

# **APPENDIX A – BLM STANDARD STIPULATIONS, BEST MANAGEMENT PRACTICES, AND MITIGATION REQUIREMENTS**

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## **1.0 INTRODUCTION**

These guidelines will provide for consistency in determining requirements for avoiding and mitigating environmental impacts and resource and land use conflicts. Consistency does not mean that identical requirements would be applied to all similar types of 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.

The following elements are included in this Appendix:

1. BLM Standard Stipulations, as required in leases and the Kemmerer RMP.
2. Best Management Practices (BMPs), as applied to resources.
3. Mitigation requirements, as applied to resources.

## **2.0 PURPOSE**

The purposes of the “Wyoming BLM Mitigation Guidelines” are to (1) 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) inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM-administered public lands. These guidelines have been written in a format that will allow for (1) their direct use as stipulations, and (2) the addition of specific or specialized mitigation following the submission of a detailed plan of development or other project proposal and an environmental analysis.

Those resource activities or programs currently lacking 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.

## **3.0 STANDARD STIPULATIONS**

The "Wyoming BLM Standard Oil and Gas Lease Stipulations" were developed in 1986. During their implementation, it was recognized that various land uses, other than those related to oil and gas exploration and development, should be subject to similar kinds of environmental protection requirements. Using the Wyoming BLM standard oil and gas lease stipulations as a basis, development of the "Wyoming BLM Standard Mitigation Measures for Surface-Disturbing Activities" began.

The term "guidelines" better describes the intent and use of these mitigation standards than the terms "stipulations" or "measures." These guidelines are primarily for the purpose of attaining 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 activities that may cause similar types of impacts. Nor does it mean that the requirements or guidelines for a single activity would be identical in all areas.

Some of the seasonal restrictions in the standard oil and gas lease stipulations contain the statement, "This limitation does not apply to maintenance and operation of producing wells." This statement was

included because the stipulations were developed specifically for application to oil and gas leases at the time of issuance, not for activities associated with producing wells. At lease issuance, the only action that can be generally contemplated is the possibility that exploratory drilling may occur somewhere on the lease area. Unfortunately, the provision has been interpreted by some people to mean that the seasonal restriction disappears at the operational stage (i.e., if a producing well is attained). It must be understood that at both the oil and gas exploration stage and the operation or development stages, additional site-specific environmental analyses are conducted and any needed restrictions or mitigations identified become part of the operational or development plan. For example, wells may continue to produce, but related activity may be limited. Thus, it is possible for such seasonal restrictions to continue in effect and be applicable to maintenance and operation of producing wells, if supported by the environmental analyses.

### **3.1 Big Game Winter Range**

Crucial big game winter ranges will be closed from November 15 through April 30. Exceptions may be granted if field inspections reveal a lack of actual or potential wildlife use.

### **3.2 Raptor Nests**

No activity or surface disturbance will be allowed for up to a 0.75 mile radius from active raptor nest sites from February 1 through July 31. A nest site will be considered active if it has been used within the past three years. Actual distances and dates will vary based on topography, species, season of use, and other pertinent factors.

### **3.3 Greater Sage-Grouse**

No activity or surface disturbance will be allowed within 0.25 mile of a sage grouse lek center from March 15 through May 31. The authorized officer may grant exceptions which may include:

- Surface disturbance may be allowed from June 1 through March 14 if the area could be returned to acceptable habitat (i.e., relatively flat with no obstructions) before March 15.
- Surface disturbance may be allowed when a field exam determines the specific area used for strutting. In this case, the restriction would be applied only to the actual lek site and a 500-foot buffer around the perimeter.
- Activities which do not disturb the surface may be allowed any time from June 1 through March 14. Activities which do not disturb the surface may be allowed from March 15 through May 31 from five hours after sunrise until two hours before sunset.

### **3.4 Riparian and Wetland Areas**

No surface disturbance will be allowed within 500 feet of perennial streams or live water. Crossings of perennial streams will be minimized. This is especially important where there is a high density of riparian areas. The use of established roads or temporary bridges will be preferred. When rehabilitation of a riparian area is required, the primary objective will be soil stabilization. The re-establishment of riparian vegetation will always be a key objective. The desired plant species composition after rehabilitation will depend on site-specific objectives.

### **3.5 Historic Trails**

Generally, visual intrusion and surface disturbance will be restricted or prohibited within 1,320 feet from either side of a historic trail, or within the visual horizon of the trail, whichever is closer.

### 3.6 Threatened, Endangered, and Sensitive Species

Appropriate measures to protect all threatened, endangered, and sensitive plant and animal species will be applied to all actions and use authorizations. These measures could include avoidance, "no surface occupancy," "no surface disturbance," and seasonal restrictions.

The following stipulations to protect bald eagles and peregrine falcons and their habitat are in place:

- A "no surface occupancy" restriction will be applied to leases to protect bald eagle roosting areas. In addition, a 1 mile buffer zone around bald eagle winter roost sites will be closed from November 1 through April 1.
- If any active bald eagle or peregrine falcon nests are found, no activity or surface disturbance will be allowed for up to a 0.75 mile radius from an active nest from February 1 through August 15. A nest site will be considered active if it has been used within the past three years.

Actual distances and dates will vary based on topography, species, season of use, and other pertinent factors.

## 4.0 BEST MANAGEMENT PRACTICES

### 4.1 Operator-Committed Reclamation and Mitigation Measures

The Operators would commit to the following reclamation procedures as part of all oil and gas development activities in the MAA:

- The Operators commit to monitor interim and final reclamation operations by performing inspections using an independent third party contractor. The objective is to provide a uniform performance-based evaluation of reclamation efforts and success across the Moxa area, regardless of surface ownership or lease operator. Reclamation performance assessment methodology will be based upon requirements of both the KFO and the State of Wyoming. The duties of the contractor would include:
  - visiting all Moxa locations to document the progress of interim and final reclamation efforts;
  - developing quantifiable documentation submitted to the BLM and State (agencies) on a periodic (TBD) basis (all other alternatives would require annual reports at a minimum per Appendix E);
  - providing location/lease/operator data to the agencies in GIS format; and
  - providing annual summary "progress" reports to the Operators by the contractor to track reclamation effectiveness.
- The Operators commit to engaging the services of reclamation professional/specialist to provide expertise/recommendations to the agencies and the operators. The goal would be to develop a workable written reclamation strategy specifically designed for the MAA that would be provided to the BLM and State of Wyoming. The strategy will incorporate the results of the ongoing monitoring effort and would be modified, if necessary, according to the reclamation monitoring results assessment. When monitoring results demonstrate that reclamation is being performed successfully, the strategy would be finalized as the "Moxa Area Reclamation Plan." The reclamation specialist would be responsible for:

- development of an Initial Reclamation Plan and periodic revisions, if monitoring results indicate the need to alter reclamation procedures;
- evaluation of reclamation techniques used by the mining/other industries, reclamation techniques used in other BLM Field Offices, and their applicability to oil and gas operations in MAA. The results of the evaluation would be included in the Initial Reclamation Plan; and
- determining how/if reclamation should vary in different areas of the MAA according to:
  - timing (including initiation, evaluation of results, etc.);
  - species composition, considering habitat viability, BLM cover requirements, and SWPPP requirements; and
  - best procedures for an arid environment/drought.
- The Operators would provide funding for inspection and enforcement to augment and provide assistance to KFO inspection and enforcement personnel if determined necessary by the KFO. The need for funding and KFO support would be re-evaluated annually by the KFO and the Operators, concurrent with receipt of the annual reclamation monitoring progress report. The Operators would agree on method to provide funding for the activities contemplated on a yearly basis. The Operators would select a lead party to handle the billing process and to provide supervision of the third party contractors, professionals and specialists. The Operators would meet annually in the fourth quarter to approve a budget and selection of the personnel required herein.
- Offsite mitigation would be considered by the Operators if necessary and reclamation monitoring indicates poor results. The objective of offsite mitigation would be in part to improve/restore habitat in areas that would provide the most benefit to wildlife and result in the fewest conflicts with oil and gas development, as identified in the EIS analysis. The Operators need interagency commitment that any such efforts would be recognized by the BLM and State of Wyoming as actions to enhance species viability across land jurisdictions.

## 4.2 Operator-Committed BMPs

The Operators would adhere to all conditions included with their leases and to all federal and state laws and regulations. The Operators would also commit to performing the following BMPs, per the requirements in BLM IM No. 2007-021:

- Interim reclamation of well locations and access roads soon after the well is put into production.

The goal of this BMP is to minimize long-term loss of habitat, forage, visual resources, soils, and to prevent the introduction of invasive species. Portions of well pads and roads that would not be used during production operations would be recontoured, leaving only areas necessary for workovers and operations uncountoured. Salvaged topsoils would be spread across all disturbed areas except those that are needed to accommodate year-round traffic and operations. Well locations, reclaimed roads, and gathering pipeline rights-of-way would be revegetated with a BLM-approved seed mixture. Where practical, road surfaces and turnarounds would also be revegetated. With low traffic roads, this would result in a hardpan, two-track road that is stable and requires less maintenance. To ensure continued energy production operations, the operator would be allowed to drive, park, and set up future workover and maintenance operations on newly revegetated areas. Where there is a moderate to high risk of wildfire, a small buffer area would be left around production facilities or grass would be mowed prior to workover setup. Where future wells are anticipated to be drilled

- from the same well location within a year or two, approval to delay interim reclamation may be granted.
- Painting of all new facilities a color that best allows the facility to blend with the background, typically a vegetated background.

The goal of this BMP is to minimize visual contrast by making production facilities less noticeable. Above-ground production facilities would be painted with colors that allow the facilities to blend into the background. The BLM and the Operators would identify the best colors to match the surrounding vegetation and soil types. The Operator may need to paint drill rig anchors and minor working tips and edges of production facilities that are subject to OSHA safety requirements a red, yellow, or orange color. The Operator would not be required to paint wooden structures, including distribution power poles. To minimize contrast, Operators would avoid lighter colors, white doors or roofs, galvanized silver electrical boxes and guardrails, and signs with white backgrounds.

- Design and construction of all new roads to a safe and appropriate standard “no higher than necessary” to accommodate their intended use.

The goal of this BMP is to minimize long-term loss of habitat, vegetation, soil, and visual resources. All roads would be designed and constructed to an appropriate standard that is no higher than necessary to adequately accommodate their intended function. Design, construction, and maintenance activities would be consistent with national policies for safety and resource protection. Operators would consider the anticipated average daily traffic, vehicle loads, vehicle speeds, potential for use by the public, soil types, season of use, and topography. In some cases, overland travel within a defined corridor or via two-track roads during dry conditions would be preferable to construction of all-weather access roads. On a case-by-case basis, overland travel or two-track roads may be appropriate for exploratory wells or for wells where year-round access needs have been reduced. Where practical, roads should follow the contours of the land to minimize cuts and fills and visually obtrusive lines in the landscape. Overland or two-track roads would not be used in sensitive soil types or during saturated soil conditions.

- Final reclamation and recontouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography.

The goal of this BMP is to restore the landform, vegetation, habitat, soil, and visual resources to the same conditions that occurred prior to well development. Topsoil will be stripped from areas that have not already been recontoured and redistributed uniformly over all disturbed areas. BLM-approved fertilizers will be used when available to encourage rapid regrowth of BLM-approved seed mixtures. Revegetation could result in color contrast initially that will decrease as native plants and shrubs recolonize. Nearly all roads would be recontoured to ensure that they blend into the surrounding landscape.

### **4.3 Additional BMPs**

In addition, the following BMPs may be applied to reduce resource impacts:

- Installation of raptor perch avoidance.

The goal of this BMP is to discourage raptor perching on power poles and tank batteries using proven anti-perching devices. This BMP would reduce potential predation of BLM sensitive species, including sage grouse and prairie dogs. Also, perch avoidance mechanisms would reduce potential for electrocution of raptors that may perch on power poles.

- Burying of distribution power lines and/or gathering pipelines in or adjacent to access roads and use of common rights-of-way and utility corridors.

Burying power lines and gathering lines in or adjacent to the road or in common rights-of-way with existing surface disturbance decreases surface disturbance and visual resource impacts. Buried power lines would minimize issues associated with raptor perching, as discussed for the previous BMP.

- Centralizing production facilities.

Where necessary to protect visual resources, sensitive wildlife habitat, sensitive soils, or other resources, flow lines (oil, gas, water, condensate) from several wells could be run to centralized tank batteries placed offsite away from sensitive areas. This would reduce large truck traffic to individual wells and would allow for the use of lower standard roads, including two tracks. The ability to use lower standard roads would result in less surface disturbance.

- Increase the amount of field automation.

Monitoring automated wells from a central office location would decrease the frequency of well visits. The decreased activity within the field would reduce traffic collisions and noise impacts to wildlife, including mule deer, pronghorn, elk, and sage-grouse.

- Locating wellheads below ground surface.

Where possible, wellheads could be buried to minimize impacts to visual resources and remove perch locations for raptors.

- Minimizing topsoil removal during drilling activities.

The goal of this BMP is to minimize disturbance to sensitive soils and vegetation. In flat areas, brush-beating, mowing the well location, and/or parking on the grass for drilling and production operations could be used to minimize surface disturbance. Topsoil and subsoil would be excavated only where absolutely necessary, such as for the reserve pit or for leveling the drill rig.

- Drilling multiple wells from a single pad.

The goal of this BMP is to centralize wells by drilling multiple wells from a single pad to reduce surface disturbance, visual resource impacts, and wildlife habitat fragmentation. Centralizing wells avoids drilling and maintaining wells near sensitive resources and maintains large areas of uninterrupted habitat and unimpacted visual resources. Directionally drilled wells require larger well pads, but with interim reclamation, pad size can be reduced significantly.

- Implementing noise reduction techniques and designs.

Noise reduction mufflers could be used to comply with noise standards. Additionally, earthen berms, walls, sheds, and/or increasing distance from sensitive areas could be used to reduce sound levels.

- Screening facilities from view and avoiding placement of production facilities on hilltops and ridgelines.

The goal of this BMP is to minimize impacts to visual resources. Natural and artificial features, such as topography, vegetation, or artificial berms, would be used to help screen facilities. Examples of appropriate screening could include location of facilities in a swale,

- behind a ridge, or behind a constructed but natural-looking vegetated berm. Locating facilities on ridgelines and hilltops would be avoided to the extent possible.
- Bioremediation of oil field wastes and spills.

Bioremediation is the process whereby microorganisms digest and remove petroleum hydrocarbons and selected other chemicals from contaminated soil and produce water and carbon dioxide as waste products. On-site bioremediation destroys oil field wastes and spills and reduces costs and potential liability associated with landfill disposal. The BLM would work with industry to identify the most appropriate method to remediate any contamination that might occur.

## 5.0 MITIGATION MEASURES

In addition to application of BMPs and standard stipulations throughout the MAA, as described in the previous sections, the following mitigation requirements are recommended for consideration by the Authorized Officer as inclusion in the Record of Decision.

- The MAA Operators are required to submit an annual drilling plan to the AO by December 31 of each year. At the same time, the Operators must submit an annual report of reclamation procedures and success/failures that have taken place throughout the year.
- All proposed stream crossings of pipelines will be required to be bored to reduce impacts to aquatic and riparian habitats. This requirement may be waived at the discretion of the AO in the case of unusual circumstances.
- To reduce weed infestation and soil loss throughout the MAA, the Operators will be required to seed well pads with a sterile cover crop immediately after construction. Details of acceptable cover crops and other suggested reclamation procedures can be found in Appendix E of the EIS.
- Operators will be required to participate in and assist with funding for an MAA-wide transportation plan. A transportation plan should be completed no later than 3 years after the issuance of the ROD for the MAA Oil and Gas Infill Project EIS. The goal of the transportation plan should be to identify feasible alternatives for access that meet the objectives of the BLM, Wyoming Department of Transportation, County transportation authorities, and the Operators. The transportation planning process should consider future road use needs, public access, resource values, and safety to avoid haphazard or unnecessary development of roads and utility corridors.
- Operators will be required to use misters to disperse water from pits or reuse the produced water at the next drilling location wherever feasible. This will reduce overall use of water in the MAA and expedite interim reclamation of the well pad location.

**Table A-1.** Consolidated Table of Application of BMPs and Mitigation Measures for Resources.

<b>Resource</b>	<b>BMPs/Mitigation</b>
<b>Surface Geology</b>	<p><b>BMPs/Mitigation</b></p> <ol style="list-style-type: none"> <li>1) No surface disturbance within 500 feet of perennial streams, live water, or riparian areas.</li> <li>2) No surface disturbance on slopes exceeding 25%</li> <li>3) Final reclamation recountouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography (see Appendix E).</li> </ol>
<b>Geohazards</b>	<ol style="list-style-type: none"> <li>1) No surface disturbance on slopes exceeding 25%.</li> </ol>
<b>Paleontology</b>	<p><b>BMPs/Mitigation</b></p> <ol style="list-style-type: none"> <li>1) Authorizations for surface-disturbing activities will be conditioned to minimize adverse impacts to paleontological resources.</li> <li>2) Operations that cause disturbance to the Green River Formation will require a survey by a BLM-approved paleontologist, and mitigation measures may be required, as appropriate.</li> <li>3) Operations that cause disturbance to the Bridger Formation will require a survey by a BLM-approved paleontologist, and mitigation measures may be required, as appropriate.</li> <li>4) In the event of discovery of fossil resources during project activities, operations must cease and the BLM must be notified. The BLM will then take appropriate actions, which may include a requirement for surveys and development of additional mitigation measures.</li> <li>5) In addition to required mitigations, a worker education program relating to the importance of fossil resources and the illegality of unauthorized collecting, combined with strict enforcement provisions by the Operators, would reduce the potential for loss of important paleontological information.</li> </ol>
<b>Soils</b>	<p><b>BMPs</b></p> <ol style="list-style-type: none"> <li>1) Avoidance of badland and steep slope (&lt;25%) sensitive soils.</li> <li>2) Where avoidance is not feasible, incorporate special soil stabilization and erosion control measures.</li> <li>3) Avoidance of all areas within 500 feet of surface water and riparian areas.</li> <li>4) Drilling multiple wells from a single pad in sensitive soils (badland and sand dune).</li> <li>5) Minimizing topsoil removal during drilling activities, including soil excavation only where absolutely necessary, such as for the reserve pit or leveling the drill rig.</li> <li>6) Centralizing production facilities in sensitive soils.</li> <li>7) Interim reclamation of well locations and access roads in the first available period within 1 year after the well is put into production (Operator committed).</li> </ol>

Resource	BMPs/Mitigation
	<p><b>Mitigation</b></p> <ol style="list-style-type: none"> <li>1) Seeding well pads with a sterile cover crop immediately following construction.</li> <li>2) Operators required to submit an annual reclamation monitoring report as part of the annual drilling plan.</li> </ol>
<b>Water</b>	<p><b>BMPs</b></p> <ol style="list-style-type: none"> <li>1) Avoidance of all areas within 500 feet of surface water and riparian areas.</li> <li>2) Continuation of the cementing policy.</li> <li>3) Following Healthy Rangeland Standard 5 - takes into account chemical characteristics (pH, conductivity, dissolved oxygen); physical characteristics (sediment, temperature, color); and biological characteristics (invertebrates, fecal coliform, and plant and animal species) of water.</li> <li>4) Drilling multiple wells from a single pad to avoid sensitive areas and decrease surface disturbance in hydrologic units.</li> <li>5) Collocating gathering lines and power lines with roads to reduce the project footprint and minimize disturbance to visual resources.</li> </ol>
	<p><b>Mitigation</b></p> <ol style="list-style-type: none"> <li>1) Seeding well pads with a sterile cover crop immediately following construction.</li> <li>2) Pipelines required to be bored under streams unless otherwise authorized by the AO.</li> </ol>
<b>Noise</b>	<p><b>BMPs/Mitigation</b></p> <ol style="list-style-type: none"> <li>1) Equip compressors, vehicles, and other sources of noise with effective mufflers or noise suppression systems.</li> <li>2) Monitor automated wells remotely to decrease traffic noise.</li> <li>3) Reduce noise levels to 49 dBA or less, particularly during the bird nesting season (1 April through 30 June) to minimize the effects of continuous noise on bird populations. Constant noise generators should be located far enough away from sensitive habitats or muffled such that noise reaching those habitats is less than 49 dBA.</li> <li>4) From 1 March through 15 May, anthropogenic sources of continuous or frequently intermittent noise should not exceed 10 dBA above natural, ambient noise measured at the perimeter of any occupied sage-grouse lek.</li> </ol>
<b>Vegetation/ Wetlands</b>	<p><b>BMPs</b></p> <ol style="list-style-type: none"> <li>1) Interim reclamation of well locations and access roads in the first available period within 1 year after the well is put into production (Operator committed).</li> <li>2) Use only native species for interim and final reclamation unless authorized by BLM.</li> <li>3) Follow reclamation procedures (Appendix E).</li> <li>4) Avoidance of all areas within 500 feet of surface water and riparian areas.</li> <li>5) Follow the Wyoming BLM Standards for Healthy Rangelands.</li> </ol>

Resource	BMPs/Mitigation
	<p><b>Mitigation</b></p> <ol style="list-style-type: none"> <li>1) Seeding well pads with a sterile cover crop immediately following construction.</li> <li>2) Operators required to submit an annual reclamation report as part of the annual drilling plan.</li> <li>3) Treat halogeton infestations prior to surface disturbance or before reclamation to optimize the effectiveness of weed removal. General herbicides may be appropriate for removal of dense stands of halogeton. If weeds are not controlled in the first year of growth prior to weed seed production, a long-term source of weed seed will be present in reclaimed areas.</li> <li>4) Any unavoidable impacts to wetlands would require mitigation (enhancement, restoration, or creation), as per the requirements of the Clean Water Act. Any mitigation would be developed on a site-specific basis.</li> </ol>
<p><b>Fisheries and Wildlife</b></p>	<p><b>BMPs</b></p> <ol style="list-style-type: none"> <li>1) Installing raptor perch avoidance structures</li> <li>2) Burying power lines and gathering pipelines</li> <li>3) Locating well heads below ground surface</li> <li>4) Implement noise reduction/mitigation techniques (details in Noise section)</li> <li>5) Monitor automated wells remotely to decrease traffic collisions and noise.</li> <li>6) Drilling multiple wells from a single pads in sensitive wildlife habitats</li> <li>7) Collocate power lines and gathering pipelines in roads in sensitive wildlife habitats</li> <li>8) Centralizing production facilities in sensitive wildlife habitats</li> <li>9) Interim reclamation of well locations and access roads in the first available period within 1 year after the well is put into production (Operator committed).</li> <li>10) Design and construction of all new roads to a safe and appropriate standard “no higher than necessary” to accommodate their intended use (Operator committed).</li> </ol>
	<p><b>Mitigation</b></p> <ol style="list-style-type: none"> <li>1) Pipelines required to be bored under streams unless otherwise authorized by the AO.</li> <li>2) Implement timing restrictions of stream crossings based on potential species affected within a particular stream.</li> <li>3) Seeding well pads with a sterile cover crop immediately following construction.</li> <li>4) Operators required to participate in and assist with funding for a MAA-wide transportation plan.</li> <li>5) Development of a supplemental Wildlife and Livestock Mitigation document that will identify specific mitigations to be applied both onsite and offsite.</li> </ol>
<p><b>Livestock Grazing and Rangeland Health</b></p>	<p><b>BMPs</b></p> <ol style="list-style-type: none"> <li>1) Interim reclamation of well locations and access roads in the first available period within 1 year after the well is put into production (Operator committed).</li> <li>2) Follow rangeland health standards.</li> </ol>

<b>Resource</b>	<b>BMPs/Mitigation</b>
	<p><b>Mitigation</b></p> <ol style="list-style-type: none"> <li>1) Seeding well pads with a sterile cover crop immediately following construction.</li> <li>2) Operators required to submit an annual reclamation report as part of the annual drilling plan.</li> <li>3) Operators required to participate in and assist with funding for a MAA-wide transportation plan.</li> <li>4) Operators required to repair fences damaged or removed for construction.</li> <li>5) Operators may be required to install stock ponds, guzzlers, or other watering amenities to mitigate for impacts.</li> </ol>
<b>Cultural Resources</b>	<p><b>BMPs/Mitigation</b></p> <ol style="list-style-type: none"> <li>1) Avoidance of ground disturbance at significant cultural/historical resource sites and highly sensitive archaeological locales</li> <li>2) Archaeological excavation or HABS/HAER documentation of significant cultural/historical resource sites or site portions.</li> <li>3) Native American sensitive/TCP and discovered site consultation</li> <li>4) Cultural/historical resource treatment planning and/or Programmatic Agreements.</li> <li>5) No surface disturbance within 0.25 mile of historic trails or the visual horizon, whichever is closer.</li> <li>6) Paint all facilities a color that best allows the facility to blend with the background (Operator-committed BMP).</li> </ol>
<b>Socioeconomics</b>	<p><b>Mitigation</b></p> <ol style="list-style-type: none"> <li>1) Assist local government with funding of public service projects that have been impacted by population growth related to oil and gas development.</li> <li>2) Work with impacted communities to develop and fund “portable” infrastructure enhancements (infrastructure provided by Operators during “boom” peaks and removed by Operators during “bust” times).</li> <li>3) Work with the Wyoming Department of Transportation and/or Sweetwater, Lincoln, and Uinta County Road and Bridge Departments to install appropriate road-side signs outside the MAA that indicate potential hazards (e.g., school bus stops, high-traffic volume turnouts, trucks entering roadway).</li> <li>4) Provide incentives or land for local builders to build housing prior to start-up of MAA drilling activities. The City of Evanston has adequate utility capacity for significant growth. Therefore, these incentives would be best provided in the Evanston area.</li> <li>5) If housing becomes available in the Evanston area, encourage workers to reside in this area, since facilities and services there are adequate for a larger population base.</li> </ol>
<b>Recreation</b>	Same as wildlife and visual resources.

<b>Resource</b>	<b>BMPs/Mitigation</b>
<b>Visual</b>	<p><b>BMPs</b></p> <ol style="list-style-type: none"> <li>1) Restrict visual intrusion in VRM Class I and II areas and within 0.25 mile of historic trails.</li> <li>2) Screening facilities from view and avoiding placement of production facilities on hilltops and ridgelines.</li> <li>3) Paint all facilities a color that best allows the facility to blend with the background (Operator-committed BMP).</li> <li>4) Gravel of road color shall be similar to adjacent dominant soil colors.</li> </ol>
<b>Human Health and Safety</b>	<p>The Operators should coordinate emergency response planning with the Uinta, Sweetwater, and Lincoln Counties Emergency Management Agency and provide documentation regarding compliance with Federal Hazardous Material Regulations and the Uniform Fire Code.</p>

## **A.2. STANDARDS FOR HEALTHY RANGELANDS FOR THE PUBLIC LANDS ADMINISTERED BY THE BUREAU OF LAND MANAGEMENT IN THE STATE OF WYOMING**

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### **1.0 INTRODUCTION**

According to the Department of the Interior's final rule for grazing administration, effective August 21, 1995, the Wyoming Bureau of Land Management (BLM) State Director is responsible for the development of standards for healthy rangelands on 18 million acres of Wyoming's public rangelands. The development and application of these standards are to achieve the four fundamentals of rangeland health outlined in the grazing regulations (43 CFR 4180.1). Those four fundamentals are: (1) watersheds are functioning properly; (2) water, nutrients, and energy are cycling properly; (3) water quality meets State standards; and (4) habitat for special status species is protected.

Standards address the health, productivity, and sustainability of the BLM administered public rangelands and represent the minimum acceptable conditions for the public rangelands. The standards apply to all resource uses on public lands. Their application will be determined as use specific guidelines are developed. Standards are synonymous with goals and are observed on a landscape scale. They describe healthy rangelands rather than important rangeland by-products. The achievement of a standard is determined by measuring appropriate indicators. An indicator is a component of a system whose characteristics (e.g., presence, absence, quantity, and distribution) can be measured based on sound scientific principles.

Quantifiable resource objectives and specific management practices to achieve the standards will be developed at the BLM Field Office level and will consider all reasonable and practical options available to achieve desired results on a watershed or grazing allotment scale. The objectives shall be reflected in site-specific activity or implementation plans as well as in livestock grazing permits/leases for the public lands. Interdisciplinary activity or implementation plans will be used to maintain or achieve the Wyoming standards for healthy rangelands. These plans may be developed formally or informally through mechanisms available and suited to local needs (such as Coordinated Resource Management [CRM] efforts).

The development and implementation of standards will enable on-the-ground management of the public rangelands to maintain a clear and responsible focus on both the health of the land and its dependent natural and human communities. This development and implementation will ensure that any mechanisms currently being employed or that may be developed in the future will maintain a consistent focus on these essential concerns.

These standards are compatible with BLM's three-tiered land use planning process. The first tier includes the laws, regulations, and policies governing BLM's administration and management of the public lands and their uses. The previously mentioned fundamentals of rangeland health specified in 43 CFR 4180.1, the requirement for BLM to develop these state (or regional) standards, and the standards themselves, are part of this first tier. Also, part of this first tier are the specific requirements of various federal laws and the objectives of 43 CFR 4100.2 that require BLM to consider the social and economic well-being of the local communities in its management process.

These standards will provide for statewide consistency and guidance in the preparation, amendment, and maintenance of BLM land use plans, which represent the second tier of the planning process. The BLM land use plans provide general allocation decisions concerning the kinds of resource and land uses that can occur on the BLM administered public lands, where they can occur, and the types of conditional requirements under which they can occur. In general, the standards will be the basis for

development of planning area-specific management objectives concerning rangeland health and productivity.

The third tier of the BLM planning process, activity or implementation planning, is directed by the applicable land use plan and, therefore, by the standards. The standards, as BLM statewide policy, will also directly guide development of the site-specific objectives and the methods and practices used to implement the land use plan decisions.

Activity or implementation plans contain objectives which describe the site-specific conditions desired. Grazing permits/leases for the public lands contain terms and conditions which describe specific actions required to attain or maintain the desired conditions. Through monitoring and evaluation, the BLM, grazing permittees, and other interested parties determine if progress is being made to achieve activity plan objectives.

Wyoming rangelands support a variety of uses, which are of significant economic importance to the state and its communities. These uses include oil and gas production, mining, recreation and tourism, fishing, hunting, wildlife viewing, and livestock grazing. Rangelands also provide amenities which contribute to the quality of life in Wyoming such as open spaces, solitude, and opportunities for personal renewal. Wyoming's rangelands should be managed with consideration of the state's historical, cultural, and social development and in a manner which contributes to a diverse, balanced, competitive, and resilient economy in order to provide opportunity for economic development. Healthy rangelands can best sustain these uses.

To varying degrees, BLM management of the public lands and resources plays a role in the social and economic well-being of Wyoming communities. The National Environmental Policy Act (part of the above-mentioned first planning tier) and various other laws and regulations mandate the BLM to analyze the socioeconomic impacts of actions occurring on public rangelands. These analyses occur during the environmental analysis process of land use planning (second planning tier), where resource allocations are made, and during the environmental analysis process of activity or implementation planning (third planning tier). In many situations, factors that affect the social and economic well-being of local communities extend far beyond the scope of BLM management or individual public land users' responsibilities. In addition, since standards relate primarily to physical and biological features of the landscape, it is very difficult to provide measurable socioeconomic indicators that relate to the health of rangelands. It is important that standards be realistic and within the control of the land manager and users to achieve.

Implementation of the Wyoming standards will generally be done in the following manner. Grazing allotments or groups of allotments in a watershed will be reviewed based on the BLM's current allotment categorization and prioritization process. Allotments with existing management plans and high-priority allotments will be reviewed first. Lower priority allotments will then be reviewed as time allows. The permittees and interested publics will be notified when allotments are scheduled for review and encouraged to participate in the review. The review will first determine if an allotment meets each of the six standards. If it does, no further action will be necessary. If any of the standards are not being met, rationale explaining the contributing factors will be prepared. If livestock grazing practices are found to be among the contributing factors, corrective actions will be developed and implemented. If a lack of data prohibits the reviewers from determining if a standard is being met, a strategy will be developed to acquire the data in a timely manner.

**Standard 1**

**Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.**

THIS MEANS THAT:

The hydrologic cycle will be supported by providing for water capture, storage, and sustained release. Adequate energy flow and nutrient cycling through the system will be achieved as optimal plant growth occurs. Plant communities are highly varied within Wyoming.

INDICATORS MAY INCLUDE, BUT ARE NOT LIMITED TO:

- Water infiltration rates;
- Soil compaction;
- Erosion (rills, gullies, pedestals, capping);
- Soil microorganisms;
- Vegetative cover (gully bottoms and slopes); and
- Bare ground and litter.

**Standard 2**

**Riparian and wetland vegetation has structural, age, and species diversity characteristic of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for groundwater recharge.**

THIS MEANS THAT:

Wyoming has highly varied riparian and wetland systems on public lands. These systems vary from large rivers to small streams and from springs to large wet meadows. These systems are in various stages of natural cycles and may also reflect other disturbance that is either localized or widespread throughout the watershed. Riparian vegetation captures sediments and associated materials, thus enhancing the nutrient cycle by capturing and utilizing nutrients that would otherwise move through a system unused.

INDICATORS MAY INCLUDE, BUT ARE NOT LIMITED TO:

- Erosion and deposition rate;
- Channel morphology and flood plain function;
- Channel succession and erosion cycle;
- Vegetative cover;
- Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.);
- Bank stability;
- Woody debris and instream cover; and
- Bare ground and litter.

The above indicators are applied as appropriate to the potential of the ecological site.

**Standard 3**

**Upland vegetation on each ecological site consists of plant communities appropriate to the site which are resilient, diverse, and able to recover from natural and human disturbance.**

THIS MEANS THAT:

In order to maintain desirable conditions and/or recover from disturbance within acceptable timeframes, plant communities must have the components present to support the nutrient cycle and adequate energy flow. Plants depend on nutrients in the soil and energy derived from sunlight. Nutrients stored in the soil are used over and over by plants, animals, and microorganisms. The amount of nutrients available and the speed with which they cycle among plants, animals, and the soil is a fundamental component of rangeland health. The amount, timing, and distribution of energy captured through photosynthesis are fundamental to the function of rangeland ecosystems.

INDICATORS MAY INCLUDE, BUT ARE NOT LIMITED TO:

- Vegetative cover;
- Plant composition and diversity (species, age class, structure, successional stages, desired plant community, etc.);
- Bare ground and litter;
- Erosion (rills, gullies, pedestals, capping); and
- Water infiltration rates.

The above indicators are applied as appropriate to the potential of the ecological site.

**Standard 4**

**Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.**

THIS MEANS THAT:

The management of Wyoming rangelands will achieve or maintain adequate habitat conditions that support diverse plant and animal species. These may include listed threatened or endangered species (U.S. Fish and Wildlife Service-designated), species of special concern (Wyoming Game and Fish Department-designated), and other sensitive species (BLM-designated). The intent of this standard is to allow the listed species to recover and be delisted, and to avoid or prevent additional species becoming listed.

INDICATORS MAY INCLUDE, BUT ARE NOT LIMITED TO:

- Noxious weeds;
- Species diversity;
- Age class distribution;
- Indicators associated with the upland and riparian standards;
- Population trends; and
- Habitat fragmentation.

The above indicators are applied as appropriate to the potential of the ecological site.

**Standard 5**

**Water quality meets State standards.**

THIS MEANS THAT:

The State of Wyoming is authorized to administer the Clean Water Act. BLM management actions or use authorizations will comply with all Federal and State water quality laws, rules, and regulations to address water quality issues that originate on public lands. Provisions for the establishment of water quality standards are included in the Clean Water Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in *Wyoming's Water Quality Rules and Regulations*. The latter regulations contain Quality Standards for Wyoming Surface Waters.

Natural processes and human actions influence the chemical, physical, and biological characteristics of water. Water quality varies from place to place with the seasons, the climate, and the kind of substrate through which water moves. Therefore, the assessment of water quality takes these factors into account.

INDICATORS MAY INCLUDE, BUT ARE NOT LIMITED TO:

- Chemical characteristics (for example, pH, conductivity, dissolved oxygen);
- Physical characteristics (for example, sediment, temperature, color); and
- Biological characteristics (for example, macro- and micro-invertebrates, fecal coliform, and plant and animal species).

**Standard 6**

**Air quality meets State standards.**

THIS MEANS THAT:

The State of Wyoming is authorized to administer the Clean Air Act. BLM management actions or use authorizations will comply with all Federal and State air quality laws, rules, regulations, and standards. Provisions for the establishment of air quality standards are included in the Clean Air Act, as amended, and the Wyoming Environmental Quality Act, as amended. Regulations are found in Part 40 of the Code of Federal Regulations and in *Wyoming Air Quality Standards and Regulations*.

INDICATORS MAY INCLUDE, BUT ARE NOT LIMITED TO:

- Particulate matter;
- Sulfur dioxide;
- Photochemical oxidants (ozone);
- Volatile organic compounds (hydrocarbons);
- Nitrogen oxides;
- Carbon monoxide;
- Odors; and
- Visibility.

## 2.0 DEFINITIONS

**Activity Plans:** Allotment Management Plans (AMPs), Habitat Management Plans (HMPs), Watershed Management Plans (WMPs), Wild Horse Management Plans (WHMPs), and other plans developed at the local level to address specific concerns and accomplish specific objectives.

**Coordinated Resource Management (CRM):** A group of people working together to develop common resource goals and resolve natural resource concerns. CRM is a people process that strives for win-win situations through consensus-based decision-making.

**Desired Plant Community:** A plant community which produces the kind, proportion, and amount of vegetation necessary for meeting or exceeding the land use plan/activity plan objectives established for an ecological site(s). The desired plant community must be consistent with the site's capability to produce the desired vegetation through management, land treatment, or a combination of the two.

**Ecological Site:** An area of land with specific physical characteristics that differs from other areas both in its ability to produce distinctive kinds and amounts of vegetation and in its response to management.

**Erosion:** (v.) Detachment and movement of soil or rock fragments by water, wind, ice, or gravity. (n.) The land surface worn away by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

**Indicator:** An indicator is a component of a system whose characteristics (for example, presence, absence, quantity, and distribution) can be observed, measured, or monitored based on sound scientific principles. An indicator can be evaluated at a site- or species-specific level. Monitoring of an indicator must be able to show change within timeframes acceptable to management and be capable of showing how the health of the ecosystem is changing in response to specific management actions. Selection of the appropriate indicators to be observed, measured, or monitored in a particular allotment is a critical aspect of early communication among the interests involved on-the-ground. The most useful indicators are those for which change or trend can be easily quantified and for which agreement as to the significance of the indicator is broad based.

**Litter:** The uppermost layer of organic debris on the soil surface, essentially the freshly fallen or slightly decomposed vegetal material.

**Management Actions:** Management actions are the specific actions prescribed by the BLM to achieve resource objectives, land use allocations, or other program or multiple use goals.

**Objective:** An objective is a site-specific statement of a desired rangeland condition. It may contain either or both qualitative elements and quantitative elements. Objectives frequently speak to change. They are the focus of monitoring and evaluation activities at the local level. Monitoring of the indicators would show negative changes or positive changes. Objectives should focus on indicators of greatest interest for the area in question.

**Rangeland:** Land on which the native vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs. This includes lands revegetated naturally or artificially when routine management of that vegetation is accomplished mainly through manipulation of grazing. Rangelands include natural grasslands, savannas, shrublands, most deserts, tundra, alpine communities, coastal marshes, and wet meadows.

**Rangeland Health:** The degree to which the integrity of the soil and ecological processes of rangeland ecosystems are sustained.

**Riparian:** An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and stream banks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not have vegetation dependent on free water in the soil.

**Standards:** Standards are synonymous with goals and are observed on a landscape scale. Standards apply to rangeland health and not to the important by-products of healthy rangelands.

Standards relate to the current capability or realistic potential of a specific site to produce these by-products, not to the presence or absence of the products themselves. It is the sustainability of the processes, or rangeland health, that produces these by-products.

**Terms and Conditions:** Terms and conditions are very specific land use requirements that are made a part of the land use authorization in order to assure maintenance or attainment of the standard. Terms and conditions may incorporate or reference the appropriate portions of activity plans (for example, Allotment Management Plans). In other words, where an activity plan exists that contains objectives focused on meeting the standards, compliance with the plan may be the only term and condition necessary in that allotment.

**Upland:** Those portions of the landscape which do not receive additional moisture for plant growth from run-off, stream flow, etc. Typically these are hills, ridge tops, valley slopes, and rolling plains.