusion that the project alternatives would "not likely to adversely affect" black-footed ferrets, there would have to be a guarantee that no further ground-disturbing activity would proceed within the affected habitat unless there was assurance that the species was absent. A concurrence of "not likely to adversely affect" would be issued where, for example, neither a ferret nor their sign is found during a survey. If a ferret or their sign was found during a survey, BLM would stop all action on the application in hand and initiate Section 7 review with USFWS. The USFWS would then determine when and under what conditions and/or prudent measures the action could proceed or that the action could not proceed. At that point, the USFWS would provide concurrence that the action would be "not likely to adversely affect" black-footed ferrets. No project-related activities would or could continue until the USFWS issued their guidance or instruction. This would occur within the 135-day window for Section 7 formal review (USFWS. 2000, P. Deibert, personal communication with BLM). Given this interpretation with appropriate procedures extended and applied to all listed and proposed species, the conclusion would appropriately be that the project alternatives would not jeopardize the continued existence of black-footed ferrets or other Federally listed species.

5. Page 2. Fourth full Paragraph beginning..."The change on page 5-27 regarding applicability of wildlife laws...." Change the paragraph for errata. Page 5-27. Column 1. Second Paragraph. Line 3 to read as follows:

The only protection provided to many of these species on non-Federal lands and minerals is through state game laws, the Endangered Species Act, the Migratory Bird Treaty Act and other laws.

6. Thank you for the updated information.

Barry Johnson

BLM will take your comments into consideration during the course of determining the outcome of the proposed decision to be made at a later date.