

APPENDIX A

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

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APPENDIX A

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

INTRODUCTION

Appendix A provides mitigation *guidelines* and *standard practices* for surface-disturbing and disruptive activities on public lands. Every action authorized on public lands must be in conformance with these guidelines and standard practices (i.e., best management 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 attaining 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 1) 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.

SECTION A-1: MITIGATION GUIDELINES

1. Surface Disturbance Mitigation Guideline

Under Regulation 43 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 resource values, 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 operations, and specification of interim 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 undue impact(s) 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 will 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 surface water and/or riparian/wetland/floodplain areas (100 feet from intermittent streams).
- c. Within either one-quarter mile or the visual horizon (whichever is closer) of historic trails.
- d. Construction during periods when the soil material is saturated, frozen, or when watershed damage is likely to occur.
- e. Within 500 feet of Interstate highways and 200 feet of other existing rights-of-way (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 exist, surface-disturbing 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 riparian areas" 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 birthing areas from May 1 through June 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.

- b. 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.

- c. 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.

- d. Portions of the authorized use area legally described as (legal description), are known or suspected to be essential habitat for (name) which is a candidate, proposed, or listed as threatened or endangered species. Prior to conducting any onsite activities, the lessee/permittee will be required to conduct inventories or studies in accordance with BLM and U.S. Fish and Wildlife Service (USFWS) guidelines to verify the presence or absence of this species. In the event that (name) occurrence is identified, the lessee/permittee will be required to modify operational plans to include the protection requirements of this species and its habitat (e.g., seasonal use restrictions, occupancy limitations, facility design modifications).

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 can and should 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 the 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 bighorn sheep, all 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, accipiters, falcons (e.g., peregrine, prairie, kestrel, and merlin), buteos (e.g., ferruginous and Swainson's hawks), osprey, and owls (e.g., great horned, short eared, burrowing). 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.

Item 2c, the prohibition of activity or surface use, is intended for protection of specific wildlife habitat areas or values within the use area that cannot be protected by using seasonal restrictions. These areas or values must be factors that limit

life-cycle activities (e.g., sage grouse strutting grounds, known threatened and endangered species habitat).

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.

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, appropriate mitigation may include excavation (data recovery), stabilization, monitoring, protection barriers and signs, Native American consultation, archival or ethnographic 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 on, or eligible for, the National Register are located within these areas of potential impact and cannot be avoided, the Authorized Officer shall begin the Section 106 consultation process in accordance with the procedures contained in 36 CFR

800, or in accordance with a project specific Agreement Document.

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, contracted 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 resource 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 value), 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.
- b. Within important scenic areas (Class I and II Visual Resource Management Areas).
- c. Special natural history or paleontological features.
- d. Special management areas.
- e. Sections of major rivers.
- f. Prior existing rights-of-way.
- g. 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 special 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 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

NSO requirement will pertain only to refinement or correction of the location(s) to which it applied. If the waiver, exception, or modification is found to be consistent with the intent of the planning decision, it may be granted. If found inconsistent with the intent of the planning decision, a plan amendment would be required before the waiver, exception, or modification could be granted.

When considering the "no development" or "no leasing" option, a rigorous test must be met and fully documented in the record. This test must be based upon stringent standards described in the land use planning document. Since rejection of all development rights is more severe than the most

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 statewide (or national) consistency in avoiding and mitigating 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 federal agencies 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(k) 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 silviculture and hydrology, 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 working on 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 and shall be ultimately 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 insurance, or they may serve as a basis for COAs. If these practices (or newly developed techniques) are already incorporated into plans for development submitted by a permittee, such plans 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 Pinedale Anticline Project Lessees/Operators will comply with the standards, procedures, and requirements contained in this Appendix, unless otherwise 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 are standard practices applied to surface disturbing activities. These practices are applied, when necessary, to reduce environmental impacts. Large projects may require construction and use plans and/or erosion control, revegetation, and restoration 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, Pinedale, 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 stipulations, 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, modification, or waiver of a mitigation 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 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, 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. Lessees and operators shall be held 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. 1).
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, SARA);
 - Adaptive Environmental Management Plan; and
 - Site-specific APD 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 Sundry Notice (SN).

- An onsite predrill inspection shall 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 and other interested parties, and the operator's principal dirt and drilling contractors shall attend the predrill inspection. When appropriate, the operator's surveyor and archeologist 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 3160, Onshore Oil and Gas Order No. 1, 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. 1, III.G.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 Fork Rivers. Where necessary, running surfaces of the roads will be graveled 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. Generally, 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 strips 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 periods when soil material is saturated, frozen, or when watershed damage is likely to occur.
4. Available topsoil will be stripped from all road corridors prior to commencement of construction 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 Authorizing Actions Necessary for
Construction, Operation, Maintenance and Abandonment of the Project (1)**

| Issuing Agency/Permit Name | Nature of Permit/Approval | Authority |
|--|--|--|
| Bureau of Land Management Permit to Drill, Deepen or Plug Back (APD/Sundry process) | Controls drilling for oil and gas on Federal onshore lands | Mineral Leasing Act of 1920 (30 U.S.C. 181 <i>et seq.</i>); 43 CFR 3162 |
| Rights-of-way Grants and Temporary Use Permits | Right-of-way grants on Federal lands | Mineral Leasing Act of 1920 as amended (30 U.S.C. 185); 43 CFR 2880 |
| Rights-of-way Grants and Temporary Use Permits | Right-of-way grants on Federal lands | Federal Land Policy and Management Act of 1976 (43 U.S.C. 1761 - 1771); 43 CFR 2800 |
| Antiquities, Cultural and Historic Resource Permits | Issue antiquities and cultural resources use permits to inventory, excavate or remove cultural or historic resources from Federal lands | Antiquities Act of 1906 (16 U.S.C. Section 431-433); Archaeological Resources Public Protection Act of 1979 (16 U.S.C. Sections 470aa - 47011); 43 CFR Part 3; Section 106 of the National Historic Preservation Act. |
| Approval to Dispose of Produced Water | Controls disposal of produced water from Federal leases | Mineral Leasing Act of 1920 (30 U.S.C. 181 <i>et seq.</i>); 43 CFR 3164; Onshore Oil and Gas Order No. 7 |
| U.S. Army Corps of Engineers Section 404 Permit (Nationwide and Individual) | Controls discharge of dredged or fill materials into waters of the United States. | Section 404 of the Clean Water Act of 1972 (33 USC 1344) |
| U.S. Fish and Wildlife Service Consultation Process, Endangered and Threatened Species | Biological Assessment | Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. <i>et seq.</i>) |
| Wyoming Department of Environmental Quality Water Quality Division Notice of Intent - Storm Water Discharge Permit Temporary Discharge Permits | Controls off-site storm water runoff from construction activities resulting in 5 acres or more of disturbance (minimum disturbance will decrease to 1 acre by 3/7/03). Controls temporary discharges of certain wastewaters from specific types of operations to waters of the state | Wyoming Environmental Quality Act; Section 405 of the Clean Water Act (40 CFR Parts 122, 123 and 124); WDEQ Water Quality Rules and Regulations, Chapters 1, 2, 7 and 18 |
| Air Quality Division Permits to construct and operate Notice of Installation | Regulates emissions from project components Notification of Potential Emissions from production equipment | Wyoming Air Quality Standards and Regulations WDEQ-AQD Permit Requirements: Chapter 6, Section 2 - Oil & Gas Production Facilities |
| Wyoming Department of Transportation Oversize and Overlength Load Permits Utility Permit Access Permit | Permits for oversize, overlength and overweight loads Highway pipeline crossing Highway access construction | Chapters 17 and 20 of the Wyoming Department of Transportation Rules and Regulations Title 12: Code of Civil Procedures, Chapter 26: Eminent Domain Rules and Regulations for Access Driveways as Approved by the Wyoming Highway Commission |
| Wyoming Oil and Gas Conservation Commission Permit to Drill, Deepen or Plug Back (APD process) | Regulates drilling of all oil and gas wells in the state | Wyoming Oil and Gas Conservation Commission Regulations (Section III; Rule 305) |
| Rule 302 | Regulates down hole spacing of all oil and gas wells | Wyoming Oil and Gas Conservation Commission Regulations (Section III; Rule 302) |
| Change in Depletion Plans | Regulates drilling of additional wells | Wyoming Oil and Gas Act (W.S. 30-5-110) |
| Application for Permit to Use Earthen Pit | Regulates reserve pits on drilling locations | Wyoming Oil and Gas Conservation Commission Regulations (Section III; Rule 326) |
| Plugging and Abandonment of a Well | Establishes procedures for permanently abandoning a well | Wyoming Oil and Gas Conservation Commission Regulations (Section III; Rule 315) |
| Wyoming State Engineer's Office Water Well Permit | Grant permit to appropriate groundwater | W.S. 41-121 through 147 |

| Table 1-1. Concluded | | |
|--|---|---------------|
| Issuing Agency/Permit Name | Nature of Permit/Approval | Authority |
| Wyoming State Lands and Investments | Right-of-way and easements on state lands | W.S. 36-9-118 |
| Sublette County Planning and Zoning | Energy Pipeline Permit | |
| Planning and Zoning | Driveway Permit | |
| 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. | | |

material (e.g., maintenance) on steep slopes will be allowed. Snow removal plans may be required so that snow removal does not adversely affect reclamation efforts or resources adjacent to the road.

6. Reclamation of abandoned roads will include requirements for reshaping, recontouring, resurfacing with topsoil, installation of water bars, and seeding on the contour. Road beds, well pads, and other compacted areas will be ripped to a depth of two feet on 1.5 foot centers to reduce compaction prior to spreading the topsoil across the disturbed area. Stripped vegetation will be spread over the disturbance for nutrient recycling, where practical. Fertilization or fencing of these disturbances will not normally be required. Additional erosion control measures (e.g., fiber matting) and road barriers to discourage travel may be required. As deemed necessary by the Authorized Officer, graveled roads, well pads, and other sites will be stripped of usable gravel and hauled to new construction sites prior to ripping. The removal of structures such as bridges, culverts, cattleguards, and signs usually will be required. (See Reclamation section below.)
7. Main artery roads, regardless of primary user, will be crowned, ditched, drained, and, if deemed appropriate by the Authorized Officer, surfaced with gravel to reduce sediment, salt, and phosphate loading to the Green and/or New Fork Rivers.
8. Road closures may be implemented during crucial periods (e.g., wildlife winter periods, spring runoff, and calving and fawning seasons).
9. Unnecessary topographic alterations will be mitigated by avoiding, where possible, steep slopes, rugged topography, and perennial and ephemeral/intermittent drainages, and by minimizing the area disturbed. (See Surface Disturbance Mitigation Guidelines, Page A-2.)
10. Upon completion of construction and/or production activities, operators will restore the topography to near pre-existing contours at well sites, access roads, pipelines, and other facility sites.
11. Detailed practices and procedures as specified in the Transportation Plan for this project (Appendix B) will be followed. Annual review of transportation plans will be

conducted to identify the minimum road network required to support annually proposed project activities, as well as construction and maintenance responsibilities of the Operators. The annual review of plans will identify road-specific dust abatement, road construction, surfacing requirements, and other road concerns that need to be addressed.

12. Individual road design plans for new and/or improved roads will be submitted for approval as components of APDs or ROW permits. All new and improved roads will adhere to BLM road design and construction guidelines, and plans must be approved prior to initiation of work. Operators will schedule a review of plans with sufficient time to obtain BLM approval prior to commencement of work.
13. Existing roads will be used to the maximum extent possible and upgraded as necessary.
14. All roads on Federal lands not required for routine operation and maintenance of producing wells, ancillary facilities, livestock grazing administration, or necessary recreation access will be reclaimed as directed by the BLM. These roads will be permanently blocked, recontoured, reclaimed, and revegetated by the Operators, as will disturbed areas associated with permanently plugged and abandoned wells.
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 oversize 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 along 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-required roads.
21. Dumping of produced water on roads will not be allowed unless total dissolved solids (TDS) are less than 400 mg/l (state standard for the Colorado 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 drill site design plans for BLM approval. These plans will show the drill location layout over the existing topography, dimension of the location, volumes and cross sections of cut and fill, location and dimensions 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 and adequate revegetation is expected. Engineering proposals and 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 waters, depth to useable groundwater, and soil type and permeability (reserve pits will not be located in areas where soil permeability is greater than 10^{-7} cm/hr.), and after evaluation of the fluids which will likely be retained in the pit. Operators will construct reserve pits with 2 ft of freeboard in cut areas or in compacted and stabilized fill. Subsoil material stability and permeability in the area of construction will be evaluated and the need for pit reinforcement assessed. The subsoil material at proposed pit locations will be inspected to assess soil stability and permeability and determine whether reinforcement and/or lining are required. Prior to installation of reserve pit liners and/or fluids, reserve pits will be inspected by BLM personnel.
5. Reserve pit liners must have a mullen burst strength that is equal to or exceeds 300 pounds, a puncture strength that is equal to or exceeds 160 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 a pit is not a good procedure because the bentonite will not be compacted, and uniform coverage 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 constituents. If analysis proves positive, the fluids 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 contouring to conform to surrounding terrain. On well pads and larger locations, the surface use 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 into the surrounding terrain, reseeded, 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 rehabilitated in accordance with a plan approved by the BLM. Soil samples may be analyzed to determine reclamation potential, appropriate reseeding species, and nutrient deficits. Tests may include: pH, mechanical 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 applicants must use the best available engineering design (e.g., alignment, block valve type and spacing, pipe grade), and best 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 consider meteorology, topography, and special pipeline 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 extend above the original ground level after the fill has settled. Guides for construction and water bar placement are found in "Surface Operating Standards for Oil and Gas Exploration and Development" (USDI 1978). Bladed surface materials will be re-spread upon the cleared route once construction is completed. 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 disturbance widths, or routing pipeline ROWs directly to minimize disturbance lengths.

4. Existing crowned and ditched roads will be used for access where possible to minimize surface disturbances. Clearing of pipeline and communication line rights-of-way will be accomplished with the least degree of disturbance to topsoil. Where topsoil removal is necessary, it will be stockpiled (wind-rowed) and re-spread over the 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 stripped of 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) will require protection from construction damage. Backfilling to preconstruction 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 extend above the original ground level after the fill has settled). Wheel or other method of compacting the pipeline trench backfill will be required at two levels to reduce trench settling and water channeling. Once after 3 feet of fill has been replaced and once within 6-12 inches of the surface. Water bars, mulching, and terracing will be required, as needed, to minimize erosion. Instream protection structures (e.g., drop structures) may be required in drainages crossed by a pipeline 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.
 - 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 (serviceberry, 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 appropriate 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 insure 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 sour natural gas sweetening plants (a process used to remove H₂S from natural gas resulting in the emission of sulfur dioxide), is a public concern. BLM requires industry to prepare analyses of risks involved with the development of sour 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 sound, environmentally balanced, and economically feasible decisions are made.
3. In accordance with Wyoming Air Quality Standards and Regulations Chapter 3, Section 2(f), 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:
 - a. 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;
 - b. Application of asphalt, oil, water, or suitable chemicals on dirt roads, materials stockpiles, and other surfaces which can give rise to airborne dusts;
 - c. Installation and use of hood, fans and fabric filters to enclose and vent the handling of dusty materials; adequate containment methods shall be employed during sandblasting or other similar operations;
 - d. Covering, at all times when in motion, open bodied trucks, transporting materials likely to give rise to airborne dust;
 - e. Conduct of agricultural practices such as tilling of land, application of fertilizers, etc. in such a manner as to prevent dust from becoming airborne;
 - f. The paving of roadways and their maintenance in a clean condition;
 - g. The prompt removal of earth or other material from paved streets onto which earth or other material has been transported by trucking or earth moving equipment, erosion by water, or other means (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, statutes, regulations, 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 monitoring 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., SSPS habitats, wetland/riparian areas).

Soils

1. Current objectives focus on soil conservation planning for surface disturbance actions. Soil conservation should be addressed during the initial phase of any surface disturbing action, thereby maintaining soil 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: 1) Evaluation and interpretation of soils in relation to project design and development; 2) Identification and inventory of soils for baseline data; and 3) 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 compatibility 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 rutting or compaction on wet soils.
 5. Salvage and subsequent replacement of topsoil will be required for surface disturbing activities wherever 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.
 8. 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.
 9. Before a surface disturbing activity is authorized, topsoil depth will 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 over the area to be reclaimed 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 should be no more than 2 feet high. Areas 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, dunal areas, 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 (scalping 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 of 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 APD 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

seeding alone may not adequately control erosion. Erosion control efforts will be monitored by the Operators and necessary modifications made to control erosion (43 CFR 3160, Onshore Oil and Gas Order No. 1, I. Accountability.).

12. Sufficient topsoil or other suitable material to facilitate revegetation will be segregated from subsoils during all construction operations requiring excavation and will be returned to the surface upon completion of operations. Soils compacted during construction will be ripped and tilled as necessary prior to reseeding. Cut and fill sections on all roads and along pipelines will be revegetated with native species.
13. Any accidental soil contamination by spills of petroleum products or other hazardous materials will be cleaned up and the soil disposed of or rehabilitated according to Wyoming DEQ Solid Waste Guidelines (#2) for petroleum contaminated soils.
14. Operators will restrict off-road vehicle (ORV) activity by employees and contract workers to the immediate area of authorized activity or existing roads and trails.
15. Project-related travel will be limited to only that necessary for efficient project operation during periods when soils are saturated and excessive rutting could occur.

Reclamation

1. Current BLM policy recognizes that there may be more than one correct way to achieve successful reclamation, and a variety of methods may be appropriate to the varying circumstances. BLM will continue to allow applicants to use their own expertise in recommending and implementing construction and reclamation projects. These allowances still hold the applicant responsible for final reclamation standards of performance.
2. BLM reclamation goals emphasize: 1) protection of existing native vegetation; 2) minimal disturbance of existing environment; 3) soil stabilization through establishment of ground cover; and 4) establishment of native vegetation consistent with land use planning.
3. All reclamation is expected to be accomplished as soon as possible after the disturbance occurs with efforts continuing until a satisfactory revegetation cover is established and the site is stabilized (3 to 5 years). Only areas needed for construction will be allowed to be disturbed.
4. On all areas to be reclaimed, seed mixtures will be required to be site-specific, composed of native species, and will be required to include species promoting soil stability. A pre-disturbance species composition list must be developed for each site if the project encompasses an area where there are several different plant communities present. Livestock palatability and wildlife habitat needs will be given consideration in seed mix formulation. BLM guidance for native seed use is BLM Manual 1745 (Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants), and Executive Order No. 11987 (Exotic Organisms).
5. Interseeding, secondary seeding, or staggered seeding may be required to accomplish revegetation objectives. During rehabilitation or areas in important wildlife habitat, provision will be made for the establishment of native browse and for species, if determined to be beneficial for the habitat affected. Follow-up seeding or corrective erosion control measures may be required on areas of surface disturbance which experience reclamation failure.
6. Any mulch used will be weed free and free from mold, fungi, or noxious weed seeds. Mulch may include native hay, small grain straw, wood fiber, live mulch, cotton, jute, synthetic netting, and rock. Straw mulch should contain fibers long enough to facilitate crimping and provide the greatest cover.
7. The Operator, grantee or lessee will be responsible for the control of all noxious weed infestations on surface disturbances. Aerial application of chemicals will be prohibited within 1/4 mile of special status plant locations, and hand application will be prohibited within 500 feet. Control measures will adhere to those allowed in the Rock Springs District Noxious Weed Control EA (USDI 1982a) or the Regional Northwest Area Noxious Weed Control Program EIS (USDI 1987). Herbicide application will be monitored by the BLM authorized officer.
8. Recontouring and seedbed preparation will occur immediately prior to reseeding on the unused portion of well locations, road ROWs, and entire pipeline ROWs outside of road ROWs. In the event of uneconomical wells, Operators will initiate reclamation of the entire well location, access road, and adjacent disturbed habitat as soon as possible. The lessees 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; I.). 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).
9. Proper erosion and sediment control structures and techniques will be incorporated by the Operators into the design of well pads, roads, pipelines, and other facilities.

Revegetation using a BLM-approved, locally adapted seed mixture containing native grasses, forbs, and shrubs 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 reseeding (September 15 to freeze-up), where feasible;
- spring reseeding (April 30 - May 31) if fall seeding is not feasible;
- deep ripping of compacted soils prior to reseeding;
- surface pitting/roughening prior to reseeding;
- 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; and
- 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.

10. Operators will monitor noxious weed occurrence on the project area and implement a noxious weed control program in cooperation with the BLM and Sublette County to ensure noxious weed invasion does not become a problem. Weed-free certification by county extension agents will be required for grain or straw used for mulching revegetated areas. Gravel and other surfacing materials used for the project will be free of noxious weeds.

Candidate Plants/Special Status Plants

1. Mitigation options to avoid or reduce impacts to rare plants may be limited due to specific habitat requirements, or lack of necessary biological information to make such an assessment. Most of the common techniques such as off-site compensation or habitat restoration have proven largely unsuccessful, although seedbanking is commonly performed in order to attempt off-site propagation. Mitigation plans for areas where impacts to these species cannot be avoided are designed to provide special management actions that minimize the overall impact to the species. However, due to the difficulties of providing successful mitigation options, impacts to candidate plants are considered less than significant only if no net loss of population size or habitat quality results.
2. "No net 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

irretrievable commitment or resources or reduce the future management options for the species involved" (BLM Manual 6840).

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 6840). 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 500 ft from known SSPS populations or other distance deemed safe by the Authorized Officer.
5. Well 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).

Watershed

1. Stream sediment, phosphate, and salinity load will be reduced where possible. In areas where ground water exists 20 feet or less from the surface (Wyoming Oil & Gas Commission), produced water from oil and gas operations will be disposed of in an approved closed storage system or by other acceptable means complying with Onshore Order #7.
2. Where depth to groundwater is less than 100 feet and soil permeability is more than 0.1 foot/day, plants, mills, or associated tailings ponds and sewage lagoons will not be allowed.
3. To protect watershed resources during wet periods, vehicle travel, particularly large or heavy truck traffic, will not be allowed unless travel occurs on roads that are graveled for all-season use.
4. Crossings of ephemeral, intermittent, and perennial streams associated with road and utility line construction will generally be restricted until after spring runoff and normal flows are established.
5. Floodplains by their very nature are unsafe locations for permanent structures. With an inundation of flood waters, soils disturbed by construction could experience a rate of erosion greater than undisturbed sites. There is an additional concern over the potential for flood waters to aid in the dispersal of hazardous materials that may be stored within such structures. Therefore, floodplains will have no permanent structures constructed within their boundaries unless it can be demonstrated on a case-by-

case basis that there is no physically practical alternative. In cases where floodplain construction is approved, additional constraints could be applied.

6. Floodplain Executive Order 11988 (Section 2.a.(2)) states in summary that "...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 alternative), apply flood protection measures to new construction or rehabilitate 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 such flows to be disbursed 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 surface waters, riparian areas, wetlands, and 100-year 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, diking, lining, screening, mulching, terracing, and diversions.

Wilderness

1. A controlled surface use stipulation will be applied for activities within 1/4 mile or 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 defined as critical according to the Uniform Building Code 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 undetected 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 pursuant to 36 CFR 800.11 or other treatment plans, 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 precluding the ability to adequately record or evaluate the find, construction work will cease and the site will be protected for the duration of frozen soil conditions. Following natural thaw, recordation, 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 Wyoming SHPO and the project proponent will occur to resolve conflicts. This consultation will occur on a case-by-case basis, or in conformance 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 disturbing 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 Lander 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 of any kind, or drilling or workover rigs) due to their location, could reasonably be expected to discharge oil in harmful quantities (as defined in 40 DFR part 110 & 112.3), into or upon navigable waters of the United States or adjoining shorelines, shall prepare a Spill Prevention Control and Countermeasure Plan (SPCC Plan) in accordance with 40 CFR 112.7. Owners or operators of drilling or workover rigs need not prepare a new SPCC Plan each time the facility 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 if the facility is normally attended 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 recourse if a spill occurs. Where applicable and/or required by law, streams at pipeline crossings will be protected from contamination by pipeline shutoff valves or other systems capable of minimizing accidental discharge.

4. If reserve pit leakage is detected, operations at the site will be curtailed, as directed by the BLM, until the leakage is corrected.
5. All natural gas wells will be cased and cemented to protect subsurface mineral and 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 the BLM.
6. Operators will avoid disturbance within 500 ft of wetland/riparian areas and open water areas and within 100 ft 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 streamflows 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, floodplains, unstable soils); reestablishment of existing contours 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) or 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 diversion terraces, riprap, matting, temporary sediment traps, and water bars will be employed as necessary. These erosion control measures will be used as appropriate to control surface runoff generated at well locations. The type and location of sediment control structure, including construction methods, 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 ponds prior to release to meet applicable state or federal standards.

11. Channel crossings by pipelines will be constructed so that the pipe is buried at least 4 ft below the channel bottom.
12. Channel crossings by roads and pipelines will be constructed perpendicular to flow. Streams/channels crossed by roads will have culverts installed at all appropriate locations as specified in the BLM Manual 9112-Bridges and Major Culverts (BLM 1990) and Manual 9113-Roads (BLM 1985). Streams will be crossed perpendicular 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.
13. Disturbed channel beds will be reshaped to their approximate original configuration.
14. 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 all water (hydrostatic test water, stormwater, produced water) will be done in conformance with WDEQ-Water Quality Division (WQD), BLM Onshore Oil and Gas Order No. 7, and WOGCC rules and regulations.
15. Operators will prepare Storm Water Pollution Prevention Plans (SWPPPs) for their respective areas of field development as required by WDEQ National Pollution Discharge Elimination System (NPDES) permit requirements.
16. 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 prior to disturbance.
17. 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.
18. Where disturbance of wetlands, riparian areas, streams, and ephemeral/intermittent stream channels cannot be avoided, COE Section 404 permits will be obtained by the operator as necessary, and, in addition to applicable 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 activities will 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 impermeable soils contributed to wetland formation, soils will be compacted to reestablish impermeability.
- 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 well 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, completion, 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 and designed, in part, to keep traffic to a minimum to reduce noise impacts.

Wildlife, Fisheries, and Threatened and Endangered Species

1. The Operators, in consultation with representatives from BLM, WGFD, USFWS, and other interested groups such as area 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: a) 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 reclaimed by the Operator as requested by the BLM; b) potential increases in poaching should be minimized through employee and contractor education regarding wildlife laws (including prohibiting unleashed dogs at work sites to reduce the potential for harassment of wildlife); and c) if wildlife law violations are discovered, the offending employee will be subject to disciplinary action, which could include dismissal by the Operator, and/or prosecution by the WGFD.

3. 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 birthing areas from May 1 through June 30. The BLM can and does grant exceptions to seasonal restrictions if the wildlife biologist, in consultation with the WGFD, 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 (See section A-5 Procedures for Processing Applications in Areas of Seasonal Restrictions).
4. *Raptors* - Operators will comply with the following guidelines for avoidance of raptor nests:
 - Well locations and associated road and pipeline routes will be selected and designed to avoid disturbances to areas of high wildlife value (e.g., raptor nest sites, wetland areas).
 - All surface-disturbing activity (e.g., road, pipeline, well pad construction, drilling, completion, workover operations) will be seasonally restricted from February 1 through July 31 within a 0.5-mi radius of all active raptor nests, except ferruginous hawk nests, for which the seasonal buffer will be 1.0 mi. (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 nest, species involved, prey availability, natural topographic barriers, line-of-site distance(s), 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 1.0-mile radius of proposed surface use or activity areas if such activities are proposed to be conducted between February 1 through July 31.
 - Permanent (life of the project) 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 825 feet (1,000 feet for ferruginous hawks; 2,600 feet for bald eagles) of active raptor nests. The buffer distance may vary depending upon the species involved, prey availability, natural topographic barriers, line-of-sight distances, and other conflicting issues such as cultural values, steep slopes, etc. Linear disturbances such as pipelines, seismic activity, etc., could be granted exceptions as long as they will not adversely affect the raptor(s).
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 lek will be avoided. Linear disturbances such as 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 constructed within 0.25 mi of a lek.
 - During the sage grouse mating season, from March 1 through May 15, surface uses and activities will not be allowed between the hours of midnight and 9:00 AM, within a 0.5 mile radius of active leks (i.e., leks occupied by mating 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 nest is located, an appropriate buffer area will be established on a case-by-case basis 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.
 - If active sage grouse strutting 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 strutting 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 if project activities are planned in potential sage grouse habitat between February 1 through July 31. BLM wildlife biologists will ensure that such surveys are conducted using proper survey methods.
6. *Bald Eagles* - Bald eagles roost, perch, feed, and nest along the Green River and New Fork Rivers. To ensure continued protection of this threatened species, 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 (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 or in wintering 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, workover, 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, if it is determined that wildlife species are impeding successful 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 permits required for movement, removal, and/or establishment of raptor nests will be obtained.
11. Surveys for T&E and candidate wildlife species will be implemented in areas of potential habitat by a qualified biologist prior to disturbance. Findings will be reviewed by the BLM prior to or as components of ROW applications and APD review processes. If T&E and/or candidate species are found in the area, consultation with the USFWS will be initiated, and construction activities will be curtailed until there is 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 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 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 last 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 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 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 seven 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. Throughout the breeding range, this period extends 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 10 a.m., and from 5:30 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 within 3 meters (9 to 10 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 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 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 other data to indicate whether the criteria for black-footed ferret habitat, established in the USFWS (1989) guidelines, are present. If prairie dog colony/complex meets the USFWS criteria, a qualified biologist will locate all project 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 required 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 Cooperation Regulations. If a black-footed ferret or its sign is found during the survey, 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 review 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 when and under what 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, bonytail, and razorback sucker. The USFWS Colorado River Endangered Fish Recovery Program requires a depletion fee be paid by the proponent 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,

11230 Connecticut Ave., N.W., Suite 900, Washington, D.C., 20036.

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 locations not needed for production operations, the borrow ditch and outslope 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 disturbance from construction 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, during on-site reviews, the BLM and the Operator 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 distant, straight line impacts; every opportunity will be taken to reclaim existing road ROWs that are not used when new roads are designed over them; revegetation will be initiated as soon as possible after disturbance; pipeline ROWs will be located within existing ROWs whenever possible; and aboveground facilities not requiring safety coloration will be painted with appropriate nonreflective standard environmental colors (Carlsbad Canyon or Desert Brown, or other specified standard environmental color). 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.

2. Within Visual Resource Management (VRM) Class IV areas, the BLM and Operators will utilize existing topography to screen roads, pipeline corridors, drill rigs, wells, and production facilities from view, where practical. Operators will paint all aboveground production facilities with appropriate colors (e.g., Carlsbad Canyon or Desert Brown) to blend with adjacent terrain, except for structures that require safety coloration in accordance with OSHA requirements.

Health and Safety/Hazardous Materials

1. Operators will utilize WDEQ-approved portable sanitation facilities at drill sites; place warning signs near hazardous areas and along roadways; place dumpsters at each construction site to collect and store garbage and refuse; ensure that all refuse and garbage is transported to a State-approved sanitary landfill for disposal; and institute a Hazard Communication Program for its employees and require subcontractor programs in accordance with OSHA (29 CFR 1910.1200).
2. In accordance with 29 CFR 1910.1200, a Material Safety Data Sheet for every chemical or hazardous material brought on-site will be kept on file at the Operator's field office.
3. SPCCPs will be written and implemented where applicable in accordance with 40 CFR 112. (Also see Water Resources section, page 20.)
4. Chemical and hazardous materials will be inventoried and reported in accordance with the SARA Title III (40 CFR 335). If quantities exceeding 10,000 pounds or the threshold planning quantity are to be produced or stored, the appropriate Section 311 and 312 forms will be submitted at the required times to the State and County Emergency Management Coordinators and the local fire departments.
5. Any hazardous wastes, as defined by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, will be transported and/or disposed of in accordance with all applicable federal, state, and local regulations.

6. Hazardous Material Containment:

- a. All storage tank batteries, including drain sumps and sludge holdings 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. Treaters, dehydrators and other production facilities installed on location, that have the 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 NTL 3A, will be immediately reported by the Operator to the Authorized Operator and other such federal and state officials (e.g., Wyoming DEQ) 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 special areas will be strictly controlled or, if absolutely necessary, prohibited.

SECTION A-3: MITIGATION AND MONITORING OPPORTUNITIES IDENTIFIED IN THE PINEDALE ANTICLINE EIS¹

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-arounds) 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 will 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, cleaning ditches and culverts, dust abatement, maintenance of cattleguards, fences, drainages structures, noxious weed control, or other requirements. This requirement applies only to roads constructed and/or used by the operators.

3. Speeding is 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 SRMZ (DEIS 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.

¹ Note: The mitigation opportunities brought forward from the Pinedale Anticline Draft and Final EIS have been renumbered. The numbers therefore do not always correspond to those in the DEIS or FEIS. The reason for this is that not all measures are within the BLM's authority to implement and not all measures were brought forward for reasons indicated in "C" of this Section.

Also as deemed necessary, the BLM and WGFD will develop information for hunters that directs them away from areas of extensive development.

4. Traffic in the project area will increase dramatically and will likely result in impacts to livestock grazing, wildlife, soils, vegetation restoration, etc. To allow continued open unregulated ORV use in the area will exacerbate impacts these sensitive resource uses. BLM will begin the process of evaluating the Mount Airy and 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 surface gathering pipe in the Sensitive Viewshed SRMZ would reduce visual impacts. Surface pipelines are used elsewhere in the Green River Basin and can dramatically reduce surface disturbing impacts (from buried pipeline scars) and right-of-way clearing. Surface pipelines may be particularly important in areas where pipelines do not follow road rights-of-way.

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 increases the total amount of disturbance because larger areas would be needed to accommodate the well pad, road or pipeline. Furthermore, disturbed sensitive soils could be difficult to reclaim because topsoil is limiting, effective moisture is low and erosion is high. The badland soils in the Blue Rim Area of the PAPA are unique landform features that provide character to the landscape and, if disturbed, could not be reclaimed to their original form. 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 pipeline corridors, to the extent practicable, will follow contours and use topography as screening. New pipelines will be combined with existing or proposed roads and, wherever possible, new cross-county 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 tanks. 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 subsoil material (Wasatch Formation) can be very light in color and thus contrasts with surrounding undisturbed areas. Mixing topsoil 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 APD review for wells located in the Sensitive Viewshed (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 will be allowed. 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.

8. Where flares or combustion chambers are required in the Sensitive Viewshed (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 viewshed 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 state 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 and access road occur within this 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 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, not restricted to the Pinedale Anticline area). The BLM has initiated consultation with Native American tribes regarding Traditional Cultural Properties (TCPs) in the project area. The Shoshone and especially the Utes would like to enter into an agreement with the BLM and the operators to manage sites, but more importantly, the area more holistically. Native American interests go beyond the visual view of "sites" and "buffers" to a desire to manage the landscape as an integrated, interconnected unit. Benefits to be derived from this approach include avoiding the pitfalls of project-specific consultation on site specific conflicts and managing for Native American interests proactively, ahead of pending developments. Partners to this type of approach include not only the operator/lessees, 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 concerning cultural resource management and artifact collection. Interpretive and informative signing 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 research is going 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 prepare a Programmatic Agreement to direct and make 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 1,320 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.

2. 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.

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(s), 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/or 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 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 Ultra 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 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 Fork or Green Rivers will individually or jointly prepare an SPCC 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 pay particular 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 a general permit for 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) surface acres". However, under recently released Federal regulations (Federal Register, 12/8/99) 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 or snowmelt 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 off-site 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 I portions of the Green River or any of its tributary drainages that are Class 1 by the tributary rule. These Class 1 tributaries may include even ephemeral drainages. 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 Fork or Green Rivers, will develop erosion control designs that treat (e.g., sediment trap) runoff before leaving the site.

5. Throughout the PAPA, the feasibility of surface pipelines will be considered, on a case-by-case basis, where steep slopes are traversed (greater than 25 percent, except within Management Area 4, Sensitive Viewshed where there will be consideration of slopes greater than 10 percent) to reduce visual impacts and construction-related erosion and ultimately reduce sedimentation of area waters.

6. To reduce the potential for water quality degradation within five miles of the New Fork 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 the well). The operators will be expected to use readily available techniques for drying pits so that the time between the completion of drilling and interim well pad reclamation is reduced (e.g., if a well is drilled in the spring, interim reclamation should be complete by the end of the summer). If a well is completed late in the fall, the pit should be emptied 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 Fork 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 rivers do or do not continue to support 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 result 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 PAPA.

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 soils and 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 ERRP/SWPPP's, the following potential conditions must be addressed:

Steep slopes. Final alignments of road and pipeline routes should be examined in the field to insure that construction on slopes in excess of 15 percent are (10 percent 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 required 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.

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

- as specified by the AO, well pad design will include sediment traps at discharge sites to prevent any downstream movement of sediment (see Figure A-1);
- as specified by the AO, appropriate BMPs (see Appendix A, Section A-4, Subsection XI) will be installed to prevent sediment movement from disturbed areas adjacent to streams; and
- species adapted to saline or sodic conditions will be used to enhance revegetation success (Table 4-37).

| Species | Variety | Drill Seeding Rate Lbs/Acre (PLS) |
|--------------------------|----------------|--|
| Western wheatgrass | Rosanna | 4.0 |
| Sandberg bluegrass | | 2.0 |
| Indian ricegrass | | 3.0 |
| Bottlebrush squirreltail | | 1.0 |
| Alkali sacaton | | 1.0 |
| Saltgrass | | 1.0 |
| Scarlet globe mallow | | 1.0 |
| Gardner saltbush | | 2.0 |
| Shadscale | | 2.0 |
| Total | | 17.0 |

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 proper seed mixture;
- insure that proper revegetation procedures are used (e.g. scarification, seedbed preparation, seeding methods and seeding dates); and
- two tons per acre of suitable mulch will be applied where appropriate and cleared vegetation will be returned to reclaimed 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 pad loads;
- use geotextile fabrics, where necessary, to support the road base;
- use a closed mud system during drilling where water shows in the rat hole. Require construction of a rat hole (40 ft deep) prior to construction of the reserve pit in order to determine use of a closed mud system. If no water shows, then a closed mud system is not required;
- salvage six inches of topsoil 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/root propagules that are not commercially available. This is a general condition for many of the COE Nationwide Permits and will be applied to

construction of well pads in these temporarily flooded soils; and

- species adapted to wetlands and/or soils with a high water table will be used to enhance revegetation success (see Table 4-38).

| Table 4-38 Recommended Seed Mixture on Wetland/High Water Soils | | |
|--|----------------|--|
| Species | Variety | Drill Seeding Rate Lbs/Acre (PLS) |
| Tufted hairgrass | | 2.0 |
| Basin wildrye | | 5.0 |
| Slough grass | | 6.0 |
| Blue joint reedgrass | | 3.0 |
| Alkali sacaton | | 1.0 |
| Total | | 17.0 |

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's. To ensure that impacts are minimized, erosion is controlled, disturbed areas are successfully revegetated 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 pipeline locations in the vicinity of the sensitive soils shown on Figure 3-15 will be verified in the field to insure that direct and indirect impacts are minimized.

4. Clearing of pipeline rights-of-ways will be accomplished with the least amount of disturbance to topsoil. For gathering pipelines, which usually have a diameter 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-ways will prevent disturbance off the right-of-ways.

On ditches exceeding 24 inches in width, topsoil should be salvaged, where possible, across the entire right-of-way. Topsoil salvaging will also occur on all areas where grading is required. Where 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 sales pipeline along the existing pipeline corridor have been recommended by the BLM (Environmental Assessment for the Bird Canyon-Opal Pipeline, Granger Spur Pipeline, and One Compressor Station, Sublette, Sweetwater, and Lincoln Counties, Wyoming, Rock Springs

and Kemmerer Field Offices. Rock Springs, Wyoming. 1998) and will be utilized in future plans of development.

Trench backfill will not extend above the original ground level after the fill has settled. In the PAPA and along the sales pipeline where soils have a significant rock content, trench backfill will be compacted. A crown will not be placed over the trench in anticipation of settlement because these soils don't typically settle.

Waterbars will be installed in sloping terrain (see Appendix A, Section A-4, Subsection XI). Bladed vegetation materials will be respread over the right-of-way once construction is complete. Mulching will be required as deemed necessary by the AO on soils with low reclamation potential or when erosive. All slopes greater than eight percent will be evaluated for mulching. Banks of stream crossings will be returned to their approximate original contour or shaped to minimize erosion. Silt fences or other sediment barriers will be installed at stream crossings to prevent sedimentation. These stream areas, as deemed necessary by the AO, may need to be fenced to eliminate grazing and to insure reclamation success.

5. The Erosion Control, Revegetation and Restoration Plan(s) (ERRP) will address controls to minimize wind erosion. Road and well pad surfacing materials, watering 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 insure that all disturbed areas are stabilized and that revegetation efforts are enhanced so that significant impacts do not occur.

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

Seedbed Preparation. Proper seedbed preparation is critical for seed establishment. Seedbed preparation will be conducted immediately prior to seeding to prepare a firm seedbed conducive to proper seed placement and moisture retention. Seedbed 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, chisel 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 general seed mixtures provided on Tables 4-37 through 4-39 were developed from observation 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 4-39 General Seed Mixture for Use in the Project Area | | |
|--|---------|--|
| Species | Variety | Drill Seeding Rate Lbs/Acre (PLS) |
| Thickspike wheatgrass | Critana | 4.0 |
| Western wheatgrass | Rosanna | 4.0 |
| Indian Ricegrass | | 4.0 |
| Bitterbrush | | 1.0 |
| Scarlet globe mallow | | 1.0 |
| Winterfat | | 2.0 |
| Fourwing saltbush | | 1.0 |
| Total | | 17.0 |

Native species which will be considered include bluebunch wheatgrass, streambank wheatgrass, bottlebrush squirreltail, needle-and-thread grass and big sagebrush. Use of any introduced species will require prior approval by the BLM. The WGFD recommends that BLM consider shrub species in seed mixtures. BLM will coordinate with WGFD to insure 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 coverage. Spring seeding will be completed by May 30 or as directed by the BLM. Seed will be used within 12 months of testing.

Seeding 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 1/2 inches. 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 rates 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 onto a rough seedbed and then will be lightly harrowed, chained or raked to cover the seed. The seeding rate will be doubled for the recommended seed mixtures because the mixtures were 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 or the seeding will occur over a calculated known area so that the proper seeding rate is applied.

Mulching. Where mulching is deemed necessary, a certified weed-free straw or hay mulch will be crimped into the soil at an application rate of two to four tons per acre. Mulches will be applied by blowers, spreaders or by hand. The mulch will not be finely shredded during application and mulch strand lengths will be long enough to be anchored by crimping. The mulch will be spread uniformly over the area so that 75 percent or more of the surface is covered. Mulch will be crimped to a depth of two to three inches.

7. Where deemed appropriate by the AO, the alignment of the sales 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 revegetation efforts after the second and fourth 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 infest disturbed 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 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 the pit is currently fenced at many of the existing well pad locations and livestock can move unhindered across the remainder of the disturbed sites. In addition to revegetation concerns, livestock on these locations are also damaging spill containment berms 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

species, the operators will apply appropriate control mitigation measures, including coordination with county weed and pest agency, pre-site inspections of gravel sources to assure they are free of non-native and invasive species, rapid revegetation requirements to reduce invasion of non-natives, less ground disturbance, herbicide treatments for non-native and invasive species, and cleaning mud and dirt build-up on equipment brought into the project area from other areas.

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 the livestock permittees so that potential transportation issues identified during public scoping can be addressed. For example, construction and drilling activities will avoid livestock trailing corridors during primary trailing periods (typically mid-June through early July).

2. Well pads will be fenced, as deemed necessary by the AO, to insure 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 cattle guards 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 permittees, will establish a monitoring program to insure that development and reclamation within the grazing allotments and watersheds in the PAPA meet the Standards for Healthy Rangelands. This monitoring program will address the following: 1) watersheds are functioning properly; 2) water, nutrients and energy are cycling properly; 3) water quality meets State of Wyoming standards; and, 4) habitat for special status species is protected². This 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 making adjustments (where necessary) so that over-grazing does not occur.

Wetland

1. On Federal lands and minerals, because a spill could result in a significant, wide-spread impact to wetlands and adjacent drainages (perennial, intermittent or ephemeral), the operators will consider installing product storage tanks in upland areas

off well pads located in wetlands. Wetland spill response and clean up will be addressed in SPCC plans.

Threatened/Endangered Species

1. If deemed necessary by the U.S. Fish and Wildlife Service and the WGFD, 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 WGFD, will identify: 1) unneeded roads and two-tracks that need to be closed and/or reclaimed; 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 nest(s). 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. 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) will be seasonally restricted from February 1 through July 31 within a 0.5-mi radius of all active raptor nests, except ferruginous hawk nests and bald eagle nests, for which the seasonal buffer will be 1.0 mi.

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 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.

² See 43 CFR 4180.1.

- **Surveys to determine presence/absence** of the plover will be conducted between May 1 and June 15 throughout the breeding range.
- **Surveys conducted to determine density of nesting plovers** will be conducted between the last week in June to 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 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 14 day period may be appropriate for other projects).
- If an 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 seven 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. Throughout the breeding range, this period extends 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 10 a.m., and from 5:30 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 within 3 meters (9 to 10 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 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 USFWS concurs that a reduced buffer will still protect the nest from direct and indirect take.

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, 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 prairie dog colony/complex meets the USFWS criteria, a qualified biologist will locate all project 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 required 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 Cooperation Regulations. If a black-footed ferret or its sign is found during the survey, 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 review 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 when and under what conditions and/or prudent measures the action could proceed or whether the action will be allowed to proceed at all.

6. *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, bonytail, and razorback sucker. The USFWS Colorado River Endangered Fish Recovery Program requires a depletion fee be paid by the proponent 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, 11230 Connecticut Ave., 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 used/occupied by black footed-ferret, mountain plovers, burrowing owls, or loggerhead shrikes. As deemed necessary, surveys to locate bald eagle roost trees, perch sites, and feeding areas along the New Fork River and Green River will be conducted in cooperation with the U.S. Fish and Wildlife Service, the WGFD and the landowners to insure that appropriate mitigation measures (buffer areas, 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 Fork 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 U.S. 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 measure 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 site(s). 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 well pads and other well-field facilities have not been adequately reclaimed.
 - c. Identify and correct where newly constructed and existing roads within their 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 guzzlers 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 capabilities for seasonal function so that they would not retain wildlife on 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 trapped in berms 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 fences within the PAPA and Pinedale Resource Area to determine their suitability for mule deer and pronghorn passage and to modify fences that are within 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.

Wildlife/Aquatic Resource Monitoring. BLM standard stipulations attached to each APD will limit impacts to wintering big game, sage grouse on leks, and nesting raptors. In order to effectively implement these stipulations as mitigation measures, surveys for wintering big game, sage grouse breeding and nesting and raptor nesting within the PAPA will be required. The following monitoring requirements will be incorporated into a Wildlife Mitigation and Monitoring Plan for the PAPA which will be prepared and implemented within one (1) year of the Record of Decision. The results of

the monitoring program will be shared with all interested parties during the annual Adaptive Environmental Management process as outlined in Appendix C. The BLM and the cooperating agencies lack the resources to adequately implement the monitoring programs recommended below and specified in Appendix C. While the BLM and cooperating agencies need to be thoroughly involved in all aspects of monitoring, the costs of these programs will be borne by the operators.

1. The wildlife habitat models (pronghorn, mule deer, sage grouse) will be revised with new biological information that is currently being collected on the PAPA and vicinity, or studies conducted elsewhere providing useful information. If or when that information shows that probability levels derived from animal habitat selection differs from levels currently employed in the models, the new information will be integrated in the models to increase predictability of habitat evaluations.
2. The GIS layers used to catalog wildlife habitat data necessary for modeling will be maintained and updated as geographic and biological features change in terms of human settlements, topography, vegetation, use by domestic livestock and other herbivores.
3. As new roads, well pads, pipelines and other well field facilities are developed, their locations will be digitized and included in GIS layers so that the wildlife habitat models can be used to continually evaluate the status of habitats in the PAPA. The operators will submit all locational information regarding pads, roads, pipelines, etc., in a format compatible with GIS analysis.
4. Through continual reiteration with new biological and well field 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 winter distribution, occupancy and health of prairie dog colonies and use of those colonies by other wildlife species.
7. Monitor revegetation 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/curtailing 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 specified 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 subdivision streets to access the drilling site, the operators should obtain city council approval and do everything possible to minimize traffic 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 owner complaints of odor.

8. To protect property values to the extent possible, the operators should develop a variety of schemes and treatments to hide the production facilities so they are not so noticeable to area residents. In addition, production facilities in residential areas should be centralized and the location selected based on the least impact to the area residents. Methods of screening should extend beyond typical vegetative means and include more permanent solutions such as textured concrete walls, buried facilities, etc. Residents of these 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 diesel burning 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 Fork 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 edge of antelope crucial winter 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 Fork River. This well should be drilled in the early spring or late fall when the float access site receives little use. This well pad is on the

extreme edge of deer crucial winter range. Drilling should be coordinated, if possible, to comply with seasonal restrictions for deer. If drilling occurs during the summer, access to the well site should be routed away from the parking lot of the float access. The parking lot should not be used for operator or contractor parking. Operators should develop ways to place production facilities out of the view of the access point. To offset potential impacts to recreation and float-boating use, the operators could voluntarily fund improved access or improve recreation facilities at the site.

3. The operators should inform their employees, contractors and subcontractors that recreation sites and facilities are not to be used for trash disposal or as a water supply source.

Visual

1. If the State or private landowner allows a well pad to be developed in any of the sensitive viewshed areas, roads and well pads could be surfaced with materials that reduce visual contrast. For example, in the sensitive viewshed area near Pinedale, the subsoil material (Wasatch Formation) can be very light in color and thus contrasts with surrounding undisturbed areas. Mixing topsoil with gravel (1 inch deep) in highly visible areas will help to reduce contrast. Operators could investigate the feasibility of applying this opportunity of surfacing roads and well pads with materials closer in color and texture to the surrounding landscape.

2. Production equipment on State and private lands and minerals within the project area could use low profile tanks and be painted with earth tone colors to prevent visual contrasts and to blend these facilities into the landscape as much as possible.

Cultural/Historical

1. The only direct impact to the Lander Trail would occur in Section 36, T. 31 N., R. 109 W. This state 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 could investigate a land and mineral exchange for this section. As of this date no development has occurred within this 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 revenue from this section by obtaining a Federal section of equal mineral potential (perhaps on the crest of the anticline).

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 NO_x emission rate of 0.7 g/hp-hr or less to further reduce impacts to air quality even though it is not significant at 1.0 or 1.5 g/hp-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 or private lands and minerals, in existing domestic or stock wells, any water supply well within 1,000 feet of an existing stock or domestic well should have its production zone (perforated interval) 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 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 would safeguard against immediate lowering of the water level in existing domestic or stock 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/drawdown or that water supply and contamination from other aquifers.

4. If adverse impacts are observed in an existing domestic or stock well due to PAPA 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 water analysis (e.g., static water level, alkalinity, salinity, benzene, oil, 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 Ultra and the Mesa 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 annual development review. The groundwater monitoring program should include routine measurement of groundwater levels in existing 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. To reduce sediment impacts on non-Federal lands and minerals, the operators should consider restricting placement of well pads within 500 feet of a perennial 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. The open cut techniques are in compliance with current regulatory requirements. One way to substantially reduce downstream water quality degradation would be for the regulatory agencies which have authority to permit pipeline river crossings (COE and WDEQ) to evaluate the feasibility of requiring the operators to bore the Green, New Fork and Blacks Fork rivers during future pipeline crossings.

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, cattleguards or other range improvements are repaired in a timely manner and that address compensation 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 portions³.

2. Because a spill could result in a significant, wide-spread 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 SPCC plans.

3. The COE should assure that everything "practicable" 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 Reservoir 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 Fork 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 SPCC planning. Also, County zoning regulation 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

³ A copy of FERC's Wetland and Waterbody Construction and Mitigation Procedures can be found at <http://www.ferc.fed.us/gas/environment/guidelines.htm>

voluntarily by each operator for each well that is drilled in one or more of the wildlife SRMZs 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 PINEDALE ANTICLINE 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 environmental 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 road 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 10, 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.

Wildlife

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 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), sundry 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 degradation associated with the proposed development would be assessed. Where unnecessary degradation to other resources is recognized, seasonal restrictions or other protective measures would be developed for use by the decisionmaker. These would be attached to leases as stipulations, or to ROWs, APDs, sundry notices, etc., as COAs.

The tiered approach to evaluating effects of proposed actions that BLM authorizes allows for subsequent refining of planning and management decisions to avoid unnecessary and undue degradation of other resources. This is primarily done through conducting and documenting site specific environmental analyses of proposed developments, which include identifying mitigation requirements for the related impacts.

The BLM has the authority and the responsibility to manage the public lands and resources in a manner that maintains balance between commodity development and protection of environmental and other land and resource values for future generations. This authority and responsibility are paramount to the BLM's mandate to manage the public lands and resources under the concept of multiple-use, sustained yield,

and environmental integrity. Furthermore, FLPMA requires the BLM to consider and coordinate with other public entities and plans, such as state and local planning documents, when making resource decisions.

If we did not have the authority to further refine our planning and management decisions at subsequent, incremental stages of proposals and decision-making, we would be required to provide protection of other resource values on the basis of only "potential" effects and only at the point of making the initial decision of whether or not to issue an oil and gas lease. This would only result in large areas being unnecessarily identified as off-limits to oil and gas leasing and other development.

Use restrictions on construction, drilling, and well completion activities for the benefit of big game and other animals are not to be applied for a blanket 5 ½- to 9-month period. They also are not to be applied as "stipulations" on existing unstipulated oil and gas leases. Rather, the need for the use of restrictions is to be determined through case-by-case review and analysis of APDs and Sundry Notices, at the time such APDs and Sundry Notices are submitted for approval. Restrictions are applied to avoid or mitigate unnecessary and undue impacts, and they should only be used for locations and time periods that are necessary and appropriate. These restrictions are applied only as COAs for APDs and Sundry Notices not as new "stipulations." The intended application of use restrictions in this manner is consistent with the terms and conditions of existing, unstipulated leases, with the provisions of the regulations in 43 CFR 3101.1-2, and with the Director's policy statement on this subject (WO IM No. 92-67).

Lease Stipulations

Stipulations are conditions, promises, 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 resources. Stipulations, as such are neither "standard" nor "special", but rather a necessary modification of the terms of the lease. In order to accommodate the variety of resources encountered on federal lands, these stipulations are categorized as to how a stipulation modifies the lease rights, not by the resource(s) to be protected.

The need for a stipulation is based on an analysis of potential impacts to other resources as a result of a specific action and to help achieve a specific management objective established in a land use plan. Potential impacts which would result in

unnecessary and undue resource damage if mitigation/protection measures are not used form the basis for stipulations. The methods of mitigation/protection are determined by the land management agency through land use planning and NEPA analysis.

The necessity for individual lease stipulations is documented in the lease-file record and in the appropriately referenced land use plan or other leasing analysis document. The necessary criteria for exceptions, waivers, or modifications would also be documented in the lease-file record through reference to the appropriate plan or other analysis. In all cases, use of the stipulations requires identification of specific resource values to be protected, and description of the specific geographic area covered.

Stipulations attached to noncompetitive leases require the applicants acceptance and signature. Stipulations cannot be added or deleted from existing leases without the agreement of both the lessee and lessor and must be in compliance with the requirements of the Federal Onshore Oil and Gas Leasing Reform Act of 1987. Restrictions attached to a lease as stipulations or lease notices at the time of lease issuance are part of the lease terms and are accepted as such by the lessee when a lease offer is filed.

Lease Notices

Lease notices are a parallel tool to lease stipulations. Lease notices are attached to leases at the time of 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 could 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, sundry 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 constitute the site-specific analysis necessary to show that a particular

activity would result in unnecessary and undue degradation. Mere 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 need for such mitigation must be prepared prior to applying COAs.

Waivers, Modifications, or Exceptions to Stipulations or Conditions of Approval (COA's)

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 5102.f 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 3100-11) and under 43 CFR 3101.1-2. The authorized officer may relocate a proposed oil and gas operation up to 200 meters, or prohibit surface disturbance for up to 60 days (the 60-day/200-meter rule) by using this authority, and attaching a COA to the APD.

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 environmental documentation 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 unnecessary and undue 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 unnecessary or undue degradation. If so determined, the COA would be upheld as being consistent with the granted lease rights, and within the government's reserved authority to mitigate operations. If determined to be due and necessary 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 viewshed, 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. Predisturbance 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 volume 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

Watering 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. REVEGETATION

Type

Seed

Established stock

Site Preparation

Planting

Planting 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)

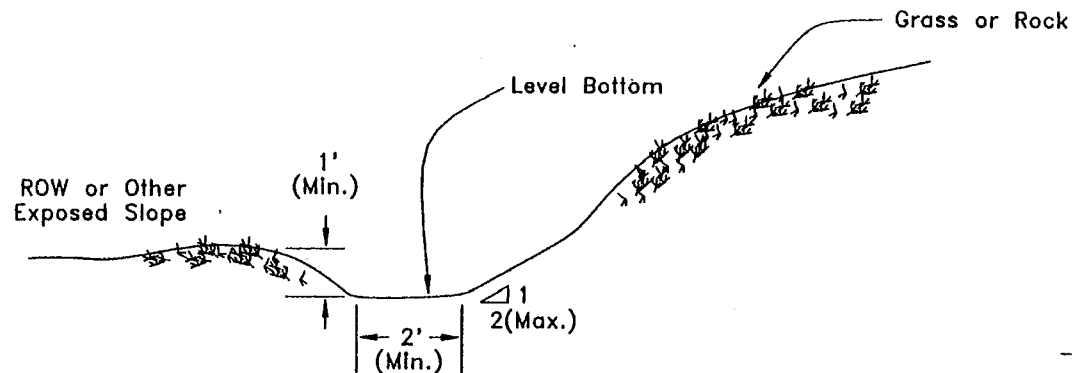
Snow (management)

Company fire policy (weed control) vs. vegetation management goals

XI. BEST MANAGEMENT PRACTICES (BMP's)

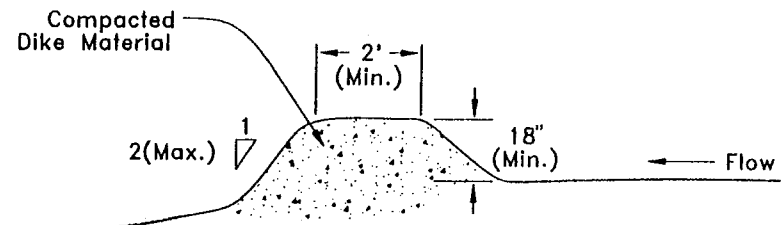
The following pages provide examples of BMP's that may be selected to control sediment.

DIVERSION DITCH



- 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

DIVERSION DIKE

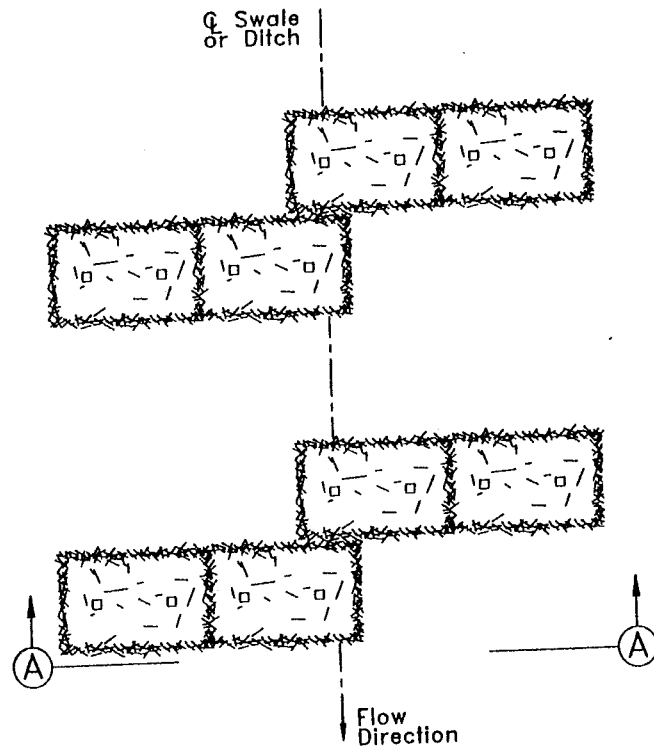


NOTE: Typically used on the top of slopes to divert runoff away from the slope face below.

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.

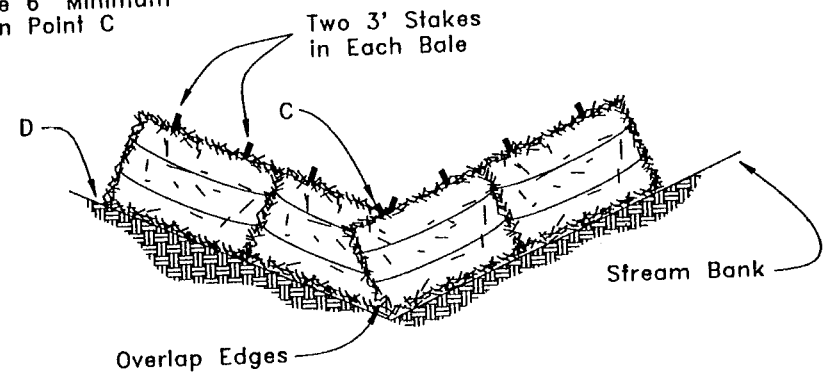
Figure A-2
Typical Diversion Ditch
and Diversion Dike

PLAN VIEW



SECTION A-A

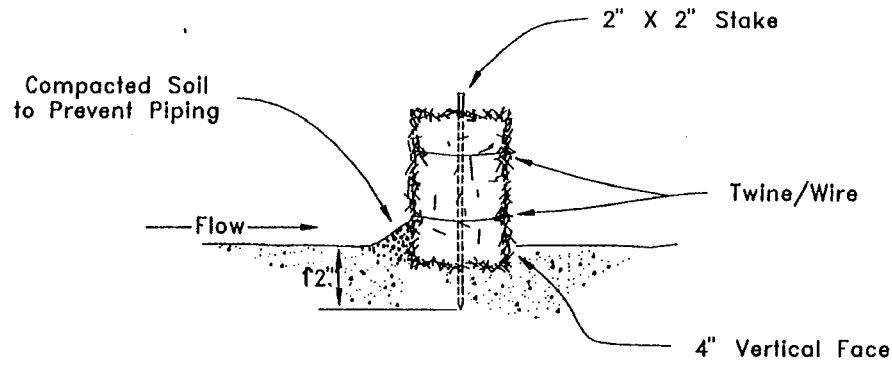
Point D Must be 6" Minimum
Higher than Point C



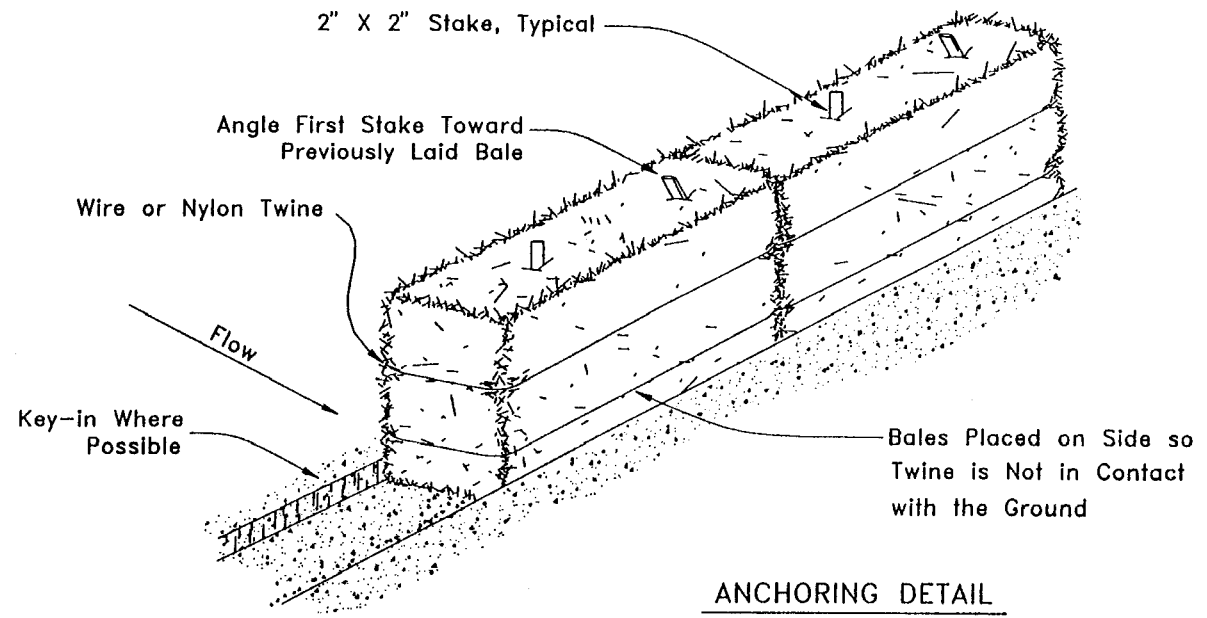
NOTES

- 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

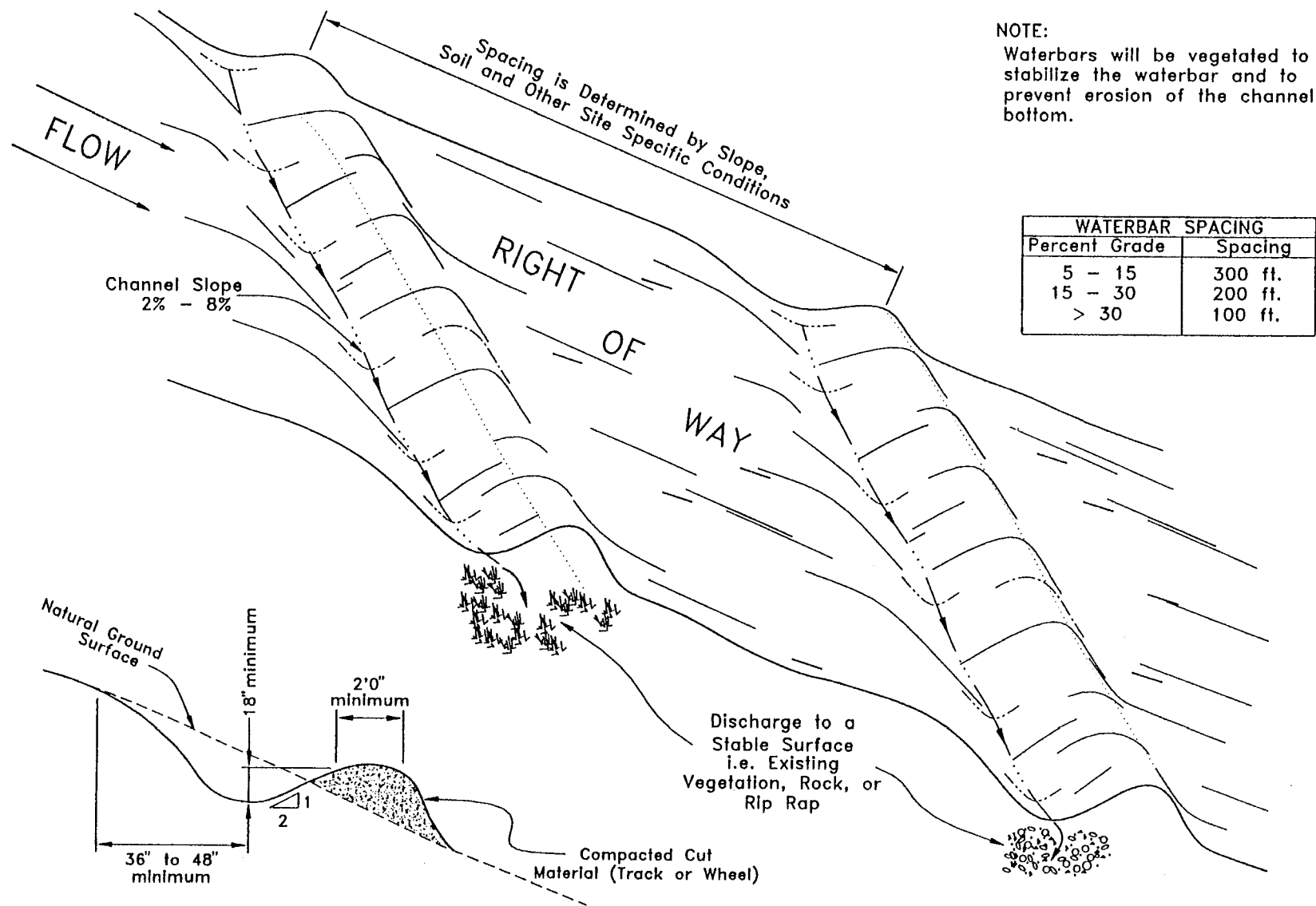


EMBEDDING DETAIL



ANCHORING DETAIL

Figure A-4
Straw Bale Sediment
Barrier Installation



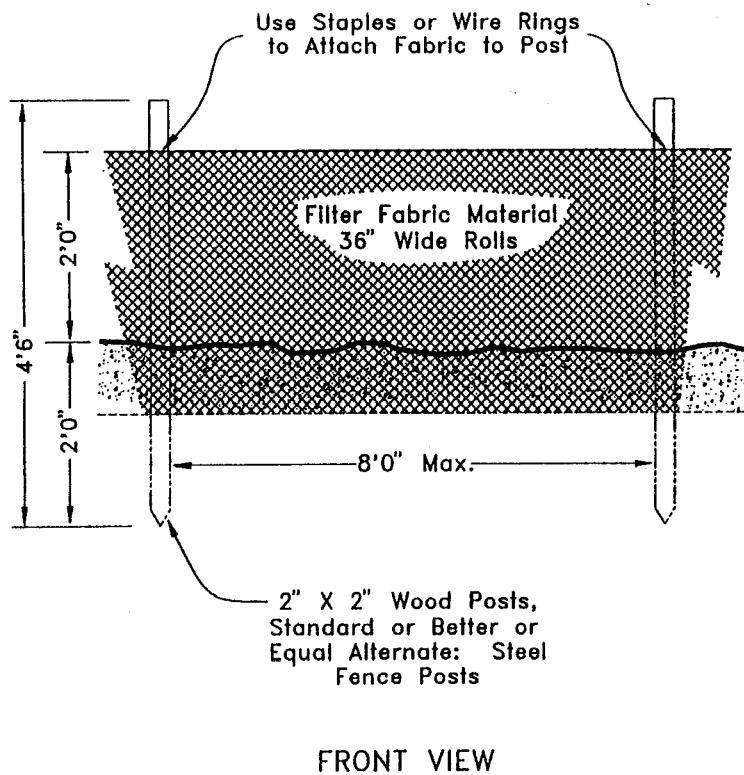
NOTE:
Waterbars will be vegetated to stabilize the waterbar and to prevent erosion of the channel bottom.

| WATERBAR SPACING | |
|------------------|---------|
| Percent Grade | Spacing |
| 5 - 15 | 300 ft. |
| 15 - 30 | 200 ft. |
| > 30 | 100 ft. |

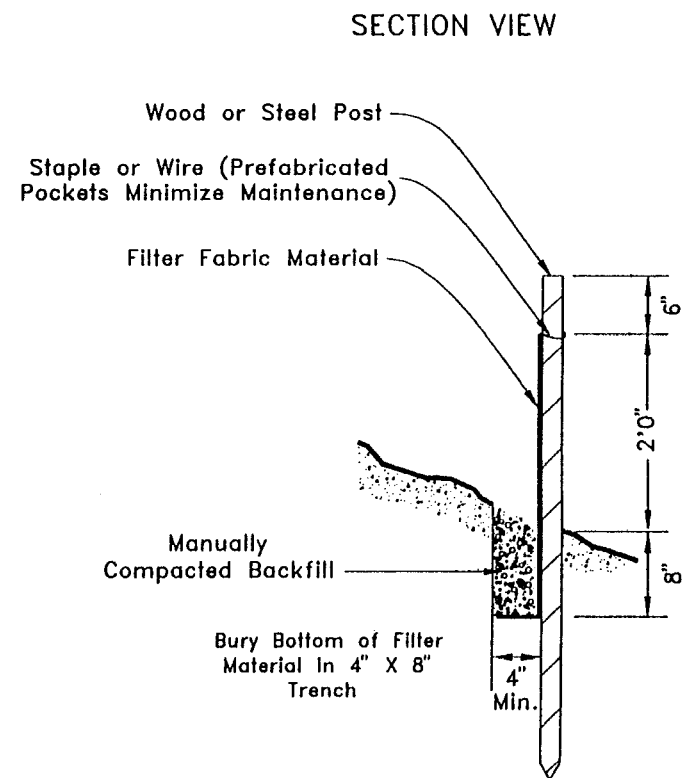
Typical Cross Section

Figure A-5
Permanent Waterbar
Typical Installation

Figure A-6
Typical Silt Fence
Installation



NOTE : Use Amoco Silt Fence
Fabric, style 1380,
or equivalent



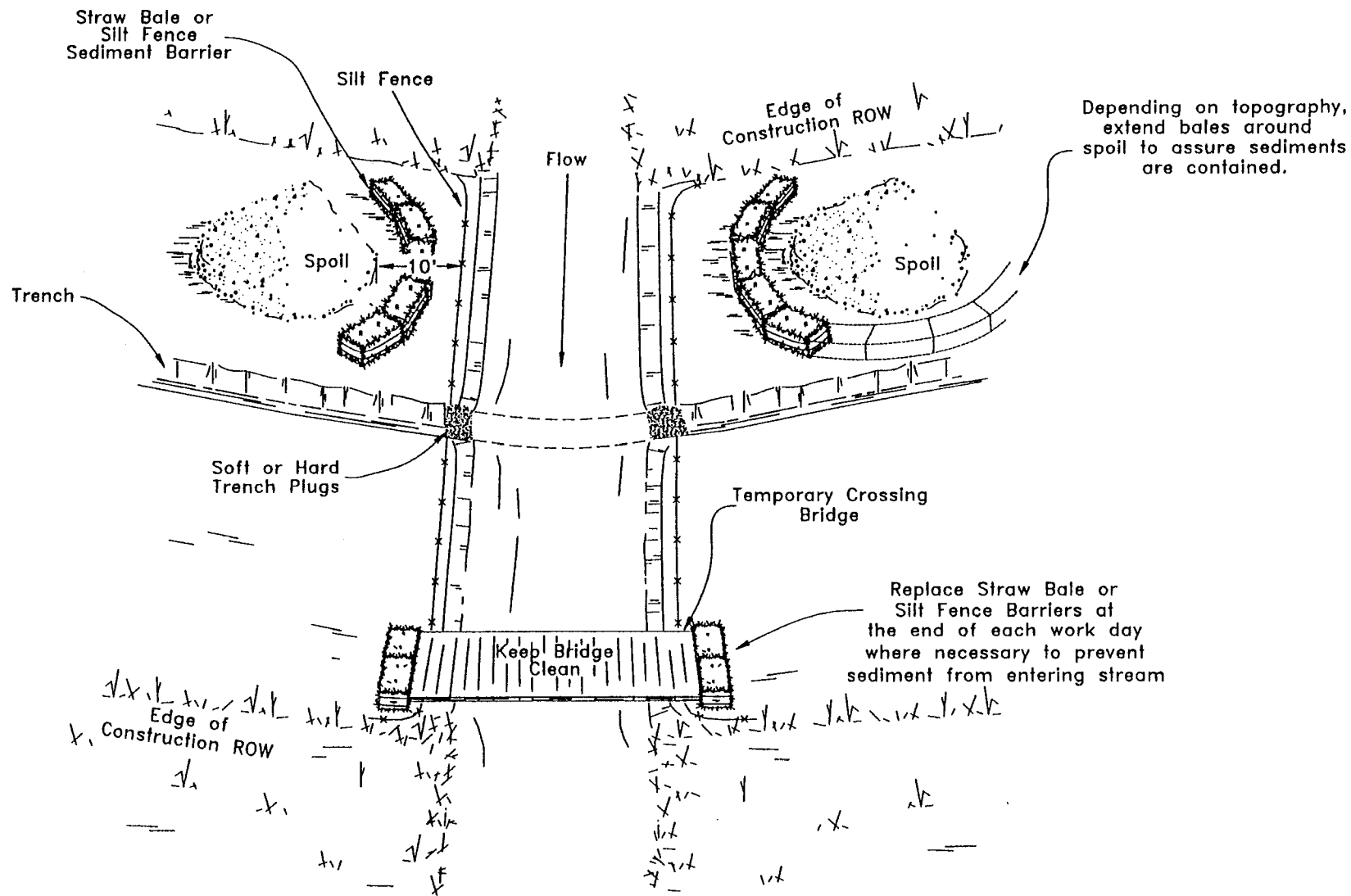


Figure A-7
Sediment Barrier Installation
at Stream Crossings

PROFILE VIEW

PLAN VIEW

Staked Straw Bale
Energy Dissipator

Straw Bales
Laid on End

2" x 2" Wood Stakes
or $\frac{1}{2}$ " Rebar

Pump Hose
or Pipe

Stakes

SECTION A-A STAKED STRAW BALE ENERGY DISSIPATOR

Double Layer Seamless
Plastic Sheetting or Light, Woven
Geotextile Fabric (i.e., 3 oz./yd²)
on top of Bales.

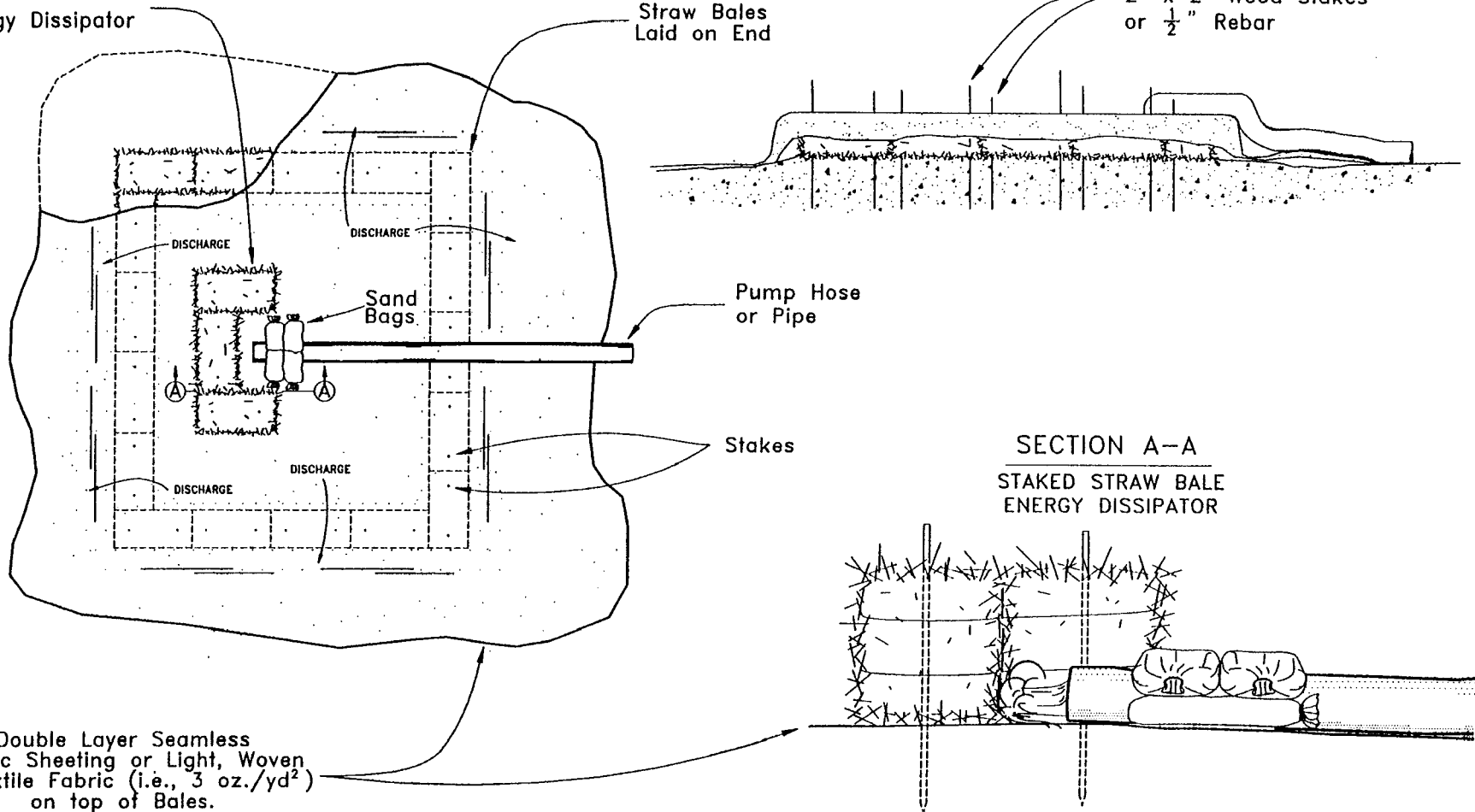


Figure A-8

Dewater Structure
Installation

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, H-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: 1) 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.

If 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 3101.102). 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 initiated 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 WGFD for seasonal wildlife-based lease stipulations or permit COAs.

The unpredictability of weather, animal movement and condition, etc., 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. Protective wildlife seasonal stipulations are developed consistent 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 WGFD, 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 judgement plays a key part in the bureau biologist's recommendation to the Field Manager to grant or not grant exception(s). 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 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

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

-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, sundry notice, ROW)?

-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, crusting, longevity)
 - seasonal weather patterns
 - wind chill factors (indication of animals energy use)
 - air temperatures & variation
 - duration of condition
 - forecasts - long range for duration of winter
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 habituating to activity
 - presence of thermal cover, wind cover, etc.
 - what 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, rivers, 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 WGFD 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.