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## **Appendix A**

### **Standards for Rangeland Health and Guidelines for Livestock Grazing Management For Public Lands Administered by the Bureau of Land Management For Montana and the Dakotas**



# **Standards for Rangeland Health and Guidelines for Livestock Grazing Management For Public Lands Administered by The Bureau of Land Management for Montana and the Dakotas**

Note: These standards and guidelines apply to the North Dakota and South Dakota Field Offices.

## **Standards**

### **Dakotas STANDARD #1: Uplands are in proper functioning condition for site specific conditions of climate, soils and parent material.**

- As indicated by:

#### Physical Environment

- erosional flow patterns;
- surface litter;
- soil movement by wind and water;
- infiltration;
- soil crusting and surface sealing;
- rills;
- gullies;
- cover amount; and
- cover distribution.

#### Biotic Environment

- community diversity;
- community structure;
- exotic plants;
- photosynthesis activity;
- plant status;
- seed production;
- recruitment; and
- nutrient cycle.

- Background Information

No single factor or characteristic of an upland site can provide a complete picture of either that site's condition or the direction of its successional change. Things considered "negative" in traditional evaluations of ecological sites may or may not be such for upland sites.

Rangeland health should be based on the evaluation of several criteria including, at a minimum, degree of soil stability and watershed function, nutrient cycles and energy flows, and available recovery mechanisms.

Indicators to assess soil stability and watershed function relate to two fundamental processes of watershed degradation: soil erosion by wind and water; and infiltration of precipitation and runoff.

Indicators such as rills, gullies, flow patterns, pedestaling and compaction may be used to assess watershed condition.

Indicators that can be used to evaluate nutrient cycles and energy flows relate to distribution of plants, litter, roots, and photosynthetic period.

Recovery mechanisms or plant demographic indicators may include increasing vegetative cover, plant vigor, kind and number of seedlings, and changes in plant age distribution.

Physical features of a proper functioning watershed are indicated by:

- little evidence of soil erosion by wind and/or water as indicated by the significant absence of rills, gullies, and pedestals;
- surface sealing and soil crusting is not evident; and
- plant (ground) cover and litter accumulation is adequate to protect site.

Soils are stable and provide for capture, storage, and release of water appropriate to soil type, climate and landform.

Biotic features of a proper functioning watershed are indicated by:

- a sufficient variety and number of plant lifeforms (grass, forb, shrub, tree) occur on the site;
- plants exhibit optimal size, height, distribution, and age/class;
- introduced or exotic plants (weeds) are absent or sparse on site;
- plants are alive, productive with well developed root systems;
- plant reproduction is adequate for stand maintenance of all lifeforms;
- litter distribution is uniform across site; and
- nutrient/energy cycle mechanisms are adequate for plant maintenance.

## **Dakotas STANDARD #2: Riparian areas and wetlands are in proper functioning condition for site specific conditions of climate, soils and parent material.**

- As indicated by the presence or absence of:

### Hydrologic

- flood plain inundated in relatively frequent events;
- altered streambanks;
- upland watershed not contributing to riparian degradation; and
- stream channel morphology (including but not limited to gradient, width/depth ratio, channel roughness and sinuosity) and functions are appropriate for the climate and landform.

### Erosion Deposition

- flood plain and channel characteristics; i.e., rocks, coarse and/or woody debris adequate to dissipate energy;
- lateral stream movement is associated with natural sinuosity;
- system is vertically stable;
- stream is in balance with water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition); and
- bare ground.

### Vegetation

- healthy, productive and diverse populations of native species are being maintained;
- condition of trees and shrubs;
- riparian plants exhibit high vigor; and
- adequate vegetative cover present to protect banks and dissipate energy during high flows.

- Background Information

No single factor or characteristic of a riparian site can provide a complete picture of either that site's condition or the direction of its successional change. Things considered negative in traditional evaluations of ecological sites may not be such for riparian sites. For example, the percent of exposed soil surface, which often reflects overgrazing or erosion on

upland sites, may be a result of normal riparian activity, sediment deposition resulting after spring runoff, or a high water event.

Broadly, proper functioning condition may be defined as the ability of a stream to perform its riparian functions. These functions include sediment filtering, bank building, water storage, aquifer recharge, and hydrologic energy dissipation.

- Hydrology\Streambanks

The hydrology of a riparian area is perhaps its most important characteristic. Changes in hydrology may result in short- and long-term vegetative changes. In some situations, construction (riprap, roads, railroads, etc.) has influenced the streambanks and stability has been increased over the natural levels. These streambanks may eventually lose their stability, and become altered. This generally occurs if the problems which caused the weak streambanks have not been remedied. Also, constructed streambanks (especially those with riprap) will often disrupt the normal energy dissipation of the stream and eventually the meandering of a stream can result in the erosion of streambanks downstream.

- Lateral Cutting is indicated by new stream-caused bank disruption along the outside of stream curves, and much less common, along the straight portions of a stream. A high degree of active lateral cutting can indicate a degraded watershed.

- Altered Streambanks, in many instances, land uses have degraded streambanks, accelerating stream movement across the flood plain. We define altered streambanks as those having impaired structural integrity (strength or stability) due to activities which expose soil surfaces as a result from hiking, ATV, livestock and wildlife trails, roads, logging skid trails, mining activities, etc.

- Deep Binding Root Mass, properly functioning streambanks are protected by both vegetation and bank rock materials (e.g., boulders and cobbles). There have been few studies documenting the depth and extent of root systems of various plant species. Among riparian herbaceous species, the first rule is that annual plants do not have deep, binding root masses. Perennial species, including trees and shrubs, offer a wide range of root mass qualities and may indicate long term streambank stability.

- Downcutting, active downcutting of a stream is often hard to recognize. Perched wetland vegetation and streambank features, plus the lack of a separate layer of channel bottom materials (i.e., the stream flows directly on the substrate materials), can be clues to downcutting.

- Soils/Geology

The soils and geology (landform and parent material) of a riparian site influence how the site reacts to disturbances and changes over time. Changes in physical characteristics are often more difficult to remedy through management actions than are vegetative changes. The depth and texture of soil of a riparian site influences the capacity of that site to hold water and act as a sponge for prolonged late season flows and support of desired vegetation.

- Bare ground, exposed soil surface is important in evaluating the health of riparian areas for several reasons: 1) vulnerability to erosion; 2) it may contribute to, as well as reflect, streambank deterioration; 3) less vegetation is available for soil protection and sediment entrapment; and 4) exposed soil provides opportunity for introduction of native plant species as well as invasion by noxious weeds and undesirable species.

- Vegetation

Because they are more visible than soil or hydrological characteristics, plants may provide early indications of riparian health.

- Reproduction of Trees and Shrubs, one of the clearest indicators of ecological stability, and subsequent health, is the presence of all age classes (seedling, sapling, pole, mature, decadent, and dead) of tree and shrub species where the potential exists.

- Dead and Decadent Trees and Shrubs, the amount of dead and decadent material in trees and shrubs can be an indicator of the overall "health" of riparian areas. Decadent and dead woody material can indicate severe stress from artificial or natural causes and may be caused by severe winter temperatures, spring freezes, disease, over utilization, or insect infestations.
- Utilization of Trees and Shrubs, heavy utilization by livestock and/or wildlife can prevent the regeneration or establishment of woody species. Excessive use of woody species may cause their elimination from the site and their replacement by disturbance-induced species or undesirable invaders.
- Plant Composition, the presence of disturbance-induced herbaceous plants (either native or introduced) may indicate that the health of the site could be improved or that it is not performing optimal riparian functions. Most of these species provide less soil holding and sediment trapping capability, and less desirable forage for livestock and wildlife.

### **Dakotas STANDARD #3: Water quality meets assigned State water quality standards.**

- As indicated by:
  - dissolved oxygen concentration;
  - pH;
  - turbidity;
  - temperature;
  - fecal coliform;
  - sediment;
  - color;
  - toxins; and
  - others: ammonia, barium, boron, chlorides, chromium, cyanide, endosulfan, lindane, nitrates, phenols, phosphorus, sodium, sulfates, etc.
- Background Information

Natural processes influence the chemical, physical, and biological characteristics of water. When discussing rangeland health, water quality is a relative term which must be associated with water-use to become meaningful. Water quality varies from place to place, with the seasons, the climate, and the kind of rock and soil through which water moves. After reaching the earth, water dissolves minerals from the earth's crust, percolates through organic materials such as roots and leaves, and reacts with living things such as microscopic organisms like plankton and algae. Water quality is changed by stream sediments and is modified by temperature, soil bacteria, and evaporation.

Water quality criteria specify concentrations of water constituents which, if not exceeded, are expected to support an aquatic ecosystem suitable for higher uses of water. Water quality criteria are intended to protect the direct uses of water, essential and significant life in water, and life that is dependent on life in water for its existence.

Some of the common indicators of water quality are:

- Dissolved oxygen concentration (DO), which is a function of temperature of the water, altitude and barometric pressure. The ability of water to hold oxygen decreases with the increases in temperature, altitude and dissolved solids.
- pH (hydrogen-ion concentration), which is an indicator of acidity and/or alkalinity and an index of hydrogen ion activity. Lower values indicate acid; higher values indicate alkaline. Fresh water organisms function properly if the pH ranges from 6.0 to 9.0 units. pH concentrations below the recommended level are toxic to fish and other aquatic organisms.
- Turbidity, which is the disturbance of water due to the presence of suspended matter such as clays, silt, organic matter, and various effluents. It is the expression of the optical property of water. Excess turbidity reduces light penetration.

- Temperature, which is an important function which affects aquatic productivity. Temperature changes may result from natural climatic conditions or man's manipulation of the riparian environment. Temperature is a function of location, season, time, duration of flow, depth, and many other variables, which may or may not be affected by human activities.
- Coliform groups, which include bacteria organisms in their natural habitat and sources; i.e., feces, soil, water, vegetation, etc. Coliform organisms may be the result of plant and soil runoff water.
- Sediment, which is a measure of suspended sand, silt, colloid and organic matter which will settle in time to the stream bottom. Sediment originates from sources such as natural erosion, mine waste, plowed fields, construction projects, or vegetative manipulation.
- Color, which is attributed to substances in solution after the suspensoid have been removed. It may be organic or inorganic substances that affect photosynthesis activity in the water. Organic substances include humic materials, peat, aquatic plants, etc. Inorganic sources include iron and manganese compounds, chemicals, industrial waste, etc.
- Toxins, which are those compounds or substances which are found in by-products or waste of various industries or activities that make their way into water sources.

Acceptable water quality is indicated by:

- dissolved oxygen (DO) concentrations which are being maintained at or near saturation levels;
- pH concentrations which are at or near recommended State levels;
- turbidity readings which do not exceed Jackson Turbidity readings for the water source;
- water temperature readings which meet State standards preferred for good growth and productivity;
- coliform levels which do not exceed the State average for the site;
- sediment (suspended solids) which does not exceed the State standard;
- color which does not limit or significantly restrict photosynthesis processes; and
- toxin levels which are in conformance with State standard.

**Dakotas STANDARD #4: Air quality meets State air quality standards.**

(Note: The Montana and the Dakotas standards are similar)

PM-10	50 ug/m3 annual avg 150 ug/m3 24-hr avg*
Sulfur Dioxide	0.02 ppm annual avg 0.10 ppm 24-hr avg* 0.50 ppm 1-hr avg**
Carbon Monoxide	23 ppm hourly avg* 9.0 ppm 8-hr avg*
Nitrogen Dioxide	0.05 ppm annual avg 0.30 ppm hourly avg*
Ozone	0.10 ppm hourly avg*
Lead	1.5 ug/m3 90 day avg
Foliar Fluoride	35 ug/g grazing season avg 50 ug/g monthly avg
Settled Particulate Matter (dustfall)	10mg/m2 30-day avg

Hydrogen Sulfide	0.05 ppm hourly avg*
Visibility	particle scattering coefficient of $3 \times 10^{-5}$ per meter annual avg***

\* Not to be exceeded more than once per year.

\*\* Not to be exceeded more than 18 times per year.

\*\*\* Applies to PSD mandatory Class I areas.

The Clean Air Act established the Prevention of Significant Deterioration (PSD) regulations which set limits for increases in ambient pollution levels and established a system for preconstruction review of new major air pollution sources. Three PSD classes have been established: Class I, Class II, and Class III. Class I areas consist of all international parks, national parks greater than 5,000 acres, national wilderness areas greater than 5,000 acres, and national wildlife refuges which existed on August 7, 1977, when the amendment was signed into law.

Protection of air quality is provided to Class I areas by severely limiting the amount of additional human-caused air pollution which can be added. All other areas, except non-attainment areas, are classified as Class II in which a greater amount of additional human-caused pollution may be added. In no case, however, may pollutant concentrations exceed the National or State ambient air quality standards.

**Dakotas STANDARD #5: Habitats are maintained and/or restored, where appropriate, for healthy, productive and diverse populations of native plant and animal species.**

- As indicated by:
  - plants and animals are diverse, vigorous and reproducing satisfactorily noxious weeds are absent or insignificant in the overall plant community;
  - spatial distribution of species is suitable to ensure reproductive capability these species may include special status species (federally threatened, endangered, candidate or Montana/North Dakota/South Dakota species of special concern);
  - species diversity (including plants, animals, insects and microbes) is present;
  - livestock grazing systems are designed to maintain rangeland health and to ensure a variety of plant communities are present; and
  - connectivity of habitat or presence of corridors to prevent habitat fragmentation.

- Background Information

No single factor or characteristic of a site can provide a complete picture of either that site's condition or the direction of its successional change.

Bureau of Land Management is charged with managing and developing habitat for a large variety of fish, wildlife and special status species of plants. Basic habitat considerations can be categorized as including food, water, cover, and space. Specific habitat requirements often vary depending on what geographic area is being considered, species which are present, and the nature and extent of other uses which may be competing. A review of components of the above listed standards (Proper Functioning Riparian-Wetland areas, Uplands and Water Quality) will provide many of the requirements needed to achieve fish, wildlife, and special status plant habitat.

## Guidelines

Guidelines for grazing management are preferred or advisable approaches to grazing management practices determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard(s).

Guidelines are provided to maintain or improve resource conditions in upland and riparian habitats available for livestock grazing. In both riparian and upland habitats, these guidelines focus on establishment and maintenance of proper functioning conditions. The application of these guidelines is dependent on individual management objectives. Desired future conditions in plant communities and streambank characteristics will be determined on a site specific basis.

### **Dakotas GUIDELINE #1:**

Grazing will be managed in a manner that will maintain the proper balance between soils, water, and vegetation over time. This balance varies with location and management objectives, but acceptable levels of use can be developed that are compatible with resource objectives.

### **Dakotas GUIDELINE #2:**

Manage grazing to maintain or improve watershed vegetation, biodiversity, and flood plain function. Maintain or improve riparian vegetative cover and structure to trap and hold sediments during runoff events to rebuild streambanks, restore/recharge aquifers, and dissipate flood energy. Utilize management practices that promote deep-rooted herbaceous vegetation to enhance streambank stability, and the growth and expansion of woody species to provide wildlife habitat.

### **Dakotas GUIDELINE #3:**

Pastures and allotments will be evaluated for sensitivity and suitability for livestock grazing. Unsuitability or potentially unsuitable areas may be excluded from grazing, and/or managed more intensively.

### **Dakotas GUIDELINE #4:**

Management strategies for livestock grazing will ensure that long-term resource capabilities can be sustained. Natural and management-induced streambank alteration, and utilization of herbaceous and woody vegetation are critical factors which must be evaluated in any grazing management plan. Acceptable levels of streambank alteration and herbaceous/woody utilization shall be identified on a site specific basis, and used in terms and conditions. Compatible seasons and duration of use, rest periods, stocking rates, structural facilities, and management activities can then be designed to ensure that standards are achieved.

### **Dakotas GUIDELINE #5:**

Frequency of grazing and extent of defoliations will be managed to promote desired plants and plant communities, based on the rate and physiological conditions of plant growth. To meet these plant growth considerations, the following may be applied: no grazing unit should be grazed for more than half the growing season of key plant species; periods of use throughout the growing season (early, mid, late) should be alternated from year to year; and pastures should be deferred from grazing at least once every 3 years or until seeds set. The season of use should be alternated from year to year to allow for regeneration of woody and herbaceous species. Rather than using calendar dates, stages of plant growth, length of grazing period, and target utilization levels should be used to determine when livestock should be moved to another grazing unit. Caution should be used to avoid early spring grazing use when soils and streambanks are wet and susceptible to compaction and physical damage that occurs with animal trampling.

### **Dakotas GUIDELINE #6:**

The development of springs and seeps or other projects affecting water and associated resources shall be designed to protect the ecological functions and processes of those sites.

**Dakotas GUIDELINE #7**

Locate permanent facilities (e.g., corrals, water developments) away from riparian-wetland areas.

**Dakotas GUIDELINE #8:**

Supplemental salt and minerals should not be placed adjacent to watering locations or in riparian-wetland areas. These should be placed in upland sites to draw livestock away from watering areas, or other sensitive areas, and to contribute to more uniform grazing distribution.

**Dakotas GUIDELINE #9**

For the guidelines of noxious weed management refer to "Guidelines for Coordinated Management of Noxious Weeds in the Greater Yellowstone Area." These guidelines provide a unified effort in developing a public awareness program; a prevention program; and a common inventory, mapping, monitoring, and reporting procedure. An overall management plan and specific action plans can be developed for logical units of land called weed management areas. Guidelines for noxious weed control management must meet or exceed State laws.

**Dakotas GUIDELINE #10:**

Grazing management practices should maintain or promote the interaction of the hydrologic cycle, nutrient cycle and energy flow that will support the appropriate types and amounts of soil organisms, plants, and animals appropriate to soil type, climate and landform.

**Dakotas GUIDELINE #11:**

Livestock grazing practices should be utilized to protect water quality or restore water quality to water bodies not fully supporting designated beneficial uses (e.g., water quality limited streams). Bureau of Land Management management actions or use authorizations do not contribute to pollution that violates the quantitative or narrative North or South Dakota Quality Standards.

**Dakotas GUIDELINE #12:**

Grazing management practices should maintain, improve or restore habitat to assist in the recovery or promote conservation of federally listed threatened, endangered, and sensitive plant and animals.

**Dakotas GUIDELINE #13:**

Grazing management practices should maintain or promote the physical and biological conditions to sustain native populations and communities, and should emphasize native species in support of ecological functions.

**Dakotas GUIDELINE #14:**

Non-native plant species are used only in those situations in which native species are not readily available in sufficient quantities or are incapable of maintaining or achieving properly functioning conditions and biological health.

# Appendix B

## Summary of Best Management Practices (BMPs), Mitigation Guidelines and Standard Operating Procedures (SOPs)

The publications referenced in this appendix are sources of Best Management Practices (BMPs). BMPs are measures that have been developed by agency, industry, scientific, and/or working groups as voluntary methods for reducing environmental impacts associated with certain classes of activity. The BLM typically uses these measures as guidelines or project design features during implementation planning at the activity and/or project-specific levels.

The list included in this appendix is not limiting, but references frequently used sources. As new publications are developed, the BLM may consider those BMPs. In addition, many BLM handbooks (such as BLM Manual 9113-Roads and 9213-Interagency Standards for Fire and Aviation Operation) also contain BMP-type measures for minimizing impacts. Note that additional details about Mitigation, Reclamation, and Soil Guidelines can be found in Appendix C (SD Mitigation Guidelines), Appendix D (SD Reclamation Guidelines) and in Appendix N (Soil Monitoring).

The use of the BMPs and guidelines described below are not mandatory across the planning area, since individual measures may not be appropriate for use in every situation. Within the limits of BLM's authority, specific BMPs or guidelines may be required as a condition of an authorization at the project level (implementation level) to address site-specific circumstances. The use of other BMPs and guidelines would be analyzed on a case-by-case basis during environmental review associated with projects on the BLM land. These case-by-case analyses should not tier to the BMP publication as a way to dismiss environmental impacts (i.e., the review must analyze and disclose the environmental considerations and effects associated with use of the BMP). BMPs and guidelines may be added, dropped, or modified through plan maintenance.

BMPs and guidelines are not a "one size fits all approach" that address all specific circumstances that may occur. On occasion, an individual practice or guideline in this appendix may not be identical to actions outlined in the alternatives. In cases where differences are noted, the action outlined in the alternative that is selected would take preference over the general practice or approach that is described in the BMPs and Guidelines section of the RMP. At the implementation level (project level) BMPs that are applied as a condition or requirement for a specific authorization would become mandatory when the authorization is approved.

The following Best Management Practices would be applied regardless of the alternative chosen:

- Air Resources
- Climate Change
- Fluid Minerals including Oil and Gas BMPs for Wildlife
- Rangeland Health Standards and Guidelines
- Wind Energy Development Programmatic EIS
- Montana/Dakota Guidelines for Grazing Management, Dakota's Portion
- Mitigation Guidelines (additional details can be found in Appendix C).
- South Dakota Field Office Reclamation Guidelines (additional details can be found in Appendix C).
- Interagency Burned Area Rehabilitation Guidebook
- Monitoring Guidelines for Soils
- South Dakota Non-Point Source Management Plan
- Forestry Best Management Practices for South Dakota
- Selected Practices for Avian Protection on Power Lines
- Guidelines for Open Burning
- Integrated Vegetation Management Handbook H-1740-2
- Interagency Standards for Fire And Fire Aviation Operations
- Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States

- 2008-2012 Invasive Species National Management Plan
- South Dakota Aquatic Nuisance Species Management Plan
- Keep Aquatic Nuisance Species out of South Dakota Waters

In addition to the practices and measures described in this Appendix, the Mitigation Guidelines (Appendix C) provide a description of other measures to avoid or reduce adverse impacts.

Specific conservation actions and mitigation measures for sage-grouse management can be found in the mitigation section of the Chapter 2 summary and in Appendix V.

## Air Resources BMPs

*Developed by:* Bureau of Land Management

*Year developed or last updated:* 2012

Impacts to air resources and air quality related values (AQRVs) can be reduced using the following BMPs:

- A. Fugitive dust emissions can be reduced by:
  1. using two-track primitive roads whenever possible rather than developing a dirt road;
  2. applying water or chemical suppressants (e.g., magnesium chloride, calcium chloride, lignin, sulfonate, or asphalt emulsion) to non-primitive unpaved roads or surfacing non-primitive unpaved roads with gravel, chip-seal, or asphalt;
  3. imposing vehicle speed limits on unpaved roads;
  4. restricting the extent of surface impacts during construction activities and ongoing operations by using directional drilling to reduce the number of oil and gas well pads when feasible;
  5. using dust abatement techniques before, during, and after surface clearing and excavation activities;
  6. covering construction materials and stockpiled soils if they are a source of fugitive dust;
  7. suspending construction activities during high winds;
  8. adding gravel to non-reclaimed well pad areas;
  9. revegetating areas when construction is complete;
  10. locating linear facilities in the same or parallel trenches and constructing them at the same time; and
  11. mowing rather than removing vegetation.
  
- B. Fugitive dust and vehicle exhaust emissions related to oil and gas activity can be reduced by restricting vehicle trips by:
  1. consolidating facilities by using directional drilling and multiwell oil and gas pads;
  2. developing centralized liquid collection (water, produced water, and fracturing liquid) facilities and production (treatment and product storage) facilities to reduce the number and average distance of vehicle trips;
  3. using shuttles or vanpools for employee commuting;
  4. using automated equipment and remote telemetry; and
  5. using solar power to add automated equipment in areas without access to electricity.
  
- C. Non-vehicular engine exhaust emissions can be reduced by:
  1. electrifying equipment when feasible;
  2. achieving high levels of emission control by installing and operating low-emission equipment (i.e., drill rig engines with emissions at least as low as Tier 4 engine standards) or operating older equipment that has been retrofitted with additional emission controls such as nonselective catalytic reduction or catalytic oxidation;
  3. using natural gas or electric engines rather than diesel engines;

4. using alternative energy (solar power, wind power, or both) to power new water source developments; and
  5. converting power sources at existing water well developments to alternative energy sources.
- D. Fugitive volatile organic compound (VOC), hazardous air pollutant (HAP), and/or methane (a greenhouse gas [GHG]) emissions from oil and gas activities can be reduced by the following BMPs when feasible:
1. using green completion technology to capture methane (and some VOC and HAP) emissions during completion and place the gas in sales pipelines;
  2. using flaring rather than venting during completion activities, but only in cases where product capture is not feasible;
  3. using closed tanks rather than open tanks or pits;
  4. installing vapor recovery units on condensate, produced water, and oil storage tanks;
  5. using vapor balancing during condensate and oil tanker truck loading;
  6. using closed-loop drilling;
  7. replacing pneumatic (natural gas) pumps with electric or solar pumps;
  8. optimizing glycol circulation rates on glycol dehydrators;
  9. replacing wet seals with dry seals in centrifugal compressors;
  10. replacing worn rod packing in reciprocating compressors;
  11. installing automated plunger lift systems in natural gas wells; and
  12. monitoring equipment leaks and repairing equipment leaks.
- E. Sulfur dioxide (SO<sub>2</sub>) emissions would be reduced by:
1. using ultra-low sulfur diesel fuel in diesel vehicle and stationary engines.

## Climate Change BMPs

Impacts to climate change can be reduced using the following BMPs:

- A. Reduce CO<sub>2</sub> emissions by reducing vehicle miles traveled and using fuel-efficient vehicles.
- B. Reduce CO<sub>2</sub> emissions by using renewable energy to power equipment.
- C. Reduce CO<sub>2</sub> emissions by using energy saving techniques.
- D. Identify and implement methods to sequester CO<sub>2</sub>.
- E. Reduce methane emissions from oil and gas activities by:
  1. capturing methane using green completion, when feasible, and beneficially using the gas by placing it in sales pipeline;
  2. flaring methane during well completion activities for which green completion is infeasible;
  3. replacing natural gas driven pneumatic equipment with solar or electrically powered equipment;
  4. optimizing glycol recirculation rates for glycol dehydrators;
  5. operating flash tank separators on glycol dehydrators; identifying fugitive emissions from equipment leaks and repairing or replacing seals, valves, compressor rod packing systems, and pneumatic devices; and
  6. implementing additional GHG emission reduction strategies identified in the oil and gas BMPs located at EPA Natural Gas STAR Program, <http://www.epa.gov/gasstar/tools/recommended.html>

## Fluid Minerals BMPs

*Developed by:* Bureau of Land Management

*Publication reference:* BLM/WO/ST-06/021+3071

*Available from:*

Online at: <http://www.blm.gov/bmp/>

Online at: <http://www.mt.blm.gov/oilgas/operations/goldbook/goldbook1.html>  
 Online at: [http://www.mt.blm.gov/oilgas/operations/goldbook/Stand\\_Enviro\\_Color.pdf](http://www.mt.blm.gov/oilgas/operations/goldbook/Stand_Enviro_Color.pdf)  
 Online at: <http://www.mt.blm.gov/oilgas/operations/color.pdf>

*Description:* BMPs for oil and gas demonstrate practical ideas which may eliminate or minimize adverse impacts from oil and gas development to public health and the environment, landowners, and natural resources; enhance the value of natural and landowner resources; and reduce conflict.

The publication reference is to the “Gold Book” which is formally titled “Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development.” In addition, the first internet citation is to a location maintained by the Washington Office of the BLM containing general and technical information on the use and application of BMPs. The second location refers the reader directly to an online version of the “Gold Book.” The third and fourth locations refer the reader to color charts for use in selecting paint colors for oil and gas facilities.

## Oil and Gas BMPs for Wildlife

Developed by: *Bureau of Land Management*

*Publication reference:* Instruction Memorandum No. 2013-033

*Available at:*

[http://www.blm.gov/wo/st/en/info/regulations/Instruction\\_Memos\\_and\\_Bulletins/national\\_instruction/2013/IM\\_2013-033.html](http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2013/IM_2013-033.html)

In 2012, the BLM developed BMPs for wildlife protection. Best practices established in the policy focus on the following five industry situations:

1. Open pits and tanks containing freestanding liquid;
2. Chemical tank secondary containment;
3. Pit, tank, and trench entrapment hazards;
4. Open exhaust stacks; and
5. Wire enclosure fencing.

All BLM field offices will ensure new fluid mineral permit approvals contain appropriate BMPs necessary for complying with existing Federal energy, wildlife, and environmental laws and regulations. The BLM has an established policy requiring the use of state-of-the-art environmental mitigation measures in all permits it approves. The BMPs identified in the [new policy](#) take into consideration unique wildlife needs and the potential hazards of extractive industry operations. Specific mitigation strategies include using closed loop systems or nets for managing fluids, constructing wildlife escape ramps in open excavation operations, and installing screens on all open exhaust stacks to prevent bird and bat entry or nesting.

Strategies are also included that reduce threats to important bird species like the Greater-Sage Grouse and Lesser Prairie-Chicken. For these species, demonstrably effective mitigation measures will utilize fence markings around production facility enclosures to prevent wire collisions near mating areas. Increased industry adoption of these best practices at field sites across BLM lands promises to yield healthier environments. BMPs for the fluid minerals industry are critical components in the BLM’s larger effort to reduce the preventable causes of wildlife mortality across the country while also protecting human health and safety. Many of the BMPs also improve safeguards against groundwater contamination and emissions that may affect water and air quality for humans and wildlife alike. When identifying appropriate permit conditions for new projects, BLM field offices will incorporate the new BMPs through the existing National Environmental Policy Act (NEPA) environmental review process.

The new BMP policy follows a well-established BLM tradition of proactively protecting wildlife as part of the Bureau’s multi-use mission facilitating both conservation and energy development. The implemented measures will help the agency and its oil and gas permittees remain in compliance with BLM regulations and Onshore Orders, the Fish and

Wildlife Service's enforcement of the Migratory Bird Treaty Act of 1918, as well as with all other Federal regulations dedicated to protecting wildlife on Federal lands.

## Air Resource BMPs for Fluid Minerals

*Developed by:* Bureau of Land Management

*Year developed or last updated:* 2011 (May)

*Description:* This summary of various Air Resource BMPs outline common problems associated with fluid mineral production that can impact air quality and describes practices that reduce emissions. Examples of topics addressed include centralized water storage and delivery, centralizing of production, dust control, vehicle traffic, venting/ flaring, vapor recovery units, hatches, seals and valves. This summary also describes maintenance and monitoring practices.

*Available from:*

[http://www.blm.gov/style/medialib/blm/wo/MINERALS\\_\\_REALTY\\_\\_AND\\_RESOURCE\\_PROTECTION\\_/bmps.Par.60203.File.dat/WO1\\_Air%20Resource\\_BMP\\_Slideshow%2005-09-2011.pdf](http://www.blm.gov/style/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/bmps.Par.60203.File.dat/WO1_Air%20Resource_BMP_Slideshow%2005-09-2011.pdf)

Additional information about Air Resource BMPs can be found at:

- EPA Natural Gas STAR Program  
<http://www.epa.gov/gasstar/tools/recommended.html>
- California Air Resources Board's Clearinghouse  
<http://www.arb.ca.gov/cc/non-co2-clearinghouse/non-co2-clearinghouse.htm>
- Four Corners Air Quality Group  
<http://www.nmenv.state.nm.us/aqb/4C/>

## Wind Energy Development Programmatic EIS

*Developed by:* Bureau of Land Management

*Year developed or last updated:* 2010

*Available from:* FEIS Chapter 2 (section 2.2.3.2) at <http://windeis.anl.gov/>

*Description:* As part of the proposed action, BLM developed BMPs for each major step of the wind energy development process, including site monitoring and testing, plan of development preparation, construction, operation, and decommissioning. General BMPs are available for each step, and certain steps also include specific BMPs to address the following resource issues: wildlife and other ecological resources, visual resources, roads, transportation, noise, noxious weeds and pesticides, cultural/historic resources, paleontological resources, hazardous materials and waste management, storm water, human health and safety, monitoring program, air emissions and excavation and blasting activities.

**Note:** Although the Wind Energy Development Programmatic EIS addressed only the 11 western states and did not include South Dakota, the BMPs, Guidelines and Standard Operating Procedures described in this EIS may be utilized as projects are proposed and implemented.

## Montana/Dakota Guidelines for Grazing Management – Dakota's Portion

*Developed by:* Bureau of Land Management

*Year developed or last updated:* 1997

*Available from:* Described in Appendix A

*Description:* Guidelines for grazing management are preferred or advisable approaches to grazing management practices determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standard(s).

Guidelines are provided to maintain or improve resource conditions in upland and riparian habitats available for livestock grazing. In both riparian and upland habitats, these guidelines focus on establishment and maintenance of proper functioning condition and healthy rangelands. The application of these guidelines is dependent on individual management objectives.

## Mitigation Guidelines

*Developed by:* Bureau of Land Management

*Year developed or last updated:* 2009

*Available from:* Appendix D, SD RMP

*Description:* South Dakota Field Office (SDFO) Mitigation Guidelines are a compilation of practices employed by the Bureau of Land Management (BLM) to mitigate impacts from surface disturbance. They apply to activities such as road or pipeline construction, range improvements, and permitted recreation activities. The guidelines are designed to protect resources such as soil, water, air, vegetation, wildlife habitat, and cultural or historic properties. The guidelines are not land use decisions; rather they are examples of mitigation measures that could be applied, as appropriate, based on site-specific National Environmental Policy Act (of 1969) (NEPA) analysis for individual proposals. The guidelines are presented as an appendix of the Resource Management Plan (RMP) for easy reference, as they apply to many resources and derive from many laws. This list included in the appendix is not comprehensive and is intended to be used as a guide for appropriate project planning, design, and implementation within the SDFO. Because mitigation measures change or are modified, based on new information, the guidelines are updated periodically for SDFO.

General practices and guidelines:

- Use avoidance or relocation as the preferred strategy for reducing potential adverse effects.
- Employ as much mitigation as possible during planning.
- Minimize surface disturbance effects of operations and maintain the reclamation potential of the site through design, construction, and other practices/techniques.
- Reduce impacts to soil and water resources. Eliminate sources of ground water and surface water contamination.
- Manage invasive species
- Reduce impacts to air resources.
- Develop and implement a mitigation monitoring and reporting strategy.
  
- Waterbody crossing guidelines
- Culverts (refer to The Gold Book for installation details)

*Note:* Specific guidelines and management practices for individual activities are described in Appendix D.

## South Dakota Field Office Reclamation Guidelines

*Developed by:* Bureau of Land Management

*Year developed or last updated:* 2009

Available from: Appendix C

*Description:* Reclamation would be required for surface-disturbing activities (BLM surface only) that disturb vegetation and/or mineral/soil resources. The reclamation of a site aims to set the perpetual course for the planned future condition of a site, including eventual ecosystem restoration by natural processes. Prior to a surface-disturbing activity the site would be evaluated on a case-by-case basis, including an on-site assessment, if necessary, and mitigation measures would be enacted where appropriate. Reclamation plans would be site-specific, project-specific, and incorporate the project's complexity, environmental concerns, and reclamation potential. This appendix gives guidance for appropriate reclamation planning prior to authorization and following surface disturbance.

Reclamation objectives include:

- Manage all waste materials
- Ensure subsurface integrity and eliminate sources of ground and surface water contamination.
- Re-establish slope stability, surface stability, and desired topographic diversity.
- Reconstruct and stabilize water courses and drainage features.
- Maintain the biological, chemical, and physical integrity of the soil resource.
- Prepare site for revegetation.
- Establish a desired, self-perpetuating, native plant community.
- Reestablish complementary visual composition.
- Manage invasive species
- Develop and implement a reclamation monitoring and reporting strategy.

*Note:* Additional details can be found in Appendix C and in the Interagency Burned Area Rehabilitation Guidebook (below).

## **Interagency Burned Area Rehabilitation Guidebook**

*Developed by:* USDI BLM, NPS, FWS, BIA

*Year developed or last updated:* 2006

*Available from:* [http://www.fws.gov/fire/ifcc/Esr/Policy/BAR\\_Guidebook11-06.pdf](http://www.fws.gov/fire/ifcc/Esr/Policy/BAR_Guidebook11-06.pdf)

The purpose of the Interagency Burned Area Rehabilitation Guidebook (Guidebook) is to provide general operational guidance for the Department of the Interior Burned Area Rehabilitation (BAR) activities after a wildfire. In conjunction with Departmental and agency policy, it is designed to provide agency administrators and BAR specialists with sufficient information to:

- Understand BAR policy, standards, and procedures.
- Assess wildfire damage and develop a cost effective plan or report.
- Assess and report accomplishments.

It consolidates and provides an interagency interpretation of BAR policies, procedures, objectives, and standards where there is Departmental and agency agreement.

### **Objectives**

Based on actions identified in approved land and fire management plans:

- To evaluate actual and potential long-term post-fire impacts to critical cultural and natural resources and identify those areas unlikely to recover naturally from severe wildfire damage.

- To develop and implement cost-effective plans to emulate historical or pre-fire ecosystem structure, function, diversity, and dynamics consistent with approved land management plans, or if that is infeasible, then to restore or establish a healthy, stable ecosystem in which native species are well represented.
- To repair or replace minor facilities damaged by wildfire.

### **Allowable Actions Include:**

- Repair or improve lands unlikely to recover naturally from wildfire damage by emulating historical or pre-fire ecosystem structure, function, diversity, and dynamics consistent with existing land management plans.
- Chemical, manual, and mechanical removal of invasive species, and planting of native and non-native species, consistent with 620DM3.8F, restore or establish a healthy, stable ecosystem even if this ecosystem cannot fully emulate historical or pre-fire conditions.
- Tree planting to reestablish burned habitat, reestablish native tree species lost in fire, prevent establishment of invasive plants, and regenerating Indian trust commercial timberland as prescribed by a certified silviculturalist to not regenerate for ten years following the fire.
- Repair or replace wildfire damage to minor operating facilities (e.g., campgrounds, interpretive signs and exhibits, shade shelters, fences, wildlife guzzlers, etc.). Rehabilitation may not include the planning or replacement of major infrastructure, such as visitor centers, residential structures, administration offices, work centers and similar facilities. Rehabilitation does not include the construction of new facilities that did not exist before the fire, except for temporary and minor facilities necessary to implement burned area rehabilitation efforts.

## **Monitoring Guidelines for Soils**

*Developed by:* Bureau of Land Management

*Year developed or last updated:* 2009

*Description:* Provides monitoring direction and monitoring criteria for soils. Considers erosion, streambanks, floodplains, riparian areas, soil salinization, sodification, compaction, rutting, productivity, fill material and subsidence. Lists techniques, unit of measures, frequency and duration of monitoring, remedial action triggers, and management option.

Additional details can be found in Appendix N.

## **South Dakota Non-Point Source (NPS) Management Plan**

*Developed by:* South Dakota Dept. of Environment and Natural Resources

*Year developed or last updated:* 2007

*Available from:* Watershed Protection Water Resources Assistance Program, South Dakota Department of Environment and Natural Resources, Joe Foss Building, 523 East Capitol Pierre, South Dakota 57501-3182. Available online at: <http://denr.sd.gov/dfta/wp/NPSMgmtPlan07>.

*Description:* Revised South Dakota NPS Pollution Management Program Plan:

Establishes objectives and tasks designed to provide direction for how the South Dakota NPS Program will develop and implement total maximum daily loads (TMDLs) for impaired waterbodies during the next five years.

The plan is the “road map” of how the South Dakota NPS Program will reach the objectives and move toward attaining the goal established.

BMPs cost shared are practices that:

- Prevent pollutants from leaving a specific area;
- Reduce/eliminate the introduction of pollutants,
- Protect sensitive areas; and/or
- Prevent the interaction between precipitation and pollutants.

BMPs approved for use in South Dakota that are applicable to BLM include:

- Practices recognized by the USDA Natural Resource Conservation Service, other federal agencies and the South Dakota Conservation Commission as effective in preventing or controlling NPS pollution from urban and rural sources. Design and construction to NRCS specifications is the standard used for BMP installation;
- Sediment removal.

## **Forestry Best Management Practices for South Dakota**

*Developed by:* South Dakota Dept. of Agriculture

*Year developed or last updated:* 2003

*Available from:* South Dakota Dept. of Agriculture 523 East Capitol Pierre, South Dakota 57501-3182. Summary of practices available on-line in 2004 Field Audit Report, Implementation monitoring and evaluation of SD Forestry Best Management Practices in Appendix A at <http://denr.sd.gov/dfta/wp/P2/Documents/04FieldAuditRpt.pdf>

*Description:* Describes management practices to reduce impacts from logging and other harvest practices.

The BMPs address:

- Forest watersheds and non-point source pollution
- Road maintenance and construction
- Timber harvest design
- Streamside management
- Stream crossings
- Winter logging
- Hazardous substances

## **Selected Practices for Avian Protection on Power Lines**

*Developed by:* Avian Powerline Interaction Committee

*Year developed or last updated:* 2006

*Available from:* Avian Powerline Interaction Committee at [www.aplic.org](http://www.aplic.org)

*Description:* Provides practices and guidelines to limit powerline hazards to birds. Provides engineers, biologists, utility planners and the public with a comprehensive resource for eliminating or reducing avian electrocutions and collisions, and highlights management options and cooperative partnerships.

## **Guidelines for Open Burning**

*Developed by:* State of South Dakota

*Year developed or last updated:* On-line document in 2010

*Available from:* <http://denr.sd.gov/des/qa/openburn.aspx>

*Description:* Provides guidelines to follow when open burning. Guidelines address visibility and smoke dispersion, hazardous waste issues, notification of other parties.

## **Integrated Vegetation Management Handbook H-1740-2**

*Developed by:* Bureau of Land Management

*Year Developed:* 2008

*Description:* Many of these BMPs are identified as Standard Operating Procedures (SOPs) preventative measure, or mitigation measures in the BLM Vegetation Treatments using herbicides EIS. (USDI, BLM 2007a) or as SOPs in the BLM Vegetation Treatments Programmatic EIS (USDI, BLM 2007c).

Focus Points include:

- The need for proper planning related to timing, spatial extent and duration are critical to minimize environmental impacts.
- The value of consulting with a cross-section of natural resource specialist to inform the decision making process.
- The importance of considering multiple factors such as wildlife or water quality when developing and implementing management activities.
- The necessity of contingency revegetation plans in cases where natural reestablishment of native vegetation may not be feasible due to lack of seed source or impacts from competing non-native or invasive vegetation.
- The need to give special emphasis to the protection of sensitive resources (e.g. listed species habitats, cultural resources etc.).
- The important of developing inventory and monitoring strategies.

The BMPs describes practices to limit impacts of vegetation treatment to:

- Invasive plant species
- Soil resources
- Native plant conservation and revegetation
- Using pesticide and biological controls
- Air quality
- Wildlife habitat
- Cultural and historic resources
- Water quality and wetlands
- Recreation, visual, and wilderness resources

## **Interagency Standards for Fire and Fire Aviation Operations**

*Year developed:* Updated 2012

*Developed by:* USDI BLM, NPS, USFWS, and USDA USFS

*Publication reference:* NFES 2724

This is an interagency publication that provides guidance and policy direction for the federal fire program. Includes standards for firefighting, identifies roles of agencies, clarifies administration process, safety procedures, incident

management, fire suppression, training, equipment, communications, aviation operations/resources, prescribed fire, and reviews and investigations.

## **Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States**

*Developed by:* Bureau of Land Management

*Publication reference:* ROD 11-29-2007

*Available from:* [http://www.blm.gov/wo/st/en/prog/more/veg\\_eis.html](http://www.blm.gov/wo/st/en/prog/more/veg_eis.html)

*Description:* This document outlines the specific decisions, standard operating procedures, and mitigation measures based on the Final Programmatic EIS concerning the use of herbicides in the Bureau of Land Management integrated pest management program.

## **2008-2012 Invasive Species National Management Plan**

*Developed by:* National Invasive Species Management Council (NISC)

*Publication reference:* 8-1-2008

*Available from:* <http://www.invasivespecies.gov>

*Description:* Directs federal efforts (including overall strategy and objectives) to prevent, control and minimize invasive species and their impacts for fiscal years 2008 through 2012.

## **South Dakota Aquatic Nuisance Species (ANS) Management Plan**

*Developed by:* South Dakota Game, Fish and Parks

*Publication reference:* 12-11-2008

*Available from:* <http://gfp.sd.gov/wildlife/nuisance/aquatic/SDANS-management-plan.aspx>

*Description:* the development of a state ANS management plan, as called for in Section 1204 of the Nonindigenous Aquatic Nuisance Prevention and Control Act (NANPCA) of 1990, provides an opportunity for federal cost-share support for implementation of the plan. This management plan was developed to address the prevention, control, and effects of aquatic nuisance species that have invaded or may invade South Dakota's waters.

## **Keep Aquatic Nuisance Species out of South Dakota Waters**

*Developed by:* South Dakota Game, Fish and Parks

*Publication reference:* 3-15-2010

*Available from:* <http://gfp.sd.gov/wildlife/nuisance/aquatic/default.aspx>

*Description:* Provides practices and guidelines to reduce the threat of the introduction and spread aquatic nuisance species.

## Siting Guidelines for Wind Power Projects in South Dakota

*Developed by:* The South Dakota Bat Working Group in cooperation with the South Dakota Department of Game, Fish and Parks.

*Publication Reference:* None

*Description:* Siting guidelines for wind power developers and other stakeholders to utilize as they consider potential wind power sites in South Dakota. These guidelines address issues/concerns associated with the preconstruction, construction or post-construction of wind turbines and have been divided into eleven general categories:

Land Use  
Natural and Biological Resources  
Noise  
Visual Resources  
Public Interaction  
Soil Erosion and/or Water Quality  
Health and Safety  
Cultural, Archaeological, and Paleontological Resources  
Socioeconomic, Public Services, and Infrastructure  
Solid and Hazardous Wastes  
Air Quality and Climate

*Available from:* <http://gfp.sd.gov/wildlife/docs/wind-power-siting-guidelines.pdf>

# Appendix C

## South Dakota Field Office Mitigation Guidelines

### Introduction

South Dakota Field Office (SDFO) Mitigation Guidelines are a compilation of practices employed by the Bureau of Land Management (BLM) to mitigate impacts from surface disturbance. They apply to activities such as road or pipeline construction, range improvements, and permitted recreation activities. The guidelines are designed to protect resources such as soil, water, air, vegetation, wildlife habitat, and cultural or historic properties. The guidelines are not land use decisions; rather they are examples of mitigation measures that could be applied, as appropriate, based on site-specific National Environmental Policy Act (of 1969) (NEPA) analysis for individual proposals.

The guidelines are presented as an appendix of the Resource Management Plan (RMP) for easy reference, as they apply to many resources and derive from many laws. This list included in the appendix is not comprehensive and is intended to be used as a guide for appropriate project planning, design, and implementation within the SDFO. Because mitigation measures change or are modified, based on new information, the guidelines are updated periodically for SDFO.

Specific conservation actions and mitigation measures for sage grouse management can be found in the mitigation section of the Chapter 2 summary and in Appendix V. In addition to the practices described in this Appendix, Appendix B provides Best Management Practices, Guidelines and Standard Operating Procedures to avoid or reduce the impacts of various actions or activities.

### Purpose

The purpose of the SDFO Mitigation Guidelines is (1) to reserve, for 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.

Application of the mitigation guidelines to all surface and other human presence disturbance activities concerning BLM-administered public lands and resources will also provide more uniformity in mitigation than has occurred in the past. These guidelines are primarily intended for the purpose of consistency in the ways 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. It also does not mean that the requirements or guidelines for a single land use activity would be identical in all areas. Individual measures may not be appropriate for every situation and would be analyzed on a case-by-case basis.

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.

### Mitigation Goals

Mitigation employs measures that have been developed to reduce environmental impacts associated with certain types of activities. Best Management Practices (BMPs) are mitigation measures designed to reduce undesirable impacts to the environment. Incorporation of mitigation can typically result in a more efficient environmental review process, increased operating efficiency, reduced reclamation, and less environmental impacts (The Gold Book, 2007).

### Mitigation Objectives

1. Use avoidance or relocation as the preferred strategy for reducing potential adverse effects.

2. **Employ as much mitigation as possible during planning.**
3. **Minimize surface disturbance effects of operations and maintain the reclamation potential of the site through design, construction, and other practices/techniques.**
  - a. The total disturbance area would be kept to a minimum and located in an area that would reduce environmental impacts as much as possible. Surface disturbance would be co-located where feasible; locate sites using existing roads and previously disturbed sites unless it would cause or aggravate an erosion problem. Locate all linear facilities in the same trenches (or immediately parallel to), and at the same time.
  - b. Use two-track (primitive) roads whenever possible.
  - c. Access roads would be no wider than 18 feet and located in an area suitable for year-round use. The Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book has further guidance for the design of roads, utilities, and oil and gas operations Best Management Practices.
  - d. Interim and final reclamation would occur as soon as possible following disturbance. Interim reclamation would be completed to within a few feet of facilities.
  - e. Whenever practical, bury utilities. Use ditch witches or wheel trenchers (versus back hoes) wherever practical for installation of buried lines to minimize disturbance area.
  - f. Vegetation would be removed only when necessary. Mowing vegetation is preferred.
  - g. The use of alternative techniques, for example, directional drilling, drilling multiple wells from the same pad, co-mingling, recompletion, using existing well pads, is encouraged to minimize surface impacts from oil and gas development.
  - h. Mechanized equipment use causing rutting to a depth greater than 4 inches would not be allowed.
4. **Reduce impacts to soil and water resources. Eliminate sources of ground water and surface water contamination.**
  - a. Operations would avoid sensitive resources including riparian areas, floodplains, waterbodies, and areas subject to erosion and soil degradation. Vehicle movement in sensitive areas would be confined to the smallest reasonable area. Off-road vehicle travel may be restricted.
  - b. Reduce erosion, soil loss, and impacts to water quality by diverting storm water and trapping sediment during activity with erosion/sedimentation control measures.
  - c. There would be no adverse impacts from well water discharge to soils; discharge water may need to be impounded, re-injected, or applied as beneficial use (if it contains less than 10,000 ppm TDS).
  - d. Produced water, reserve pits, and mud pits would be lined with an impermeable liner if site material is porous and not placed in fill material or in natural watercourses; pits may not be cut or trenched. Plastic liners must have a minimum 140 lb/in<sup>2</sup> burst strength, 30 lb tear strength, and be installed over material that won't tear or puncture the liner. Pits would be at least 50 % below ground level and designed to contain all material with a minimum of 2 feet freeboard.
  - e. Use pitless or closed-loop drilling technology. Dispose of drilling fluids, mud, and cuttings in approved disposal areas.
  - f. The pipeline must be tested for leaks prior to backfilling the trench. Pre-clean pipelines prior to hydrostatic testing.
  - g. Avoid well pad designs with cut or fill material in excess of 10 vertical feet.
  - h. Diesel fuel would not be used in fracking fluids that have the potential for drinking water contamination.
  - i. Activity may be restricted during wet or frozen conditions.
  - j. Surface casing would be installed through the Fox Hills Formation to protect domestic ground water sources from contamination.
  - k. No adverse changes in quality of receiving surface or ground waters would occur. Control sources of contamination to protect surface and ground water quality. See the **Monitoring Appendix** for specific guidelines.
  - l. Properly design (grade, sloped, drainage structures, placement, etc.), grade (only when necessary to correct erosion, rutting, comfort, and/or safety), and maintain roads and trails. Design roads to use sites with stable geology, well-drained soils, and natural benches; avoid erodible and low bearing strength soils. Roads would follow the contours of the terrain; avoid long, steep road grades. Road ditches would have flat bottoms and water turn-outs to prevent ditch erosion.

## 5. Manage Invasive Species

- a. The project area would be inventoried for invasive plants on/or adjacent to the site before initial activities.
- b. Develop an invasive species management plan or address invasive species in project level (implementation) environmental review.
- c. Control invasive species utilizing an integrated pest management approach.
- d. Do not allow invasive species to be transported offsite without appropriate disposal measures.
- e. Revegetate disturbed areas through seeding as needed to control erosion and reduce spread of weeds.
- f. Insure that soil stabilization material such as straw comes from weed free sources.

## 6. Reduce impacts to air resources

- a. Use alternative energy sources (e.g., solar and [or] wind power) on new water resource developments and convert power sources for existing water-well developments currently using generators on all BLM-administered lands where economically and physically feasible.
- b. Consider road surfacing to minimize erosion and impacts to air quality (e.g. pit-run gravel over scoria).

## 7. Develop and implement a mitigation monitoring and reporting strategy

- a. Conduct compliance and effectiveness monitoring in accordance with a BLM approved monitoring protocol. An on-site inspection by the BLM is required within one year of the disturbance. See the **Monitoring Appendix** for specific guidelines.
- b. Evaluate monitoring data for compliance with the mitigation appendix.
- c. Document and report monitoring data. Recommend revised mitigation strategies where appropriate.
- d. Implement revised mitigation strategies where appropriate.
- e. Continue the process of monitoring, evaluating, documenting/reporting, and implementing, until mitigation goals are achieved.

# Guidelines for Specific Activities

## 1. Waterbody Crossing Guidelines

- a. Stream crossings would be designed to minimize current and future impacts, including impedance of flow, and would not block, dam, or change any natural drainage.
- b. Multiple crossings would be avoided where possible.
- c. Site reclamation measures will be initiated as soon as a particular area is no longer needed for construction.
- d. Erodible material would not be placed in stream channel. Soil stockpiles would be located above the high water mark.
- e. Crossings would be designed at a right angle to the main channel.
- f. Design for adequate aquatic species passage.
- g. Timing of construction and adjustment of flow conditions may be required to accommodate aquatic species.
- h. Linear Facilities:
  - i. Perennial streams would be crossed using bore crossing (directional drill) or other methods as technology allows which would reduce erosion, sedimentation, and impacts to streambanks and riparian areas.
  - ii. Any water body with flowing water at the time of construction (including intermittent and ephemeral streams) would require an isolated crossing method such as bore crossing (directional drill) or open-cut dry crossing methods (e.g. dam-and-pump or flume methods) to reduce erosion and sedimentation. Diversion of stream flow would be required prior to and during trenching, backfilling, and compaction for open-cut crossing construction using an impermeable diversion and techniques to avoid erosion and sedimentation.
  - iii. Open-cut non-isolated (wet) crossings would not be allowed if the intermittent or ephemeral stream has any surface flow at any time during construction activities which includes trenching, backfilling, compaction, and re-stabilization.

**2. Culverts (refer to The Gold Book for installation details)**

- a. Install culverts to prevent erosion, scour, seepage, and failure.
- b. Install culverts to conform to the natural streambed and slope. Install culverts slightly below normal stream grade.
- c. Use drop structures, rock armor, downspouts, and energy dissipaters to reduce erosion, as long as this does not impede aquatic wildlife passage.
- d. Install culverts to ensure fish and aquatic wildlife passage in all fish-bearing streams. Culverts would follow any additional guidelines and requirements provided by the Field Office Biologist and/or BLM and in coordination and cooperation with the. Flat bottom or bottomless culverts are preferred for fish passage as they reduce velocity and can be bedded with the natural substrate so that it functions like a streambed.
- e. Culverts would extend at least 1-foot beyond the toe of slope.
- f. Perform work at low flow and divert flow to minimize erosion and turbidity.
- g. Maintain culverts and fill; protect inflow from plugging.

# Appendix D

## South Dakota Field Office Reclamation Guidelines

### Introduction

Reclamation would be required for surface disturbing activities (BLM surface only) that disturb vegetation and/or mineral/soil resources. The reclamation of a site aims to set the perpetual course for the planned future condition of a site, including eventual ecosystem restoration by natural processes. Prior to a surface disturbing activity the site would be evaluated on a case-by-case basis, including an on-site assessment if necessary, and mitigation measures would be enacted where appropriate. Reclamation plans would be site-specific, project-specific, and incorporate the project's complexity, environmental concerns, and reclamation potential. This appendix gives guidance for appropriate reclamation planning prior to authorization and following surface disturbance.

The reclamation plan would serve as a binding agreement between the BLM and project proponent(s); it would be included in the proposed action of the NEPA document. Plans would incorporate program or regulatory specific requirements for reclamation. Preparation and review of plans would be based on available information and techniques. Goals and objectives within the reclamation plan would be consistent with the land use plan and be reasonable, ecologically achievable, and measurable. The plan is considered complete when all the requirements described below have been addressed, the techniques to meet the requirements are described in detail, and the BLM approves the plan. This agreement must be periodically reviewed (including monitoring and reporting) and adapted as needed as conditions change or new information or technology becomes available. Reclamation is considered successful when all the requirements described below have been addressed on-site and the BLM approves the site following an on-site inspection.

Most landscapes can be reclaimed using established conventional reclamation methods. However, some areas have unique characteristics that make achieving all the reclamation requirements described in this appendix unrealistic, for example: sensitive soils, sensitive vegetation types, soils with severe physical or chemical limitations, steep slopes, etc. These limited reclamation potential areas may require site-specific reclamation measures not addressed in this appendix. Each project would develop a unique set of reclamation success requirements for those areas within the framework of this appendix. During the NEPA process, alternatives to approving development activities in such areas would be carefully analyzed. Alternatives considered would include: avoidance and/or unconventional site specific reclamation requirements. Resource development activities approved in these areas may require additional bonding.

### Reclamation Goals

The short-term goal of the reclamation plan would include immediate stabilization of the disturbed area and to create the conditions needed for the long-term goal. Interim reclamation will be done if a site is to be left in a changed state for more than six months. The long-term goal of the reclamation plan is eventual ecosystem restoration by natural processes, this includes: a safe and stable landscape, while meeting desired conditions described in the land use plan.

### Reclamation Objectives

The following reclamation guidelines apply to all surface disturbing activities, including BLM initiated activities, and must be addressed in each reclamation plan. These guidelines must be met prior to release of the bond and/or reclamation liability. Where these reclamation guidelines differ from more stringent, applicable, laws, rules, and regulations, those standards replace this policy.

#### 1. Manage all waste materials.

- a. The site would be cleaned of all equipment, structures, material, and debris.

- b. Surface pipelines/utility lines would be removed during final reclamation; deep lines (typically 3 feet or deeper) would be removed only if required by authorized officer.
- c. Segregate, treat, and/or bioremediate contaminated material. Free fluids must be removed. Waste material must be disposed of at a state approved facility.
- d. Bury only authorized (by BLM or state) waste materials on site. Buried material would be covered with a minimum of 5 feet of suitable material or meet other program standards. Buried material must meet the following criteria: range of pH 6-9, moisture content <50% by weight, oil and grease content <3% by weight, EC <12 mmhos/cm, unconfined compressive strength >20 lb/in<sup>2</sup>, and the total metals content must not exceed EPA limits.

**2. Ensure subsurface integrity and eliminate sources of ground and surface water contamination.**

- a. Properly plug all drill holes and other subsurface openings and seal from the bottom to the top of water-bearing formations.
- b. Stabilize, properly back fill, cap, and/or restrict from entry all open shafts, underground workings, pits, and other openings.
- c. No adverse changes in quality of receiving surface or ground waters would occur. Control sources of contamination to protect surface and ground water quality. See the **Monitoring Appendix** for specific guidelines.
- d. Maintain all erosion or sedimentation control devices until vegetation is reestablished, site is stabilized, or are no longer needed.

Water Bar Guidelines

- 1) Water bars are required on 25% slopes or greater and will be used as necessary on gentler slopes. Vary water bar spacing to:
  - a) Fit site conditions
  - b) Promptly intercept surface water before the volume of water and velocity increase enough to generate erosion
  - c) Facilitate drainage toward natural dips, rocky ground, or vegetation to intercept sediment
- 2) Suggested spacing between water bars:

<i>Slope (%)</i>	<i>Spacing at Least Every (Feet)</i>
<10	100-400
10-19	75-200
20-39	50
>39	25

- 3) Water bars would:
  - a) Be 4-6 inches high but can be deeper depending on site conditions.
  - b) Be at a 20° angle to the slope and channel water to the downhill side.
  - c) Avoid pushing sediment into streams, draws, or coulees.
  - d) Be placed to intercept runoff before channelization can occur (specifically the first water bar at the top of the slope).
- 4) The Gold Book (Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, 4<sup>th</sup> edition, 2007) has further guidance and cross-sectional diagrams, including standards for water dips that are drivable.
- 5) Fertilizer and soil additives would not be applied where they could adversely impact water quality.

**3. Re-establish slope stability, surface stability, and desired topographic diversity.**

- a. Reconstruct the landscape to the approximate original contour and to blend with adjacent contours. However, if the site has stabilized and recontouring would cause additional disturbance, this step may not be necessary and could be waived by the authorized officer.
- b. Maximize geomorphic stability and topographic diversity of the reclaimed topography.
- c. Disturbed areas would be recontoured to provide proper drainage.
- d. Eliminate highwalls, cut slopes, and/or topographic depressions on site; unless otherwise approved.
- e. Backfill to prevent surface subsidence. No downward movement of surface material would be evident, maintain to correct settling. See the **Monitoring Appendix** for specific guidelines..
- f. There would be no evidence of slope instability on/or adjacent to the site other than minimal sheet or rill erosion. Minimize accelerated erosion/sedimentation on/or adjacent to the reclaimed area with appropriate erosion/sedimentation control measures immediately following disturbance. See the **Monitoring Appendix** for specific guidelines.
- g. Reclaim all roads and trails unless they meet public demand.
- h. The Burned Area Emergency Stabilization and Rehabilitation Handbook (BLM handbook H-1742-1) has further guidance on erosion/sedimentation control Best Management Practices.

**4. Reconstruct and stabilize water courses and drainage features.**

- a. Reconstruct drainage basins and reclaim impoundments to maintain the drainage pattern, profile, and dimension to approximate the natural features found in the sites naturally functioning basin or nearby, similar reference basins if appropriate.
- b. Reconstruct and stabilize stream channels, drainages, and impoundments to exhibit similar hydrologic characteristics found in the sites naturally functioning system or nearby, similar reference systems if appropriate.
- c. Upland erosion from surface disturbing activities must be controlled effectively and not be allowed to be transported to stream systems.

**5. Maintain the biological, chemical, and physical integrity of the soil resource.**

- a. Identify, delineate, and segregate all salvaged topsoil and subsoil based on a site-specific and project-specific soil evaluation.
- b. Soil would be direct hauled to similar sites in the process of reclamation whenever possible. If that's not possible, topsoil would be stockpiled separately from subsoil. Identify stockpiles with appropriate signage.
- c. Protect all stored soil material from erosion, degradation, and contamination. Stockpiles would be no more than 8-feet deep and of a stable configuration. Stockpiles would be located away from riparian areas, floodplains, wetlands, and other sensitive areas. Erosion control and seeding would be applied to the stockpile within 30 days of storage. ROW and road stockpiles for oil and gas pads would be stored near the cut/fill site.
- d. Incorporate stored soil material into the disturbed landscape.
- e. Displaced farmland, in production or not, would be reclaimed to original productivity. See the **Monitoring Appendix** for specific guidelines.
- f. Soils which were naturally barren before disturbances would be evaluated for reclamation by recontouring the surface to blend in with the topography and then compacting the reconstructed surface to 100% bulk density, rather than using trying to seed and vegetate the site.

**6. Prepare site for revegetation.**

- a. Redistribute soil resources in a manner similar to the original vertical profile.
- b. Reduce subsoil compaction to a minimum of 4 inches below the compacted root zone prior to redistribution of topsoil to accommodate desired plant species.
- c. Provide suitable surface and subsurface physical, chemical, and biological properties to support the long-term establishment and viability of the desired plant community as soon as possible following disturbance.
- d. Remedial reclamation techniques would be evaluated and used to reclaim sites which were originally vegetated, but were badly impacted by poor techniques and practices used in disturbing the soil to develop a project. In such cases this can result in inadequate topsoil quantity, degraded topsoil, and increased problems with high

erodibility, low water holding capacity, sodicity in soils, and salinity in soils. These remedial efforts would be made so that the site again supports ecosystem values, as well as the potential for economic use.

- e. Soil amendments would be evaluated for use including forms of organic matter, such as wood chips, manure, sawmill waste, etc. Methods such as hydroseeding, the use of matting, etc., would be evaluated for use. Chemical amendments would be evaluated for use such as iron sulfide, calcium chloride, magnesium chloride, calcium sulfate, etc., to physically change soil properties, which would result in the ability to support adequate vegetation.

## 7. Establish a desired, self-perpetuating, native plant community.

- a. Establish species composition, diversity, structure, and total ground cover appropriate for the desired plant community as soon as possible following disturbance. Within 5 years of disturbance, the site would contain a minimum of 80% of the vegetative cover as compared to the reference site or NRCS Ecological Site Description (<http://www.mt.nrcs.usda.gov/technical/ecs/range/ecosites/>), whichever is appropriate. Within 5 years of the disturbance, 90% of the vegetative cover would consist of desirable species. Multiple treatments may be required before success is achieved. Monocultures would not be allowed. See the **Monitoring Appendix** for specific guidelines.
- b. Select genetically appropriate and locally adapted native plant materials based on the site characteristics and ecological setting whenever possible, using NRCS ecological sites and soil surveys. If local seed is required it must be collected in the wild. Stream banks would be replanted with riparian vegetation following current ecological restoration practices.
- c. Native species are preferred; select non-native plants only as an approved short-term, non-persistent, alternative to native plant materials (BLM handbook 1740-2 and Executive Order 13112). Ensure the non-native species will not hybridize, displace, or offer long-term competition to the endemic plants, and are designed to aid in the re-establishment of native plant communities. Native species are required for projects with the subactivities 1110 (wildlife management), 1120 (fisheries), or 1150 (threatened and endangered species).
- d. Seed sites as soon as possible following re-contouring and seed-bed preparation and when environmental conditions are appropriate. Approved seed rates would be specified in pounds of pure live seed (PLS) per acre and be designed to adequately cover the soil upon germination. Seed must be tested to ensure viability and purity (germination or TZ tested by a registered seed analyst within 1 year of receipt). Seed must be certified weed-free (WO IM No. 2006-073 and BLM handbook H-1742-1 and BLM handbook H-1740-2). Commercial seed must have documentation (not seed bag tags) easily accessible, including sources.
- e. Drill or broadcast seed along contours. Drill seed with a 6 inch row spacing, ½ to ¾ inches deep.
- f. The recommended drill seeding rate for large seeded species is 20 PLS/ ft<sup>2</sup>. The recommended drill seeding rate for small seeded species (most BLM seed mixes) is 30-40 PLS/ ft<sup>2</sup>. Broadcast or aerial seedings are recommended at the rate of 60-80 PLS/ ft<sup>2</sup> (approx. double the drilled rate); not to exceed 80 PLS/ ft<sup>2</sup>.
- g. Seed additives are allowed (e.g. rhizobium, mycorrhiza, fungicide, pilling).
- h. Protect seed and seedling establishment with appropriate measures. Erosion control matting and mulch must be certified weed/insect-free in accordance with the State's Department of Agriculture laws and requirements, the Federal Seed Act, and specification JJJ-181. Fencing to prohibit cattle and/or wildlife may be necessary.
- i. The Burned Area Emergency Stabilization and Rehabilitation Handbook (BLM handbook H-1742-1), the Integrated Vegetation Management handbook (H-1740-2) and [www.nativeseednetwork.org](http://www.nativeseednetwork.org) have further guidance on revegetation Best Management Practices.

## 8. Reestablish complementary visual composition.

- a. Ensure the reclaimed landscape features blend into the adjacent area and conform to land use plan decisions (BLM Handbook H-8431).
- b. Ensure the reclaimed landscape does not result in a long-term change to the scenic quality of the area; therefore the Scenic Quality Rating would not change (BLM Handbook H-840).

## 9. Manage Invasive Species

- a. Develop an invasive species management plan if appropriate.
- b. Control invasive species utilizing an integrated pest management approach.
- c. Do not allow invasive species to be transported offsite without appropriate disposal measures.

**10. Develop and implement a reclamation monitoring and reporting strategy.**

- a. Conduct compliance and effectiveness monitoring in accordance with a BLM approved monitoring protocol. Observations must include erosion/sedimentation, revegetation, and invasive species. An on-site inspection by the BLM is required within one year of the interim and final reclamation. See the **Monitoring Appendix** for specific guidelines.
- b. Evaluate monitoring data for compliance with the reclamation plan.
- c. Document and report monitoring data. Recommend revised reclamation strategies where appropriate.
- d. Implement revised reclamation strategies where appropriate.
- e. Continue the process of monitoring, evaluating, documenting/reporting, and implementing, until reclamation goals are achieved.



## Appendix E.1

### Oil and Gas Stipulations – Alternative A (No Action)

#### Summary List of Stipulations

##### Water Resources:

Management Action 1: NSO. Wetlands, Riparian Areas, Floodplains

##### Soil Resources:

Management Action 1: CSU. Slopes  
 Management Action 3: CSU. Sensitive Soils

##### Wildlife:

Management Action 2: NSO. Sharp-Tailed Grouse Leks  
 Management Action 4: TLS. Sharp-Tailed Grouse Nesting Habitats  
 Management Action 6: CSU. Sharp-Tailed Grouse and Prairie Chicken Nesting Area - Raptor Perches  
 Management Action 7: CSU. Sharp-Tailed Grouse and Greater Prairie-Chicken - Underground Utility (Power and Transmission) Lines  
 Management Action 8: TLS. Big Game Winter Range  
 Management Action 10: NSO. Raptor Nest Sites Not Defined as Sensitive and Special Status  
 Management Action 12: NSO. Bighorn Sheep Range

##### Special Status Species:

Management Action 1: NSO. Bald Eagle Nests  
 Management Action 4: NSO. Peregrine Falcon Nests  
 Management Action 6: NSO. Special Status Raptor Nests  
 Management Action 9: NSO. Greater Sage-Grouse Leks  
 Management Action 11: TLS. Greater Sage-Grouse Winter Range  
 Management Action 13: TLS. Greater Sage-Grouse Nesting Habitat  
 Management Action 15: CSU. Greater Sage-Grouse General Habitat Areas (GHAs - Underground Utility (Power and Transmission) Lines  
 Management Action 20: NSO. Greater Sage-Grouse PPAs  
 Management Action 29: NSO. Piping Plover Habitat  
 Management Action 31: NSO. Interior Least Tern Habitat

##### Fisheries and Aquatics:

Management Action 4: NSO. Reservoirs with Fisheries

##### Visual Resources:

Management Action 2: CSU. VRM Facilities Camouflage  
 Management Action 3: NSO. VRM Special Recreation Management Areas

##### Recreation:

Management Action 12: NSO. Recreation

**Lands and Realty:**

Management Action 2: ROW Authorizations for Visual Resources and Wildlife

**Cultural Resources:**

Management Common to All: Cultural Resources and Tribal Consultation

Management Common to All: Cultural Resource Survey Requirements

**Paleontological Resources:**

Management Common to All: NSO in designated paleontological sites/localities

**Waivers, Exceptions and Modification (WEMs)**

Waivers, exceptions and modifications (WEMs) provide an effective means of applying “Adaptive Management” techniques to oil and gas leases and associated permitting activities to meet changing circumstances. The criteria for approval of waivers, exceptions, and modifications should be supported by National Environmental Policy Act (NEPA) analysis, either through the land use planning process or site-specific environmental review. An exception, waiver, or modification must be based on one of two criteria. According to 43 CFR 3101.1-4, “A stipulation included in an oil and gas lease shall be subject to modification or waiver only if the authorized officer determines that the factors leading to its inclusion in the lease have changed sufficiently to make the protection provided by the stipulation no longer justified or if the proposed operations would not cause unacceptable impacts.”

**Definitions from BLM IM 2008-032**

A Lease Stipulation is a condition of lease issuance that provides a level of protection for other resource values or land uses by restricting lease operations during certain times or locations or to avoid unacceptable impacts, to an extent greater than standard lease terms or regulations. A stipulation is an enforceable term of the lease contract, supersedes any inconsistent provisions of the standard lease form, and is attached to and made a part of the lease. Lease stipulations further implement the Bureau of Land Management’s (BLM) regulatory authority to protect resources or resource values. Lease stipulations are developed through the land use planning process.

A Condition of Approval (COA) means a site-specific and enforceable requirement included in an approved Application for Permit to Drill (APD) or Sundry Notice that may limit or amend the specific actions proposed by the operator. Conditions of Approval minimize, mitigate, or prevent impacts to resource values or other uses of public lands. Refer to Appendix E-9 for more details.

**Note:** While the term lease “stipulation” is used frequently in this document, it should be noted that the concepts contained within this policy can also be applied with some adaptation to Terms and Conditions and to Conditions of Approval.

A waiver is a permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

An exception is a one-time exemption for a particular site within the leasehold; exceptions are determined on a case-by-case basis; the stipulation continues to apply to all other sites within the leasehold. An exception is a limited type of waiver.

A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.

## Oil and Gas Stipulations with Waivers, Exceptions and Modifications (WEMs) Alternative A (No Action)

### Water Resources: Management Action 1

Resource:	Water and riparian vegetation
Stipulation:	No Surface Occupancy stipulation. Riparian areas, 100 year floodplains of major rivers, and water bodies and streams would be managed as a No Surface Occupancy and Use for oil and gas leasing.
Objective:	To protect the unique biological and hydrological features associated with wetlands, riparian areas, floodplains, streams, lakes, and reservoirs.
Exception:	The Authorized Officer (AO) may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not adversely impact wetland or riparian function or associated water quality.
Modification:	The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain wetlands or riparian areas.
Waiver:	This stipulation may be waived by the authorized officer if it is determined that the entire leasehold does not include wetlands, riparian areas, floodplains, streams, lakes, or reservoirs.

### Soil Resources: Management Action 1

Resource:	Slopes
Stipulation:	Controlled Surface Use: Slopes over 30 percent would be managed as a Controlled Surface Use stipulation for oil and gas activities. Prior to surface disturbance on slopes over 30 percent, an engineering and reclamation plan must be approved by the authorized officer. The plan must demonstrate how the following will be accomplished: <ol style="list-style-type: none"> <li>1) site productivity restored;</li> <li>2) surface runoff adequately controlled;</li> <li>3) off-site areas protected from accelerated erosion, such as rilling, gullying, piping, and mass wasting;</li> <li>4) water quality and quantity in conformance with state and federal water quality laws;</li> <li>5) surface-disturbing activities prohibited during extended wet periods; and</li> <li>6) construction not allowed when soils are frozen.</li> </ol>
Objective:	To prevent excessive soil erosion on steep slopes and to avoid disturbing slopes subject to slope instability or with potential reclamation problems.
Exception:	The Authorized Officer (AO) may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not contribute to unacceptable degradation of the soil resource or down slope resource conditions.
Modification:	The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain slopes 30 percent or greater.
Waiver:	This stipulation can be waived by the AO if it is determined that no part of the lease area contains slopes 30 percent or greater.

**Soil Resources: Management Action 3**

Resource:	Sensitive Soils
Stipulation:	Sensitive soils reclamation requirements for oil and gas operations would be considered when an oil and gas drilling, production, or plugging and abandonment plan is submitted to the BLM.
Objective:	To maintain the chemical, physical, and biotic properties of soils. This includes maintaining soil productivity, soil structure, soil stability, and soil biotic communities. This would prevent excessive erosion and avoid areas with the potential for excessive reclamation problems.
Exception:	None.
Modification:	None.
Waiver:	None.

**Wildlife: Management Action 2**

Resource:	Sharp-Tailed Grouse Leks
Stipulation:	No Surface Occupancy: Surface occupancy and use would be prohibited within ¼ mile of grouse leks.
Objective:	Protection of sharp-tailed grouse nesting and brood rearing habitat.
Exception:	An exception to this stipulation can be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
Modification:	The boundaries of the stipulated area can be modified if the authorized officer determines that portions of the area no longer are within ¼ mile of sharp-tailed grouse leks.
Waiver:	This stipulation can be waived if the authorized officer determines that the entire leasehold no longer is within ¼ mile of sharp-tailed grouse leks.

**Wildlife: Management Action 4**

Resource:	Sharp-Tailed Grouse Nesting Habitats
Stipulation:	Timing Restriction: Surface use would be prohibited from March 1 to June 15 in grouse nesting habitat within 2 miles of a lek. This stipulation does not apply to the operation and maintenance of production facilities.
Objective:	Limit disturbance to sharp-tailed grouse during critical periods.
Exception:	An exception to this stipulation can be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
Modification:	The boundaries of the stipulated area can be modified if the authorized officer determines that portions of the area no longer contain sharp-tailed nesting habitat within 2 miles of a lek. The dates for the timing restriction can be modified if new information indicates that the March 1 to June 15 dates are not valid for the leasehold.
Waiver:	This stipulation can be waived if the authorized officer determines that the entire leasehold no longer contains sharp-tailed grouse nesting habitat within 2 miles of a lek.

**Wildlife: Management Action 6**

Resource:	Sharp-tailed grouse and prairie chicken nesting area Raptor Perches
Stipulation:	Sharp-tailed grouse or greater prairie chickens requirements would be considered when designing or siting structures that are over 10 feet in height that create raptor perches within the 2 mile buffer of sharp-tailed grouse and greater prairie chicken nesting areas.
Objective:	Reduce raptor predation of sharp-tailed grouse and greater prairie chickens in nesting areas.
Exception:	None.
Modification:	None.
Waiver:	None.

**Wildlife: Management Action 7**

Resource:	Sharp-Tailed Grouse and Greater Prairie Chickens - Underground Utility (Power and Transmission) Lines
Stipulation:	Sharp-tailed grouse or greater prairie chickens requirements would be considered when designing or siting power lines within a 2 mile buffer of nesting areas.
Objective:	Reduce hazards to grouse and greater prairie chickens from power lines and reduce raptor predation of sharp-tailed grouse and greater prairie chickens in nesting areas.
Exception:	None.
Modification:	None.
Waiver:	None.

**Wildlife: Management Action 8**

Resource:	Big Game Winter Range
Stipulation:	Timing Limitation: Surface-disturbing and disruptive activities in big game winter range would be restricted from oil and gas development and production from December 1 to March 31. This stipulation would not apply to the operation and maintenance of production facilities.
Objective:	Maintain big game habit and avoid or minimize habitat loss and disturbance.
Exception:	An exception to this stipulation can be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
Modification:	The boundaries of the stipulated area can be modified if the authorized officer determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction can be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the leasehold.
Waiver:	This stipulation can be waived if the authorized officer determines that the entire leasehold no longer contains crucial winter range for wildlife.

**Wildlife: Management Action 10**

Resource:	Raptor nest sites not defined as sensitive and special status that were active within the last 7 years
Stipulation:	Raptor nest sites not defined as sensitive and special status requirements for oil and gas operations would be considered when an oil and gas drilling, production, or plugging and abandonment plan is submitted to the BLM.
Objective:	Limit nesting disturbance to raptors that are not identified as sensitive raptor species.
Exception:	None.
Modification:	None.
Waiver:	None.

**Wildlife: Management Action 12**

Resource:	Bighorn Sheep Range
Stipulation:	Bighorn sheep requirements for oil and gas operations would be considered when an oil and gas drilling, production, or plugging and abandonment plan is submitted to the BLM.
Objective:	Limit disturbance to bighorn sheep.
Exception:	None.
Modification:	None.
Waiver:	None.

**Special Status Species: Management Action 1**

Resource:	Bald Eagle Nests
Stipulation:	No Surface Occupancy: Surface occupancy and use is prohibited within ½ mile of bald eagle nest sites active within the past 5 years and within bald eagle nesting habitat in riparian areas.
Objective:	Limit disturbance to bald eagle nesting habitat.
Exception:	An exception can be granted by the authorized officer if the operator submits a plan that demonstrates that the proposed action will not affect bald eagles or their habitat. If the authorized officer determines that the action can affect bald eagles or their habitat, consultation with the USFWS will be required prior to final determination on the exception.
Modification:	The boundaries of the stipulated area can be modified if the authorized officer, in consultation with the USFWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.
Waiver:	This stipulation can be waived if the authorized officer, in consultation with the USFWS, determines that the entire leasehold can be occupied without adversely affecting bald eagle nest sites or nesting habitat or the bald eagles is declared recovered and no longer protected under the Endangered Species Act of 1973.

**Special Status Species: Management Action 4**

- Resource: Peregrine Falcon Nests
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within 1 mile of peregrine falcon nest sites.
- Objective: Limit disturbance to peregrine falcon nesting habitat.
- Exception: An exception may be granted by the authorized officer if the operator submits a plan that demonstrates that the proposed action will not affect the peregrine falcon or its habitat. If the authorized officer determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by the BLM in consultation with the USFWS.
- Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with the USFWS, determines that portions of the area are no longer critical to the peregrine falcon.
- Waiver: The stipulation maybe waived if the authorized officer, in consultation with the USFWS, determines that the entire leasehold no longer contains habitat critical to the peregrine falcon or the peregrine falcon is declared recovered and no longer protected under the Endangered Species Act.

**Special Status Species: Management Action 6**

- Resource: Sensitive Raptor Species (golden eagle, osprey, burrowing owl, ferruginous hawk, Swainson's hawk, northern goshawk, prairie falcon and other raptors)
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ½ mile of sensitive and other special status raptor nest sites (peregrine falcons and bald eagles addressed in management actions 1 and 4). At the present time raptors that would be addressed by management action 6 include ferruginous hawk, northern goshawk, Swainson's hawk, golden eagle, and burrowing owls.
- Objective: Limit nesting disturbance to raptors that have been identified as sensitive raptor species.
- Exception: An exception to this stipulation can be granted by the authorized officer if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification: The boundaries of the stipulated area can be modified if the authorized officer determines that portions of the area are no longer within ½ mile of raptor nest sites active within the past 7 years.
- Waiver: This stipulation can be waived if the authorized officer determines that the entire leasehold no longer is within ½ miles of raptor nest sites active within the past 7 years.

**Special Status Species: Management Action 9**

- Resource: Greater Sage-Grouse General Habitat Area Leks
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of sage-grouse leks.
- Objective: Limit disturbance to sage-grouse nesting habitat.
- Exception: None.

**Modification:** The boundaries of the stipulated area can be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting sage-grouse lek sites.

**Waiver:** This stipulation can be waived if the authorized officer determines that the entire leasehold can be occupied without adversely affecting sage-grouse lek sites, or lek sites within ¼ mile of the leasehold have not been active for 5 consecutive years.

### **Special Status Species: Management Action 11**

**Resource:** Greater Sage-Grouse

**Stipulation:** Timing Restriction: Surface use is prohibited within crucial sage-grouse winter range between December 1 and March 31 within crucial winter range for sage-grouse. Routine maintenance, production and emergency response activities are allowed.

**Objective:** Within the Greater Sage-Grouse General Habitat Areas, maintain integrity of the habitat to support sustainable sage-grouse populations.

**Exception:** The authorized officer may grant an exception to specific requirements of this stipulation if the action, as proposed or conditioned would not compromise the habitat for sage-grouse and meet the goals for sage-grouse habitat.

- a) Surface disturbing/disruptive activities will prevent or minimize disturbance to sage-grouse or their habitat. Except as identified above or during emergency situations, activities will not compromise the habitat.
- b) Continuous noise (related to long-term operations and/or activities) would be no greater than 49 decibels at ¼ mile from the perimeter of the lek.
- c) Temporary noise (related to installation, maintenance, one-time use, emergency operations, etc.) exceeding 49 decibels at ¼ mile from the perimeter of a lek or surface disturbing/ disruptive activities may be allowed, but only from 10 a.m. to 4 p.m. between March 1 and June 30.
- d) Manage water developments to reduce the spread of West Nile virus within sage-grouse habitat areas.
- e) Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- f) Maximize placement of new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- g) Power lines would be buried, eliminated, designed or sited in a manner which does not impact sage-grouse.
- h) Placement of other high profile structures, exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage-grouse.
- i) Remote monitoring of production facilities must be utilized and all permit applications must contain a plan to reduce the frequency of vehicle use.
- j) Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- k) Restore disturbed areas at final reclamation to pre-disturbance conditions or desired plant community.
- l) Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage-grouse.
- m) Consider use of off-site mitigation, (e.g., creation of sagebrush habitat, purchase conservation easements, or buying down grazing) with proponent dollars to offset habitat losses.
- n) Consider creation of a "Mitigation Trust Account" when impacts cannot be avoided, minimized, or effectively mitigated through other means. If approved by the BLM, the proponent may contribute funding to maintain habitat function based on the estimated cost of habitat treatments or other mitigation needed to maintain the functions of impacted habitats. Off-site mitigation should only be considered when no feasible options are available to adequately mitigate within and

immediately adjacent to the impacted site, or when the off-site location would provide more effective mitigation of the impact than can be achieved on-site.

**Modification:** The authorized officer may modify the area subject to the stipulation if an environmental analysis finds a portion of the General Habitat Area is nonessential or no longer sage-grouse habitat.

**Waiver:** This stipulation may be waived by the authorized officer, if: 1) after consultation with the appropriate State Wildlife agency, it is determined significant portions of the General Habitat Area have been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored, or 2) sage-grouse are no longer a BLM Special Status Species and are not listed as threatened or endangered by the U.S. Fish and Wildlife Service, or 3) no reasonable alternative development scenario mitigating the impacts is possible.

### **Special Status Species: Management Action 13**

**Resource:** Greater Sage-Grouse General Habitat Areas

**Stipulation:** Timing Restriction: Surface use would be prohibited from March 1 through June 30 in sage-grouse nesting habitat within 2 miles of a lek. This stipulation does not apply to the operation and maintenance of production facilities.

**Objective:** Within the Greater Sage-Grouse General Habitat Areas, maintain integrity of the habitat, to support sustainable sage-grouse populations

**Exception:** The authorized officer may grant an exception to specific requirements of this stipulation if the action, as proposed or conditioned would not compromise the habitat for sage-grouse and meet the goals for sage-grouse habitat.

- a) Surface disturbing/disruptive activities will prevent or minimize disturbance to sage-grouse or their habitat. Except as identified above or during emergency situations, activities will not compromise the habitat.
- b) Continuous noise (related to long-term operations and/or activities) would be no greater than 49 decibels at ¼ mile from the perimeter of the lek.
- c) Temporary noise (related to installation, maintenance, one-time use, emergency operations, etc.) exceeding 49 decibels at ¼ mile from the perimeter of a lek or surface disturbing/ disruptive activities may be allowed, but only from 10 a.m. to 4 p.m. between March 1 and June 30.
- d) Manage water developments to reduce the spread of West Nile virus within sage-grouse habitat areas.
- e) Site and/or minimize linear ROW to reduce disturbance to sagebrush habitats.
- f) Maximize placement of new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- g) Power lines would be buried, eliminated, designed or sited in a manner which does not impact sage-grouse.
- h) Placement of other high profile structures, exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage-grouse.
- i) Remote monitoring of production facilities must be utilized and all permit applications must contain a plan to reduce the frequency of vehicle use.
- j) Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- k) Restore disturbed areas at final reclamation to pre-disturbance conditions or desired plant community.
- l) Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage-grouse.
- m) Consider use of off-site mitigation, (e.g., creation of sagebrush habitat, purchase conservation easements, or buying down grazing) with proponent dollars to offset habitat losses.

- n) Consider creation of a “Mitigation Trust Account” when impacts cannot be avoided, minimized, or effectively mitigated through other means. If approved by the BLM, the proponent may contribute funding to maintain habitat function based on the estimated cost of habitat treatments or other mitigation needed to maintain the functions of impacted habitats. Off-site mitigation should only be considered when no feasible options are available to adequately mitigate within and immediately adjacent to the impacted site, or when the off-site location would provide more effective mitigation of the impact than can be achieved on-site.

**Modification:** The authorized officer may modify the area subject to the stipulation if an environmental analysis finds a portion of the General Habitat Area is nonessential or no longer sage-grouse habitat.

**Waiver:** This stipulation may be waived by the authorized officer, if: 1) after consultation with the appropriate State Wildlife agency, it is determined significant portions of the General Habitat Area have been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored, or 2) sage-grouse are no longer a BLM Special Status Species and are not listed as threatened or endangered by the U.S. Fish and Wildlife Service, or 3) no reasonable alternative development scenario mitigating the impacts is possible.

### **Special Status Species: Management Action 15**

**Resource:** Greater Sage-Grouse General Habitat Areas (GHAs) - Underground Utility (Power and Transmission) Lines

**Stipulation:** Sage-grouse requirements would be considered when designing or siting power lines near leks and within sage-grouse winter range.

**Objective:** Reduce collision hazards to sage grouse from power lines and reduce raptor predation on sage grouse within Greater Sage-Grouse General Habitat Areas (GHAs).

**Exception:** None.

**Modification:** None.

**Waiver:** None.

### **Special Status Species: Management Action 20**

**Resource:** Greater Sage-Grouse Protection Priority Areas

**Stipulation:** Greater Sage-Grouse Protection Priority Areas (PPAs) See Map 2-4 for oil and gas operations would be considered when an oil and gas drilling, production, or plugging and abandonment plan is submitted to the BLM.

**Objective:** Within Greater Sage-Grouse PPAs maximize the integrity of the habitat, strive to maintain or improve sage-grouse populations, and at a minimum sage-grouse habitat so populations in the Greater Sage-Grouse PPAs reflect population trends exhibited by representative sage-grouse trend data from SDGFP lek data (protection priority area controlled surface use).

**Exception:** None.

**Modification:** None.

**Waiver:** None.

**Special Status Species: Management Action 29**

- Resource: Piping Plover Habitat
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of wetlands identified as piping plover habitat.
- Objective: Protection of piping plover habitat.
- Exception: An exception can be granted by the authorized officer if the operator submits a plan that demonstrates that the proposed action will not affect the piping plover or its habitat. If the authorized officer determines that the action can affect the piping plover or its habitat, consultation with the USFWS will be required prior to final determination on the exception.
- Modification: The boundaries of the stipulated area may be modified if the authorized officer, in consultation with USFWS, determines that portions of the area are no longer essential to the piping plover.
- Waiver: The stipulation can be waived if the authorized officer, in consultation with USFWS, determines that the entire leasehold no longer contains habitat essential to the piping plover or the piping plover is declared recovered and is no longer protected under the Endangered Species Act of 1973.

**Special Status Species: Management Action 31**

- Resource: Interior Least Tern Habitat
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of wetlands identified as least tern habitat.
- Objective: Protection of interior least tern habitat.
- Exception: An exception can be granted by the authorized officer if the operator submits a plan that demonstrates that the proposed action will not affect the least tern or its habitat. If the authorized officer determines that the action can affect the least tern or its habitat, consultation with the USFWS will be required prior to final determination on the exception.
- Modification: The boundaries of the stipulated area can be modified if the authorized officer, in consultation with the USFWS, determines that portions of the area are no longer essential to the least tern.
- Waiver: The stipulation can be waived if the authorized officer, in consultation with the USFWS, determines that the entire leasehold no longer contains habitat essential to the least tern or the least tern is declared recovered and no longer protected under the Endangered Species Act.

**Fisheries and Aquatics: Management Action 4**

- Resource: Fisheries and Aquatics
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of designated reservoirs with fisheries.
- Objective: Protection of fisheries and aquatics species.
- Exception: An exception to this stipulation can be granted by the authorized officer if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

- Modification:** The boundaries of the stipulated area can be modified if the authorized officer determines that portions of the area can be occupied without adversely affecting the fisheries and recreational values of the reservoir.
- Waiver:** This stipulation can be waived if the authorized officer determines that the entire leasehold is no longer a fishery, and it can be occupied without adversely affecting the recreational values of the reservoir.

**Visual Resources Management (VRM): Management Action 2**

- Resource:** Visual Resources
- Stipulation:** Controlled Surface Use: Surface-disturbing activities. Semi-permanent or permanent facilities in VRM Class II, areas may require special design including location, size, and camouflage painting to blend with the natural surroundings and meet the visual quality objectives for the area (applied to all activities)
- Objective:** Protection of the aesthetic and scenic qualities of the landscape.
- Exception:** The authorized officer may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the authorized officer may require phased mitigation to better conform to the prescribed VRM.
- Modification:** None.
- Waiver:** None.

**Visual Resources Management (VRM): Management Action 3**

- Resource:** Visual Resources
- Stipulation:** No Surface Occupancy: Surface occupancy and use would be prohibited within developed recreation areas and undeveloped recreation areas receiving concentrated public use to protect visual resources.
- Objective:** Protection of the aesthetic and scenic qualities of the landscape within designated Special Recreation Management Areas.
- Exception:** The authorized officer may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the authorized officer may require phased mitigation to better conform to the prescribed VRM.
- Modification:** None.
- Waiver:** None.

**Recreation: Management Action 12**

- Resource:** Recreation
- Stipulation:** No Surface Occupancy: Surface occupancy and use would be prohibited within developed recreation areas and undeveloped recreation areas receiving concentrated public use .

- Objective: Protection of ACEC and recreational values associated with SRMAs.
- Exception: The authorized officer may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the authorized officer may require phased mitigation to better conform to the prescribed VRM.
- Modification: None.
- Waiver: None.

**Lands and Realty, ROW Authorizations: Management Action 2**

- Resource: Visual Resources and Wildlife
- Stipulation: Consideration for burying fiber optic, telephone and power lines that can be safely buried to have least impact on resources would be evaluated at the project level.
- Objective: Protection of visual and scenic qualities while allowing for flexibility to avoid cultural or mitigate impacts to cultural sites.
- Exception: None.
- Modification: None.
- Waiver: None.

**Cultural Resources: Management Actions Common to All Alternatives**

- Resource: Cultural Resources and Tribal Consultation
- Stipulation: This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.
- Objective: To protect significant historic properties and resources.
- Exception: None.
- Modification: None.
- Waiver: None.

**Cultural Resources: Management Actions Common to All Alternatives**

- Resource: Cultural Resource Survey

- Stipulation:** An inventory of those portions of the leased lands subject to proposed disturbance may be required prior to any surface disturbance to determine if cultural resources are present and to identify needed mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator shall:
1. The lessee or operator shall engage the services of a cultural resource consultant acceptable to the Surface Management Agency (SMA) to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the standard ten-acre minimum to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted.
  2. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as data recovery and extensive recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the SMA, surface occupancy on that area must be prohibited. The lessee or operator shall immediately bring to the attention of the SMA any cultural resources discovered as a result of approved operations under this lease, and shall not disturb such discoveries until directed to proceed by the SMA.
- Objective:** Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect cultural properties eligible to the National Register of Historic Places. Section 6 of the Oil and Gas Lease Terms (Form 3100-11) requires that operations be conducted in a manner that minimizes adverse impacts to cultural and other resources.
- Exception:** None.
- Modification:** None.
- Waiver:** None.

**Paleontological Resources: Management Actions Common to All Alternatives**

- Resource:** Paleontological Resources – No Surface Occupancy
- Stipulation:** Surface occupancy and use is prohibited within designated paleontological sites/localities.
- Objective:** Preserve and protect significant vertebrate fossils and paleontological resources.
- Exception:** An exception to this stipulation may be granted by the authorized officer if the lessee or operator submits a plan which demonstrates that the adverse impacts to significant paleontological resources can be mitigated through recovery and extensive recordation. Where impacts to paleontological resources cannot be mitigated to the satisfaction of the Surface Management Agency, surface occupancy on that area must be prohibited.
- Modification:** The boundaries of the stipulated area may be modified if the authorized officer determines that portions of the designated paleontological site/locality can be occupied without adversely affecting the resource values.
- Waiver:** None.

## Appendix E.2

### Oil and Gas Stipulations – Alternative B

#### Summary List of Stipulations

##### Water Resources:

Management Action 1: NSO. Wetlands, Riparian Areas, Floodplains

##### Soil Resources:

Management Action 1: CSU. Slopes  
 Management Action 3: CSU. Sensitive Soils

##### Wildlife:

Management Action 2: NSO. Sharp-Tailed Grouse and Greater Prairie-Chicken Leaks  
 Management Action 4: TLS. Sharp-Tailed Grouse and Greater Prairie-Chicken Nesting Habitats  
 Management Action 6: CSU. Sharp-Tailed Grouse and Prairie Chicken Nesting Area - Raptor Perches  
 Management Action 7: CSU. Sharp-Tailed Grouse and Greater Prairie-Chicken - Underground Utility (Power and Transmission) Lines  
 Management Action 8: TLS. Big Game Winter Range  
 Management Action 10: NSO. Raptor Nest Sites Not Defined as Sensitive and Special Status  
 Management Action 12: NSO. Bighorn Sheep Range

##### Special Status Species:

Management Action 1: NSO. Bald Eagle Nests  
 Management Action 4: NSO. Peregrine Falcon Nests  
 Management Action 6: NSO. Special Status Raptor Nests  
 Management Action 9: NSO. Greater Sage-Grouse Leaks  
 Management Action 11: TLS. Greater Sage-Grouse Winter Range  
 Management Action 13: TLS. Greater Sage-Grouse Nesting Habitat  
 Management Action 15: CSU. Greater Sage-Grouse General Habitat Areas (GHAs) - Underground Utility (Power and Transmission) Lines  
 Management Action 20: NSO. Greater Sage-Grouse Protection Priority Areas (PPAs)  
 Management Action 29: NSO. Piping Plover Habitat  
 Management Action 31: NSO. Interior Least Tern Habitat

##### Fisheries and Aquatics:

Management Action 4: NSO. Reservoirs with Fisheries

##### Visual Resources:

Management Action 2: CSU. VRM Facilities Camouflage  
 Management Action 3: NSO. VRM Special Recreation Management Areas

##### Recreation:

Management Action 12: NSO. Recreation

**Lands and Realty:**

Management Action 2: ROW Authorizations for Visual Resources and Wildlife

**Public Safety:**

Management Action 1: NSO. Abandoned Minuteman Missile Sites

**Cultural Resources:**

Management Common to All: Cultural Resources and Tribal Consultation  
 Management Common to All: Cultural Resource Survey Requirements  
 Management Action 3: NSO. National Register of Historic Places (NRHP) Eligible Properties/Districts  
 Management Action 3: NSO. Traditional Cultural Properties  
 Management Action 4: NSO. Igloo and Black Hills Army Depot (BHAD)

**Paleontological Resources:**

Management Common to All: NSO within Designated Paleontological Sites/Localities  
 Management Action 1: Paleontological Surveys and CSU in Potential Fossil Yield Classes 4 and 5

When applicable, stipulations developed for oil and gas development may be applied to other resource uses and activities pending environmental review at the project level (implementation level).

The BLM would inform affected landowners, local government, SD GFP and SD DENR when a waiver, exception or modification is being considered if such an action would directly affect resources or uses managed by these parties.

**Waivers, Exceptions and Modifications (WEMs)**

Waivers, exceptions, and modifications (WEMs) provide an effective means of applying “Adaptive Management” techniques to oil and gas leases and associated permitting activities to meet changing circumstances. The criteria for approval of exceptions, waivers, and modifications should be supported by National Environmental Policy Act (NEPA) analysis, either through the land use planning process or site-specific environmental review. An exception, waiver, or modification must be based on one of two criteria. According to 43 CFR 3101.1-4, “A stipulation included in an oil and gas lease shall be subject to modification or waiver only if the Authorized Officer (AO) determines that the factors leading to its inclusion in the lease have changed sufficiently to make the protection provided by the stipulation no longer justified or if the proposed operations would not cause unacceptable impacts.”

**Definitions from BLM IM 2008-032**

A **Lease Stipulation** is a condition of lease issuance that provides a level of protection for other resource values or land uses by restricting lease operations during certain times or locations or to avoid unacceptable impacts, to an extent greater than standard lease terms or regulations. A stipulation is an enforceable term of the lease contract, supersedes any inconsistent provisions of the standard lease form, and is attached to and made a part of the lease. Lease stipulations further implement the Bureau of Land Management’s (BLM) regulatory authority to protect resources or resource values. Lease stipulations are developed through the land use planning process.

A Condition of Approval (COA) means a site-specific and enforceable requirement included in an approved Application for Permit to Drill (APD) or Sundry Notice that may limit or amend the specific actions proposed by the operator. Conditions of Approval minimize, mitigate, or prevent impacts to resource values or other uses of public lands. Refer to Appendix E-9 for more details.

**Note:** While the term lease “stipulation” is used frequently in this document, it should be noted that the concepts contained within this policy can also be applied with some adaptation to Terms and Conditions and to Conditions of Approval.

A waiver is a permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

An exception is a one-time exemption for a particular site within the leasehold; exceptions are determined on a case-by-case basis; the stipulation continues to apply to all other sites within the leasehold. An exception is a limited type of waiver.

A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.



## **Oil and Gas Stipulations with Waivers, Exceptions and Modifications (WEMs) Alternative B**

### **Water Resources: Management Action 1**

Resource:	Water and riparian vegetation
Stipulation:	No Surface Occupancy stipulation. Riparian areas, wetlands, 100 year floodplains of rivers and streams and water bodies and areas within 300 feet of these features would be managed as No Surface Occupancy and Use for oil and gas leasing. At the implementation level any proposed projects that are located in areas identified as a 100 year floodplain (currently defined by “flooded soils” in the NRCS data set – see Glossary) would be evaluated for features that the stipulation is designed to protect and the stipulation applied when such features are present.
Objective:	To protect the unique biological and hydrological features associated with wetlands, riparian areas, floodplains, streams, lakes, and reservoirs.
Exception:	The Authorized Officer (AO) may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not adversely impact wetland or riparian function or associated water quality.
Modification:	The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain wetlands or riparian areas.
Waiver:	This stipulation may be waived by the AO if it is determined that the entire leasehold does not include wetlands, riparian areas, floodplains, streams, lakes, or reservoirs.

### **Soil Resources: Management Action 1**

Resource:	Slopes
Stipulation:	Controlled Surface Use. Surface use and occupancy would be controlled on slopes exceeding 25%. Prior to surface disturbance on slopes 25 percent or greater, an engineering and reclamation plan must be approved by the Authorized Officer (AO). The plan must demonstrate that no other practicable alternatives exist and how the following will be accomplished: (1) site productivity maintained or restored, (2) surface runoff and sedimentation adequately controlled, (3) on- and off-site areas protected from accelerated erosion by wind or water, (4) surface-disturbing activities prohibited during extended wet periods, and (5) the activity located to reduce impacts to soil and water resources.
Objective:	To prevent excessive soil erosion on steep slopes and to avoid disturbing slopes subject to slope instability or with potential reclamation problems.
Exception:	The AO may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not contribute to unacceptable degradation of the soil resource or down slope resource conditions.
Modification:	The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain slopes 25 percent or greater.
Waiver:	This stipulation can be waived by the AO if it is determined that no part of the lease area contains slopes 25 percent or greater.

**Soil Resources: Management Action 3**

- Resource:** Sensitive Soils
- Stipulation:** Controlled Surface Use. Prior to any surface disturbance on sensitive soils (refer to glossary) a reclamation plan must be approved by the Authorized Officer (AO). The plan must demonstrate that no other practicable alternatives exist for relocating the activity. The plan must include a detailed description of how the activity would: (1) control wind and water erosion; (2) control surface runoff; (3) minimize sediment production; (4) maintain site productivity; and (5) complete reclamation. The plan will consider avoidance, size limitations, timing restrictions (e.g. limiting wet condition road usage), physical mitigation, and off-site mitigation.
- Objective:** To maintain the chemical, physical, and biotic properties of soils. This includes maintaining soil productivity, soil structure, soil stability, and soil biotic communities. This would prevent excessive erosion and avoid areas with the potential for excessive reclamation problems.
- Exception:** The AO may grant an exception to this stipulation if the operator can demonstrate that the activity would not contribute to degradation of the soil resource or down slope resource conditions.
- Modification:** The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain sensitive soils.
- Waiver:** This stipulation can be waived by the AO if it is determined that the entire leasehold does not include sensitive soils.

**Wildlife: Management Action 2**

- Resource:** Sharp-Tailed Grouse and Greater Prairie-Chicken Leks
- Stipulation:** No Surface Occupancy: Surface occupancy and use would be prohibited within ¼ mile of sharp-tailed grouse and greater prairie-chicken leks.
- Objective:** Protection of sharp-tailed grouse and greater prairie-chicken nesting and brood rearing habitat.
- Exception:** An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification:** The boundaries of the stipulated area can be modified if the AO determines that portions of the area no longer are within ¼ mile of sharp-tailed grouse and greater prairie-chicken leks.
- Waiver:** This stipulation can be waived if the AO determines that the entire leasehold no longer is within ¼ mile of sharp-tailed grouse and greater prairie-chicken leks.

**Wildlife: Management Action 4**

- Resource:** Sharp-Tailed Grouse and Greater Prairie-Chicken Nesting Habitats
- Stipulation:** Timing Restriction: Surface disturbance and disruptive activities would be avoided from March 1 to June 30 in sharp-tailed grouse and greater prairie-chicken nesting habitat within 2 miles of a lek. This restriction does not apply to the operation and maintenance of production facilities.
- Objective:** Limit disturbance to sharp-tailed grouse and greater prairie-chicken during critical periods.

- Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification: The boundaries of the stipulated area can be modified if the AO determines that portions of the area no longer contain sharp-tailed grouse or greater prairie-chicken nesting habitat within 2 miles of a lek. The dates for the timing restriction can be modified if new information indicates that the March 1 to June 30 dates are not valid for the leasehold.
- Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer contains sharp-tailed grouse or greater prairie-chicken nesting habitat within 2 miles of a lek.

#### **Wildlife: Management Action 6**

- Resource: Sharp-Tailed Grouse and Greater Prairie-Chicken Nesting Area Raptor Perches
- Stipulation: Sharp-tailed grouse or greater prairie-chicken requirements would be considered when designing or siting structures that are over 10 feet in height that create raptor perches within the 2 mile buffer of sharp-tailed grouse and greater prairie-chicken nesting areas.
- Objective: Reduce raptor predation of sharp-tailed grouse and greater prairie-chickens in nesting areas.
- Exception: None.
- Modification: None.
- Waiver: None.

#### **Wildlife: Management Action 7**

- Resource: Sharp-Tailed Grouse and Greater Prairie-Chickens - Underground Utility (Power and Transmission) Lines
- Stipulation: Sharp-tailed grouse or greater prairie-chicken requirements would be considered when designing or siting power lines within a 2 mile buffer of nesting areas.
- Objective: Reduce hazards to grouse and greater prairie-chickens from power lines and reduce raptor predation of sharp-tailed grouse and greater prairie-chickens in nesting areas.
- Exception: None.
- Modification: None.
- Waiver: None.

#### **Wildlife: Management Action 8**

- Resource: Big Game Winter Range
- Stipulation: Timing Limitation: Surface disturbance and disruptive activities would be prohibited from December 1 to March 31 within winter range for big game.
- Objective: Maintain big game habit and avoid or minimize habitat loss and disturbance.

- Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification: The boundaries of the stipulated area can be modified if the AO determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction can be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the leasehold.
- Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer contains crucial winter range for wildlife.

### **Wildlife: Management Action 10**

- Resource: Raptor nest sites not defined as sensitive and special status that were active within the last 7 years
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of raptor nests sites that were active within the last 7 breeding years.
- Objective: Limit nesting disturbance to raptors that are not identified as sensitive raptor species.
- Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification: The boundaries of the stipulated area can be modified if the AO determines that portions of the area are no longer within ¼ mile of raptor nest sites active within the past 7 years.
- Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer is within ¼ miles of raptor nest sites active within the past 7 years.

### **Wildlife: Management Action 12**

- Resource: Bighorn Sheep Range
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited in designated bighorn sheep range.
- Objective: Limit disturbance to bighorn sheep.
- Exception: None.
- Modification: The boundaries of the stipulated area may be modified if the Authorized Officer (AO) determines that portions of the area no longer contain bighorn sheep habitat.
- Waiver: This stipulation may be waived if the AO determines that the entire leasehold no longer contains bighorn sheep habitat.

### **Special Status Species: Management Action 1**

- Resource: Bald Eagle Nests
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of bald eagle nest sites active within the past 5 years and within bald eagle nesting habitat in riparian areas.

- Objective:** Limit disturbance to bald eagle nesting habitat.
- Exception:** An exception can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect bald eagles or their habitat. If the AO determines that the action can affect bald eagles or their habitat, consultation with the USFWS will be required prior to final determination on the exception.
- Modification:** The boundaries of the stipulated area can be modified if the AO, in consultation with the USFWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.
- Waiver:** This stipulation can be waived if the AO, in consultation with the USFWS, determines that the entire leasehold can be occupied without adversely affecting bald eagle nest sites or nesting habitat or the bald eagle is declared recovered and no longer protected under the Endangered Species Act of 1973.

#### **Special Status Species: Management Action 4**

- Resource:** Peregrine Falcon Nests
- Stipulation:** No Surface Occupancy: Surface occupancy and use is prohibited within ½ mile of peregrine falcon nest sites that were active within the preceding 7 breeding seasons.
- Objective:** Limit disturbance to peregrine falcon nesting habitat.
- Exception:** An exception may be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect the peregrine falcon or its habitat. If the AO determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by the BLM in consultation with the USFWS.
- Modification:** The boundaries of the stipulated area may be modified if the AO, in consultation with the USFWS, determines that portions of the area are no longer critical to the peregrine falcon.
- Waiver:** The stipulation maybe waived if the AO, in consultation with the USFWS, determines that the entire leasehold no longer contains habitat critical to the peregrine falcon, or the peregrine falcon is declared recovered and no longer protected under the Endangered Species Act.

#### **Special Status Raptors: Management Action 6**

- Resource:** Golden eagle, burrowing owl, ferruginous hawk, Swainson's hawk, osprey, prairie falcon, and northern goshawk. Does not include peregrine falcon or bald eagle.
- Stipulation:** No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of sensitive and special status raptor nest sites that were active within the last 7 years. At the present time raptors that would be addressed by Management Action 6 include golden eagle, burrowing owl, ferruginous hawk, Swainson's hawk, osprey, prairie falcon, and northern goshawk.
- Objective:** Limit nesting disturbance to raptors that have been identified as sensitive raptor species.
- Exception:** An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

**Modification:** The boundaries of the stipulated area can be modified if the AO determines that portions of the area are no longer within ¼ mile of raptor nest sites active within the past 7 years.

**Waiver:** This stipulation can be waived if the AO determines that the entire leasehold no longer is within ¼ miles of raptor nest sites active within the past 7 years.

### **Special Status Species: Management Action 9**

**Resource:** Greater Sage-Grouse General Habitat Area Leks

**Stipulation:** No Surface Occupancy: Surface occupancy and use is prohibited within ½ mile of sage-grouse leks.

**Objective:** Limit disturbance to sage-grouse nesting habitat.

**Exception:** None.

**Modification:** The boundaries of the stipulated area can be modified if the Authorized Officer (AO) determines that portions of the area can be occupied without adversely affecting sage-grouse lek sites. Coordination with SD GFP would be required prior to modifying this stipulation.

**Waiver:** This stipulation can be waived if the AO determines that the entire leasehold can be occupied without adversely affecting sage-grouse lek sites, or lek sites within ½ mile of the leasehold have not been active for 5 consecutive years. Coordination with SD GFP would be required prior to waiving this stipulation.

### **Special Status Species: Management Action 11**

**Resource:** Greater Sage-Grouse

**Stipulation:** Timing Restriction: Surface use is prohibited within crucial sage-grouse winter range between December 1 and March 31 within crucial winter range for sage-grouse. Routine maintenance, production and emergency response activities are allowed.

**Objective:** Within the Greater Sage-Grouse General Habitat Areas, maintain integrity of the habitat to support sustainable sage-grouse populations.

**Exception:** The Authorized Officer (AO) may grant an exception to specific requirements of this stipulation if the action, as proposed or conditioned would not compromise the habitat for sage-grouse and meet the goals for sage-grouse habitat.

- a) Surface disturbing/disruptive activities will prevent or minimize disturbance to sage-grouse or their habitat. Except as identified above or during emergency situations, activities will not compromise the habitat.
- b) Continuous noise (related to long-term operations and/or activities) would be no greater than 49 decibels at ¼ mile from the perimeter of the lek.
- c) Temporary noise (related to installation, maintenance, one-time use, emergency operations, etc.) exceeding 49 decibels at ¼ mile from the perimeter of a lek or surface disturbing/ disruptive activities may be allowed, but only from 10 a.m. to 4 p.m. between March 15 and May 15.
- d) Manage water developments to reduce the spread of West Nile virus within sage-grouse habitat areas.
- e) Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- f) Maximize placement of new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

- g) Power lines would be buried, eliminated, designed or sited in a manner which does not impact sage-grouse.
- h) Placement of other high profile structures, exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage-grouse.
- i) Remote monitoring of production facilities must be utilized and all permit applications must contain a plan to reduce the frequency of vehicle use.
- j) Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- k) Restore disturbed areas at final reclamation to pre-disturbance conditions or desired plant community.
- l) Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage-grouse.
- m) Consider use of off-site mitigation, (e.g., creation of sagebrush habitat, purchase conservation easements, or buying down grazing) with proponent dollars to offset habitat losses.
- n) Consider creation of a “Mitigation Trust Account” when impacts cannot be avoided, minimized, or effectively mitigated through other means. If approved by the BLM, the proponent may contribute funding to maintain habitat function based on the estimated cost of habitat treatments or other mitigation needed to maintain the functions of impacted habitats. Off-site mitigation should only be considered when no feasible options are available to adequately mitigate within and immediately adjacent to the impacted site, or when the off-site location would provide more effective mitigation of the impact than can be achieved on-site.

**Modification:** The AO may modify the area subject to the stipulation if an environmental analysis finds a portion of the General Habitat Area is nonessential or no longer sage-grouse habitat.

**Waiver:** This stipulation may be waived by the AO if: 1) after consultation with the appropriate State Wildlife agency, it is determined significant portions of the General Habitat Area have been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored, or 2) sage-grouse are no longer a BLM Special Status Species and are not listed as threatened or endangered by the U.S. Fish and Wildlife Service, or 3) no reasonable alternative development scenario mitigating the impacts is possible.

### **Special Status Species: Management Action 13**

**Resource:** Greater Sage-Grouse General Habitat Areas

**Stipulation:** Timing Restriction: Surface use would be prohibited from March 1 through July 15 in sage-grouse nesting habitat within 3 miles of a lek. This stipulation does not apply to the operation and maintenance of production facilities.

**Objective:** Within the Greater Sage-Grouse General Habitat Areas, maintain integrity of the habitat, to support sustainable sage-grouse populations

**Exception:** The Authorized Officer (AO) may grant an exception to specific requirements of this stipulation if the action, as proposed or conditioned would not compromise the habitat for sage-grouse and meet the goals for sage-grouse habitat.

- a) Surface disturbing/disruptive activities will prevent or minimize disturbance to sage-grouse or their habitat. Except as identified above or during emergency situations, activities will not compromise the habitat.
- b) Continuous noise (related to long-term operations and/or activities) would be no greater than 49 decibels at ¼ mile from the perimeter of the lek.
- c) Temporary noise (related to installation, maintenance, one-time use, emergency operations, etc.) exceeding 49 decibels at ¼ mile from the perimeter of a lek or surface disturbing/ disruptive activities may be allowed, but only from 10 a.m. to 4 p.m. between March 15 and May 15.

- d) Manage water developments to reduce the spread of West Nile virus within sage-grouse habitat areas.
- e) Site and/or minimize linear ROW to reduce disturbance to sagebrush habitats.
- f) Maximize placement of new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- g) Power lines would be buried, eliminated, designed or sited in a manner which does not impact sage-grouse.
- h) Placement of other high profile structures, exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage-grouse.
- i) Remote monitoring of production facilities must be utilized and all permit applications must contain a plan to reduce the frequency of vehicle use.
- j) Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- k) Restore disturbed areas at final reclamation to pre-disturbance conditions or desired plant community.
- l) Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage-grouse.
- m) Consider use of off-site mitigation, (e.g., creation of sagebrush habitat, purchase conservation easements, or buying down grazing) with proponent dollars to offset habitat losses.
- n) Consider creation of a "Mitigation Trust Account" when impacts cannot be avoided, minimized, or effectively mitigated through other means. If approved by the BLM, the proponent may contribute funding to maintain habitat function based on the estimated cost of habitat treatments or other mitigation needed to maintain the functions of impacted habitats. Off-site mitigation should only be considered when no feasible options are available to adequately mitigate within and immediately adjacent to the impacted site, or when the off-site location would provide more effective mitigation of the impact than can be achieved on-site.

**Modification:** The AO may modify the area subject to the stipulation if an environmental analysis finds a portion of the General Habitat Area is nonessential or no longer sage-grouse habitat.

**Waiver:** This stipulation may be waived by the AO, if: 1) after consultation with the appropriate State Wildlife agency, it is determined significant portions of the General Habitat Area have been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored, or 2) sage-grouse are no longer a BLM Special Status Species and are not listed as threatened or endangered by the U.S. Fish and Wildlife Service, or 3) no reasonable alternative development scenario mitigating the impacts is possible.

### **Special Status Species: Management Action 15**

**Resource:** Greater Sage-Grouse General Habitat Areas (GHAs) - Underground Utility (Power and Transmission) Lines

**Stipulation:** Controlled Surface Use: All new utility and power lines that can be safely buried would be buried within 1 mile of sage-grouse leks and within sage-grouse winter range would be buried, designed or sited in a manner which would not impact sage-grouse on public lands.

Potential disturbance to cultural sites or other high resource values would be considered when decisions are made to require burial of power lines. In cases, where relocation of power lines is not possible, above ground lines may be allowed on all or part of a proposed power line route to avoid impacts to these resources provided the potential adverse impacts to wildlife or special status species are minimal as determined through project level environmental review.

**Objective:** Reduce collision hazards to sage-grouse from power lines and reduce raptor predation on sage-grouse within Greater Sage-Grouse General Habitat Areas (GHAs).

- Exception: None.
- Modification: None.
- Waiver: This stipulation may be waived, if after consultation with the appropriate State and federal wildlife agencies, it is determined that significant portions of the Greater Sage-Grouse General Habitat Area has been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored.

**Special Status Species: Management Action 20**

- Resource: Greater Sage-Grouse Protection Priority Areas
- Stipulation: No Surface Occupancy: Surface occupancy and use would be prohibited in Greater Sage-Grouse Protection Priority Areas (PPAs). See Map 2-4.
- Objective: Within Greater Sage-Grouse PPAs maximize the integrity of the habitat, strive to maintain or improve sage-grouse populations, and at a minimum sage-grouse habitat so populations in the Greater Sage-Grouse PPAs reflect population trends exhibited by representative sage-grouse trend data from SDGFP lek data (protection priority area controlled surface use).
- Exception: The Authorized Officer (AO), in consultation with South Dakota Game, Fish and Parks (SD GFP), may grant an exception if portions of the area can be occupied without adversely affecting sage-grouse leks.
- Modification: The boundaries of the stipulated area may be modified if the AO, in consultation with SD GFP, determines that portions of the area can be occupied without adversely affecting sage-grouse leks. The AO, in consultation with SD GFP, may also modify the size and shape of the area based on studies documenting actual habitat suitability and/or local periods of actual use.
- Waiver: The stipulation may be waived if the AO, in consultation with SD GFP, determines that the entire leasehold is no longer capable of supporting sage-grouse leks.

**Special Status Species: Management Action 29**

- Resource: Piping Plover Habitat
- Stipulation: No Surface Occupancy: Surface occupancy and use would be prohibited within ¼ mile of piping plover habitat.
- Objective: Protection of piping plover habitat.
- Exception: An exception can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect the piping plover or its habitat. If the AO determines that the action can affect the piping plover or its habitat, consultation with the USFWS will be required prior to final determination on the exception.
- Modification: The boundaries of the stipulated area may be modified if the AO, in consultation with USFWS, determines that portions of the area are no longer essential to the piping plover.
- Waiver: The stipulation can be waived if the AO, in consultation with USFWS, determines that the entire leasehold no longer contains habitat essential to the piping plover or the piping plover is declared recovered and is no longer protected under the Endangered Species Act of 1973.

**Special Status Species: Management Action 31**

- Resource: Interior Least Tern Habitat
- Stipulation: No Surface Occupancy: Surface occupancy and use would be prohibited within ¼ mile of interior least tern habitat.
- Objective: Protection of interior least tern habitat.
- Exception: An exception can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect the least tern or its habitat. If the AO determines that the action can affect the least tern or its habitat, consultation with the USFWS will be required prior to final determination on the exception.
- Modification: The boundaries of the stipulated area can be modified if the AO, in consultation with the USFWS, determines that portions of the area are no longer essential to the least tern.
- Waiver: The stipulation can be waived if the AO, in consultation with the USFWS, determines that the entire leasehold no longer contains habitat essential to the least tern or the least tern is declared recovered and no longer protected under the Endangered Species Act.

**Fisheries and Aquatics: Management Action 4**

- Resource: Fisheries and Aquatics
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of reservoirs with fisheries.
- Objective: Protection of fisheries and aquatics species.
- Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification: The boundaries of the stipulated area can be modified if the AO determines that portions of the area can be occupied without adversely affecting the fisheries and recreational values of the reservoir.
- Waiver: This stipulation can be waived if the AO determines that the entire leasehold is no longer a fishery, and it can be occupied without adversely affecting the recreational values of the reservoir.

**Visual Resources Management (VRM): Management Action 2**

- Resource: Visual Resources
- Stipulation: Controlled Surface Use: All surface-disturbing activities. Semi-permanent or permanent facilities may require special design including location, size, and camouflage or earth tone paint to blend with the natural surroundings and meet the visual quality objectives in VRM Classes II, III and IV.
- Objective: Protection of the aesthetic and scenic qualities of the landscape.
- Exception: The Authorized Officer (AO) may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the AO may require phased mitigation to better conform to the prescribed VRM.

Modification: None.

Waiver: None.

**Visual Resources Management (VRM): Management Action 3**

Resource: Visual Resources

Stipulation: No Surface Occupancy: Surface occupancy and use would be prohibited in and within ½ mile buffer of the Exemption Area SRMA. Surface occupancy and use would be prohibited within ½ mile buffer around the Fort Meade SRMA/ACEC. (Minerals would be withdrawn within the Fort Meade SRMA/ACEC.)

Objective: Protection of the aesthetic and scenic qualities of the landscape within ½ mile of designated Special Recreation Management Areas.

Exception: The Authorized Officer (AO) may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the AO may require phased mitigation to better conform to the prescribed VRM.

Modification: None.

Waiver: None.

**Recreation: Management Action 12**

Resource: Recreation

Stipulation: No Surface Occupancy: Surface occupancy and use would be prohibited within ½ mile of the Special Recreational Management Areas (SRMAs) including Fort Meade ACEC and Exemption Area.

Objective: Protection of ACEC and recreational values associated with SRMAs.

Exception: The Authorized Officer (AO) may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the AO may require phased mitigation to better conform to the prescribed VRM.

Modification: None.

Waiver: None.

**Lands and Realty, ROW Authorizations: Management Action 2**

Resource: Visual Resources and Wildlife

Stipulation: Controlled Surface Use: All fiber optic, telephone and power lines that can be safely buried would be buried or sited to have least impact on resources. All other utility lines would be evaluated at the project level.

Objective: Protection of visual and scenic qualities while allowing for flexibility to avoid cultural or mitigate impacts to cultural sites.

Exception: Areas where damage to cultural resources cannot be mitigated may be excepted by the Authorized Officer (AO).

Modification: None.

Waiver: None.

**Public Safety: Management Action 1**

Resource: Public Safety – Abandoned Minuteman Missile Sites

Stipulation: Controlled Surface Use: Surface-disturbing activity at U.S. Air Force abandoned Minuteman missile sites would be restricted on the sites. Subsurface activity would be prohibited under the sites. Proposals for surface disturbance will be assessed on a case-by-case basis.

Objective: Protect the public and environment from movement of or contamination by potential residual hazardous waste.

Exception: This stipulation can be excepted by the AO if it is determined that the disturbance would not intercept and contribute to the spreading of potential residual wastes by a plan that addresses the design of the proposal, stockpiling and respreading of soil materials, and sampling and testing.

Modification: None.

Waiver: None.

**Cultural Resources: Management Action Common to All Alternatives**

Resource: Cultural Resources and Tribal Consultation

Stipulation: This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Objective: To protect significant historic properties and resources.

Exception: None.

Modification: None.

Waiver: None.

**Cultural Resources: Management Action Common to All Alternatives**

Resource: Cultural Resource Survey

Stipulation: An inventory of those portions of the leased lands subject to proposed disturbance may be required prior to any surface disturbance to determine if cultural resources are present and to identify needed

mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator shall:

1. The lessee or operator shall engage the services of a cultural resource consultant acceptable to the Surface Management Agency (SMA) to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the standard ten-acre minimum to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted.
2. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as data recovery and extensive recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the SMA, surface occupancy on that area must be prohibited. The lessee or operator shall immediately bring to the attention of the SMA any cultural resources discovered as a result of approved operations under this lease, and shall not disturb such discoveries until directed to proceed by the SMA.

**Objective:** Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect cultural properties eligible to the National Register of Historic Places. Section 6 of the Oil and Gas Lease Terms (Form 3100-11) requires that operations be conducted in a manner that minimizes adverse impacts to cultural and other resources.

**Exception:** None.

**Modification:** None.

**Waiver:** None.

**Cultural Resources: Management Action 3a**

**Resource:** National Register of Historic Places (NRHP) Eligible Properties/Districts – No Surface Occupancy

**Stipulation:** Occupancy and use is prohibited within, and for a distance of 300 feet from the boundaries of cultural properties and archaeological/historic districts determined to be eligible or potentially eligible for the National Register of Historic Places, except for the Fort Meade Recreation Area National Historic District which is closed to oil and gas leasing.

**Objective:** To protect significant cultural properties and archaeological districts and their settings, and to avoid disturbance or inadvertent impacts to these resources.

**Exception:** An exception to this stipulation may be granted by the Authorized Officer (AO) if the lessee or operator submits a plan which demonstrates that the adverse impact to cultural properties eligible or potentially eligible for the National Register of Historic Places can be mitigated through data recovery, extensive recordation, or other acceptable means. Where impacts to cultural resources cannot be mitigated to the satisfaction of the Surface Managing Agency and/or BLM, surface occupancy of that area must be prohibited.

**Modification:** The boundaries of the stipulated area may be modified if the AO determines that portions of the designated site or district can be occupied without adversely affecting the cultural resource values for which the site or area was designated eligible.

**Waiver:** None.

*NOTE: Compliance with Section 106 of NHPA is required for all actions that can affect cultural properties eligible for the National Register of Historic Places (NRHP).*

### **Cultural Resources: Management Action 3b**

Resource:	Traditional Cultural Properties – No Surface Occupancy
Stipulation:	Occupancy and Use is prohibited within, and for a distance of ½ mile from the boundaries of cultural properties determined to be of importance to Native American Tribal groups, sites determined to be Traditional Cultural Properties, and/or designated for traditional use. Such properties include (but are not limited to) burial locations, pictograph/petroglyph, vision quest locations, certain stone alignments, buttes or other uplift type landforms, plant gathering locations, and areas considered sacred or used for religious purposes.
Objective:	To avoid disturbance and to protect archaeological properties of known significance to Native American groups, as well as, traditional cultural properties and the setting in which they occur.
Exception:	An exception to this stipulation may be granted by the Authorized Officer (AO) if the lessee or operator submits a plan which demonstrates that operations will be designed and/or located in such a manner as to have a minimal impact to the natural setting and characteristics of the immediate area and that adverse impacts to these traditional cultural properties can be mitigated in consultation with, and to the satisfaction of, affected Indian Tribes or Native American groups.
Modification:	None.
Waiver:	None.

### **Cultural Resources: Management Action 4**

Resource:	Cultural Resources and Public Safety
Stipulation:	No Surface Occupancy: Surface occupancy and use would be prohibited within the Igloo town site and the Black Hills Army Ordnance Depot.
Objective:	Protect significant historic properties and resources and prevent the movement of, or contamination by, potential hazardous materials within the abandoned Igloo town site and the Black Hills Army Ordnance Depot.
Exception:	None.
Modification:	None.
Waiver:	None.

### **Paleontological Resources: Management Action Common to All Alternatives**

Resource:	Paleontological Resources – No Surface Occupancy
Stipulation:	Surface occupancy and use is prohibited within designated paleontological sites/localities and in significant paleontological sites regardless of designation. This includes Fossil Cycad ACEC.
Objective:	Preserve and protect significant vertebrate fossils and paleontological resources.

- Exception: An exception to this stipulation may be granted by the Authorized Officer (AO) if the lessee or operator submits a plan which demonstrates that the adverse impacts to significant paleontological resources can be mitigated through recovery and extensive recordation. Where impacts to paleontological resources cannot be mitigated to the satisfaction of the Surface Management Agency, surface occupancy on that area must be prohibited.
- Modification: The boundaries of the stipulated area may be modified if the AO determines that portions of the designated paleontological site/locality can be occupied without adversely affecting the resource values or significance.
- Waiver: None.

**Paleontological Resources: Management Action 1**

- Resource: Paleontological Resource Inventory – Controlled Surface Use
- Stipulation: In PFYC Classes 4 and 5, the Lessee shall be required to conduct a paleontological inventory prior to any surface disturbance. The lessee must engage the services of a qualified paleontologist, acceptable to the Surface Management Agency, to conduct the inventory. An acceptable inventory report is to be submitted to the BLM for review and approval at the time a surface-disturbing plan of operations is submitted.
- Objective: Preserve and protect scientifically significant vertebrate fossils and paleontological locales.
- Exception: An exception may be granted if the area has already been inventoried for paleontological resources.
- Modification: None.
- Waiver: None.



## Appendix E.3

### Oil and Gas Stipulations – Alternative C

#### Summary List of Stipulations

##### Water Resources:

Management Action 1: NSO. Wetlands, Riparian Areas, Floodplains

##### Soil Resources:

Management Action 1: CSU. Slopes  
Management Action 3: CSU. Sensitive Soils

##### Wildlife:

Management Action 2: NSO. Sharp-Tailed Grouse and Greater Prairie-Chicken Leaks  
Management Action 4: TLS. Sharp-Tailed Grouse and Greater Prairie-Chicken Nesting Habitats  
Management Action 6: CSU. Sharp-Tailed Grouse and Prairie Chicken Nesting Area - Raptor Perches  
Management Action 7: CSU. Sharp-Tailed Grouse and Greater Prairie-Chicken - Underground Utility (Power and Transmission) Lines  
Management Action 8: TLS. Big Game Winter Range  
Management Action 10: NSO. Raptor Nest Sites Not Defined as Sensitive and Special Status  
Management Action 12: NSO. Bighorn Sheep Range

##### Special Status Species:

Management Action 1: NSO. Bald Eagle Nests  
Management Action 4: NSO. Peregrine Falcon Nests  
Management Action 6: NSO. Special Status Raptor Nests  
Management Action 9: NSO. Greater Sage-Grouse Leaks  
Management Action 11: TLS. Greater Sage-Grouse Winter Range  
Management Action 13: TLS. Greater Sage-Grouse Nesting Habitat  
Management Action 15: CSU. Greater Sage-Grouse General Habitat Areas (GHAs) - Underground Utility (Power and Transmission) Lines  
Management Action 20: NSO. Greater Sage-Grouse PPAs  
Management Action 29: NSO. Piping Plover Habitat  
Management Action 31: NSO. Interior Least Tern Habitat

##### Fisheries and Aquatics:

Management Action 4: NSO. Reservoirs with Fisheries

##### Visual Resources:

Management Action 2: CSU. VRM Facilities Camouflage  
Management Action 3: NSO. VRM Special Recreation Management Areas

##### Recreation:

Management Action 12: NSO. Recreation

**Lands and Realty:**

Management Action 2: ROW Authorizations for Visual Resources and Wildlife

**Public Safety:**

Management Action 1: NSO. Abandoned Minuteman Missile Sites

**Cultural Resources:**

Management Common to All: Cultural Resources and Tribal Consultation  
 Management Common to All: Cultural Resource Survey Requirements  
 Management Action 3: NSO. National Register of Historic Places (NRHP) Eligible Properties/Districts  
 Management Action 3: NSO. Traditional Cultural Properties  
 Management Action 4: NSO. Igloo and Black Hills Army Depot (BHAD)

**Paleontological Resources:**

Management Common to All: NSO within Designated Paleontological Sites/Localities  
 Management Action 1: Paleontological Surveys and CSU in Potential Fossil Yield Classes 3, 4 and 5

When applicable, stipulations developed for oil and gas development may be applied to other resource uses and activities pending environmental review at the project level (implementation level).

The BLM would inform affected landowners, local government, SD GFP and SD DENR when a waiver, exception or modification is being considered if such an action would directly affect resources or uses managed by these parties.

**Waivers, Exceptions and Modifications (WEMs)**

Waivers, exceptions, and modifications (WEMs) provide an effective means of applying “Adaptive Management” techniques to oil and gas leases and associated permitting activities to meet changing circumstances. The criteria for approval of exceptions, waivers, and modifications should be supported by National Environmental Policy Act (NEPA) analysis, either through the land use planning process or site-specific environmental review. An exception, waiver, or modification must be based on one of two criteria. According to 43 CFR 3101.1-4, “A stipulation included in an oil and gas lease shall be subject to modification or waiver only if the Authorized Officer (AO) determines that the factors leading to its inclusion in the lease have changed sufficiently to make the protection provided by the stipulation no longer justified or if the proposed operations would not cause unacceptable impacts.”

**Definitions from BLM IM 2008-032**

A **Lease Stipulation** is a condition of lease issuance that provides a level of protection for other resource values or land uses by restricting lease operations during certain times or locations or to avoid unacceptable impacts, to an extent greater than standard lease terms or regulations. A stipulation is an enforceable term of the lease contract, supersedes any inconsistent provisions of the standard lease form, and is attached to and made a part of the lease. Lease stipulations further implement the Bureau of Land Management’s (BLM) regulatory authority to protect resources or resource values. Lease stipulations are developed through the land use planning process.

**Note:** While the term lease “stipulation” is used frequently in this document, it should be noted that the concepts contained within this policy can also be applied with some adaptation to Terms and Conditions and to Conditions of Approval.

A Condition of Approval (COA) means a site-specific and enforceable requirement included in an approved Application for Permit to Drill (APD) or Sundry Notice that may limit or amend the specific actions proposed by the operator. Conditions of Approval minimize, mitigate, or prevent impacts to resource values or other uses of public lands. Refer to Appendix E-9 for more details.

A waiver is a permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

An exception is a one-time exemption for a particular site within the leasehold; exceptions are determined on a case-by-case basis; the stipulation continues to apply to all other sites within the leasehold. An exception is a limited type of waiver.

A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.



## Oil and Gas Stipulations with Waivers, Exceptions and Modifications (WEMs) Alternative C

### Water Resources: Management Action 1

Resource:	Water and riparian vegetation
Stipulation:	No Surface Occupancy: Riparian areas, wetlands, 100 year floodplains of rivers and streams and water bodies and areas within 300 feet of these features would be managed as No Surface Occupancy and Use for oil and gas leasing. At the implementation level any proposed projects that are located in areas identified as a 100 year floodplain (currently defined by “flooded soils” in the NRCS data set – see Glossary) would be evaluated for features that the stipulation is designed to protect and the stipulation applied when such features are present.
Objective:	To protect the unique biological and hydrological features associated with wetlands, riparian areas, floodplains, streams, lakes, and reservoirs.
Exception:	The Authorized Officer (AO) may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not adversely impact wetland or riparian function or associated water quality.
Modification:	The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain wetlands or riparian areas.
Waiver:	This stipulation may be waived by the AO if it is determined that the entire leasehold does not include wetlands, riparian areas, floodplains, streams, lakes, or reservoirs.

### Soil Resource: Management Action 1

Resource:	Slopes
Stipulation:	No Surface Occupancy: Slopes over 25 percent would be managed as No Surface Occupancy and Use stipulation for oil and gas leasing.
Objective:	To prevent excessive soil erosion on steep slopes and to avoid disturbing slopes subject to slope instability or with potential reclamation problems.
Exception:	The Authorized Officer (AO) may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not contribute to unacceptable degradation of the soil resource or down slope resource conditions.
Modification:	The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain slopes 25 percent or greater.
Waiver:	This stipulation can be waived by the AO if it is determined that no part of the lease area contains slopes 25 percent or greater.

### Soil Resources: Management Action 3

Resource:	Sensitive Soils
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- Stipulation:** No Surface Occupancy: Surface occupancy and use would be prohibited on sensitive soils for oil and gas leasing (soils with low restoration potential and low fugitive dust resistance).
- Objective:** To maintain the chemical, physical, and biotic properties of soils. This includes maintaining soil productivity, soil structure, soil stability, and soil biotic communities. This would prevent excessive erosion and avoid areas with the potential for excessive reclamation problems.
- Exception:** The Authorized Officer (AO) may grant an exception to this stipulation if the operator can demonstrate that the activity would not contribute to degradation of the soil resource or down slope resource conditions.
- Modification:** The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain sensitive soils.
- Waiver:** This stipulation can be waived by the AO if it is determined that the entire leasehold does not include sensitive soils.

#### **Wildlife: Management Action 2**

- Resource:** Sharp-tailed Grouse and Greater Prairie-Chicken Leks
- Stipulation:** No Surface Occupancy: Surface occupancy and use would be prohibited within ½ mile of sharp-tailed grouse and greater prairie-chicken leks.
- Objective:** Protection of sharp-tailed grouse and greater prairie-chicken nesting and brood rearing habitat.
- Exception:** An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification:** The boundaries of the stipulated area can be modified if the AO determines that portions of the area no longer are within ½ mile of sharp-tailed grouse and greater prairie-chicken leks.
- Waiver:** This stipulation can be waived if the AO determines that the entire leasehold no longer is within ½ mile of sharp-tailed grouse and greater prairie-chicken leks.

#### **Wildlife: Management Action 4**

- Resource:** Sharp-tailed Grouse and Greater Prairie-Chicken Nesting Habitats
- Stipulation:** Timing Restriction: Surface disturbance and disruptive activities would be prohibited from March 1 to June 30 in sharp-tailed grouse and greater prairie-chicken nesting habitat within 3 miles of a lek. This restriction does apply to the operation and maintenance of production facilities.
- Objective:** Limit disturbance to sharp-tailed grouse and greater prairie-chicken during critical periods.
- Exception:** An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification:** The boundaries of the stipulated area can be modified if the AO determines that portions of the area no longer contain sharp-tailed or greater prairie-chicken nesting habitat within 3 miles of a lek. The dates for the timing restriction can be modified if new information indicates that the March 1 to June 30 dates are not valid for the leasehold.

Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer contains sharp-tailed grouse or greater prairie-chicken nesting habitat within 3 miles of a lek.

**Wildlife: Management Action 6**

Resource: Sharp-tailed Grouse and Greater Prairie-Chicken Nesting Area Raptor Perches

Stipulation: Controlled Surface Use: Structures that are over 10 feet in height that create raptor perches would not be authorized or would require anti-perch devices within the 2 mile buffer of sharp-tailed grouse and greater prairie-chicken nesting areas.

Objective: Reduce raptor predation of sharp-tailed grouse and greater prairie-chickens in nesting areas.

Exception: None.

Modification: None.

Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer contains sharp-tailed or greater prairie-chicken nesting habitat within 2 miles of a lek.

**Wildlife: Management Action 7**

Resource: Sharp-tailed Grouse and Greater Prairie-Chickens - Underground Utility (Power and Transmission) Lines

Stipulation: Controlled Surface Use: All new power lines must be buried, designed or sited in a manner which does not impact sharp-tailed grouse or greater prairie-chickens within a 2 mile buffer of leks.

Objective: Reduce hazards to grouse and greater prairie-chickens from power lines and reduce raptor predation of sharp-tailed grouse and greater prairie-chickens in nesting areas.

Exception: None.

Modification: None.

Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer contains sharp-tailed or greater prairie-chicken nesting habitat within 2 miles of a lek.

**Wildlife: Management Action 8**

Resource: Big Game Winter Range

Stipulation: Timing Limitation: Surface use is prohibited from December 1 and March 31 within winter range for big game.

Objective: Maintain big game habit and avoid or minimize habitat loss and disturbance.

Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area can be modified if the AO determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction can be modified if

new wildlife use information indicates that the December 1 to March 31 dates are not valid for the leasehold.

Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer contains crucial winter range for wildlife.

#### **Wildlife: Management Action 10**

Resource: Raptor nest sites not defined as sensitive and special status that were active within the last 7 years

Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ½ mile of raptor nests sites that were active within the last 7 breeding years.

Objective: Limit nesting disturbance to raptors that are not identified as sensitive raptor species.

Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area can be modified if the AO determines that portions of the area are no longer within ½ mile of raptor nest sites active within the past 7 years.

Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer is within ½ miles of raptor nest sites active within the past 7 years.

#### **Wildlife: Management Action 12**

Resource: Bighorn Sheep Range

Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited in designated bighorn sheep range.

Objective: Limit disturbance to bighorn sheep.

Exception: None.

Modification: The boundaries of the stipulated area may be modified if the Authorized Officer (AO) determines that portions of the area no longer contain bighorn sheep habitat.

Waiver: This stipulation may be waived if the AO determines that the entire leasehold no longer contains bighorn sheep habitat.

#### **Special Status Species: Management Action 1**

Resource: Bald Eagle Nests

Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ½ mile of bald eagle nest sites active within the past 5 years.

Objective: Limit disturbance to bald eagle nesting habitat.

Exception: An exception can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect bald eagles or their habitat. If the AO determines

that the action can affect bald eagles or their habitat, consultation with the USFWS will be required prior to final determination on the exception.

**Modification:** The boundaries of the stipulated area can be modified if the AO, in consultation with the USFWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

**Waiver:** This stipulation can be waived if the AO, in consultation with the USFWS, determines that the entire leasehold can be occupied without adversely affecting bald eagle nest sites or nesting habitat or the bald eagle is declared recovered and no longer protected under the Endangered Species Act of 1973.

#### **Special Status Species: Management Action 4**

**Resource:** Peregrine Falcon Nests

**Stipulation:** No Surface Occupancy: Surface occupancy and use is prohibited within 1 mile of peregrine falcon nest sites that were active within the preceding 7 breeding seasons.

**Objective:** Limit disturbance to peregrine falcon nesting habitat.

**Exception:** An exception may be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect the peregrine falcon or its habitat. If the AO determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by the BLM in consultation with the USFWS.

**Modification:** The boundaries of the stipulated area may be modified if the AO, in consultation with the USFWS, determines that portions of the area are no longer critical to the peregrine falcon.

**Waiver:** The stipulation maybe waived if the AO, in consultation with the USFWS, determines that the entire leasehold no longer contains habitat critical to the peregrine falcon or the peregrine falcon is declared recovered and no longer protected under the Endangered Species Act.

#### **Special Status Raptors: Management Action 6**

**Resource:** Golden eagle, burrowing owl, ferruginous hawk, Swainson's hawk, osprey, prairie falcon, and northern goshawk. Does not include peregrine falcon or bald eagle.

**Stipulation:** No Surface Occupancy: Surface occupancy and use is prohibited within ½ mile of sensitive and other special status raptor nest sites that were active within the last 7 years. At the present time raptors that would be addressed by Management Action 6 include golden eagle, burrowing owl, ferruginous hawk, Swainson's hawk, osprey, prairie falcon, and northern goshawk.

**Objective:** Limit nesting disturbance to raptors that have been identified as sensitive raptor species.

**Exception:** An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.

**Modification:** The boundaries of the stipulated area can be modified if the AO determines that portions of the area are no longer within ½ mile of raptor nest sites active within the past 7 years.

**Waiver:** This stipulation can be waived if the AO determines that the entire leasehold no longer is within ½ mile of raptor nest sites active within the past 7 years.

**Special Status Species: Management Action 9**

Resource:	Greater Sage-Grouse General Habitat Area Leks
Stipulation:	No Surface Occupancy: Surface occupancy and use is prohibited within 1 mile of sage-grouse leks.
Objective:	Limit disturbance to sage-grouse nesting habitat.
Exception:	None.
Modification:	The boundaries of the stipulated area can be modified if the Authorized Officer (AO) determines that portions of the area can be occupied without adversely affecting sage-grouse lek sites. Coordination with SD GFP would be required prior to modifying this stipulation.
Waiver:	This stipulation can be waived if the AO determines that the entire leasehold can be occupied without adversely affecting sage-grouse lek sites, or lek sites within 1 mile of the leasehold have not been active for 5 consecutive years. Coordination with SD GFP would be required prior to waiving this stipulation.

**Special Status Species: Management Action 11**

Resource:	Greater Sage-Grouse
Stipulation:	Timing Restriction: Surface use is prohibited within crucial sage-grouse winter range between December 1 and March 31. Routine maintenance, production and emergency response activities are allowed.
Objective:	Within the Greater Sage-Grouse General Habitat Areas, maintain integrity of the habitat to support sustainable sage-grouse populations.
Exception:	The Authorized Officer (AO) may grant an exception to specific requirements of this stipulation if the action, as proposed or conditioned would not compromise the habitat for Greater Sage-Grouse and meet the goals for sage-grouse habitat. <ul style="list-style-type: none"> <li>a) Surface disturbing/disruptive activities will prevent or minimize disturbance to sage-grouse or their habitat. Except as identified above or during emergency situations, activities will not compromise the habitat.</li> <li>b) Continuous noise (related to long-term operations and/or activities) would be no greater than 49 decibels at ¼ mile from the perimeter of the lek.</li> <li>c) Temporary noise (related to installation, maintenance, one-time use, emergency operations, etc.) exceeding 49 decibels at ¼ mile from the perimeter of a lek or surface disturbing/ disruptive activities may be allowed, but only from 10 a.m. to 4 p.m. between March 15 and May 15.</li> <li>d) Manage water developments to reduce the spread of West Nile virus within sage-grouse habitat areas.</li> <li>e) Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.</li> <li>f) Maximize placement of new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.</li> <li>g) Power lines would be buried, eliminated, designed or sited in a manner which does not impact sage-grouse.</li> <li>h) Placement of other high profile structures, exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage-grouse.</li> <li>i) Remote monitoring of production facilities must be utilized and all permit applications must contain a plan to reduce the frequency of vehicle use.</li> <li>j) Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.</li> </ul>

- k) Restore disturbed areas at final reclamation to pre-disturbance conditions or desired plant community.
- l) Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage-grouse.
- m) Consider use of off-site mitigation, (e.g., creation of sagebrush habitat, purchase conservation easements, or buying down grazing) with proponent dollars to offset habitat losses.
- n) Consider creation of a “Mitigation Trust Account” when impacts cannot be avoided, minimized, or effectively mitigated through other means. If approved by the BLM, the proponent may contribute funding to maintain habitat function based on the estimated cost of habitat treatments or other mitigation needed to maintain the functions of impacted habitats. Off-site mitigation should only be considered when no feasible options are available to adequately mitigate within and immediately adjacent to the impacted site, or when the off-site location would provide more effective mitigation of the impact than can be achieved on-site.

**Modification:** The AO may modify the area subject to the stipulation if an environmental analysis finds a portion of the General Habitat Area is nonessential or no longer sage-grouse habitat.

**Waiver:** This stipulation may be waived by the AO if: 1) after consultation with the appropriate State Wildlife agency, it is determined significant portions of the General Habitat Area have been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored, or 2) sage-grouse are no longer a BLM Special Status Species and are not listed as threatened or endangered by the U.S. Fish and Wildlife Service, or 3) no reasonable alternative development scenario mitigating the impacts is possible.

### **Special Status Species: Management Action 13**

**Resource:** Greater Sage-Grouse General Habitat Areas

**Stipulation:** Timing Restriction: Surface use would be prohibited from March 1 through July 15 in sage-grouse nesting habitat within 4 miles of a lek. This stipulation does not apply to the operation and maintenance of production facilities.

**Objective:** Within the Greater Sage-Grouse General Habitat Areas, maintain integrity of the habitat, to support sustainable sage-grouse populations

**Exception:** The Authorized Officer (AO) may grant an exception to specific requirements of this stipulation if the action, as proposed or conditioned would not compromise the habitat for sage-grouse and meet the goals for sage-grouse habitat.

- a) Surface disturbing/disruptive activities will prevent or minimize disturbance to Greater Sage-Grouse or their habitat. Except as identified above or during emergency situations, activities will not compromise the habitat.
- b) Continuous noise (related to long-term operations and/or activities) would be no greater than 49 decibels at ¼ mile from the perimeter of the lek.
- c) Temporary noise (related to installation, maintenance, one-time use, emergency operations, etc.) exceeding 49 decibels at ¼ mile from the perimeter of a lek or surface disturbing/ disruptive activities may be allowed, but only from 10 a.m. to 4 p.m. between March 15 and May 15.
- d) Manage water developments to reduce the spread of West Nile virus within sage-grouse habitat areas.
- e) Site and/or minimize linear ROW to reduce disturbance to sagebrush habitats.
- f) Maximize placement of new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- g) Power lines would be buried, eliminated, designed or sited in a manner which does not impact sage-grouse.

- h) Placement of other high profile structures, exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage-grouse.
- i) Remote monitoring of production facilities must be utilized and all permit applications must contain a plan to reduce the frequency of vehicle use.
- j) Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- k) Restore disturbed areas at final reclamation to pre-disturbance conditions or desired plant community.
- l) Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage-grouse.
- m) Consider use of off-site mitigation, (e.g., creation of sagebrush habitat, purchase conservation easements, or buying down grazing) with proponent dollars to offset habitat losses.
- n) Consider creation of a “Mitigation Trust Account” when impacts cannot be avoided, minimized, or effectively mitigated through other means. If approved by the BLM, the proponent may contribute funding to maintain habitat function based on the estimated cost of habitat treatments or other mitigation needed to maintain the functions of impacted habitats. Off-site mitigation should only be considered when no feasible options are available to adequately mitigate within and immediately adjacent to the impacted site, or when the off-site location would provide more effective mitigation of the impact than can be achieved on-site.

**Modification:** The AO may modify the area subject to the stipulation if an environmental analysis finds a portion of the General Habitat Area is nonessential or no longer sage-grouse habitat.

**Waiver:** This stipulation may be waived by the AO if: 1) after consultation with the appropriate State Wildlife agency, it is determined significant portions of the General Habitat Area have been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored, or 2) sage-grouse are no longer a BLM Special Status Species and are not listed as threatened or endangered by the U.S. Fish and Wildlife Service, or 3) no reasonable alternative development scenario mitigating the impacts is possible.

### **Special Status Species: Management Action 15**

**Resource:** Greater Sage-Grouse General Habitat Areas (GHAs) - Underground Utility (Power and Transmission) Lines

**Stipulation:** Controlled Surface Use: All new utility and power lines that can be safely buried would be buried within 2 mile of sage-grouse leks and within sage-grouse winter range would be buried or eliminated on public lands.

When burial of power lines is not possible, above ground lines will be located and designed to minimize impacts of predation, collision and other associated stressors to sage-grouse.

Existing overhead lines within 2 miles of leks and within sage-grouse winter range would be evaluated for threats to sage-grouse and if necessary, modified to reduce the threat. If modification would not likely be effective, the overhead line may be relocated. Any requirements for modification or relocation of existing overhead lines would be subject to valid existing rights.

Potential disturbance to cultural sites or other high resource values would be considered when decisions are made to require burial of power lines. Subject to valid existing rights, BLM may require modification of existing power lines if adverse impacts or risk to wildlife or special status species are determined to be present pending project level environmental review.

**Objective:** Reduce collision hazards to sage-grouse from power lines and reduce raptor predation on sage-grouse within Greater Sage-Grouse General Habitat Areas (GHAs).

Exception: None.

Modification: None.

Waiver: This stipulation may be waived, if after consultation with the appropriate State and federal wildlife agencies, it is determined that significant portions of the Greater Sage-Grouse General Habitat Area has been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored.

**Special Status Species: Management Action 20**

Resource: Greater Sage-Grouse Protection Priority Areas

Stipulation: Greater Sage-Grouse Protection Priority Areas (PPAs) would be closed to oil and gas development. See Map 2-4.

Objective: Within Greater Sage-Grouse PPAs maximize the integrity of the habitat, strive to maintain or improve sage-grouse populations, and at a minimum sage-grouse habitat so populations in the Greater Sage-Grouse PPAs reflect population trends exhibited by representative sage-grouse trend data from SDGFP lek data (protection priority area controlled surface use).

Exception: None.

Modification: None.

Waiver: None.

**Special Status Species: Management Action 29**

Resource: Piping Plover Habitat

Stipulation: No Surface Occupancy: Surface occupancy and use would be prohibited within ¼ mile of piping plover habitat.

Objective: Protection of piping plover habitat.

Exception: An exception can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect the piping plover or its habitat. If the AO determines that the action can affect the piping plover or its habitat, consultation with the USFWS will be required prior to final determination on the exception.

Modification: The boundaries of the stipulated area may be modified if the AO, in consultation with USFWS, determines that portions of the area are no longer essential to the piping plover.

Waiver: The stipulation can be waived if the AO, in consultation with USFWS, determines that the entire leasehold no longer contains habitat essential to the piping plover or the piping plover is declared recovered and is no longer protected under the Endangered Species Act of 1973.

**Special Status Species: Management Action 31**

Resource: Interior Least Tern Habitat

- Stipulation:** No Surface Occupancy: Surface occupancy and use would be prohibited within ¼ mile of interior least tern habitat.
- Objective:** Protection of interior least tern habitat.
- Exception:** An exception can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect the least tern or its habitat. If the AO determines that the action can affect the least tern or its habitat, consultation with the USFWS will be required prior to final determination on the exception.
- Modification:** The boundaries of the stipulated area can be modified if the AO, in consultation with the USFWS, determines that portions of the area are no longer essential to the least tern.
- Waiver:** The stipulation can be waived if the AO, in consultation with the USFWS, determines that the entire leasehold no longer contains habitat essential to the least tern or the least tern is declared recovered and no longer protected under the Endangered Species Act.

#### **Fisheries and Aquatics: Management Action 4**

- Resource:** Fisheries and Aquatics
- Stipulation:** No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of reservoirs with fisheries.
- Objective:** Protection of fisheries and aquatics species.
- Exception:** An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification:** The boundaries of the stipulated area can be modified if the AO determines that portions of the area can be occupied without adversely affecting the fisheries and recreational values of the reservoir.
- Waiver:** This stipulation can be waived if the AO determines that the entire leasehold is no longer a fishery, and it can be occupied without adversely affecting the recreational values of the reservoir.

#### **Visual Resources Management (VRM): Management Action 2**

- Resource:** Visual Resources
- Stipulation:** Controlled Surface Use: All surface-disturbing activities. Semi-permanent or permanent facilities may require special design including location, size, and camouflage or earth tone paint to blend with the natural surroundings and meet the visual quality objectives in VRM Classes II, III and IV.
- Objective:** Protection of the aesthetic and scenic qualities of the landscape.
- Exception:** The Authorized Officer (AO) may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the AO may require phased mitigation to better conform to the prescribed VRM.
- Modification:** None.
- Waiver:** None.

**Visual Resources Management (VRM): Management Action 3**

Resource:	Visual Resources
Stipulation:	No Surface Occupancy: Surface occupancy and use would be prohibited within 1 mile of Fort Meade ACEC and other developed recreation sites.
Objective:	Protection of the aesthetic and scenic qualities of the landscape within 1 mile of designated Special Recreation Management Areas.
Exception:	The Authorized Officer (AO) may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the AO may require phased mitigation to better conform to the prescribed VRM.
Modification:	None.
Waiver:	None.

**Recreation: Management Action 12**

Resource:	Recreation
Stipulation:	No Surface Occupancy: Surface occupancy and use would be prohibited within 1 mile of the Special Recreational Management Areas (SRMAs) including Fort Meade ACEC and Exemption Area.
Objective:	Protection of ACEC and recreational values associated with SRMAs.
Exception:	The Authorized Officer (AO) may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the AO may require phased mitigation to better conform to the prescribed VRM.
Modification:	None.
Waiver:	None.

**Lands and Realty, ROW Authorizations: Management Action 2**

Resource:	Visual Resources and Wildlife
Stipulation:	Controlled Surface Use: All fiber optic, telephone and power lines would be buried.
Objective:	Protection of visual and scenic qualities while allowing for flexibility to avoid cultural or mitigate impacts to cultural sites.
Exception:	Areas where damage to cultural resources cannot be mitigated may be excepted by the Authorized Officer (AO).
Modification:	None.
Waiver:	None.

**Public Safety: Management Action 1**

Resource:	Public Safety Abandoned Minuteman Missile Sites
Stipulation:	Controlled Surface Use: Surface-disturbing activity at U.S. Air Force abandoned Minuteman missile sites would be restricted on the sites and approximately 1/8 mile (approximately 200 meters) beyond the sites. Subsurface activity would be prohibited under the sites and approximately 1/8 mile (approximately 200 meters) beyond the sites.
Objective:	Protect the public and environment from movement of or contamination by potential residual hazardous waste.
Exception:	This stipulation can be excepted by the Authorized Officer (AO) if it is determined that the disturbance would not intercept and contribute to the spreading of potential residual wastes by a plan that addresses the design of the proposal, stockpiling and respreading of soil materials, and sampling and testing.
Modification:	None.
Waiver:	None.

**Cultural Resources: Management Action Common to All Alternatives**

Resource:	Cultural Resources and Tribal Consultation
Stipulation:	This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.
Objective:	To protect significant historic properties and resources.
Exception:	None.
Modification:	None.
Waiver:	None.

**Cultural Resources: Management Action Common to All Alternatives**

Resource:	Cultural Resource Survey
Stipulation:	An inventory of those portions of the leased lands subject to proposed disturbance may be required prior to any surface disturbance to determine if cultural resources are present and to identify needed mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator shall: <ol style="list-style-type: none"> <li>1. The lessee or operator shall engage the services of a cultural resource consultant acceptable to the Surface Management Agency (SMA) to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the standard ten-acre minimum to cover possible site relocation which may result from environmental or other</li> </ol>

considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted.

2. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as data recovery and extensive recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the SMA, surface occupancy on that area must be prohibited. The lessee or operator shall immediately bring to the attention of the SMA any cultural resources discovered as a result of approved operations under this lease, and shall not disturb such discoveries until directed to proceed by the SMA.

**Objective:** Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect cultural properties eligible to the National Register of Historic Places. Section 6 of the Oil and Gas Lease Terms (Form 3100-11) requires that operations be conducted in a manner that minimizes adverse impacts to cultural and other resources.

**Exception:** None.

**Modification:** None.

**Waiver:** None.

**Cultural Resources: Management Action 3a**

**Resource:** National Register of Historic Places (NRHP) Eligible Properties/Districts – No Surface Occupancy

**Stipulation:** Occupancy and use is prohibited within, and for a distance of 300 feet from the boundaries of cultural properties and archaeological/historic districts determined to be eligible or potentially eligible for the National Register of Historic Places, except for the Fort Meade Recreation Area National Historic District and the Bear Butte National Historic Landmark, which are closed to oil and gas leasing.

**Objective:** To protect significant cultural properties and archaeological districts and their settings, and to avoid disturbance or inadvertent impacts to these resources.

**Exception:** An exception to this stipulation may be granted by the Authorized Officer (AO) if the lessee or operator submits a plan which demonstrates that the adverse impact to cultural properties eligible or potentially eligible for the National Register of Historic Places can be mitigated through data recovery, extensive recordation, or other acceptable means. Where impacts to cultural resources cannot be mitigated to the satisfaction of the Surface Managing Agency and/or BLM, surface occupancy of that area must be prohibited.

**Modification:** The boundaries of the stipulated area may be modified if the AO determines that portions of the designated site or district can be occupied without adversely affecting the cultural resource values for which the site or area was designated eligible.

**Waiver:** None.

*NOTE: Compliance with Section 106 of NHPA is required for all actions that can affect cultural properties eligible for the National Register of Historic Places (NRHP).*

**Cultural Resources: Management Action 3b**

**Resource:** Traditional Cultural Properties – No Surface Occupancy

Stipulation:	Occupancy and Use is prohibited within, and for a distance of ½ mile from the boundaries of cultural properties determined to be of importance to Native American Tribal groups, sites determined to be Traditional Cultural Properties, and/or designated for traditional use. Such properties include (but are not limited to) burial locations, pictograph/petroglyph, vision quest locations, certain stone alignments, buttes or other uplift type landforms, plant gathering locations, and areas considered sacred or used for religious purposes.
Objective:	To avoid disturbance and to protect archaeological properties of known significance to Native American groups, as well as, traditional cultural properties and the setting in which they occur.
Exception:	An exception to this stipulation may be granted by the Authorized Officer (AO) if the lessee or operator submits a plan which demonstrates that operations will be designed and/or located in such a manner as to have a minimal impact to the natural setting and characteristics of the immediate area and that adverse impacts to these traditional cultural properties can be mitigated in consultation with, and to the satisfaction of, affected Indian Tribes or Native American groups.
Modification:	None.
Waiver:	None.

#### **Cultural Resources Alternatives: Management Action 4**

Resource:	Cultural Resources and Public Safety
Stipulation:	No Surface Occupancy: Surface occupancy and use would be prohibited within the Igloo town site and the Black Hills Army Ordnance Depot.
Objective:	Protect significant historic properties and resources and prevent the movement of, or contamination by, potential hazardous materials within the abandoned Igloo town site and the Black Hills Army Ordnance Depot.
Exception:	None.
Modification:	None.
Waiver:	None.

#### **Paleontological Resources: Management Action Common to All Alternatives**

Resource:	Paleontological Resources – No Surface Occupancy
Stipulation:	Surface occupancy and use is prohibited within designated paleontological sites/localities and in significant paleontological sites regardless of designation.
Objective:	Preserve and protect significant vertebrate fossils and paleontological resources.
Exception:	An exception to this stipulation may be granted by the Authorized Officer (AO) if the lessee or operator submits a plan which demonstrates that the adverse impacts to significant paleontological resources can be mitigated through recovery and extensive recordation. Where impacts to paleontological resources cannot be mitigated to the satisfaction of the Surface Management Agency, surface occupancy on that area must be prohibited.

Modification: The boundaries of the stipulated area may be modified if the AO determines that portions of the designated paleontological site/locality can be occupied without adversely affecting the resource values or significance.

Waiver: None.

**Paleontological Resources: Management Action 1**

Resource: Paleontological Resource Inventory – Controlled Surface Use

Stipulation: In areas known to have a high potential (Classes 3, 4 and 5) for containing significant paleontological resources, the Lessee shall be required to conduct a paleontological inventory prior to any surface disturbance. The lessee must engage the services of a qualified paleontologist, acceptable to the Surface Management Agency, to conduct the inventory. An acceptable inventory report is to be submitted to the BLM for review and approval at the time a surface-disturbing plan of operations is submitted.

Objective: Preserve and protect scientifically significant vertebrate fossils and paleontological locales.

Exception: An exception may be granted if the area has already been inventoried for paleontological resources.

Modification: None.

Waiver: None.



## Appendix E.4

### Oil and Gas Stipulations – Alternative D (Preferred Alternative)

#### Summary List of Stipulations

##### Water Resources:

Management Action 1: NSO. Wetlands, Riparian Areas, Floodplains

##### Soil Resources:

Management Action 1: CSU. Slopes  
 Management Action 3: CSU. Sensitive Soils

##### Wildlife:

Management Action 2: NSO. Sharp-Tailed Grouse and Greater Prairie-Chicken Leaks  
 Management Action 4: TLS. Sharp-Tailed Grouse and Greater Prairie-Chicken Nesting Habitats  
 Management Action 6: CSU. Sharp-Tailed Grouse and Prairie Chicken Nesting Area - Raptor Perches  
 Management Action 7: CSU. Sharp-Tailed Grouse and Greater Prairie-Chicken - Underground Utility (Power and Transmission) Lines  
 Management Action 8: TLS. Big Game Winter Range  
 Management Action 10: NSO. Raptor Nest Sites Not Defined as Sensitive and Special Status.  
 Management Action 12: NSO. Bighorn Sheep Range

##### Special Status Species:

Management Action 1: NSO. Bald Eagle Nests  
 Management Action 4: NSO. Peregrine Falcon Nests  
 Management Action 6: NSO. Special Status Raptor Nests  
 Management Action 9: NSO. Greater Sage-Grouse Leaks  
 Management Action 11: TLS. Greater Sage-Grouse Winter Range  
 Management Action 13: TLS. Greater Sage-Grouse Nesting Habitat  
 Management Action 15: CSU. Greater Sage-Grouse General Habitat Areas (GHAs) - Underground Utility (Power and Transmission) Lines  
 Management Action 20: NSO. Greater Sage-Grouse Protection Priority Areas (PPAs)  
 Management Action 29: NSO. Piping Plover Habitat  
 Management Action 31: NSO. Interior Least Tern Habitat

##### Fisheries and Aquatics:

Management Action 4: NSO. Reservoirs with Fisheries

##### Visual Resources:

Management Action 2: CSU. VRM Facilities Camouflage  
 Management Action 3: NSO. VRM Special Recreation Management Areas

##### Recreation:

Management Action 12: NSO. Recreation

**Lands and Realty:**

Management Action 2: ROW Authorizations for Visual Resources and Wildlife

**Public Safety:**

Management Action 1: NSO. Abandoned Minuteman Missile Sites

**Cultural Resources:**

Management Common to All: Cultural Resources and Tribal Consultation  
 Management Common to All: Cultural Resource Survey Requirements  
 Management Action 3: NSO: National Register of Historic Places (NRHP) Eligible Properties/Districts  
 Management Action 3: NSO: Traditional Cultural Properties  
 Management Action 4: NSO. Igloo and Black Hills Army Depot (BHAD)

**Paleontological Resources:**

Management Common to All: NSO within Designated Paleontological Sites/Localities  
 Management Action 1: Paleontological Surveys and CSU in Potential Fossil Yield Classes 3, 4 and 5

When applicable, stipulations developed for oil and gas development may be applied to other resource uses and activities pending environmental review at the project level (implementation level).

The BLM would inform affected landowners, local government, SD GFP and SD DENR when a waiver, exception or modification is being considered if such an action would directly affect resources or uses managed by these parties.

**Waivers, Exceptions and Modifications (WEMs)**

Waiver, exceptions, and modifications (WEMs) provide an effective means of applying “Adaptive Management” techniques to oil and gas leases and associated permitting activities to meet changing circumstances. The criteria for approval of exceptions, waivers, and modifications should be supported by National Environmental Policy Act (NEPA) analysis, either through the land use planning process or site-specific environmental review. An exception, waiver, or modification must be based on one of two criteria. According to 43 CFR 3101.1-4, “A stipulation included in an oil and gas lease shall be subject to modification or waiver only if the Authorized Officer (AO) determines that the factors leading to its inclusion in the lease have changed sufficiently to make the protection provided by the stipulation no longer justified or if the proposed operations would not cause unacceptable impacts.”

**Definitions from BLM IM 2008-032**

A **Lease Stipulation** is a condition of lease issuance that provides a level of protection for other resource values or land uses by restricting lease operations during certain times or locations or to avoid unacceptable impacts, to an extent greater than standard lease terms or regulations. A stipulation is an enforceable term of the lease contract, supersedes any inconsistent provisions of the standard lease form, and is attached to and made a part of the lease. Lease stipulations further implement the Bureau of Land Management’s (BLM) regulatory authority to protect resources or resource values. Lease stipulations are developed through the land use planning process.

**Note:** While the term lease “stipulation” is used frequently in this document, it should be noted that the concepts contained within this policy can also be applied with some adaptation to Terms and Conditions and to Conditions of Approval.

A Condition of Approval (COA) means a site-specific and enforceable requirement included in an approved Application for Permit to Drill (APD) or Sundry Notice that may limit or amend the specific actions proposed by the operator. Conditions of Approval minimize, mitigate, or prevent impacts to resource values or other uses of public lands. Refer to Appendix E-9 for more details.

A waiver is a permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

An exception is a one-time exemption for a particular site within the leasehold; exceptions are determined on a case-by-case basis; the stipulation continues to apply to all other sites within the leasehold. An exception is a limited type of waiver.

A modification is a change to the provisions of a lease stipulation, either temporarily or for the term of the lease. Depending on the specific modification, the stipulation may or may not apply to all sites within the leasehold to which the restrictive criteria are applied.



## **Oil and Gas Stipulations with Waivers, Exceptions and Modifications (WEMs) Alternative D (Preferred Alternative)**

### **Water Resources: Management Action 1**

Resource:	Water and riparian vegetation
Stipulation:	No Surface Occupancy: Riparian areas, wetlands, 100 year floodplains of rivers and streams and water bodies and areas within 300 feet of these features would be managed as No Surface Occupancy and Use for oil and gas leasing. At the implementation level any proposed projects that are located in areas identified as a 100 year floodplain (currently defined by “flooded soils” in the NRCS data set) would be evaluated for features that the stipulation is designed to protect and the stipulation applied when such features are present.
Objective:	To protect the unique biological and hydrological features associated with wetlands, riparian areas, floodplains, streams, lakes, and reservoirs.
Exception:	The Authorized Officer (AO) may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not adversely impact wetland or riparian function or associated water quality.
Modification:	The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain wetlands or riparian areas.
Waiver:	This stipulation may be waived by the AO if it is determined that the entire leasehold does not include wetlands, riparian areas, floodplains, streams, lakes, or reservoirs.

### **Soil Resources: Management Action 1**

Resource:	Slopes
Stipulation:	Controlled Surface Use: Surface use and occupancy would be controlled on slopes between 25 and 50 percent. Prior to surface disturbance on slopes between 25 and 50 percent, an engineering and reclamation plan must be approved by the AO. The plan must demonstrate that no other practicable alternatives exist and how the following will be accomplished: (1) site productivity maintained or restored, (2) surface runoff and sedimentation adequately controlled, (3) on- and off-site areas protected from accelerated erosion by wind or water, (4) surface-disturbing activities prohibited during extended wet periods, and (5) the activity located to reduce impacts to soil and water resources.  No Surface Occupancy: Slopes over 50% would be managed as No Surface Occupancy and Use stipulation for oil and gas leasing.
Objective:	To prevent excessive soil erosion on steep slopes and to avoid disturbing slopes subject to slope instability or with potential reclamation problems.
Exception:	The Authorized Officer (AO) may grant an exception to this stipulation if the operator can demonstrate that the proposed action would not contribute to unacceptable degradation of the soil resource or down slope resource conditions.
Modification:	The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain slopes 25 percent or greater.

Waiver: This stipulation can be waived by the AO if it is determined that no part of the lease area contains slopes 25 percent or greater.

### **Soil Resources: Management Action 3**

Resource: Sensitive Soils

Stipulation: **Controlled Surface Use:** Prior to any surface disturbance on sensitive soils a reclamation plan must be approved by the Authorized Officer (AO). The plan must demonstrate that no other practicable alternatives exist for relocating the activity. The plan must include a detailed description of how the activity would: (1) control wind and water erosion; (2) control surface runoff; (3) minimize sediment production; (4) maintain site productivity; and (5) complete reclamation. The plan will consider avoidance, size limitations, timing restrictions (e.g. limiting wet condition road usage), physical mitigation, and off-site mitigation. Sensitive sites are defined as those with low reclamation potential and/or low fugitive dust resistance. The definition of sensitive soil is subject to change as new information becomes available.

Objective: To maintain the chemical, physical, and biotic properties of soils. This includes maintaining soil productivity, soil structure, soil stability, and soil biotic communities. This would prevent excessive erosion and avoid areas with the potential for excessive reclamation problems.

Exception: The AO may grant an exception to this stipulation if the operator can demonstrate that the activity would not contribute to degradation of the soil resource or down slope resource conditions.

Modification: The area affected by this stipulation can be modified by the AO if it is determined that portions of the lease area do not contain sensitive soils.

Waiver: This stipulation can be waived by the AO if it is determined that the entire leasehold does not include sensitive soils.

### **Wildlife: Management Action 2**

Resource: Sharp-Tailed Grouse and Greater Prairie-Chicken Leaks

Stipulation: **No Surface Occupancy:** Surface occupancy and use is prohibited within ¼ mile of sharp-tailed grouse and greater prairie-chicken leaks.

Objective: Protection of sharp-tailed grouse and greater prairie-chicken nesting and brood rearing habitat.

Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

Modification: The boundaries of the stipulated area can be modified if the AO determines that portions of the area no longer are within ¼ mile of sharp-tailed grouse and greater prairie-chicken leaks.

Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer is within ¼ mile of sharp-tailed grouse and greater prairie-chicken leaks.

### **Wildlife: Management Action 4**

Resource: Sharp-Tailed Grouse and Greater Prairie-Chicken Nesting Habitats

- Stipulation:** Timing Restriction: Surface disturbance and disruptive activity is prohibited from March 1 to June 30 in sharp-tailed grouse and greater prairie-chicken nesting habitat within 2 miles of sharp-tailed grouse and greater prairie-chicken leks. Operation and maintenance activities of production facilities may occur if this type of activity is not disruptive (see glossary) and the habitat is not compromised.
- Objective:** Limit disturbance to sharp-tailed grouse and greater prairie-chicken during critical periods.
- Exception:** An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification:** The boundaries of the stipulated area can be modified if the AO determines that portions of the area no longer contain sharp-tailed or greater prairie-chicken nesting habitat within 2 miles of a lek. The dates for the timing restriction can be modified if new information indicates that the March 1 to June 30 dates are not valid for the leasehold.
- Waiver:** This stipulation can be waived if the AO determines that the entire leasehold no longer contains sharp-tailed grouse or greater prairie-chicken nesting habitat within 2 miles of a lek.

#### **Wildlife: Management Action 6**

- Resource:** Sharp-Tailed Grouse and Greater Prairie-Chicken Nesting Area Raptor Perches
- Stipulation:** Controlled Surface Use: Structures that are over 10 feet in height that create raptor perches would not be authorized or would require anti-perch devices within the 2 mile buffer of sharp-tailed grouse and greater prairie-chicken nesting areas.
- Objective:** Reduce raptor predation of sharp-tailed grouse and greater prairie-chickens in nesting areas.
- Exception:** None.
- Modification:** None.
- Waiver:** This stipulation can be waived if the AO determines that the entire leasehold no longer contains sharp-tailed or greater prairie-chicken nesting habitat within 2 miles of a lek.

#### **Wildlife: Management Action 7**

- Resource:** Sharp-Tailed Grouse and Greater Prairie-Chickens - Underground Utility (Power and Transmission) Lines
- Stipulation:** Controlled Surface Use: Power lines must be buried, designed or sited in a manner which does not impact sharp-tailed grouse or greater prairie-chickens within a 2 mile buffer of nesting areas.
- Objective:** Reduce hazards to grouse and greater prairie-chickens from power lines and reduce raptor predation of sharp-tailed grouse and greater prairie-chickens in nesting areas.
- Exception:** None.
- Modification:** None.
- Waiver:** This stipulation can be waived if the AO determines that the entire leasehold no longer contains sharp-tailed or greater prairie-chicken nesting habitat within 2 miles of a lek.

**Wildlife: Management Action 8**

- Resource: Big Game Winter Range
- Stipulation: Timing Limitation: Surface use is prohibited from December 1 and March 31 within winter range for big game.
- Objective: Maintain big game habit and avoid or minimize habitat loss and disturbance.
- Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification: The boundaries of the stipulated area can be modified if the AO determines that portions of the area no longer contain crucial winter range for wildlife. The dates for the timing restriction can be modified if new wildlife use information indicates that the December 1 to March 31 dates are not valid for the leasehold.
- Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer contains crucial winter range for wildlife.

**Wildlife: Management Action 10**

- Resource: Raptor nest sites not defined as sensitive and special status that were active within the last 7 years
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of raptor nests sites that were active within the last 7 breeding years.
- Objective: Limit nesting disturbance to raptors that are not identified as sensitive raptor species.
- Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification: The boundaries of the stipulated area can be modified if the AO determines that portions of the area are no longer within ¼ mile of raptor nest sites active within the past 7 years.
- Waiver: This stipulation can be waived if the AO determines that the entire leasehold no longer is within ¼ miles of raptor nest sites active within the past 7 years.

**Wildlife: Management Action 12**

- Resource: Bighorn Sheep Range
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited in designated bighorn sheep range.
- Objective: Limit disturbance to bighorn sheep.
- Exception: None.
- Modification: The boundaries of the stipulated area may be modified if the Authorized Officer (AO) determines that portions of the area no longer contain bighorn sheep habitat.

Waiver: This stipulation may be waived if the AO determines that the entire leasehold no longer contains bighorn sheep habitat.

**Special Status Species: Management Action 1**

Resource: Bald Eagle Nests

Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ½ mile of bald eagle nest sites active within the preceding 5 breeding seasons.

Objective: Limit disturbance to bald eagle nesting habitat.

Exception: An exception can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect bald eagles or their habitat. If the AO determines that the action can affect bald eagles or their habitat, consultation with the USFWS will be required prior to final determination on the exception.

Modification: The boundaries of the stipulated area can be modified if the AO, in consultation with the USFWS, determines that portions of the area can be occupied without adversely affecting bald eagle nest sites or nesting habitat.

Waiver: This stipulation can be waived if the AO, in consultation with the USFWS, determines that the entire leasehold can be occupied without adversely affecting bald eagle nest sites or nesting habitat or the bald eagle is declared recovered and no longer protected under the Endangered Species Act of 1973.

**Special Status Species: Management Action 4**

Resource: Peregrine Falcon Nests

Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within 1 mile of peregrine falcon nest sites that were active within the preceding 7 breeding seasons.

Objective: Limit disturbance to peregrine falcon nesting habitat.

Exception: An exception may be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect the peregrine falcon or its habitat. If the AO determines that the action may or will have an adverse effect, the operator may submit a plan demonstrating that the impacts can be adequately mitigated. This plan must be approved by the BLM in consultation with the USFWS.

Modification: The boundaries of the stipulated area may be modified if the AO, in consultation with the USFWS, determines that portions of the area are no longer critical to the peregrine falcon.

Waiver: The stipulation maybe waived if the AO, in consultation with the USFWS, determines that the entire leasehold no longer contains habitat critical to the peregrine falcon or the peregrine falcon is declared recovered and no longer protected under the Endangered Species Act.

**Special Status Raptors: Management Action 6**

Resource: Golden eagle, burrowing owl, ferruginous hawk, Swainson's hawk, osprey, prairie falcon, and northern goshawk. Does not include peregrine falcon or bald eagle.

- Stipulation:** No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of sensitive and other special status raptor nest sites that were active within the last 7 breeding years. At the present time raptors that would be addressed by management action 6 include golden eagle, burrowing owl, ferruginous hawk, Swainson’s hawk, osprey, prairie falcon, and northern goshawk.
- Timing Restriction: Surface occupancy and use is prohibited within ½ mile of active raptor nest sites from March 1 through July 31.
- Objective:** Limit nesting disturbance to raptors that have been identified as sensitive raptor species.
- Exception:** An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates impacts from the proposed action are acceptable or can be adequately mitigated.
- Modification:** The boundaries of the stipulated area can be modified if the AO determines that portions of the area are no longer within ¼ mile of raptor nest sites active within the past 7 years.
- Waiver:** This stipulation can be waived if the AO determines that the entire leasehold no longer is within ¼ miles of raptor nest sites active within the past 7 years.

#### **Special Status Species: Management Action 9**

- Resource:** Greater Sage-Grouse General Habitat Area Leks
- Stipulation:** No Surface Occupancy: Surface occupancy and use is prohibited within 1 mile of sage-grouse leks.
- Objective:** Limit disturbance to sage-grouse nesting habitat.
- Exception:** None.
- Modification:** The boundaries of the stipulated area can be modified if the Authorized Officer (AO) determines that portions of the area can be occupied without adversely affecting sage-grouse lek sites. Coordination with SD GFP would be required prior to modifying this stipulation.
- Waiver:** This stipulation can be waived if the AO determines that the entire leasehold can be occupied without adversely affecting sage-grouse lek sites, or lek sites within 1 mile of the leasehold have not been active for 5 consecutive years. Coordination with SD GFP would be required prior to waiving this stipulation.

#### **Special Status Species: Management Action 11**

- Resource:** Greater Sage-Grouse
- Stipulation:** Timing Restriction: Surface use is prohibited within crucial sage-grouse winter range between December 1 and March 31 within crucial winter range for sage-grouse. Routine maintenance, production and emergency response activities are allowed.
- Objective:** Within the sage-grouse General Habitat Areas, maintain integrity of the habitat to support sustainable sage-grouse populations.
- Exception:** The Authorized Officer (AO) may grant an exception to specific requirements of this stipulation if the action, as proposed or conditioned would not compromise the habitat for sage-grouse and meet the goals for sage-grouse habitat.

- a) Surface disturbing/disruptive activities will prevent or minimize disturbance to sage-grouse or their habitat. Except as identified above or during emergency situations, activities will not compromise the habitat.
- b) Continuous noise (related to long-term operations and/or activities) would be no greater than 49 decibels at ¼ mile from the perimeter of the lek.
- c) Temporary noise (related to installation, maintenance, one-time use, emergency operations, etc.) exceeding 49 decibels at ¼ mile from the perimeter of a lek or surface disturbing/ disruptive activities may be allowed, but only from 10 a.m. to 4 p.m. between March 15 and May 15.
- d) Manage water developments to reduce the spread of West Nile virus within sage-grouse habitat areas.
- e) Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- f) Maximize placement of new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- g) Power lines would be buried, eliminated, designed or sited in a manner which does not impact sage-grouse.
- h) Placement of other high profile structures, exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage-grouse.
- i) Remote monitoring of production facilities must be utilized and all permit applications must contain a plan to reduce the frequency of vehicle use.
- j) Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- k) Restore disturbed areas at final reclamation to pre-disturbance conditions or desired plant community.
- l) Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage-grouse.
- m) Consider use of off-site mitigation, (e.g., creation of sagebrush habitat, purchase conservation easements, or buying down grazing) with proponent dollars to offset habitat losses.
- n) Consider creation of a “Mitigation Trust Account” when impacts cannot be avoided, minimized, or effectively mitigated through other means. If approved by the BLM, the proponent may contribute funding to maintain habitat function based on the estimated cost of habitat treatments or other mitigation needed to maintain the functions of impacted habitats. Off-site mitigation should only be considered when no feasible options are available to adequately mitigate within and immediately adjacent to the impacted site, or when the off-site location would provide more effective mitigation of the impact than can be achieved on-site.

**Modification:** The AO may modify the area subject to the stipulation if an environmental analysis finds a portion of the General Habitat Area is nonessential or no longer sage-grouse habitat.

**Waiver:** This stipulation may be waived by the AO if: 1) after consultation with the appropriate State Wildlife agency, it is determined significant portions of the General Habitat Area have been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored, or 2) sage-grouse are no longer a BLM Special Status Species and are not listed as threatened or endangered by the U.S. Fish and Wildlife Service, or 3) no reasonable alternative development scenario mitigating the impacts is possible.

### **Special Status Species: Management Action 13**

**Resource:** Greater Sage-Grouse General Habitat Areas

**Stipulation:** Timing Restriction: Surface use would be prohibited from March 1 through July 15 in sage-grouse nesting habitat within 4 miles of a lek. This stipulation does not apply to the operation and maintenance of production facilities.

**Objective:** Within the Greater Sage-Grouse General Habitat Areas, maintain integrity of the habitat, to support sustainable sage-grouse populations.

- Exception: The Authorized Officer (AO) may grant an exception to specific requirements of this stipulation if the action, as proposed or conditioned would not compromise the habitat for sage-grouse and meet the goals for sage-grouse habitat.
- a) Surface disturbing/disruptive activities will prevent or minimize disturbance to Greater Sage-Grouse or their habitat. Except as identified above or during emergency situations, activities will not compromise the habitat.
  - b) Continuous noise (related to long-term operations and/or activities) would be no greater than 49 decibels at ¼ mile from the perimeter of the lek.
  - c) Temporary noise (related to installation, maintenance, one-time use, emergency operations, etc.) exceeding 49 decibels at ¼ mile from the perimeter of a lek or surface disturbing/ disruptive activities may be allowed, but only from 10 a.m. to 4 p.m. between March 15 and May 15.
  - d) Manage water developments to reduce the spread of West Nile virus within sage-grouse habitat areas.
  - e) Site and/or minimize linear ROW to reduce disturbance to sagebrush habitats.
  - f) Maximize placement of new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
  - g) Power lines would be buried, eliminated, designed or sited in a manner which does not impact sage-grouse.
  - h) Placement of other high profile structures, exceeding 10 feet in height, would be eliminated, designed or sited in a manner which does not impact sage-grouse.
  - i) Remote monitoring of production facilities must be utilized and all permit applications must contain a plan to reduce the frequency of vehicle use.
  - j) Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
  - k) Restore disturbed areas at final reclamation to pre-disturbance conditions or desired plant community.
  - l) Permanent (longer than 2 months) structures which create movement must be designed or sited to minimize impacts to sage-grouse.
  - m) Consider use of off-site mitigation, (e.g., creation of sagebrush habitat, purchase conservation easements, or buying down grazing) with proponent dollars to offset habitat losses.
  - n) Consider creation of a “Mitigation Trust Account” when impacts cannot be avoided, minimized, or effectively mitigated through other means. If approved by the BLM, the proponent may contribute funding to maintain habitat function based on the estimated cost of habitat treatments or other mitigation needed to maintain the functions of impacted habitats. Off-site mitigation should only be considered when no feasible options are available to adequately mitigate within and immediately adjacent to the impacted site, or when the off-site location would provide more effective mitigation of the impact than can be achieved on-site.
- Modification: The AO may modify the area subject to the stipulation if an environmental analysis finds a portion of the General Habitat Area is nonessential or no longer sage-grouse habitat.

Waiver: This stipulation may be waived by the AO if: 1) after consultation with the appropriate State Wildlife agency, it is determined significant portions of the General Habitat Area have been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored, or 2) sage-grouse are no longer a BLM Special Status Species and are not listed as threatened or endangered by the U.S. Fish and Wildlife Service, or 3) no reasonable alternative development scenario mitigating the impacts is possible.

### **Special Status Species: Management Action 15**

Resource: Greater Sage-Grouse General Habitat Areas (GHAs) - Underground Utility (Power and Transmission) Lines

- Stipulation:** **Controlled Surface Use:** All new utility and power lines that can be safely buried would be buried within 2 miles of sage-grouse leks and within sage-grouse winter range would be buried, designed or sited in a manner which would not impact sage-grouse on public lands.
- When burial of power lines is not possible, above ground lines will be located and designed to minimize impacts of predation, collision and other associated stressors to sage-grouse.
- Existing overhead lines within 2 miles of leks and within sage-grouse winter range would be evaluated for threats to sage-grouse and if necessary, modified to reduce the threat. If modification would not likely be effective, the overhead line may be relocated. Any requirements for modification or relocation of existing overhead lines would be subject to valid existing rights.
- Potential disturbance to cultural sites or other high resource values would be considered when decisions are made to require burial of power lines. In cases, where relocation of power lines is not possible, above ground lines may be allowed on all or part of a proposed power line route to avoid impacts to these resources provided adverse impacts to wildlife or special status species are minimal as determined through project level environmental review.
- Objective:** Reduce collision hazards to sage-grouse from power lines and reduce raptor predation on sage-grouse within Greater Sage-Grouse General Habitat Areas (GHAs).
- Exception:** None.
- Modification:** None.
- Waiver:** This stipulation may be waived, if after consultation with the appropriate State and federal wildlife agencies, it is determined that significant portions of the Greater Sage-Grouse General Habitat Area has been altered to the point sage-grouse no longer occupy the site and there is no reasonable likelihood of functional habitat being restored.

### **Special Status Species: Management Action 20**

- Resource:** Greater Sage-Grouse Protection Priority Areas (PPAs)
- Stipulation:** No Surface Occupancy: Surface occupancy and use would be prohibited in Greater Sage-Grouse Protection Priority Areas (PPAs). See Map 2-4.
- Objective:** Within Greater Sage-Grouse PPAs maximize the integrity of the habitat, strive to maintain or improve sage-grouse populations, and at a minimum sage-grouse habitat so populations in the Greater Sage-Grouse PPAs reflect population trends exhibited by representative sage-grouse trend data from SDGFP lek data (protection priority area controlled surface use).
- Exception:** The Authorized Officer (AO), in consultation with South Dakota Game, Fish and Parks (SD GFP), may grant an exception if portions of the area can be occupied without adversely affecting sage-grouse leks.
- Modification:** The boundaries of the stipulated area may be modified if the AO, in consultation with SD GFP, determines that portions of the area can be occupied without adversely affecting sage-grouse leks. The AO, in consultation with SD GFP, may also modify the size and shape of the area based on studies documenting actual habitat suitability and/or local periods of actual use.
- Waiver:** The stipulation may be waived if the AO, in consultation with SD GFP, determines that the entire leasehold is no longer capable of supporting sage-grouse leks.

**Special Status Species: Management Action 29**

- Resource: Piping Plover Habitat
- Stipulation: No Surface Occupancy: Surface disturbing and disruptive activities are prohibited within ¼ mile of piping plover habitat.
- Objective: Protection of piping plover habitat.
- Exception: An exception can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect the piping plover or its habitat. If the AO determines that the action can affect the piping plover or its habitat, consultation with the USFWS will be required prior to final determination on the exception.
- Modification: The boundaries of the stipulated area may be modified if the AO, in consultation with USFWS, determines that portions of the area are no longer essential to the piping plover.
- Waiver: The stipulation can be waived if the AO, in consultation with USFWS, determines that the entire leasehold no longer contains habitat essential to the piping plover or the piping plover is declared recovered and is no longer protected under the Endangered Species Act of 1973.

**Special Status Species: Management Action 31**

- Resource: Interior Least Tern Habitat
- Stipulation: No Surface Occupancy: Surface disturbing and disruptive activities are prohibited within ¼ mile of interior least tern habitat.
- Objective: Protection of interior least tern habitat.
- Exception: An exception can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that the proposed action will not affect the least tern or its habitat. If the AO determines that the action can affect the least tern or its habitat, consultation with the USFWS will be required prior to final determination on the exception.
- Modification: The boundaries of the stipulated area can be modified if the AO, in consultation with the USFWS, determines that portions of the area are no longer essential to the least tern.
- Waiver: The stipulation can be waived if the AO, in consultation with the USFWS, determines that the entire leasehold no longer contains habitat essential to the least tern or the least tern is declared recovered and no longer protected under the Endangered Species Act.

**Fisheries and Aquatics: Management Action 4**

- Resource: Fisheries and Aquatics
- Stipulation: No Surface Occupancy: Surface occupancy and use is prohibited within ¼ mile of reservoirs with fisheries.
- Objective: Protection of fisheries and aquatics species.
- Exception: An exception to this stipulation can be granted by the Authorized Officer (AO) if the operator submits a plan that demonstrates that impacts from the proposed action are acceptable or can be adequately mitigated.

**Modification:** The boundaries of the stipulated area can be modified if the AO determines that portions of the area can be occupied without adversely affecting the fisheries and recreational values of the reservoir.

**Waiver:** This stipulation can be waived if the AO determines that the entire leasehold is no longer a fishery, and it can be occupied without adversely affecting the recreational values of the reservoir.

**Visual Resources Management (VRM): Management Action 2**

**Resource:** Visual Resources

**Stipulation:** Controlled Surface Use: Semi-permanent or permanent facilities that are not specifically prohibited in VRM Class II areas may require special design including location, size, and camouflage painting to blend with the natural surroundings and meet the visual quality objectives for the area (applies to all activities; CSU for oil and gas).

Surface-disturbing activities in VRM Class III and IV may also require designs to reduce VRM impacts (applies to all activities; lease notice for oil and gas).

**Objective:** Protection of the aesthetic and scenic qualities of the landscape.

**Exception:** The Authorized Officer (AO) may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the AO may require phased mitigation to better conform to the prescribed VRM.

**Modification:** None.

**Waiver:** None.

**Visual Resources Management (VRM): Management Action 3**

**Resource:** Visual Resources

**Stipulation:** No Surface Occupancy: Surface occupancy and use would be prohibited in and within ½ mile of buffer of the Exemption Area SRMA. Surface occupancy and use would be prohibited within ½ mile buffer around the Fort Meade SRMA/ACEC. (Minerals would be withdrawn within the Fort Meade SRMA/ACEC.)

**Objective:** Protection of the aesthetic and scenic qualities of the landscape within ½ mile of designated Special Recreation Management Areas.

**Exception:** The Authorized Officer (AO) may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the AO may require phased mitigation to better conform to the prescribed VRM.

**Modification:** None.

**Waiver:** None.

**Recreation: Management Action 12**

Resource:	Recreation
Stipulation:	No Surface Occupancy: Surface occupancy and use would be prohibited within ½ mile of the Special Recreational Management Areas (SRMAs) including Fort Meade ACEC and Exemption Area.
Objective:	Protection of ACEC and recreational values associated with SRMAs.
Exception:	The Authorized Officer (AO) may allow temporary projects to exceed VRM standards in Class II-IV areas if the project will terminate within two years of initiation. Rehabilitation will begin at the end of the two-year period. During the temporary project, the AO may require phased mitigation to better conform to the prescribed VRM.
Modification:	None.
Waiver:	None.

**Lands and Realty, ROW Authorizations: Management Action 2**

Resource:	Visual Resources and Wildlife
Stipulation:	Controlled Surface Use: All fiber optic, telephone and power lines that can be safely buried would be buried or sited to have least impact on resources. All other utility lines would be evaluated at the project level.
Objective:	Protection of visual and scenic qualities while allowing for flexibility to avoid cultural or mitigate impacts to cultural sites.
Exception:	Areas where damage to cultural resources cannot be mitigated may be excepted by the Authorized Officer (AO).
Modification:	None.
Waiver:	None.

**Public Safety: Management Action 1**

Resource:	Public Safety – Abandoned Minuteman Missile Sites
Stipulation:	Controlled Surface Use: Surface-disturbing activity at U.S. Air Force abandoned Minuteman missile sites would be restricted on the sites and approximately 1/8 mile (approximately 200 meters) beyond the sites.. Subsurface activity would be prohibited under the sites and approximately 1/8 mile (approximately 200 meters) beyond the sites.
Objective:	Protect the public and environment from movement of or contamination by potential residual hazardous waste.
Exception:	This stipulation can be excepted by the Authorized Officer (AO) if it is determined that the disturbance would not intercept and contribute to the spreading of potential residual wastes by a plan that addresses the design of the proposal, stockpiling and respreading of soil materials, and sampling and testing.
Modification:	None.
Waiver:	None.

**Cultural Resources: Management Action Common to All Alternatives**

Resource:	Cultural Resources and Tribal Consultation
Stipulation:	This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.
Objective:	To protect significant historic properties and resources.
Exception:	None.
Modification:	None.
Waiver:	None.

**Cultural Resources: Management Action Common to All Alternatives**

Resource:	Cultural Resource Survey
Stipulation:	<p>An inventory of those portions of the leased lands subject to proposed disturbance may be required prior to any surface disturbance to determine if cultural resources are present and to identify needed mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator shall:</p> <ol style="list-style-type: none"> <li>1. The lessee or operator shall engage the services of a cultural resource consultant acceptable to the Surface Management Agency (SMA) to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the standard ten-acre minimum to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface-disturbing operation is submitted.</li> <li>2. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as data recovery and extensive recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the SMA, surface occupancy on that area must be prohibited. The lessee or operator shall immediately bring to the attention of the SMA any cultural resources discovered as a result of approved operations under this lease, and shall not disturb such discoveries until directed to proceed by the SMA.</li> </ol>
Objective:	Compliance with Section 106 of the National Historic Preservation Act is required for all actions which may affect cultural properties eligible to the National Register of Historic Places. Section 6 of the Oil and Gas Lease Terms (Form 3100-11) requires that operations be conducted in a manner that minimizes adverse impacts to cultural and other resources.
Exception:	None.
Modification:	None.
Waiver:	None.

**Cultural Resources: Management Action 3a**

- Resource: National Register of Historic Places (NRHP) Eligible Properties/Districts – No Surface Occupancy
- Stipulation: Occupancy and use is prohibited within, and for a distance of 300 feet from the boundaries of cultural properties and archaeological/historic districts determined to be eligible or potentially eligible for the National Register of Historic Places, except for the Fort Meade Recreation Area National Historic District and the Bear Butte National Historic Landmark, which are closed to oil and gas leasing.
- Objective: To protect significant cultural properties and archaeological districts and their settings, and to avoid disturbance or inadvertent impacts to these resources.
- Exception: An exception to this stipulation may be granted by the Authorized Officer (AO) if the lessee or operator submits a plan which demonstrates that the adverse impact to cultural properties eligible or potentially eligible for the National Register of Historic Places can be mitigated through data recovery, extensive recordation, or other acceptable means. Where impacts to cultural resources cannot be mitigated to the satisfaction of the Surface Managing Agency and/or BLM, surface occupancy of that area must be prohibited.
- Modification: The boundaries of the stipulated area may be modified if the AO determines that portions of the designated site or district can be occupied without adversely affecting the cultural resource values for which the site or area was designated eligible.
- Waiver: None.

*NOTE: Compliance with Section 106 of NHPA is required for all actions that can affect cultural properties eligible for the National Register of Historic Places (NRHP).*

**Cultural Resources: Management Action 3b**

- Resource: Traditional Cultural Properties – No Surface Occupancy
- Stipulation: Occupancy and Use is prohibited within, and for a distance of ½ mile from the boundaries of cultural properties determined to be of importance to Native American Tribal groups, sites determined to be Traditional Cultural Properties, and/or designated for traditional use. Such properties include (but are not limited to) burial locations, pictograph/petroglyph, vision quest locations, certain stone alignments, buttes or other uplift type landforms, plant gathering locations, and areas considered sacred or used for religious purposes.
- Objective: To avoid disturbance and to protect archaeological properties of known significance to Native American groups, as well as, traditional cultural properties and the setting in which they occur.
- Exception: An exception to this stipulation may be granted by the Authorized Officer (AO) if the lessee or operator submits a plan which demonstrates that operations will be designed and/or located in such a manner as to have a minimal impact to the natural setting and characteristics of the immediate area and that adverse impacts to these traditional cultural properties can be mitigated in consultation with, and to the satisfaction of, affected Indian Tribes or Native American groups.
- Modification: None.
- Waiver: None.

**Cultural Resources: Management Action 4**

Resource:	Cultural Resources and Public Safety
Stipulation:	No Surface Occupancy: Surface occupancy and use would be prohibited within the Igloo town site and the Black Hills Army Ordnance Depot.
Objective:	Protect significant historic properties and resources and prevent the movement of, or contamination by, potential hazardous materials within the abandoned Igloo town site and the Black Hills Army Ordnance Depot.
Exception:	None.
Modification:	None.
Waiver:	None.

**Paleontological Resources: Management Action Common to All Alternatives**

Resource:	Paleontological Resources – No Surface Occupancy
Stipulation:	Surface occupancy and use is prohibited within designated paleontological sites/localities and in significant paleontological sites regardless of designation.
Objective:	Preserve and protect significant vertebrate fossils and paleontological resources.
Exception:	An exception to this stipulation may be granted by the Authorized Officer (AO) if the lessee or operator submits a plan which demonstrates that the adverse impacts to significant paleontological resources can be mitigated through recovery and extensive recordation. Where impacts to paleontological resources cannot be mitigated to the satisfaction of the Surface Management Agency, surface occupancy on that area must be prohibited.
Modification:	The boundaries of the stipulated area may be modified if the AO determines that portions of the designated paleontological site/locality can be occupied without adversely affecting the resource values or significance.
Waiver:	None.

**Paleontological Resources: Management Action 1**

Resource:	Paleontological Resource Inventory – Controlled Surface Use
Stipulation:	In areas known to have a high potential (Classes 3, 4 and 5) for containing significant paleontological resources, the Lessee shall be required to conduct a paleontological inventory prior to any surface disturbance. The lessee must engage the services of a qualified paleontologist, acceptable to the Surface Management Agency, to conduct the inventory. An acceptable inventory report is to be submitted to the BLM for review and approval at the time a surface-disturbing plan of operations is submitted.
Objective:	Preserve and protect scientifically significant vertebrate fossils and paleontological locales.
Exception:	An exception may be granted if the area has already been inventoried for paleontological resources.
Modification:	None.
Waiver:	None.



## **Appendix E.5**

### **Endangered Species Act Standard Lease Stipulation**

#### **Endangered Species Act Section 7 Consultation Stipulation**

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. §1531 et seq., including completion of any required procedure for conference or consultation.



## **Appendix E.6**

### **Cultural Resources, Tribal Consultation and Paleontological Resources Standard Lease Stipulations**

NDM 79010-DR

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations (e.g., State Historic Preservation Officer (SHPO) and tribal consultation) under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Cultural Resources 16-1

#### **Stipulation for Cultural Resource Protection**

“The lease holder is not allowed to collect or give others permission to collect historic or prehistoric artifacts on Public Lands. An artifact is any human-made object or object used in its natural state by humans, which is at least 50 years old. The unauthorized collecting of prehistoric and historic artifacts on public lands is punishable under Federal law. If you observe individuals collecting artifacts, immediately notify the authorized BLM official.”



## Appendix E.7

### Lease Notice: Paleontological Resource Inventory Requirement

Serial Number \_\_\_\_\_

#### LEASE NOTICE

##### PALEONTOLOGICAL RESOURCE INVENTORY REQUIREMENT

This lease has been identified as being located within geologic units rated as being moderate to very high potential for containing significant paleontological resources. The locations meet the criteria for Classes 3, 4 and/or 5 as set forth in the Potential Fossil Yield Classification System, WO IM 2008-009, Attachment 2-2. The BLM is responsible for assuring that the leased lands are examined to determine if paleontological resources are present and to specify mitigation measures. Guidance for application of this requirement can be found in WO IM 2008-009 dated October 15, 2007, and WO IM 2009-011 dated October 10, 2008.

Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or project proponent shall contact the BLM to determine if a paleontological resource inventory is required. If an inventory is required, the lessee or project proponent will complete the inventory subject to the following:

- the project proponent must engage the services of a qualified paleontologist, acceptable to the BLM, to conduct the inventory.
- the project proponent will, at a minimum, inventory a 10-acre area or larger to incorporate possible project relocation which may result from environmental or other resource considerations.
- the paleontological inventory may identify resources that may require mitigation to the satisfaction of the BLM as directed by WO IM 2009-011.

LN 14-12  
SDFO



## **Appendix E.8**

### **Offer to Lease and Lease for Oil and Gas - Form 3100-11**

BLM Form 3100-11, Offer to Lease and Lease for Oil and Gas, is shown on the following pages.



Form 3100-11  
(October 2008)

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT**

Serial Number

**OFFER TO LEASE AND LEASE FOR OIL AND GAS**

The undersigned (page 2) offers to lease all or any of the lands in Item 2 that are available for lease pursuant to the Mineral Lands Leasing Act of 1920, as amended and supplemented (30 U.S.C. 181 et seq.), the Mineral Leasing Act for Acquired Lands of 1947, as amended (30 U.S.C. 351-359), or \_\_\_\_\_ (other).

**READ INSTRUCTIONS BEFORE COMPLETING**

**1. Name**

Street \_\_\_\_\_  
City, State, Zip Code \_\_\_\_\_

2. This application/offer/lease is for: (Check Only One)  PUBLIC DOMAIN LANDS  ACQUIRED LANDS (percent U.S. interest \_\_\_\_\_)

Surface managing agency if other than Bureau of Land Management (BLM): \_\_\_\_\_ Unit/Project \_\_\_\_\_

Legal description of land requested: \*Parcel No.: \_\_\_\_\_ \*Sale Date (m m/dd/yyyy): \_\_\_\_\_

**\*See Item 2 in Instructions below prior to completing Parcel Number and Sale Date.**

T. \_\_\_\_\_ R. \_\_\_\_\_ Meridian \_\_\_\_\_ State \_\_\_\_\_ County \_\_\_\_\_

Amount remitted: Filing fee \$ \_\_\_\_\_ Rental fee \$ \_\_\_\_\_ Total \$ \_\_\_\_\_  
Total acres applied for \_\_\_\_\_

**DO NOT WRITE BELOW THIS LINE**

**3. Land included in lease:**

T. \_\_\_\_\_ R. \_\_\_\_\_ Meridian \_\_\_\_\_ State \_\_\_\_\_ County \_\_\_\_\_

Total acres in lease \_\_\_\_\_

Rental retained \$ \_\_\_\_\_

This lease is issued granting the exclusive right to drill for, mine, extract, remove and dispose of all the oil and gas (except helium) in the lands described in Item 3 together with the right to build and maintain necessary improvements thereupon for the term indicated below, subject to renewal or extension in accordance with the appropriate leasing authority. Rights granted are subject to applicable laws, the terms, conditions, and attached stipulations of this lease, the Secretary of the Interior's regulations and formal orders in effect as of lease issuance, and to regulations and formal orders hereafter promulgated when not inconsistent with lease rights granted or specific provisions of this lease.

**NOTE: This lease is issued to the high bidder pursuant to his/her duly executed bid form submitted under 43 CFR 3120 and is subject to the provisions of that bid and those specified on this form.**

Type and primary term:

Noncompetitive lease (ten years)

Competitive lease (ten years)

Other \_\_\_\_\_

THE UNITED STATES OF AMERICA

by \_\_\_\_\_  
(BLM)

(Title)

(Date)

EFFECTIVE DATE OF LEASE \_\_\_\_\_

(Continued on page 2)

4. (a) Undersigned certifies that (1) offeror is a citizen of the United States; an association of such citizens; a municipality; or a corporation organized under the laws of the United States or of any State or Territory thereof, (2) all parties holding an interest in the offer are in compliance with 43 CFR 3100 and the leasing authorities; (3) offeror's chargeable interests, direct and indirect, in each public domain and acquired lands separately in the same State, do not exceed 246,080 acres in oil and gas leases (of which up to 200,000 acres may be in oil and gas options or 300,000 acres in leases in each leasing District in Alaska of which up to 200,000 acres may be in options, (4) offeror is not considered a minor under the laws of the State in which the lands covered by this offer are located; (5) offeror is in compliance with qualifications concerning Federal coal lease holdings provided in sec. 2(a)2(A) of the Mineral Leasing Act; (6) offeror is in compliance with reclamation requirements for all Federal oil and gas lease holdings as required by sec. 17(g) of the Mineral Leasing Act; and (7) offeror is not in violation of sec. 41 of the Act. (b) Undersigned agrees that signature to this offer constitutes acceptance of this lease, including all terms conditions, and stipulations of which offeror has been given notice, and any amendment or separate lease that may include any land described in this offer open to leasing at the time this offer was filed but omitted for any reason from this lease. The offeror further agrees that this offer cannot be withdrawn, either in whole or in part unless the withdrawal is received by the proper BLM State Office before this lease, an amendment to this lease, or a separate lease, whichever covers the land described in the withdrawal, has been signed on behalf of the United States.

**This offer will be rejected and will afford offeror no priority if it is not properly completed and executed in accordance with the regulations, or if it is not accompanied by the required payments.**

Duly executed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ (Signature of Lessee or Attorney-in-fact)

---

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212 make it a crime for any person knowingly and willfully to make to any department or Agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

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LEASE TERMS

Sec. 1. Rentals--Rentals must be paid to proper office of lessor in advance of each lease year. Annual rental rates per acre or fraction thereof are:

- (a) Noncompetitive lease, \$1.50 for the first 5 years; thereafter \$2.00;
- (b) Competitive lease, \$1.50; for the first 5 years; thereafter \$2.00;
- (c) Other, see attachment, or

as specified in regulations at the time this lease is issued.

If this lease or a portion thereof is committed to an approved cooperative or unit plan which includes a well capable of producing leased resources, and the plan contains a provision for allocation of production, royalties must be paid on the production allocated to this lease. However, annual rentals must continue to be due at the rate specified in (a), (b), or (c) rentals for those lands not within a participating area.

Failure to pay annual rental, if due, on or before the anniversary date of this lease (or next official working day if office is closed) must automatically terminate this lease by operation of law. Rentals may be waived, reduced, or suspended by the Secretary upon a sufficient showing by lessee.

Sec. 2. Royalties--Royalties must be paid to proper office of lessor. Royalties must be computed in accordance with regulations on production removed or sold. Royalty rates are:

- (a) Noncompetitive lease, 12 1/2%;
- (b) Competitive lease, 12 1/2 %;

(c) Other, see attachment; or  
as specified in regulations at the time this lease is issued.

Lessor reserves the right to specify whether royalty is to be paid in value or in kind, and the right to establish reasonable minimum values on products after giving lessee notice and an opportunity to be heard. When paid in value, royalties must be due and payable on the last day of the month following the month in which production occurred. When paid in kind, production must be delivered, unless otherwise agreed to by lessor, in merchantable condition on the premises where produced without cost to lessor. Lessee must not be required to hold such production in storage beyond the last day of the month following the month in which production occurred, nor must lessee be held liable for loss or destruction of royalty oil or other products in storage from causes beyond the reasonable control of lessee.

Minimum royalty in lieu of rental of not less than the rental which otherwise would be required for that lease year must be payable at the end of each lease year beginning on or after a discovery in paying quantities. This minimum royalty may be waived, suspended, or reduced, and the above royalty rates may be reduced, for all or portions of this lease if the Secretary determines that such action is necessary to encourage the greatest ultimate recovery of the leased resources, or is otherwise justified.

An interest charge will be assessed on late royalty payments or underpayments in accordance with the Federal Oil and Gas Royalty Management Act of 1982 (FOGRMA) (30 U.S.C. 1701). Lessee must be liable for royalty payments on oil and gas lost or wasted from a lease site when such loss or waste is due to negligence on the part of the operator, or due to the failure to comply with any rule, regulation, order, or citation issued under FOGRMA or the leasing authority.

Sec. 3. Bonds - A bond must be filed and maintained for lease operations as required under regulations.

Sec. 4. Diligence, rate of development, unitization, and drainage - Lessee must exercise reasonable diligence in developing and producing, and must prevent unnecessary damage to, loss of, or waste of leased resources. Lessor reserves right to specify rates of development and production in the public interest and to require lessee to subscribe to a cooperative or unit plan, within 30 days of notice, if deemed necessary for proper development and operation of area, field, or pool embracing these leased lands. Lessee must drill and produce wells necessary to protect leased lands from drainage or pay compensatory royalty for drainage in amount determined by lessor.

Sec. 5. Documents, evidence, and inspection - Lessee must file with proper office of lessor, not later than 30 days after effective date thereof, any contract or evidence of other arrangement for sale or disposal of production. At such times and in such form as lessor may prescribe, lessee must furnish detailed statements showing amounts and quality of all products removed and sold, proceeds therefrom, and amount used for production purposes or unavoidably lost. Lessee may be required to provide plats and schematic diagrams showing development work and improvements, and reports with respect to parties in interest, expenditures, and depreciation costs. In the form prescribed by lessor, lessee must keep a daily drilling record, a log, information on well surveys and tests, and a record of subsurface investigations and furnish copies to lessor when required. Lessee must keep open at all reasonable times for inspection by any representative of lessor, the leased premises and all wells, improvements, machinery, and fixtures thereon, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or in the leased lands. Lessee must maintain copies of all contracts, sales agreements, accounting records, and documentation such as billings, invoices, or similar documentation that supports costs claimed as manufacturing, preparation, and/or transportation costs. All such records must be maintained in lessee's accounting offices for future audit by lessor. Lessee must maintain required records for 6 years after they are generated or, if an audit or investigation is underway, until released of the obligation to maintain such records by lessor.

During existence of this lease, information obtained under this section will be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 6. Conduct of operations - Lessee must conduct operations in a manner that minimizes adverse impacts to the land, air, and water, to cultural, biological, visual, and other resources, and to other land uses or users. Lessee must take reasonable measures deemed necessary by lessor to accomplish the intent of this section. To the extent consistent with lease rights granted, such measures may include, but are not limited to, modification to siting or design of facilities, timing of operations, and specification of interim and final reclamation measures. Lessor reserves the right to continue existing uses and to authorize future uses upon or in the leased lands, including the approval of easements or rights-of-way. Such uses must be conditioned so as to prevent unnecessary or unreasonable interference with rights of lessee.

Prior to disturbing the surface of the leased lands, lessee must contact lessor to be apprised of procedures to be followed and modifications or reclamation measures that may be necessary. Areas to be disturbed may require inventories or special studies to determine the extent of impacts to other resources. Lessee may be required to complete minor inventories or short term special studies under guidelines provided by lessor. If in the conduct of operations, threatened or endangered species, objects of historic or scientific interest, or substantial unanticipated environmental effects are observed, lessee must immediately contact lessor. Lessee must cease any operations that would result in the destruction of such species or objects.

Sec. 7. Mining operations - To the extent that impacts from mining operations would be substantially different or greater than those associated with normal drilling operations, lessor reserves the right to deny approval of such operations.

Sec. 8. Extraction of helium - Lessor reserves the option of extracting or having extracted helium from gas production in a manner specified and by means provided by lessor at no expense or loss to lessee or owner of the gas. Lessee must include in any contract of sale of gas the provisions of this section.

Sec. 9. Damages to property - Lessee must pay lessor for damage to lessor's improvements, and must save and hold lessor harmless from all claims for damage or harm to persons or property as a result of lease operations.

Sec. 10. Protection of diverse interests and equal opportunity - Lessee must pay, when due, all taxes legally assessed and levied under laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; and take measures necessary to protect the health and safety of the public.

Lessor reserves the right to ensure that production is sold at reasonable prices and to prevent monopoly. If lessee operates a pipeline, or owns controlling interest in a pipeline or a company operating a pipeline, which may be operated accessible to oil derived from these leased lands, lessee must comply with section 28 of the Mineral Leasing Act of 1920.

Lessee must comply with Executive Order No. 11246 of September 24, 1965, as amended, and regulations and relevant orders of the Secretary of Labor issued pursuant thereto. Neither lessee nor lessee's subcontractors must maintain segregated facilities.

Sec. 11. Transfer of lease interests and relinquishment of lease - As required by regulations, lessee must file with lessor any assignment or other transfer of an interest in this lease. Lessee may relinquish this lease or any legal subdivision by filing in the proper office a written relinquishment, which will be effective as of the date of filing, subject to the continued obligation of the lessee and surety to pay all accrued rentals and royalties.

Sec. 12. Delivery of premises - At such time as all or portions of this lease are returned to lessor, lessee must place affected wells in condition for suspension or abandonment, reclaim the land as specified by lessor and, within a reasonable period of time, remove equipment and improvements not deemed necessary by lessor for preservation of producible wells.

Sec. 13. Proceedings in case of default - If lessee fails to comply with any provisions of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to cancellation unless or until the leasehold contains a well capable of production of oil or gas in paying quantities, or the lease is committed to an approved cooperative or unit plan or communitization agreement which contains a well capable of production of unitized substances in paying quantities. This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver will not prevent later cancellation for the same default occurring at any other time. Lessee will be subject to applicable provisions and penalties of FOGRMA (30 U.S.C. 1701).

Sec. 14. Heirs and successors-in-interest - Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to the heirs, executors, administrators, successors, beneficiaries, or assignees of the respective parties hereto.

(Continued on page 4)

(Form 3100-11, page 3)

## A. General:

1. Page 1 of this form is to be completed only by parties filing for a noncompetitive lease. The BLM will complete page 1 of the form for all other types of leases.
2. Entries must be typed or printed plainly in ink. Offeror must sign Item 4 in ink.
3. An original and two copies of this offer must be prepared and filed in the proper BLM State Office. See regulations at 43 CFR 1821.2-1 for office locations.
4. If more space is needed, additional sheets must be attached to each copy of the form submitted.

## B. Special:

Item 1 - Enter offeror's name and billing address.

Item 2 - Identify the mineral status and, if acquired lands, percentage of Federal ownership of applied for minerals. Indicate the agency controlling the surface of the land and the name of the unit or project which the land is a part. The same offer may not include both Public

Domain and Acquired lands. Offeror also may provide other information that will assist in establishing title for minerals. The description of land must conform to 43 CFR 3110. A single parcel number and Sale Date will be the only acceptable description during the period from the first day following the end of a competitive process until the end of that same month, using the parcel number on the List of Lands Available for Competitive Nominations or the Notice of Competitive Lease Sale, whichever is appropriate.

Payments: The amount remitted must include the filing fee and the first year's rental at the rate of \$1.50 per acre or fraction thereof. The full rental based on the total acreage applied for must accompany an offer even if the mineral interest of the United States is less than 100 percent. The filing fee will be retained as a service charge even if the offer is completely rejected or withdrawn. To protect priority, it is important that the rental submitted be sufficient to cover all the land requested. If the land requested includes lots or irregular quarter-quarter sections, the exact area of which is not known to the offeror, rental should be submitted on the basis of each such lot or quarter-quarter section containing 40 acres. If the offer is withdrawn or rejected in whole or in part before a lease issues, the rental remitted for the parts withdrawn or rejected will be returned.

Item 3 - This space will be completed by the United States.

## NOTICES

The Privacy Act of 1974 and the regulations in 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this oil and gas lease offer.

AUTHORITY: 30 U.S.C. 181 et seq.; 30 U.S.C 351-359.

PRINCIPAL PURPOSE: The information is to be used to process oil and gas offers and leases.

ROUTINE USES: (1) The adjudication of the lessee's rights to the land or resources. (2) Documentation for public information in support of notations made on land status records for the management, disposal, and use of public lands and resources. (3) Transfer to appropriate Federal agencies when consent or concurrence is required prior to granting a right in public lands or resources. (4)(5) Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions.

EFFECT OF NOT PROVIDING INFORMATION: If all the information is not provided, the offer may be rejected. See regulations at 43 CFR 3100.

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(Form 3100-11, page 4)

## Appendix E.9

### Oil and Gas Supplementary Information

#### Procedures In Oil and Gas Recovery and Operations (BLM)

##### Geophysical Operations

Oil and gas reservoirs are discovered by either direct or indirect exploration methods. Direct methods include mapping of surface geology, observing oil or gas seeps, and gathering information on hydrocarbon shows observed in drilling wells. Indirect methods include various types of geophysical exploration such as seismic, gravity, and magnetic surveys, which use remote data gathering techniques to delineate subsurface structures or lithologic changes that are not directly observable, but that may contain or trap oil and gas. Data is often acquired using equipment mounted on surface vehicles or aircraft. Information from geophysical exploration can lead oil companies or others to request that lands be offered for lease, or assist in the selection of drill sites on existing leases. However, a federal oil and gas lease is not required in order to conduct geophysical operations. Existing road systems are used where available. Roads may be cleared of vegetation and loose rocks to improve access for trucks if the permit allows that action.

Blading and road construction for seismic operations are not usually allowed so that environmental impacts are minimized. In areas with rugged terrain or without access roads, and during certain seasons of the year, seismic work is conducted by helicopter rather than by ground vehicles. Other geophysical operations that do not cause additional surface disturbance include remote sensing, and gravity, and aeromagnetic surveying.

##### Geophysical Permitting Procedures and Regulations

Geophysical operations on and off an oil and gas lease are reviewed by the Federal Surface Management Agency (SMA), which can include the BLM, Bureau of Reclamation (BOR), Corps of Engineers (COE), U.S. Forest Service (USFS), among others. Close cooperation between the operator and the managing agency during geophysical operations minimizes surface impacts and protects other resources.

##### *Notification Process*

Geophysical operations on public lands are reviewed by the BLM. Geophysical exploration on public lands requires review and approval following the procedures in 43 CFR Subparts 3150, 3151, and 3154. In the South Dakota Field Office (SDFO), the Field Manager is authorized to approve geophysical operations. The responsibilities of the geophysical operator and the Field Manager during geophysical operations are described below.

##### *Geophysical Operator*

The operator is required to file a Notice of Intent to Conduct Oil and Gas Exploration Operations (form 3150-4) for operations on public lands administered by the BLM. Maps (preferably 1:24,000 scale topographic maps) showing the location of the proposed lines, access routes and ancillary facilities must accompany the Notice of Intent. When the Notice of Intent is filed, the authorized officer may request a prework conference or field inspection. Special requirements or procedures that are identified by the authorized officer are included in the Terms and Conditions for Notice of Intent to Conduct Geophysical Exploration (form 3150-4 and a copy of the state requirements). Any changes in the original Notice of Intent must be submitted in writing to the authorized officer. Written approval must be secured before activities proceed.

Bonding of the operator is required. A copy of proof of satisfactory bonding shall accompany the Notice of Intent. Proper bonding may include a \$5,000 individual, \$25,000 statewide, or \$50,000 nationwide geophysical exploration bond. In lieu of an exploration bond, a statewide or nationwide oil and gas bond may be used if it contains a rider for geophysical exploration. The operator is required to comply with applicable federal, state, and local laws such as Federal Land Policy and Management Act of 1976, the National Historic Preservation Act of 1966, and the Endangered Species

Act of 1973, as amended. Earth-moving equipment shall not be used without prior approval. Operators may be required to submit an archeological evaluation and the agency provide NEPA documentation for cultural and wildlife resources if dirt work or other surface disturbance is contemplated, or if there is reason to believe that these resources may be adversely affected. When geophysical operations have been completed including any required reclamation or rehabilitation, the operator is required to file a Notice of Completion (form 3150-5) including certification that all terms and conditions of the approved Notice of Intent have been fulfilled. The operator must also submit a map that shows the actual line location, access route, and other survey details.

#### ***BLM Field Manager (authorized officer)***

The authorized officer is required to contact the operator within five working days after receiving the Notice of Intent to explain the terms of the notice, including the “Terms and Conditions for Notice of Intent to Conduct Geophysical Exploration,” current laws, and BLM administrative requirements. At the time of the prework conference or field inspection, written instructions or orders are given to the operator. The authorized officer is responsible for the examination of resource values to determine appropriate surface protection and reclamation measures. Compliance inspections during the operation ensure that stipulations are followed. The authorized officer is required to make a final inspection following filing of the Notice of Completion Compliance inspections upon completion of work ensure that required reclamation is properly completed. When reclamation is approved, obligation against the operator’s bond is released. The BLM has 30 days after receipt of the Notice of Completion to notify the operator whether the reclamation is satisfactory or if additional reclamation work is needed. Bonding liability will automatically terminate within 90 days after receipt of the Notice of Completion unless the authorized officer notifies the operator of the need for additional reclamation work.

#### ***State Standards***

Geophysical operations are administered by the Department of Environment and Natural Resources. An exploration permit is not needed for activities which cause very little or no surface disturbance, such as exploration using: nonexplosive seismic energy sources, airborne surveys and photographs, and the use of instruments or devices which are hand carried or otherwise transported over the surface to make magnetic, radioactive, or other tests and measurements. A permit is required by the state for seismic energy sources using explosives, but not for vibroseis trucks.

For exploration on state owned lands, the South Dakota Department of School and Public Lands would have separate requirements which only apply to those lands.

#### ***Mitigation***

When a geophysical Notice of Intent is received, restrictions may be placed on the application to protect resource values or to mitigate impacts. Many of these requirements may be the same as the oil and gas lease stipulations adopted in the RMP. Other less restrictive measures may be used when impacts to resource values will be less severe. This is due in part to the temporary nature of geophysical exploration. Seasonal restrictions may be imposed to reduce conflicts with wildlife, watershed damage, and hunting activity. The decisions concerning the level of protection required are made on a case-by-case basis when a Notice of Intent is received.

#### ***Leasing Process***

Federal oil and gas leasing authority is found in the 1920 Mineral Leasing Act, as amended, for public lands and the 1947 Acquired Lands Leasing Act, as amended, for acquired lands. Leasing of federal oil and gas is affected by other acts such as National Environmental Policy Act of 1969, the Wilderness Act of 1964, National Historic Preservation Act of 1966, the Endangered Species Act of 1973, Federal Land Policy and Management Act of 1976, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. Regulations governing federal oil and gas leasing are contained in 43 CFR Part 3100 with additional requirements and clarification found in Onshore Operating Orders and Washington office manuals, handbooks and instruction memorandums.

The 1920 *Mineral Leasing Act* provides that all public lands are open to oil and gas leasing unless a specific order has been issued to close an area. Leasing procedures for oil, conventional gas, and coal bed natural gas are the same.

The lease grants the right to explore, extract, remove, and dispose of oil and gas deposits that may be found in the leased lands. The lessee may exercise the rights conveyed by the lease subject to the lease terms and attached stipulations, if any.

Lease rights may be subject to lease stipulations and permit approval requirements. Stipulations and permit requirements describe how lease rights are modified. Lease constraints or requirements may also be applied to applications for permit to drill on existing leases provided the constraints or requirements are within the authority reserved by the terms and conditions of the lease. The stipulations and conditions of approval must be in accordance with laws, regulations, and lease terms. The lease stipulations and permit conditions of approval allow for management of federal oil and gas resources in concert with other resources and land uses. The BLM planning process is the mechanism used to evaluate and determine where and how federal oil and gas resources will be made available for leasing. In areas where oil and gas development may conflict with other resources, the areas may be closed to leasing. Areas where oil and gas development could coexist with other land uses or resources will be open to leasing. Leases in these areas will be issued with standard lease terms or with added stipulations based upon decisions in the land use document. Added stipulations are a part of the lease only when environmental and planning records demonstrate the necessity for the stipulations (modifications of the lease).

Currently, leases are issued as either competitive leases or noncompetitive leases with 10-year terms. Competitive leases will be sold to the highest qualified bidder at oral auctions that are held at least quarterly. Tracts that receive no bid at the sale are available for the filing of noncompetitive offers for two years following the sale. All offers filed the day after the sale (referred to as day-after-the-sale filings) are considered simultaneously filed. This means that if there is more than one offer filed for a specific parcel the day after the sale, a drawing must be held to determine the priority on multiple offers. Noncompetitive offers filed after that time are on a first-come first-served basis. If there are no offers filed for a parcel for the two-year period after the sale, the lands must be nominated again for competitive leasing. Rental payments for these leases will be \$1.50 per acre for the first 5 years and \$2.00 per acre thereafter until production is established. If the lessee establishes hydrocarbon production, the leases can be held for as long as oil or gas is produced. The royalty rate for leases issued following the 1987 Oil and Gas Leasing Reform Act is 12-1/2 percent one-half of which is returned to the State of South Dakota on public domain lands (not acquired lands). Minimum royalty is the same amount as the rental. Future interest leases are available for entire or fractional mineral estates that have not reverted to federal ownership. These are minerals that are reserved by the grantor for a specific period of time in warranty deeds to the United States. Any future interest leases may be obtained only through the competitive bidding process and are made effective the date of vesting of the minerals with the United States.

Consultation with tribes is sometimes required during the leasing and the permit to drill processes. This depends on concerns expressed by tribes in relation to Native American traditional and religious values and practices. Refer to the cultural resources section (2.1.14) in Chapter Two of the AMS for further discussion of this topic.

### **Lease Form**

Oil and gas leases are issued on Form 3100-11, Offer to Lease and Lease for Oil and Gas (Appendix E.6). Stipulations are attached to this form when resources have been identified for protection or mitigation (Forms MT-3109-2 through 4).

### **Special Stipulations for Other Surface**

- **Management Agencies:** Lands leased for the Bureau of Reclamation, Corps of Engineers, the Department of the Air Force, or other agencies will use special stipulation forms to identify operating requirements on Lands under their jurisdiction. (See Appendices E.4 and E.5)

### **Resource Management Plan Maintenance**

New information may lead to changes in existing resource inventories. New use areas and resource locations may be identified or use areas and resource locations that are no longer valid may be identified. These resources usually cover small areas requiring the same protection or mitigation as identified in this plan. Identification of new areas or removal of old areas that no longer have those resource values will result in the use of the same lease stipulation identified in this

plan. These areas will be added to the existing data inventory without a plan amendment. In cases where the changes constitute a change in resource allocation outside the scope of this plan, a plan amendment would be required.

### **Lease Stipulations**

Certain resources in the planning area require protection from impacts associated with oil and gas activities. The specific resource and the method of protection are contained in lease stipulations. Lease stipulations are usually no surface occupancy, controlled surface use, or timing limitation. A notice may also be included with a lease to provide guidance regarding resources or land uses. While the actual wording of the stipulations may be adjusted at the time of leasing, the protection standards described will be maintained.

### **Controlled Surface Use**

Use or occupancy is allowed (unless restricted by another stipulation), but identified resource values require special operational constraints that may modify the lease rights. Controlled surface use is used for operating guidance, not as a substitute for the no surface occupancy or timing stipulations.

### **No Surface Occupancy (NSO)**

Use or occupancy of the land surface for fluid mineral exploration or development is prohibited in order to protect identified resource values. The no surface occupancy stipulation includes stipulations which may have been worded as “No Surface Use and Occupancy,” “No Surface Disturbance,” “Conditional No Surface Occupancy,” and “Surface Disturbance or Occupancy Restriction (by location).”

### **Timing Limitation (Seasonal Restriction)**

Prohibits surface use during specified times to protect identified resource values. This stipulation does not apply to the operation and maintenance of production facilities unless the findings of analysis demonstrate the continued need for such mitigation and that less stringent, project-specific mitigation measures would be insufficient.

### **Waivers, Exceptions, Modifications**

Lessees must honor lease stipulations when an Application for Permit to Drill or other surface disturbing operations are proposed to explore and develop a lease, unless the BLM grants a waiver, exception, or modification to a lease stipulation. This RMP establishes the guidelines by which future waivers, exceptions, or modifications are granted within the SDFO. Substantial modification or waiver is subsequent to lease issuance is subject to public review for at least a 30-day period.

**Exception:** A case-by case exemption from a lease stipulation. The stipulation continues to apply to all other sites within the leasehold to which the restrictive criteria apply.

**Modification:** Fundamental changes to the provisions of a lease stipulation, either temporarily or for the term of the lease. Therefore, a modification may include an exemption from or alteration to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which the restrictive criteria apply.

**Waiver:** Permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

### **Permitting**

A federal lessee or operator is governed by procedures set forth in the Code of Federal Regulations at 43 CFR Part 3160, Onshore Oil and Gas Order No. 1, “Approval of Operations on Onshore Federal and Indian Oil and Gas Leases,” issued under 43 Code of Federal Regulations (CFR) 3164 and other orders and notices.

The lessee may conduct lease operations after lease issuance. However, proposed drilling and associated activities must be approved in advance before beginning operations. Therefore, before beginning construction or the drilling of a well,

the lessee or operator must file an Application for Permit to Drill (APD) with the BLM North Dakota Field Office (NDFO). A copy of the application will be posted in the NDFO and South Dakota Field Office (SDFO) for a minimum of 30 days for review by the public. After 30 days, the application can be approved in accordance with (a) lease stipulations, (b) Onshore Oil and Gas Orders, and (c) Onshore Oil and Gas regulations (43 CFR Part 3160) if it is administratively and technically complete.

Evidence of bond coverage for lease operations must be submitted with the application. Bond amount must not be less than a \$10,000.00 lease bond, a \$25,000.00 statewide bond or a \$150,000.00 nationwide bond.

Pre-drill on-site inspections will be conducted for all wells. The inspection makes possible selection of the most feasible well site and access road from environmental, geological, and engineering points of view. The purpose of the field inspection is to evaluate the operator's plan, assess the situation for possible impacts, and to formulate resource protection stipulations. Surface use and reclamation requirements are developed during the on-site inspection that is usually scheduled within 10 days after receipt of the Notice of Staking (NOS) or APD. For operations proposed on privately-owned surface, if the operator after a good-faith effort is unable to reach an agreement with the private surface owner, the operator must post a bond to cover loss of crops and damages to tangible improvements prior to approval of the APD.

Normally, site-specific mitigations in the form of conditions of approval are added to the APD for protection of surface and subsurface (including groundwater) resource values in the vicinity of the proposed activity. The BLM is responsible for preparing environmental documentation necessary to satisfy the National Environmental Policy Act (NEPA) requirements and provide any mitigation measures needed to protect the affected resource values.

Conditions of approval implement the lease stipulations and are part of the permit when environmental and field reviews demonstrate the necessity for operating constraints or requirements. A surface restoration plan is part of an approved permit, either an APD or Sundry Notice that includes other surface-disturbing activities.

The authorized officer will act on the application in one of two ways:

Within 30 days after the operator has submitted a complete application including incorporating any changes that resulted from the onsite inspection the BLM will:

- (1) approve the application subject to reasonable conditions of approval if the requirements of the National Environmental Policy Act (NEPA), National Historic Preservation Act (NHPA), Endangered Species Act (ESA), or other applicable law have been completed and, if on FS lands, FS has approved the Surface Use Plan of Operations; or
- (2) notify the operator that it is deferring action on the permit. The notice of deferral must specify:
  - a. any action the operator could take that would enable BLM to issue a final decision on the application. Actions may include but are not limited to; assistance with data gathering or assistance with preparation of analyses and documents;
  - b. and if necessary, a list of actions that BLM needs to take, including completing requirements of NEPA or other applicable law and a schedule for completing these actions.

The operator has 2 years from the date of the notice of deferral to take the action specified in the notice. If all analyses required by NEPA, NHPA, ESA and other applicable laws have been prepared, BLM and with FS concurrence, if appropriate, shall make a decision on the permit within 10 days of receiving a report from the operator addressing all of the issues or actions specified in the deferral notice and certifying that all required actions have been taken. If the operator has not completed the actions specified in the notice, BLM may deny the permit at any time later than 2 years from the operator's receipt of the deferral notice.

For drilling operations on lands with state or private mineral ownership, the lessee must meet the requirements of the mineral owner and the state regulatory agency. The BLM does not have jurisdiction over nonfederal minerals; however, the BLM has surface management responsibility in situations of BLM surface over nonfederal mineral ownership.

When final approval is given by the BLM, the operator may begin construction and drilling operations. Approval of an APD is valid for one year. If construction does not begin within one year, the permit must be reviewed prior to approving another APD.

A Sundry Notice is used to approve other surface and subsurface lease operations. When a well is no longer useful, the well is plugged and the surface reclaimed. A Sundry Notice is also used to approve well plugging and reclamation operations, although verbal approval for plugging may be given for a well that was drilled but not completed for production.

The period of bond liability is terminated after all wells covered by the bond are properly plugged and the surface reclaimed. The lands may then become available for future leasing.

### **Application for Permit to Drill**

Applications for Permit to Drill are approved for the SDFO by the authorized officer at the NDFO. The approved APD includes Conditions of Approval, and Informational Notices that cite the regulatory requirements from the Code of Federal Regulations, Onshore Operating Orders and other guidance.

### **Conditions of Approval**

Conditions of approval are mitigation measures that implement restrictions in light of site-specific conditions. General guidance for conditions of approval and surface operating standards is found in the BLM and USFS brochure entitled "Surface Operating Standards for Oil and Gas Exploration and Development" (USDI, BLM 2007) and BLM Manual 9113 entitled "Roads".

The BLM commonly applies best management practices when approving APDs. The sources of many of these may be found on the internet at:

[http://www.blm.gov/wo/st/en/prog/energy/oil\\_and\\_gas/best\\_management\\_practices.html](http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices.html)

<http://www.blm.gov/bmp/> (a simpler internet address going to the same place)

[http://www.blm.gov/mt/st/en/prog/energy/oil\\_and\\_gas/operations.html](http://www.blm.gov/mt/st/en/prog/energy/oil_and_gas/operations.html)

**Description:** BMPs for oil and gas demonstrate practical ideas which may eliminate or minimize adverse impacts from oil and gas development to public health and the environment, landowners, and natural resources; enhance the value of natural and landowner resources; and reduce conflict.

The following mitigation measures may be applied to approved permits to drill as conditions of approval. The listing is not all-inclusive, but presents some possible conditions of approval that may be used in the planning area. The wording of the condition of approval may be modified or additional conditions of approval may be developed to address specific conditions.

In addition to the best management practices identified in Appendix B, new BMPs will constantly be developed, and the BLM will also develop site-specific practices on a case-by-case basis as needed.

### ***Surface Conditions***

If a tank battery is constructed on this lease, each tank setting, treater, and separator, must be surrounded on all sides by an impermeable berm or dike of sufficient capacity to adequately contain the contents of the largest vessel within it, plus one (1) day's production. All load lines must terminate within the berm or dike, unless there is an adequate box with overflow drain back inside the dike. If a tank battery is constructed for multiple wells, and/or is constructed off of this location, a separate authorization from the BLM would be necessary.

The operator shall immediately notify BLM if unexpected cultural resources are observed and shall avoid operations that would result in the destruction of these resources. Disturbance of such discoveries is not allowed until the operator is directed to proceed by BLM.

All above ground facilities will be painted a flat earthtone color which will blend in with the surrounding environment within 6 months of well completion, unless otherwise approved by BLM. (Color would be selected for the specific site from current color charts.)

Sewage will be disposed of according to county and state requirements, which mandate collecting and holding sewage onsite in portable chemical toilets, with disposal off site, in a municipal facility. Other waste and chemicals may not be disposed of or burned on location.

Store garbage and trash in a dumpster and dispose of it according to county and state regulations. It may not be disposed of or burned on location.

Saltwater or testing tanks will be located and/or diked so any spilled fluids will be contained. Saltwater and diesel tanks will not be placed on topsoil stockpiles.

The operator is responsible for the weed control in the permitted area. A Pesticide Use Proposal must be approved by BLM before spraying is begun. The landowner should also be consulted prior to spraying.

The operator is responsible for locating and protecting existing pipe lines, power lines, and telephone lines.

Save all of the topsoil from the location, stockpile it near the location in an accessible place, and re-use the topsoil to reclaim unused portions of the producing wellsite, or the whole abandoned wellsite, as applicable, after drilling and production testing are completed. Save all the topsoil from the access road, stockpile it along the access road, and re-use the topsoil to reclaim unused portions of the access road, shoulders and ditches, or the whole abandoned access road, as applicable, after drilling and production testing are completed.

A reserve pit liner will be required. The liner must have a burst strength of not less than 140 psi. If the reserve pit is excavated through sand, coal, or rock, the liner must have a burst strength of not less than 200 psi, and the bottom and sides of the pit must be covered with six inches of clay before the liner is installed. No trash will be disposed of in the reserve pit.

A fence may be dispensed with, during drilling as a safety measure, but prior to the location being left unattended when there is liquid in the pit, a fence must be erected around the reserve pit. The reserve pit must remain fenced until closure of the pit is complete, unless the entire location is fenced.

The location and facilities must be fenced for production, or individual pieces of well equipment may be fenced rather than the entire well location. Any fences around the entire location require cattle guards and gates where the road goes through, and must be maintained to keep livestock out until abandonment and reclamation of the well.

If the well is a producer, or permanently abandoned, all site reclamation must be completed within 6 months of the date drilling ceased, unless otherwise approved by BLM. Normally the reclamation will include major items such as: reserve pit reclamation, pit backfill settling, well pad recontouring, amendments such as: manure, straw, hay, wood chips and/or topsoil spreading, and seeding or hydroseeding.

Trenching or breaching of the reserve pit during reclamation is not allowed. In the event of winter freeze-up, reclamation may be put on hold by BLM. Pit fluids which can be separated from cuttings may not be disposed of on location. Separable pit fluids must be reused on another well, disposed of in a disposal well, or otherwise according to state regulations. When the well is abandoned, the operator must contact BLM for development of the final reclamation plan and for approval of the reclamation work. Only BLM can give approval of downhole plugging.

When the well is permanently abandoned: remove the scoria, gravel, or other surfacing from the location, as well as from the road, and reuse or dispose of this surfacing elsewhere.

Reshape the location to natural contours and provide needed water controls to prevent erosion, spread the topsoil and reseed on the contour.

If the well is a producer, the part of the location not needed for production or workover operations must be reclaimed to natural contours and provided with water erosion controls and reseeded.

The following seed mix, is to be used in spring seeding prior to May 30, and fall seeding from Oct. 1 to soil freeze up:

Thickspike Wheatgrass	6 lbs/acre of pure live seed (PLS)
Green Needlegrass	6 lbs/acre of pure live seed (PLS)
<u>Blue Grama</u>	<u>3 lbs/acre of pure live seed (PLS)</u>
Total	15 lbs/acre

If there is a problem with obtaining seed, contact the BLM for a replacement seed mix. Rates of seeding are given in "pure live seed" (PLS). Seed must be drilled on the contour (1/2 to 3/4 inch deep). Seed may be broadcast at double the above rates and then dragged to work it into the soil. The operator must furnish a notice of certified weed free seed to BLM prior to seeding disturbed areas. Fertilize with 30 pounds nitrogen and 40 pounds phosphorus per acre, when seeding. The reclamation will be considered successful when the reclaimed areas have been stabilized and reclaimed to the satisfaction of BLM. After final abandonment, when surface reclamation is complete and vegetation reestablished, any fences shall be removed or the fenced area reduced as required by the BLM.

The permittee shall take precautions to protect all public land survey monuments, private property corners, and BLM boundary markers. In the event that any such land markers or monuments are destroyed in the exercise of the privileges authorized by this permit, depending on the type of monument destroyed, the permittee shall reestablish or reference the same in accordance with the following: (1) procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) specifications of the county surveyor, or (3) the specifications of the BLM.

Rig stacking will only be allowed with prior approval of the BLM.

### **Approaches for Development of Oil and Gas Conditions of Approval (COAs) for Concerns not Addressed in Lease Stipulations**

Certain activities that are not addressed in lease stipulations may result in surface disturbing or disruptive activities or create impacts to other resources depending on specific conditions at individual well sites. Some examples include operation and maintenance of wells, restricting the use of reserve pits above shallow water tables, use of diesel fuel when drilling, continuous travel to and from well sites and noise associated with these activities.

The following approaches address conditions of Approval (COAs) that may be developed to mitigate impacts commonly associated with oil and gas activities. These examples are not all inclusive; additional COAs will be developed as needed. These approaches may change as a result of new technology, improved science, changes to Best Management Practices, changes in status of special status species, and a host of other factors. Site specific conditions on or near the project site may also result in changes to the COA listed below.

Solutions which may be used to decrease the risk of groundwater pollution from well locations, would be to prevent any long term storage or any release of chemicals from a drilling system on the well site. This can be done with closed mud systems (using tanks rather than any excavated pits) with removal of mud fluids and fluid soaked cuttings from the well site, along with state regulation of the disposal of the materials. If a drying system can be devised with the closed mud system, dried cuttings and possibly even mud constituents could potentially be left on location in a closed and capped storage pit.

Another method of decreasing risk of contaminants is to place an impervious engineered cap over a conventional reserve pit. A slightly domed impermeable cap of the reserve pit, engineered to permit little or no rainwater percolating through the cover and into the pit, as well as engineered to last a very long time, should greatly decrease or even eliminate infiltration, and thus the entrainment and the risk of toxic pit constituents leaving the pit and following a pathway to reach and contaminate groundwater. At this time, current technology would likely necessitate materials like bentonite or high density polyethylene materials as likely candidates to use to attain a low level of permeability of  $10^{-7}$  cm/s.

Encouraging reuse of reserve pit fluids can cut the total amount of wastes which need to be disposed. Identifying the contents of the drilling fluids or formation fracturing fluids and working with oil and gas companies to decrease the amounts of the more toxic chemicals used would decrease the potential for ground water contamination. Additional monitoring of the fluids used and the amounts used or left in closed pits, or restrictions in the use of excavated pits may be necessary to ensure that risks to ground water are minimized.

### **Geological Review and Engineering Analysis**

The Field Office Geologist reviews the proposed casing program to ensure the surface casing would be placed below all fresh water zones. A Petroleum Engineer reviews the Drilling Plan to ensure the blowout preventer equipment, casing, cementing, and mud programs would provide equate protection to down hole resources and mitigate any impacts at the surface.

Most wells drilled in the Williston Basin, or its outliers, as well as other basins containing salt formations, use saltwater or a combination of saltwater and oil base fluid (invert) as a drilling fluid. The use of saltwater and oil based mud systems can contaminate fresh water zones or other usable water zones by infiltration or injection. The contamination of fresh water or other usable water resources by drilling or formation fluids would be prevented through the use of casing and Conditions of Approval (COA) to drill. A COA requires that the surface hole be drilled with fresh water and that no salt or materials having toxic effects be used during that part of the operation. After drilling the surface hole, casing (steel pipe) is placed in the hole and cement is circulated to the surface. This casing and cement protects the fresh and usable water zones while completing the drilling operations with salt water or oil based mud. The casing and cement also provide protection during production operations and well control operations.

A COA requires that all reserve pits be lined to prevent or reduce leakage of the pit contents into the surrounding soils or groundwater. Any hazardous materials or substances with toxic effects added to, or held within, the mud system during drilling operations, are contained in the well or on location in a reserve pit. These substances could cause contamination of the surface soils, surface water, and subsurface water resources from spills or in the case of leakage from the reserve pit.

Upon completion of the drilling program, the fluid is required to be removed from the reserve pit and disposed of in a state approved disposal well or used at another drilling well. Any remaining drill cuttings and solid drilling mud constituents, as well as a portion of absorbed fluids are contained within the lined reserve pit. Another COA requires that the liner used in the reserve pit be left in place upon abandonment and that the pit not be trenched.

Closed mud system use may be required, with the use of tanks rather than pits, and with no chemicals, muds, or rock cuttings left on location when drilling is done.

### **Engineering Conditions of Approval**

Some examples of typical Engineering Conditions of Approval are as follows:

All Blowout Prevention Equipment (BOPE) must comply with the minimum requirements of Onshore Oil and Gas Order No. 2 for a 5 M system, including test pressures and frequencies.

Wait-on-cement times must be adequate to achieve a minimum of 500 psi compressive strength.

Top-of-cement behind production casing must be above Inyan Kara group.

**Gas Flaring:** Gas produced from this well may not be vented or flared beyond an initial, authorized test period of 30 days or 50 Mmcf following its completion, whichever first occurs, without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted, and you shall be required to compensate the lessor for that portion of the gas vented or flared without approval which is determined to have been avoidably lost.

A gas analysis, which includes H<sub>2</sub>S content, must be made and submitted to this office within three months of completion of this well.

Any unconfined gas that is produced and exceeds 20 ppm H<sub>2</sub>S, must be separated and flared. The flare system must include a method of insuring continuous ignition of the gas.

If the concentration of H<sub>2</sub>S gas at any point in the facility (i.e.; gas stream, tank vapors, treater, etc.) exceeds 20 ppm, the facility must have a wind-sock placed on the tank battery so that it is visible from everywhere on the location and H<sub>2</sub>S warning signs placed at appropriate facilities.

### **Issuance of Rights-of-Way**

Rights-of-way are required for all facilities, tank batteries, pipelines, truck depots, power lines, and access roads that occupy federally managed lands outside the lease or unit boundary. When a third party (other than the operator or the federal government) constructs a facility or installation on or off the lease, a right-of-way is also required.

### **Informational Notice**

The following items comprise the information notice which applies to all federal and Indian minerals wells in North Dakota and South Dakota:

The enclosed Application for Permit to Drill (APD) is approved, subject to the following special conditions. Please be advised that all lease operations are also subject to the terms of the lease, all lease stipulations, and any written instructions or orders of the authorized officer or Surface Management Agency (see attachment to 13 point Surface Use Plan).

It is the sole responsibility of the operator and/or lessee to ensure that all the requirements of Federal Oil and Gas regulations (43 CFR 3100), Notice to Lessees (NTLs), and Federal Onshore Oil and Gas Orders No. 1, 2, 3, 4, 5, 6, and 7 are complied with. Any major deviation from the terms of this APD or Surface Use Plan requires prior approval.

All submitted information not marked "CONFIDENTIAL INFORMATION" will be available for public inspection upon request. (Note: If a submittal is to be held confidential, each page must be so marked.) However, information on Indian Trust Minerals is also held confidential.

Spills, accidents, fires, injuries, blowout and other undesirable events, as described in NTL MSO-1-92, must be reported to this office within the timeframes in NTL MSO-1-92. Furthermore, all spills (saltwater or oil) or pipeline breaks outside the diked area shall be reported within 24 hours to the Surface Management Agency.

Under Environmental Obligations (43 3162.5-1), Disposition of Production (43 CFR 3162.7-1) and Disposal of Produced Water (Onshore Order No. 7):

You are required to take all necessary steps to prevent any death of a migratory bird in pits or open vessels associated with the drilling, testing, completion, or production of this well. The death of any migratory bird found in such a pit or open vessel is a violation of the Migratory Bird Treaty Act and is considered a criminal act. Any deaths of migratory birds attributable to pits or open vessels associated with drilling, testing, completing, or production operations must be reported to this office and the United States Fish and Wildlife Service within 24 hours.

We may require that the pit be designed or the open vessel be covered to deter the entry of birds in any facility associated with drilling, testing, completion, or production of this well. Fencing, screening, and netting of pits may be required as a means to deter bird entry. These conditions would most likely be imposed to prevent the entry of migratory birds if oil is left in pits or open vessels after the cessation of drilling or completion of operations, if water disposal pits consistently receive oil, or if pits or open vessels are used repeatedly for emergency situations which result in accumulation of oil.

Voluntary pit fencing, screening, and netting, or sealing vessels, is encouraged to avoid potential instances that may result in the death of a migratory bird.

This APD permit is valid for either two (2) years from the approval date or until lease expiration, whichever occurs first.

You have the right to request a State Director Review of this decision pursuant to 43 CFR 3165.3(b), copy attached. An SDR request, including all supporting documentation, must be filed with the Montana State Office, State Director (MT-920) at P.O. Box 36800, Billings, Montana 59107 within 20 business days of your receipt of this decision. If adversely affected by the State Director's decision, it can be further appealed to the Interior Board of Land Appeals (IBLA) pursuant to 3165.4, 4.411, and 4.413, a copy of each attached. Should you fail to timely request an SDR, or after receiving the State Director's decision, fail to timely file an appeal with the IBLA, no further administrative review of this decision will be possible.

### **Notification and Report Requirements**

A complete copy of the approved (APD), including conditions, stipulations, exhibits, and the H<sub>2</sub>S contingency plan (if required) must be on the well site and available for reference during the construction and drilling phases.

The North Dakota Field Office is to be verbally notified of the following actions:

At least 24 hours prior to beginning road and location construction.

Not more than 24 hours after the well is spudded, or on the next regular business day.

At least 24 hours prior to running/cementing surface casing. (This notification may be combined with the spud notice).

At least 24 hours prior to drilling 1000' above the Mission Canyon Formation or any H<sub>2</sub>S bearing formation, or on next regular business day.

Prior approval for abandonment must be obtained from the Authorized officer. For verbal plugging orders on drilling locations, notify prior to plugging.

BLM representatives can be reached Monday through Friday (7:45 AM - 4:30PM) at the office telephone no. (701) 227-7700. The BLM personnel can be contacted after hours or on weekends for plugging approvals or any other approvals/change in plans which do not allow for communications during normal office hours by calling the following personnel:

Asst. Field Office Mgr., Minerals  
 Supr Petroleum Engineer Tech.  
 Petroleum Engineer  
 Environmental Protection Specialist  
 (Also see **Informational Notice**)

### **Plugging Requirements**

All formations bearing usable-quality water, oil, gas, or geothermal resources, and/or a prospectively valuable deposit of minerals shall be protected. Plugging design for an abandonment hole shall include the following:

#### ***Open Hole:***

- i. A cement plug shall be placed to extend at least 50 feet below the bottom (except as limited by total depth (TD) or plugged back total depth (PBSD)), to 50 feet above the top of:
  - a. Any zone encountered during which contains fluid or gas with a potential to migrate;
  - b. Any prospectively valuable deposit of minerals.

- ii. All cement plugs, except the surface plug, shall have sufficient slurry volume to fill 100 feet of the hole, plus an additional 10 percent of slurry for each 1,000 feet of depth.
- iii. No plug, except the surface plug, shall be less than 25 sacks without receiving specific approval from the authorized officer.
- iv. Extremely thick sections of single formation may be secured by placing 100-foot plugs across the top and bottom of the formation, and in accordance with item ii hereof.
- v. In the absence of productive zones or prospectively valuable deposits of minerals which otherwise require placement of cement plugs, long sections of open hole shall be plugged at least every 3,000 feet. Such plugs shall be placed across in-gauge sections of the hole, unless otherwise approved by the authorized officer.

**Case Hole:** A cement plug shall be placed opposite all open perforation and extend to a minimum of 50 feet below (except as limited by TD or PBTB) to 50 feet above the perforated interval. All cement plugs, except the surface plug, shall have sufficient slurry volume to fill 100 feet of hole, plus an additional 10 percent of slurry for each 1,000 feet of depth. In lieu of the cement plug, a bridge plug is acceptable, provided:

- i. The bridge plug is set within 50 feet to 100 feet above the open perforations;
- ii. The perforations are isolated from any open hole below; and
- iii. The bridge plug is capped with 50 feet of cement. If a bailer is used to cap this plug, 35 feet of cement shall be sufficient.

**Silica Sand or Silica Flour:** Silica sand or silica flour shall be added to cement exposed to bottom hole static temperatures above 230 ° F to prevent heat degradation of the cement.

**Mud:** Each of the intervals between plugs shall be filled with mud of sufficient density to exert hydrostatic pressure exceeding the greatest formation pressure encountered while drilling such interval. In the absence of other information at the time plugging is approved, a minimum mud weight of 9 pounds per gallon shall be specified.

Wait on cement times must be adequate to achieve a minimum of 500 psi compressive strength. All well pluggings are witnessed by Petroleum Engineering Technicians.

### **Hazardous Materials**

Plugging and acceptance of abandonment of a well does not absolve a company of liability for hazardous materials.

### **Paleontological/Cultural Stipulations**

The operator is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archaeological materials which are uncovered during construction. The operator is to immediately stop work that might further disturb such materials, and contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places;
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
- a timeframe for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and the mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with the process, the AO will assume responsibility for whatever recordation and stabilization of the expose materials may be required. Otherwise, the operator will be responsible for mitigation costs. The AO will provide technical and

procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

## **Construction**

Construction of the access road and the well site is necessary before drilling operations begin. The extent of surface disturbance necessary for construction depends on the terrain, depth of the well, drill rig size, circulating system, and safety standards.

The depth of the drill test determines the size of drill rig needed, and therefore, the size of the work area necessary, the need for all-weather roads, water requirements, and other needs. The terrain influences the construction problems and the amount of surface area to be disturbed. Reserve pit size may vary because of well depth, drill rig size, or circulating system.

Access roads to well sites in the planning area usually consist of running surfaces 14 to 24 feet wide that are ditched on one or both sides. Many of the roads constructed will follow existing roads or trails. New roads might be necessary because existing roads are not at an acceptable standard. For example, a road may be too steep so that realignment is necessary.

Roads can be permanent or temporary, depending on the success of the well. The initial construction can be for a temporary road; however, it is designed so that it can become permanent if the well produces. Not all temporary roads constructed are immediately rehabilitated when the drilling stops. A temporary road is often used as access to other drill sites. The main roads and temporary roads require graveling to be maintained as all-weather roads. This is especially important in the spring. Access roads may be required to cross public lands to a well site located on private or state lands. The portion of the access road on public land would require a BLM right-of-way.

The amount of level surface required for safely assembling and operating a drilling rig varies with the type of rig, but averages 300 feet by 400 feet. Approximately 3-1/2 acres would be impacted by well site construction. The area is cleared of large vegetation, boulders, or debris. Then the topsoil is removed and saved for reclamation. A level area is then constructed for the well site, which includes the reserve pit. Bulldozers and motor scrapers are typically used to construct the well pad. The well pad is flat (to accommodate the drill rig and support equipment) and large enough to store all the equipment and supplies without restricting safe work areas. The drill rig must be placed on "cut" material rather than on "fill" material to provide a stable foundation for the rig. The degree of cutting and filling depends on terrain; that is, the flatter the site, the less dirt work is required.

Hillside locations are common, and the amount of dirt work varies with the steepness. A typical well pad will require a cut 10 feet deep against the hill and a fill 8 feet high on the outside. It is normal to have more cut than fill to allow for compaction, and any excess material is then stockpiled. Eventually, when the well is plugged and abandoned, excavated material is put back in its original place.

Reserve pits are normally constructed on the well pad. Usually the reserve pit is excavated in "cut" material on the well pad. The reserve pit is designed to hold water, drill cuttings, and used drilling fluids. Generally, reserve pits are rectangular in shape and 8 to 12 feet deep, however, the size and number of pits depends on the depth of the well, circulating system and anticipated down hole problems, such as excess water flows. The reserve pit can be lined with a synthetic liner to contain pit contents and reduce pit seepage. BLM normally requires a synthetic liner.

If the well is a producer, casing is set and cemented in place.

Directional drilling may be used where the drill site cannot be located directly over the drilling target. There are limits to both the degree that the well bore can be deviated from the vertical and the horizontal distance the well can be drilled away from the well site.

Horizontal wells are drilled similarly to directional wells, except that the bottomhole location of the well is not a single point, but rather a lateral horizontal section. They are drilled to increase the recovery of oil and gas reserves from vertically fractured reservoirs, or reservoirs with directional permeability.

## **Environment and Safety**

During drilling and production operations for any well the BLM will enforce the provisions of the regulations, Onshore Oil and Gas Operating Orders, and Notice to Lessees NTL-MSO-1-92, Report of Undesirable Events, to ensure operations are carried in a manner that protects the mineral resources, other natural resources, and environmental quality. Regulations at 43 CFR § 3162.5 require that the operator exercise due care and diligence to assure that leasehold operations do not result in undue damage to surface or subsurface resources or surface improvements. All produced water must be disposed of by methods approved by the BLM. Upon completion of operations the operator shall reclaim the surface in a manner approved of by the BLM. All spills or leakages of oil, gas, produced water, toxic liquids, blowouts, fires, personal injuries, and fatalities must be reported by the operator. The operator is required to exercise care in taking measures approved by the BLM to control and remove pollutants and extinguish fires. An operator's compliance with the regulations at 43 CFR § 3162.5 does not relieve him of the obligation to comply with any other law or regulations. Finally, the regulations authorize the BLM to require an operator to file a contingency plan describing procedures to be implemented to protect life, property, and the environment.

## **Production and Development**

### **Production**

Production begins when a well yields oil or gas in commercial quantities. If formation pressure is sufficient to raise oil to the surface, the well is completed as a flowing well. A pumping unit is installed if the formation pressure is not sufficient to bring the oil to the surface. When the well is completed as a free-flowing well, an assembly of valves and special connections known as a "Christmas tree" (so called because of its many branch like fittings) is installed on top of the casing to regulate the flow of the well. Later, when the natural pressure declines, the Christmas tree can give way to a simple wellhead arrangement of valves and a pumping unit to lift the oil artificially. Many pumping units are "beam" style pumps that are powered by electric motors or gasoline engines. Most gas wells produce by natural flow and do not require pumping. Surface facilities at a flowing well are usually in a small area containing a gas well Christmas tree, a dehydrator, a produced water pit, and a meter house. Separators, condensate tanks, and compressors may be included. Some gas wells require continuous water pumping as water entering the well chokes off the gas flow.

### **Development**

New field development may be analyzed under NEPA by means of an environmental assessment (EA) or environmental impact statement (EIS). The operator should then have an idea of the extent of drilling and disturbance required to extract and produce the oil and gas. When an oil or gas discovery is made, a well spacing pattern must be established before development drilling begins. Development can take years and include from one or two wells to more than a hundred wells per field. Roads to producing wells are upgraded to all-weather roads as necessary. Pipelines, electrical transmission lines, separators, dehydrators, sump pits, and compressor stations soon follow. Sometimes oil and gas processing facilities are built in or adjacent to the field.

### **Further Seismic Testing**

More detailed seismic work can be done to achieve better definition of the petroleum reservoir. Diagonal seismic lines can be required to tie the previous seismic work to the discovery well. The discovery well can be used to conduct studies to correct the previous seismic work and provide more accurate subsurface data.

### **Spacing Requirements**

A well spacing pattern must be established before development drilling begins. Information considered in establishment of a spacing pattern includes data from the discovery well on porosity, permeability, pressure, composition, and depth of formations in the reservoir; well production rates and type (predominantly oil or gas); and the economic effect of the proposed spacing on recovery. The state of South Dakota establishes well spacing patterns for both exploratory and development wells which the BLM generally adopts. The state specifies the minimum distance from lease lines or government survey lines for the bottom-hole location of the well bore depending upon depth of the well. The spacing regulations determine the acres assigned to each well. Spacing unit size is established to provide for the most efficient and economic recovery of oil or gas from a reservoir. Normal well spacing ranges from 40 acres to 1280 acres. Wells

deeper than 11,000 feet can be no closer than 1,650 feet to other producing wells below 11,000 feet. Only one producing well per formation is allowed in each 40, 80, 160, 320, 640, and 1280 acre unit.

### **Drilling of Development Wells**

The procedures used in drilling development wells are the same as those used for wildcat wells, but usually with less subsurface sampling, testing, and evaluation. The rate at which development wells are drilled in a field depends on factors such as whether the field is developed on a lease basis or unitized basis, the probability of profitable production, the availability of drilling equipment, lease requirements, and the degree to which limits of the field are known. Some fields go through several development phases, the first resulting from the original discovery and others from later discovery. A field can be considered fully developed and produce for several years, and then a well may be drilled to a deeper or shallower pay zone. Discovery of a new pay zone in an existing field is a “pool” discovery (as distinguished from a new field discovery). A pool discovery may lead to the drilling of additional wells, often from the same drilling pad as existing wells.

### **Inspections**

Geophysical operations and lease operations are inspected to determine compliance with approved permits, to resolve conflicts or correct problems and to determine effectiveness and need of lease stipulations. All inspections are documented. Operators are required to correct problems or violations.

### **Surface Requirements**

Field development activities that cause surface disturbance include access roads, well sites, production facility sites, flow line and utility line routes and waste disposal sites. Surface uses in a gas field will be less than in an oil field, because gas wells are usually drilled on larger spacing units. The spacing pattern of 640 acres per well, which is common in gas fields, will require only one well per section and might require only ½ mile of access roads and pipelines. Production facilities include separation and storage equipment. Separation equipment is required when production includes a combination of oil, gas, or water and storage equipment is required for holding liquids prior to sales.

### **Flow Lines**

Oil and gas are transferred from the well to storage facilities through small diameter (<6 inches) flow lines. Flow lines can be on the surface, buried or elevated. Produced water, gas, or polymerized liquid is transferred from storage facilities to injection wells for secondary recovery.

### **Separating, Treating, and Storage**

Any water or gas associated with produced oil is separated from the oil before it is placed in storage tanks. The treating facilities are located at a storage tank battery. Low-pressure petroleum that must be pumped from the well is treated in a single separation. High pressure, flowing petroleum can require several stages or separation, with a pressure reduction accompanying each stage.

Produced gas is sold when there is sufficient volume, necessary transportation, a market, and it is economical. Generally, if the volume of produced gas is too low for sales, it is used as fuel for well pump engines and heating fuel for the treaters. If the volume of produced gas exceeds fuel requirements on the lease but gas sales are not possible, the gas can be flared or vented into the atmosphere when authorized by permit in accordance with state and federal regulations. When water is produced with the hydrocarbons, it is separated before the gas is removed. In primary operations, where natural pressures or gravity causes the petroleum in the reservoir to flow to the wellbores, the degree of mixing is high enough to require chemical and heat treatment to separate the oil and water. In secondary production, where water injection or other methods are used to force additional petroleum to the wellbore, the oil and water often are not highly emulsified. In this case, the oil and water can be separated by gravity in a tall settling tank. Produced water can be disposed of by injection into the subsurface, surface evaporation or beneficial purposes such as water for livestock or irrigation.

Produced water from oil and gas operations is normally disposed of by subsurface injection or in surface pits. Regardless of the method of disposal, it must be acceptable to the BLM, in accordance with the requirements of Onshore Oil and Gas Order No. 7, titled "Disposal of Produced Water." Disposal of produced water by injection wells requires permits from the South Dakota Department of Environment and Natural Resources. When produced water is disposed underground, it is introduced or injected under pressure into a subsurface horizon containing water of equal or poorer quality. Produced water may be injected into the producing zone from which it originated to stimulate oil production. Dry holes or depleted wells are commonly converted for saltwater disposal and occasionally new wells are drilled for this purpose. The law and regulations require that all injection wells be permitted under the Underground Injection Control program.

Under the Underground Injection Control approval process, the disposal well must be pressure tested to ensure the integrity of the casing. The disposal zone must also be isolated by use of tubing and mechanical plug called a packer. The packer seals off the inside of the casing and only allows the injected water to enter the disposal zone. The tubing and packer are also pressure tested to ensure their integrity. These pressure tests confirm isolation of the disposal zone from possible usable water zones. The oil is transported to storage tanks through flow lines after separation from any water or gas. Storage tanks are usually located on the lease either at the producing well or at a central production facility. The number and size of tanks are dependent upon the type and amount of production on the lease.

### **Abandonment**

When drilling wells are unsuccessful or production wells are no longer useful, the well is plugged, equipment is removed from the well site or production facility site, and the site is abandoned. The well bore is secured by placing cement plugs to isolate hydrocarbon-producing formations from contaminating other mineral or water bearing formations. The site and roads are then restored as near as possible to original contours. Topsoil is replaced and the recontoured areas are seeded. Reclamation of access roads and well sites on privately owned surface is completed according to the surface owner's requirements.

Rehabilitation requirements generally are made a part of the Application for Permit to Drill. Upon completion of abandonment and rehabilitation operations, the lessee or operator notifies the SDFO, via the NDFO that the location is ready for inspection. Final abandonment will not be approved until the required surface reclamation work has been completed to the satisfaction of the BLM or surface owner. The period of bond liability for the well site is terminated after approval of final abandonment. Reclamation of the reserve pit is part of the well site reclamation process. Reserve pit reclamation includes removal of fluids to a disposal well or commercial pit and burial of solids in the pit. Solids should not be buried until dry and then covered with a minimum of 6 feet of native soil. Any pit liner may be buried in place. Methods such as solidification or dewatering may be used to help dry the solids.

## **Regulations, Laws, and Special Procedures**

### **Unit and Communitization Agreements**

Unit and communitization agreements can be formed in the interest of conservation and to allow for the orderly development of oil and gas reserves. A unit agreement provides for the recovery of oil and gas from the lands as a single consolidated entity without regard to separate lease ownerships. An exploratory unit is used for the discovery and development of the field in an orderly and efficient manner. Paying and nonpaying well determinations are made for each well drilled. If the well is nonpaying as defined by the agreement, the production is allocated on a lease basis. If the well is a paying unit well, a participating area is formed and the production is allocated to all interest owners in the participating area based on surface area. A secondary unit is formed after the field has been defined and enhanced recovery techniques are being utilized. Secondary recovery techniques include water injection, natural gas injection, or carbon dioxide injection. Injection is initiated to maintain the reservoir pressure to maintain oil production. The agreement provides for the allocation of production among all the interest owners.

A communitization agreement combines two or more leases (federal, state, or fee) that otherwise could not be independently developed in conformity with established well spacing patterns. The leases within the spacing unit share in the costs and benefits of the well drilled in the spacing unit. Therefore, unit and communitization agreements can lessen the amount of damage to the environment and save dollars by eliminating unnecessary wells, roads, pipelines, and lease equipment.

**Split Estate**

Part of the area included in the planning area contains lands known as split estate lands. These are lands where the surface ownership is different from the mineral ownership. Management of federal oil and gas resources on these lands is somewhat different from management on lands where both surface and mineral ownership is federal. On split estate lands where the surface ownership is private, the BLM places necessary restrictions and requirements on its leases and permit approvals and works in cooperation with the surface owner. BLM has established policies for the management of federal oil and gas resources in accordance with federal laws and regulations.

The BLM does not have the legal authority to regulate how private surface is managed. BLM does have the statutory authority to require measures by lessees to avoid or minimize adverse impacts that may result from federally authorized mineral lease activities. These measures, in the form of lease stipulations or permit conditions of approval, are intended to protect or preserve the privately owned resources and prevent adverse impacts to adjoining lands, not to dictate management to the surface owner. The term split estate can also refer to lands where the surface ownership is federal and the mineral ownership is private. In this situation, BLM is the surface owner, and works in cooperation with the proponent and the state regulatory agency that approves private mineral applications. BLM has responsibilities in this situation under the previously mentioned statutes; however, BLM does not have the authority to approve or disapprove the mineral owner's actions. The mineral estate owner usually has the right to enter the land and use the surface that is necessary and reasonable for mineral development through either a reserved or an outstanding right contained in the deed.



## **Appendix E.10**

### **Guidance and Examples for Oil and Gas Conditions of Approval (COAs)**

Certain activities that are not addressed in lease stipulations may result in surface-disturbing or disruptive activities or create impacts to other resources depending on specific conditions at individual well sites. Some examples include operation and maintenance of wells, restricting the use of reserve pits above shallow water tables, use of diesel fuel and other constituents when drilling, continuous travel to and from well sites and noise associated with these activities.

The following approaches address Conditions of Approval (COAs) that may be developed to mitigate impacts commonly associated with oil and gas activities. These examples are not all inclusive; additional COAs will be developed as needed. These approaches may change as a result of new technology, improved science, changes to Best Management Practices, changes in status of special status species, and a host of other factors. Site-specific conditions on or near the project site may also result in changes to the COA listed below.

- Restricting the use of reserve pits over shallow water tables
- Reserve pits and use of diesel fuel and other constituents
- Operation and Maintenance activities and wildlife timing limit stipulations
- Noise disturbance to sharp-tails and sage grouse or other.



# Appendix E.11

## U.S. Army Corps of Engineers Oil and Gas Lease Stipulations

*Please Note: This set of stipulations was developed by the US Corps of Engineers (COE) for use in oil and gas leases on COE lands along Lake Sakakawea in North Dakota. If any oil and gas parcels are processed for leasing in South Dakota, these stipulations will be modified by the COE for the same purpose on COE lands in South Dakota.*

### Garrison Dam/lake Sakakawea Project, North Dakota Bureau of Land Management

#### Federal Mineral Lease Stipulations

- a. No surface occupancy shall be allowed on those lands below elevation 1855 feet msl (mean sea level) or within 300 feet horizontally from said elevation.
- b. All mineral exploration and production infrastructure shall have a minimum setback of twelve-hundred (1,200) feet from any Tribal, Federal, State, County or private infrastructure. This includes but is not limited to; levees, dams, intakes and buildings.
- c. No surface occupancy shall be allowed on islands located within the flood control pool for Lake Sakakawea, regardless of their elevation.
- d. There are numerous archaeological (cultural and historical) sites on project lands. No surface occupancy will be allowed within a minimum of one-hundred (100) feet of any identified cultural resource site. However, case by case review shall be coordinated through the Riverdale Office Staff Archaeologist located at the Corps of Engineers Project Office in Riverdale, North Dakota, to determine adequate protection.
- e. All lease areas shall be cleared for Threatened and Endangered Species Usage. If any such usage has been documented in the immediate area, mineral exploration activities shall be conditioned in coordination with the Missouri River Recovery Program coordinator located at the Corps of Engineers Project Office in Riverdale, North Dakota.
- f. On those lands, which consist of highly erodible soils, any surface disturbances shall be kept to a minimum. The use of proper engineering practices shall be used to minimize potential soil erosion.
- g. Road construction in association with mineral exploration will be conducted in a manner as primitive as possible, and will be constructed using best engineering practices to minimize surface disturbance.
- h. All fill material required for the exploration or production phase shall be clear of all invasive or noxious weed seeds. Obtaining fill materials from project lands is prohibited.
- i. Any current interior or boundary fence that is located within the lease area shall be maintained, or possibly replaced, to prevent livestock and/or general public from entering the site for their safety.
- j. No surface occupancy will be allowed within twelve-hundred (1,200) feet of any leased or Corps managed recreation or zoned limited development area.
- k. Exploration activities that extend beneath the flood control pool of Lake Sakakawea (1854 feet msl) will require Regulatory review in accordance with Section 10/404 authorities (Rivers and Harbors Act and Clean Waters Act respectively).

## **Required Stipulations in Mineral Leases on Army-Controlled Real Property**

### **CORPS OF ENGINEERS STIPULATION**

1. The Secretary of the Army or designee reserves the right to require cessation of operations if a national emergency arises or if the Army needs the leased property for a mission incompatible with lease operations. On approval from higher authority, the commander will give the lessee written notice or, if time permits, request BLM to give notice of the required suspension. The lessee agrees to this condition and waives compensation for its exercise.
2. If the commander or the commander's authorized representative discovers an imminent danger to safety or security which allows no time to consult BLM, that person may order such activities stopped immediately. The state BLM Director will be notified immediately, will review the order, and will determine the need for further remedial action.
3. If contamination is found in the operating area, the operator will immediately stop work and ask the commander or commander's representative for help.
4. Lessee liability for damage to improvements shall include improvements of the Department of Defense.
5. Before beginning to drill, the lessee must consult with third parties authorized to use real estate in the leased area and must consider programs for which third parties have contractual responsibility.
6. A license to conduct geophysical test on the leased area must be obtained separately from the installation commander or the District Commander.
7. Civil works only: conditions in BLM Form 3109-2, Stipulation for Lands Under Jurisdiction of Department of the Army Corps of Engineers, or successor form.

## **Appendix E.12**

### **Bureau of Reclamation Oil and Gas Lease Stipulations**

Oil and gas lease stipulations for Bureau of Reclamation properties and facilities are shown on the following pages.



Form 3109-1  
(December 1972)  
(formerly 3103-1)

Serial Number \_\_\_\_\_

**LEASE STIPULATIONS**  
**BUREAU OF RECLAMATION**

The lessee agrees to maintain, if required by the lessor during the period of this lease, including any extension thereof, an additional bond with qualified sureties in such sum as the lessor, if it considers that the bond required under Section 2(a) is insufficient, may at any time require:

(a) to pay for damages sustained by any reclamation homestead entryman to his crops or improvements caused by drilling or other operations of the lessee, such damages to include the reimbursement of the entryman by the lessee, when he uses or occupies the land of any homestead entryman, for all construction and operation and maintenance charges becoming due during such use or occupation upon any portion of the land so used and occupied;

(b) to pay any damage caused to any reclamation project or water supply thereof by the lessee's failure to comply fully with the requirements of this lease; and

(c) to recompense any nonmineral applicant, entryman, purchaser under the Act of May 16, 1930 (46 Stat. 367), or patentee for all damages to crops or to tangible improvements caused by drilling or other prospecting operation, where any of the lands covered by this lease are embraced in any nonmineral application, entry, or patent under rights initiated prior to the date of this lease, with a reservation of the oil deposits, to the United States pursuant to the Act of July 17, 1914 (38 Stat. 509).

As to any lands covered by this lease within the area of any Government reclamation project, or in proximity thereto, the lessee shall take such precautions as required by the irrigation under such project or to the water supply thereof; *provided* that drilling is prohibited on any constructed works or right-of-way of the Bureau of Reclamation, and *provided, further*, that there is reserved to the lessor, its successors and assigns, the superior and prior right at all times to construct, operate, and maintain dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, appurtenant irrigation structures, and reclamation works, in which construction, operation, and maintenance, the lessor, its successors and assigns, shall have the right to use any or all of the lands herein described without making compensation therefor, and shall not be responsible for any damage from the presence of water thereon or on account of ordinary, extraordinary, unexpected, or unprecedented floods.

That nothing shall be done under this lease to increase the cost of, or interfere in any manner with, the construction, operation, and maintenance of such works. It is agreed by the lessee that, if the construction of any or all of said dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone or telegraph lines, electric transmission lines, roadways, appurtenant irrigation structures or reclamation works across, over, or upon said lands should be made more expensive by reason of the existence of the improvements and workings of the lessee thereon, said additional expense is to be estimated by the Secretary of the Interior, whose estimate is to be final and

*(continued on reverse)*

binding upon the parties hereto, and that within thirty (30) days

after demand is made upon the lessee for payment of any such sums, the lessee will make payment thereof to the United States, or its successors, constructing such dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, appurtenant irrigation structures, or reclamation works, across, over, or upon said lands; *provided, however*, that subject to advance written approval by the United States, the location and course of any improvements or works and appurtenances may be changed by the lessee; *provided, further*, that the reservations, agreements, and conditions contained in the within lease shall be and remain applicable notwithstanding any change in the location or course of said improvements or works of lessee. The lessee further agrees that the United States, its officers, agents, and employees, and its successors and assigns shall not be held liable for any damage to the improvements or workings of the lessee resulting from the construction, operation, and maintenance of any of the works hereinabove enumerated. Nothing in this paragraph shall be construed as in any manner limiting other reservations in favor of the United States contained in this lease.

THE LESSEE FURTHER AGREES That there is reserved to the lessor, its successors and assigns, the prior right to use any of the lands herein leased, to construct, operate, and maintain dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, or appurtenant irrigation structures, and also the right to remove construction materials therefrom, without any payment made by the lessor or its successors for such right, with the agreement on the part of the lessee that if the construction of any or all of such dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, or appurtenant irrigation structures across, over, or upon said lands or the removal of construction materials therefrom, should be made more expensive by reason of the existence of improvements or workings of the lessee thereon, such additional expense is to be estimated by the Secretary of the Interior, whose estimate is to be final and binding upon the parties hereto, and that within thirty (30) days after demand is made upon the lessee for payment of any such sums, the lessee will make payment thereof to the United States or its successors constructing such dams, dikes, reservoirs, canals, wasteways, laterals, ditches, telephone and telegraph lines, electric transmission lines, roadways, or appurtenant irrigation structures across, over, or upon said lands or removing construction materials therefrom.

The lessee further agrees that the lessor, its officers, agents, and employees and its successors and assigns shall not be held liable for any damage to the improvements or workings of the lessee resulting from the construction, operation, and maintenance of any of the works herein above enumerated. Nothing contained in this paragraph shall be construed as in any manner limiting other reservations in favor of the lessor contained in this lease.

To insure against the contamination of the waters of the \_\_\_\_\_ Reservoir,  
\_\_\_\_\_ Project, State of \_\_\_\_\_, the lessee agrees that  
the following further conditions shall apply to all drilling and operations on lands covered by this lease,  
which lie within the flowage or drainage area of the \_\_\_\_\_ Reservoir, as such area  
is defined by the Bureau of Reclamation:

1. The drilling sites for any and all wells shall be approved by the Superintendent,  
Bureau of Reclamation, \_\_\_\_\_ Project, \_\_\_\_\_ before  
drilling begins. Sites for the construction of pipe-line rights-of-way or other authorized facilities shall also  
be approved by the Superintendent before construction begins.

2. All drilling or operation methods or equipment shall, before their employment,  
be inspected and approved by the Superintendent of the \_\_\_\_\_ Project,  
\_\_\_\_\_, and by the supervisor of the U.S. Geological Survey having jurisdiction over the area.

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GPO 854-703

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GP-135  
Revised (03/2010)

### SPECIAL STIPULATION - BUREAU OF RECLAMATION

To avoid interference with recreation development and/or impacts to fish and wildlife habitat and to assist in preventing damage to any Bureau of Reclamation dams, reservoirs, canals, ditches, laterals, tunnels, and related facilities, and contamination of the water supply therein, the lessee agrees that the following conditions shall apply to all exploration and developmental activities and other operation of the works thereafter on lands covered by this lease:

1. Prior to commencement of any surface-disturbing work including drilling, access road work, and well location construction, a surface use and operations plan will be filed with the appropriate officials. A copy of this plan will be furnished to the Regional Director, Great Plains Region, Bureau of Reclamation, P.O. Box 36900, Billings, MT 59107-6900, for review and consent prior to approval of the plan. Such approval will be conditioned on reasonable requirements needed to prevent soil erosion, water pollution, and unnecessary damages to the surface vegetation and other resources, including cultural resources, of the United States, its lessees, permittees, or licensees, and to provide for the restoration of the land surface and vegetation. The plan shall contain provisions as the Bureau of Reclamation may deem necessary to maintain proper management of the water, recreation, lands structures, and resources, including cultural resources, within the prospecting, drilling, or construction area.

Drilling sites for all wells and associated investigations such as seismograph work shall be included in the above-mentioned surface use and operation plan.

If later explorations require departure from or additions to the approved plan, these revisions or amendments, together with a justification statement for proposed revisions, will be submitted for approval to the Regional Director, Great Plains Region, Bureau of Reclamation, or his/her authorized representative.

Any operations conducted in advance of approval of an original, revised, or amended prospecting plan, or which are not in accordance with an approved plan constitute a violation of the terms of this lease. The Bureau of Reclamation reserves the right to close down operations until such corrective action, as is deemed necessary, is taken by the lessee.

2. No occupancy of the surface of the following excluded areas is authorized by this lease. It is understood and agreed that the use of these areas for Bureau of Reclamation purposes is superior to any other use. The following restrictions apply only to mineral tracts located within the boundary of a Bureau of Reclamation project, where the United States owns 100 percent of the fee mineral interest in said tract, or tracts.

- a. Within 500 feet on either side of the centerline of any and all roads or highways within the leased area.
- b. Within 200 feet on either side of the centerline of any and all trails within the leased area.
- c. Within 500 feet of the normal high-water line of any and all live streams in the leased area.
- d. Within 400 feet of any and all recreation developments within the leased area.
- e. Within 400 feet of any improvements either owned, permitted, leased, or otherwise authorized by the Bureau of Reclamation within the leased area.
- f. Within 200 feet of established crop fields, food plots, and tree/shrub plantings within the leased area.
- g. Within 200 feet of slopes steeper than a 2:1 gradient within the leased area.
- h. Within established rights-of-way of canals, laterals, and drainage ditches within the leased area.
- i. Within a minimum of 500 feet horizontal from the centerline of the facility or 50 feet from the outside toe of the canal, lateral, or drain embankment, whichever distance is greater, for irrigation facilities without clearly marked rights-of-way within the leased area.

3. No occupancy of the surface or surface drilling will be allowed in the following areas. In addition, no directional drilling will be allowed that would intersect the subsurface zones delineated by a vertical plane in these areas. The following restrictions apply only to mineral tracts, located within the boundary of a Bureau of Reclamation project, where the United States owns 100 percent of the fee mineral interest in said tract, or tracts.

- a. Within 1,000 feet of the maximum water surface, as defined in the Standard Operating Procedures (SOP), of any reservoirs and related facilities located within the leased area.
- b. Within 2,000 feet of dam embankments and appurtenance structures such as spillway structures, outlet works, etc.
- c. Within one-half (1/2) mile horizontal from the centerline of any tunnel within the leased area.

4. The distances stated in items 2 and 3 above are intended to be general indicators only. The Bureau of Reclamation reserves the right to revise the distances as needed to protect Bureau of Reclamation facilities.

5. The use of explosives in any manner shall be so controlled that the works and facilities of the United States, its successors and assigns, will in no way be endangered or damaged. In this connection, an explosives use plan shall be submitted to and approved by the Regional Director, Great Plains Region, Bureau of Reclamation, or his/her authorized representative.

6. The lessee shall be liable for all damage to the property of the United States, its successors or assigns, resulting from the exploration, development, or operation of the works contemplated by this lease, and shall further hold the United States, its successors or assigns, and its officers, agents, and employees, harmless from all claims of third parties for injury or damage sustained or in any way resulting from the exercise of the rights and privileges conferred by the lease.

7. The lessee shall be liable for all damages to crops or improvements of any entryman, nonmineral applicant, or patentee, their successors or assigns, caused by or resulting from the drilling or other operations of the lessee, including reimbursement of any entryman or patentee, their successors or assigns, for all construction, operation, and maintenance charges becoming due on any portion of their said lands damaged as a result of the drilling or other operation of the lessee.

8. In addition to any other bond required under the provisions of this lease, the lessee shall provide such bond as the United States may at any time require for damages which may arise under the liability provisions of Section six (6) and seven (7) above.

## Appendix F

### Visual Resource Management Classes and Acres by Alternative of Inventoried Values

**Class I (1) Objective** – The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Examples of restrictions: No surface occupancy or use, safety or maintenance structures made of native material, limits on facility heights, lighting limitations, etc.

**Class II (2) Objective** – The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape.

Examples of restrictions: No surface occupancy, use limited to temporary surface disturbing activities such as timber harvest and outfitter camps, restrictions on facility site locations and heights, lighting limitations, etc.

**Class III (3) Objective** – The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Examples of restrictions: Controlled surface use by evaluating and limiting facility location, require camouflage or earth tone paint, timing limitations, lighting limitations, etc.

**Class IV (4) Objective** – The objective of this class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements of form, line, color, and texture in the natural characteristic landscape.

Examples of restrictions: Controlled surface use by facility location limitations, requirement of camouflage or earth tone paint, lighting restrictions, etc.

### Acres by Alternative of Inventoried Values

The Visual Resource Inventory (VRI) class is one of the main components of VRM. BLM-administered lands are placed into one of four VRI classes that represent the relative value of the visual resources and provide the basis for considering visual values in the resource management planning process. VRI class I is assigned to areas with a special designation where a natural landscape is desired. VRI classes II, III, and IV are assigned based on a combination of scenic quality, sensitivity level, and distance-zone overlays to assign the proper class.

For the planning area there 313 acres in VRI class I, 10,630 acres in VRI class II, 10,691 acres in VRI class III, and 252,535 acres in VRI class IV. The acres (approximate) by rating value are:

<i>Scenic Quality Rating</i>	<i>Acres</i>
A	4,427
B	58,828
C	211,095

<i>Sensitivity Level</i>	<i>Acres</i>
High	37,985
Moderate	203,677
Low	32,508

<i>Distance Zones</i>	<i>Acres</i>
Foreground/ Middleground	89,612
Background	155,500
Seldom Seen	29,057

The values incorporated in determining VRI class are displayed below by VRM class by alternative in acres.

<b>Scenic Quality Rating by VRM by Alternative (Acres)</b>												
	<i>Alternative A</i>			<i>Alternative B</i>			<i>Alternative C</i>			<i>Alternative D</i>		
	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>
A	1,204	0	0	1,204	0	3,034	4,247	0	0	1204	3043	0
B	0	4,876	530	313	5,168	53,346	7,332	40,225	11,271	313	7202	51,312
C	0	0	0	0	0	0	0	141,596	69,499	0	0	211,095

<b>Sensitivity Level Rating by VRM by Alternative (Acres)</b>												
	<i>Alternative A</i>			<i>Alternative B</i>			<i>Alternative C</i>			<i>Alternative D</i>		
	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>
Hi	0	0	313	313	0	37,671	2,620	6,917	28,447	313	2,600	35,072
Mod	1,204	0	0	1204	0	202,473	2,555	16,804	34,316	1,204	246	202,227
Low	0	4,876	217	0	5,168	27,340	6,403	8,098	18,007	0	7,400	25,108

<b>Distance Zone Rating by VRM by Alternative (Acres)</b>												
	<i>Alternative A</i>			<i>Alternative B</i>			<i>Alternative C</i>			<i>Alternative D</i>		
	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>	<i>VRM II</i>	<i>VRM III</i>	<i>VRM IV</i>
F/M	1,204	0	512	1,517	0	88,094	5,263	49,603	34,744	1,517	2,847	85,247
BG	0	0	0	0	0	155,500	0	122,919	32,580	0	0	155,500
SS	0	4,876	18	0	5,168	23,889	6,315	9,297	13,445	0	7,398	21,659

## Appendix G

### South Dakota Field Office Grazing Allotment Allocations

Livestock would be allocated between approximately 73,400 animal unit months (AUMs) and 77,300 AUMs of forage each year from BLM land in the planning area. The current livestock allocations for the planning area are shown in the table below. All of the leases listed are Section 15 grazing leases except for certain leases with Allotments that span across state boundaries from South Dakota into Montana or Wyoming.

<i>Allotment Number</i>	<i>Allotment Name</i>	<i>Allotment Category</i>	<i>Public Acres</i>	<i>Public AUMs</i>	<i>Livestock Class</i>	<i>County</i>
01221	RIDGE	I	101	27	CATTLE	HARDING
02206	PINE CREEK	I	4374	1177	CATTLE	MEADE
02214	WHIMMER WHAMMER	I	4846	1470	CATTLE	MEADE
02215	PEDRO	I	2097	699	CATTLE	PENNINGTON
02223	BULL CREEK	I	1125	236	CATTLE	MEADE
02308	WILLOW CR. LATERIAL	I	400	126	CATTLE	BUTTE
02401	FLAT TOP	I	4440	1246	CATTLE & SHEEP	BUTTE
02402	BEAN BLOSSOM CREEK	I	1382	328	SHEEP	BUTTE
02403	SEIM RANCH EAST	I	2424	668	SHEEP	BUTTE
02409	OPOSIUM HOLLOW	I	2935	790	CATTLE & SHEEP	BUTTE
02413	E. CROOKED CREEK	I	737	181	SHEEP	BUTTE
02419	UPPER ALKALI	I	720	178	SHEEP	HARDING
02432	SHORT CREEK	I	1931	449	CATTLE	BUTTE
02438	FOWLER	I	940	194	CATTLE	BUTTE
02443	JEEP TRAIL	I	1669	355	CATTLE	BUTTE
02457	BIRD	I	120	24	CATTLE	PERKINS
02473	SEIM RANCH WEST	I	2094	618	CATTLE	BUTTE
03221	WHITEWOOD CREEK	I	258	60	CATTLE	LAWRENCE
07213	TOWN SITE	I	665	84	CATTLE	FALL RIVER
07235	WATAWA-EAST	I	1181	380	CATTLE	BUTTE
07268	BADLANDS	I	2779	499	CATTLE	PENNINGTON, MEADE
01740	SPUR CREEK	M	1215	361	CATTLE & SHEEP	BUTTE
01756	CROCKETT MOUNTAINS	M	2459	796	CATTLE	STANLEY
01759	FOSTER CREEK	M	1252	439	CATTLE	STANLEY
01794	BUFFALO CREEK	M	1200	311	SHEEP	HARDING
02205	E. BADLANDS	M	1200	206	CATTLE	MEADE
02213	HILL TOP	M	482	168	CATTLE	PENNINGTON
02220	BOURNE DRAW	M	1608	546	CATTLE	PENNINGTON
02224	DEEP CREEK	M	487	179	CATTLE	PENNINGTON
02225	DEEP CREEK	M	480	172	CATTLE	PENNINGTON
02226	WHEAT DRAW	M	720	234	CATTLE	PENNINGTON
02228	FOURMILE	M	2020	505	CATTLE	BUTTE
02301	B. FOURCHE RIVER	M	1222	379	CATTLE	BUTTE,

<i>Allotment Number</i>	<i>Allotment Name</i>	<i>Allotment Category</i>	<i>Public Acres</i>	<i>Public AUMs</i>	<i>Livestock Class</i>	<i>County</i>
						MEADE
02302	TOWER	M	4836	1458	CATTLE	BUTTE
02304	BUTTE CREEK	M	1000	302	CATTLE	BUTTE
02309	WILLOW	M	680	210	CATTLE	BUTTE
02310	FOUR MILE CREEK	M	2241	698	CATTLE & SHEEP	BUTTE
02311	WATTAWA-WEST	M	880	188	CATTLE	BUTTE
02404	FROZEN HORSE	M	4603	1105	SHEEP	BUTTE
02407	CRAGO	M	10392	3216	CATTLE	BUTTE
02408	WATSON DRAW	M	387	117	CATTLE	BUTTE
02410	ROCKY BUTTE	M	748	205	CATTLE	BUTTE
02411	HOEYE	M	1640	516	CATTLE	BUTTE
02417	PORCUPINE CR.	M	9781	2465	CATTLE & SHEEP	BUTTE
02420	HITZEL	M	981	237	CATTLE	BUTTE
02421	TWO TOP	M	1284	272	CATTLE	BUTTE
02424	JONES/MUD BUTTE	M	981	306	CATTLE	BUTTE
02425	S.F. MOREAU	M	1240	351	CATTLE & SHEEP	HARDING
02430	T.T. BUTTE	M	4154	1018	CATTLE	BUTTE
02433	WATSON DRAW	M	2431	505	CATTLE	BUTTE
02435	MOREAU	M	19710	4768	CATTLE & SHEEP	BUTTE, HARDING
02439	2-TOP	M	845	143	CATTLE	BUTTE
02440	REID	M	755	163	CATTLE & HORSES	BUTTE
02444	BATTLE CREEK	M	1749	478	CATTLE	BUTTE
02446	GREASEWOOD	M	1347	370	SHEEP	BUTTE
02447	SOUTH INDIAN	M	720	163	CATTLE & SHEEP	BUTTE
02448	NORTH BUTTE	M	7978	1969	CATTLE, SHEEP & HORSES	BUTTE
02450	PERSCHE	M	723	225	CATTLE	BUTTE
02460	ANTELOPE CREEK	M	5534	1541	CATTLE	BUTTE
02470	CUT BLADE	M	1960	404	CATTLE	BUTTE
02491	ALKALI	M	996	252	SHEEP	HARDING
02495	TRUSSMAN	M	320	100	CATTLE	MEADE
02496	LOWER ELM CREEK	M	1360	402	CATTLE	BUTTE
02501	FT MEADE	M	2790	562	CATTLE	MEADE
02502	BEAR BUTTE	M	2990	1261	CATTLE	MEADE
02703	HUDDLESTON CREEK	M	501	131	CATTLE	MEADE
02723	ELM CREEK	M	2702	851	CATTLE	MEADE
02763	ORTON FLAT	M	719	90	CATTLE	STANLEY
02771	PLEASANT VALLEY	M	1977	229	CATTLE	HARDING
02780	JUMP OFF	M	1951	462	CATTLE & SHEEP	HARDING

<i>Allotment Number</i>	<i>Allotment Name</i>	<i>Allotment Category</i>	<i>Public Acres</i>	<i>Public AUMs</i>	<i>Livestock Class</i>	<i>County</i>
03222	HILDERBRAND	M	1760	407	CATTLE	BUTTE
07222	IRON POST BUTTES	M	800	266	CATTLE	STANLEY
07252	T.Y.	M	520	82	CATTLE	FALL RIVER
07253	S. WILLOW CREEK	M	960	190	CATTLE & BISON	BUTTE
07332	RAMEY	M	1442	329	CATTLE	BUTTE
10234	INDIAN CREEK	M	136	60	CATTLE	BUTTE
00816	L/E FOX	C	160	44	CATTLE & SHEEP	HARDING
00825	FOX RANCH	C	160	48	CATTLE	HARDING
00924	FERGUSON	C	1440	384	CATTLE	HAAKON
00929	BUCK	C	40	14	CATTLE	BUTTE
00931	HAYSTACK BUTTE	C	996	302	CATTLE	BUTTE
00932	CLOUD	C	160	43	CATTLE	HARDING
00949	BERDAN	C	200	70	CATTLE	PENNINGTON
00954	PAINTED HORSE	C	200	59	CATTLE	STANLEY
00971	COOK	C	600	171	CATTLE	BUTTE
00996	LINER	C	240	81	CATTLE	PENNINGTON
00997	GOVERNMENT DRAW	C	80	26	CATTLE	STANLEY
01701	HERD CAMP	C	280	87	CATTLE	STANLEY
01702	BEAVER DAM	C	1413	230	CATTLE & SHEEP	HARDING
01703	OWL BUTTE	C	608	203	CATTLE	BUTTE
01704	WOLF SPRING CREEK	C	916	230	CATTLE	PERKINS
01705	LODGEPOLE	C	40	14	CATTLE	HARDING
01706	MAGPIE	C	160	44	CATTLE	BUTTE
01707	CAMPBELL CREEK	C	76	19	CATTLE	HARDING
01708	MOREAU RIVER RANCH	C	40	12	CATTLE	BUTTE
01709	DOUBLE R	C	443	157	CATTLE	BUTTE
01710	HAY CREEK	C	80	22	CATTLE & SHEEP	BUTTE
01711	MCKENZIE BUTTE	C	240	72	CATTLE & SHEEP	HARDING
01712	COTTONWOOD	C	80	22	CATTLE	HARDING
01713	BRUSH CREEK WEST	C	240	56	CATTLE & SHEEP	HARDING
01714	DEER RUN	C	480	160	CATTLE	
01715	BLUE SKY	C	160	44	CATTLE	BUTTE
01716	L. MISSOURI RIVER	C	200	50	CATTLE	HARDING
01717	JOHNNY CREEK	C	40	12	CATTLE	MEADE
01718	MAVERICK JUNCTION	C	80	10	CATTLE	FALL RIVER
01719	BRIDGER CREEK	C	80	27	CATTLE	HARDING
01720	SE OWL CREEK	C	196	74	CATTLE	BUTTE
01721	SADDLE BUTTE	C	120	41	CATTLE	HARDING
01722	HAWK CREEK	C	440	152	SHEEP	HARDING
01723	CLARKS FORK	C	148	34	CATTLE	HARDING
01725	JONES CREEK	C	560	178	CATTLE	HARDING

<i>Allotment Number</i>	<i>Allotment Name</i>	<i>Allotment Category</i>	<i>Public Acres</i>	<i>Public AUMs</i>	<i>Livestock Class</i>	<i>County</i>
01726	TABLE TOP	C	23	8	CATTLE	BUTTE
01727	SF JUMPOFF	C	40	12	CATTLE	HARDING
01728	LITTLE MISSOURI	C	222	47	CATTLE	HARDING
01729	FOOTHILLS	C	232	73	CATTLE	CUSTER
01730	HATCHET RANCH	C	40	11	CATTLE & HORSES	CUSTER
01731	LARIAT	C	787	247	BISON	STANLEY
01732	TWIN FLOWER	C	279	83	CATTLE	PERKINS
01733	BUNCHGRASS	C	40	14	CATTLE	MEADE
01734	ARNETT CREEK	C	335	83	CATTLE	HARDING
01735	BOYDSON DRAW	C	640	230	CATTLE	MEADE
01736	HERFORD	C	600	191	CATTLE	MEADE
01737	FAIRPOINT	C	40	12	CATTLE	MEADE
01738	NORTH CANAL	C	40	13	SHEEP	BUTTE
01739	SOUTH TABLE TOP	C	329	115	CATTLE	BUTTE
01741	BLUEBIRD	C	280	73	CATTLE & SHEEP	PERKINS
01742	DOGIE CREEK	C	518	126	BISON	HARDING
01743	PETES CREEK	C	80	25	CATTLE	HARDING
01744	ARROWHEAD BUTTE	C	160	39	CATTLE	PERKINS
01745	WOLF SPRINGS CREEK	C	80	16	CATTLE	PERKINS
01746	LAUZON	C	234	42	CATTLE	CUSTER
01747	COTTONWOOD	C	160	25	CATTLE	FALL RIVER
01748	ELM SPRINGS	C	120	29	CATTLE	MEADE
01749	LITTLE CANYON	C	133	42	CATTLE	PENNINGTON
01750	STANDING BUTTE	C	320	85	CATTLE	STANLEY
01751	HAWK CREEK	C	160	12	CATTLE & SHEEP	HARDING
01752	TRIPLE TWO	C	120	33	CATTLE & SHEEP	MEADE
01753	WHITEWOOD	C	40	7	CATTLE	LAWRENCE
01754	SKULL CREEK	C	80	27	CATTLE	HARDING
01755	SHEEP MOUNTAIN	C	440	143	CATTLE & SHEEP	HARDING
01757	WHEAT FARM	C	120	35	CATTLE	BUTTE
01758	HAYSACK BUTTES	C	360	112	CATTLE	BUTTE
01760	OAHE	C	240	82	CATTLE	STANLEY
01761	ELM TREE DRAW	C	40	13	CATTLE	HAAKON
01762	FOUR CORNERS	C	40	14	CATTLE	MEADE
01763	HOOVER	C	720	188	CATTLE & SHEEP	HARDING, BUTTE
01764	CHIMNEY BUTTE	C	360	95	CATTLE	HARDING
01765	CROOKED CREEK	C	80	24	SHEEP	HARDING
01766	NORTH MACY	C	401	95	CATTLE & SHEEP	BUTTE
01767	STATION ELM	C	654	189	CATTLE	BUTTE
01768	BIG NASTY CREEK	C	40	13	CATTLE	HARDING

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01769	MUD ELM	C	185	58	CATTLE	BUTTE
01770	HARDING CREEK	C	40	14	CATTLE	HAAKON
01771	C. RIVER	C	52	17	CATTLE	PENNINGTON
01772	HUGHES	C	120	38	CATTLE	MEADE
01773	DODGE DRAW	C	120	38	CATTLE & SHEEP	HARDING
01774	WILLOW CREEK	C	194	53	CATTLE	STANLEY
01775	DRY FOUR MILE	C	40	3	CATTLE	MEADE
01776	BURDOCK	C	280	48	CATTLE	FALL RIVER
01777	BIG CANYON	C	280	70	CATTLE	PENNINGTON
01779	ALKALI ROAD	C	320	114	CATTLE	MEADE
01780	SOUTH HWY	C	280	81	CATTLE	HARDING
01781	LANCE CREEK	C	80	26	CATTLE	STANLEY
01782	THREE TREE DRAW	C	80	20	CATTLE	PENNINGTON
01783	BENTON STRIP	C	80	6	CATTLE	BUTTE
01784	WEST BRANCH	C	40	12	CATTLE	MEADE
01785	FAULKNER	C	40	12	CATTLE	HARDING
01786	WILLOW CREEK	C	160	48	CATTLE	BUTTE
01787	RED OWL CREEK	C	104	34	CATTLE	MEADE
01788	OWL CREEK	C	240	38	CATTLE	BUTTE
01789	EDGEMONT	C	120	19	CATTLE	FALL RIVER
01790	FOSSIL CYCAD	C	320	97	CATTLE	FALL RIVER
01791	SECTION 24	C	120	14	CATTLE	CUSTER
01792	CLARKS FORK	C	400	115	CATTLE	HARDING
01795	RIDGE	C	80	22	CATTLE	BUTTE
01796	DEADHORSE CANYON	C	280	81	CATTLE	FALL RIVER
01797	DANBURY	C	80	20	CATTLE	PENNINGTON
01798	CEDAR CANYON	C	520	124	CATTLE	PERKINS
01799	PONY	C	494	166	CATTLE	MEADE
01800	BOG CREEK	C	40	10	CATTLE	HARDING
02200	AGENCY CREEK	C	280	112	CATTLE	STANLEY
02201	HALFMOON	C	918	247	CATTLE	PENNINGTON
02203	HILL	C	640	215	SHEEP	BUTTE
02204	POVERTY POINT	C	137	43	CATTLE	MEADE
02207	SAGE	C	720	203	CATTLE	MEADE
02208	HAMMANN LAKE	C	40	13	CATTLE	PENNINGTON
02209	BOURNE DRAW	C	520	171	CATTLE	PENNINGTON
02211	GUNSMOKE	C	680	222	CATTLE	PENNINGTON
02212	MUD BUTTE	C	120	32	CATTLE	MEADE
02216	MIXES FOOD CREEK	C	1040	377	CATTLE	PENNINGTON
02217	EAST KILLDEER	C	560	173	CATTLE	MEADE
02218	POISON WEED	C	3557	1148	CATTLE	PENNINGTON
02219	RIVER FLAT	C	280	73	CATTLE	MEADE
02221	WEST TEPEE CREEK	C	80	49	CATTLE	MEADE
02227	BATTLE MTN	C	80	16	CATTLE	FALL RIVER
02303	COOK	C	520	179	SHEEP	BUTTE

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02305	JUG CREEK	C	200	70	CATTLE & SHEEP	BUTTE
02306	EIGHTMILE	C	150	50	CATTLE	BUTTE
02307	TIMM-NORTH	C	402	139	CATTLE	BUTTE
02405	SHORT PINE	C	840	209	CATTLE & SHEEP	HARDING
02406	COLLINS PLACE	C	480	120	CATTLE	HARDING
02412	ARPAN ROAD	C	40	7	CATTLE	BUTTE
02414	FOX	C	1159	396	CATTLE & SHEEP	BUTTE, HARDING
02415	STATELINE	C	75	20	CATTLE	BUTTE
02418	INDIAN CREEK	C	470	116	CATTLE	BUTTE
02422	HT	C	650	186	SHEEP	BUTTE
02423	FLAT ROCK	C	80	24	CATTLE	BUTTE
02426	MACY	C	920	276	CATTLE & SHEEP	BUTTE
02428	OWL CREEK	C	580	107	CATTLE	BUTTE
02429	DUNN-BURKE	C	591	144	CATTLE & SHEEP	BUTTE
02431	N. INDIAN CR.	C	97	26	CATTLE	BUTTE
02434	GUIDINGER	C	960	140	CATTLE	BUTTE
02436	HORSE CREEK EAST	C	405	120	CATTLE	BUTTE
02441	WELFRING	C	120	36	CATTLE	BUTTE
02442	RONNING DRAW	C	916	205	CATTLE & SHEEP	BUTTE
02445	SPOKE	C	621	172	CATTLE & SHEEP	BUTTE
02449	WILLOW CREEK	C	160	44	CATTLE	BUTTE
02451	LONETREE CR.	C	40	15	CATTLE	BUTTE
02452	MIDDLE CREEK	C	80	20	CATTLE	BUTTE
02453	TIMBER CREEK	C	800	240	CATTLE	MEADE
02454	HORSE CR.	C	156	54	CATTLE	BUTTE
02456	BREAKNECK HILL	C	40	8	CATTLE	FALL RIVER
02471	HOVERMALE	C	40	5	CATTLE	CUSTER
02472	TWIN EIGHTY	C	160	53	CATTLE	MEADE
02478	HOME RANCH EAST	C	200	50	SHEEP	BUTTE
02492	TWENTYONE DIVIDE	C	80	20	CATTLE	FALL RIVER
02493	WOLF SPRING CREEK	C	120	34	CATTLE	PERKINS
02494	RADIO TOWER	C	40	11	CATTLE	HARDING
02497	RANCHSIDE	C	280	79	CATTLE	MEADE
02498	DUCK CREEK	C	144	59	CATTLE	HARDING
02499	FROG CREEK	C	480	150	SHEEP	BUTTE
02604	TORNADO (RIFLE RANGE)	C	275	92	CATTLE	LAWRENCE
02610	LEXINGTON HILL	C	357	40	CATTLE	LAWRENCE
02625	SHEEPTAIL GULCH	C	8	32	HORSES	LAWRENCE
02700	ELM CREEK	C	80	26	CATTLE	BUTTE

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02701	EIGHTMILE CREEK	C	80	28	CATTLE & SHEEP	BUTTE
02702	DRAW CREEK	C	40	8	CATTLE	BUTTE
02704	SOUTH SULPHUR CREEK	C	720	247	SHEEP	BUTTE
02705	COW CREEK	C	320	63	CATTLE	PENNINGTON
02706	BAD RIVER	C	615	195	BISON	STANLEY
02707	MADISON CREEK	C	101	28	CATTLE	PENNINGTON
02708	RABBIT BUTTE	C	40	13	CATTLE	PERKINS
02709	HACKAMORE	C	400	120	CATTLE	HARDING
02710	BRUSH CREEK	C	350	99	CATTLE	HARDING
02711	RED CANYON	C	79	24	CATTLE	FALL RIVER
02712	ROCK CREEK	C	80	27	CATTLE	MEADE
02713	SPOKE	C	21	7	CATTLE	HARDING
02714	PALMER DRAW	C	320	88	CATTLE	BUTTE
02715	RECEPTION	C	200	63	CATTLE	MEADE, PENNINGTON
02716	SULPHUR CREEK	C	120	36	CATTLE	MEADE
02717	BUCK PASTURE	C	654	197	CATTLE	BUTTE
02718	BONEITA SPRINGS	C	719	215	CATTLE	MEADE
02719	FLINT ROCK	C	240	79	CATTLE	PERKINS
02720	OFF CENTER	C	1128	343	CATTLE	BUTTE
02721	POLE	C	880	150	CATTLE	BUTTE
02722	OWANKA	C	40	12	CATTLE	PENNINGTON
02724	W. ELM CREEK	C	240	58	CATTLE	BUTTE, MEADE
02725	BROKEN BOOT	C	160	48	CATTLE	PENNINGTON
02726	DALZELL CANYON	C	583	196	CATTLE	PENNINGTON
02727	SOFT WATER	C	120	40	CATTLE	MEADE
02728	SOFT WATER	C	40	12	CATTLE & SHEEP	HARDING
02729	BRUSHY	C	80	18	CATTLE	PERKINS
02730	MISSION RIDGE	C	734	247	CATTLE	STANLEY
02731	BADLANDS	C	160	8	CATTLE	PERKINS
02732	FROZEN MAN	C	40	12	CATTLE	MEADE
02733	ELM CREEK	C	1008	181	CATTLE & HORSES	FALL RIVER
02735	BREAKS	C	70	20	CATTLE	STANLEY
02736	BRANDING IRON	C	1040	335	BISON	STANLEY
02737	ALKALI ROAD	C	440	146	CATTLE	MEADE
02738	LITTLE MISSOURI	C	40	13	CATTLE & SHEEP	HARDING
02739	SORGHUM FLAT	C	110	18	HORSES	FALL RIVER
02740	BIG BUCK	C	40	7	CATTLE	LAWRENCE
02741	MNSD	C	440	100	SHEEP	HARDING
02742	CROW CREEK	C	177	49	CATTLE	BUTTE
02743	HOME PLACE	C	40	11	SHEEP	HARDING

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02744	ROUND-UP	C	240	70	CATTLE & SHEEP	BUTTE
02745	SOUTH HAYSTACK BUTTE	C	320	82	CATTLE	BUTTE
02746	NORTH COWBOY	C	40	10	CATTLE	HARDING
02747	ANDERSON DRAW	C	77	23	CATTLE	PENNINGTON
02748	WILLOW CREEK	C	360	90	CATTLE	BUTTE
02749	MISSION CREEK	C	1160	355	CATTLE	STANLEY
02750	BIXBY CAMP	C	360	105	CATTLE	PERKINS
02751	DUNN	C	40	12	CATTLE & SHEEP	BUTTE, HARDING
02752	JACK RABBIT	C	240	78	CATTLE	MEADE
02753	CROW CREEK	C	530	177	CATTLE	BUTTE
02754	GEIGLE	C	491	168	CATTLE	PENNINGTON
02755	SULPHUR BUTTE	C	600	166	CATTLE & SHEEP	BUTTE
02756	WAGON CREEK	C	133	38	CATTLE	HARDING
02757	WAGON CREEK NORTH	C	77	20	CATTLE	HARDING
02758	SHANTY BREAKS	C	160	53	CATTLE	HAAKON
02759	SOUTH CREEK	C	160	53	CATTLE	HAAKON
02760	SHARPTAIL	C	200	69	CATTLE	MEADE
02761	STARVE OUT CREEK	C	80	17	CATTLE	PERKINS
02762	TRIBUTARY	C	521	104	CATTLE	BUTTE
02764	FINGER RIDGES	C	160	54	CATTLE	MEADE
02765	NASTY CREEK	C	40	11	SHEEP	HARDING
02766	FLINT ROCK	C	80	27	CATTLE	PERKINS
02767	FAULKNER CREEK	C	320	72	CATTLE	HARDING
02768	ELM CREEK	C	982	290	CATTLE	BUTTE
02769	HANS CREEK	C	440	140	CATTLE	BUTTE
02772	SOUTH SULFUR CREEK	C	600	209	CATTLE	BUTTE
02773	HAWK CANYON	C	80	28	CATTLE	PENNINGTON
02774	JACK CREEK	C	80	24	SHEEP	HARDING
02775	FALL RIVER	C	40	6	CATTLE	FALL RIVER
02776	SLY FOX	C	660	186	CATTLE	PERKINS
02777	PLUM	C	160	48	CATTLE	STANLEY
02778	RED BUTTE	C	280	84	BISON	HARDING
02779	WILDCAT	C	438	124	CATTLE	BUTTE
02781	LUIS CREEK	C	209	74	CATTLE	HAAKON
02782	SECTION 34	C	80	29	CATTLE	BUTTE
02783	COUNTY LINE	C	240	48	CATTLE	FALL RIVER
02784	SAND DRAW	C	301	72	CATTLE	MEADE, PENNINGTON
02785	S. GRAND RIVER	C	359	76	CATTLE & BISON	HARDING
02787	MILESVILLE	C	80	26	CATTLE	HAAKON
02788	N. SLICK CREEK	C	40	9	CATTLE	HARDING

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02789	SWAN DRAW	C	473	139	CATTLE & HORSES	PERKINS
02790	CLARKS FORK	C	160	49	CATTLE & SHEEP	HARDING
02791	RIVER	C	480	84	HORSES	FALL RIVER
02792	SF GRAND RIVER	C	160	43	CATTLE	HARDING
02794	GRIZZ	C	80	24	CATTLE	HARDING
02795	PROFILE BUTTE	C	234	57	CATTLE	HARDING
02796	LITTLE COWBOY CREEK	C	360	121	CATTLE	HARDING
02797	SF GRAND	C	120	41	CATTLE & HORSES	HARDING
02798	ROUNDTOP	C	400	130	CATTLE	STANLEY
02799	WRANGLER	C	309	44	CATTLE	HARDING
02804	MISSOURI	C	280	69	CATTLE	BRULE
02805	BIJOU	C	200	50	CATTLE	BRULE
02806	BENCHMARK	C	80	25	CATTLE	MEADE
03089	FORK DAM	C	280	78	CATTLE	BUTTE
03119	RUMFORD	C	80	8	CATTLE	FALL RIVER
03134	BREAKS	C	396	132	CATTLE	HAAKON
03175	BC	C	160	38	CATTLE	BUTTE
03183	COUNTY CORNER	C	80	26	CATTLE	BUTTE
03200	LINDSAY BUTTE	C	753	252	CATTLE	STANLEY
03201	BRUSH CREEK	C	520	157	CATTLE	STANLEY
03202	SCHOEPP FLAT	C	280	93	CATTLE	BUTTE
03215	ARGENTINE	C	80	12	CATTLE	FALL RIVER
03218	HOME RANCH WEST	C	40	10	CATTLE	BUTTE
03226	WEST RIVER	C	480	98	CATTLE	FALL RIVER
03227	THREE PARCEL	C	480	440	CATTLE	MEADE
03330	NORTH HWY	C	40	14	CATTLE	HARDING
07200	MAMOTH	C	40	5	CATTLE	FALL RIVER
07201	LOST	C	920	298	SHEEP	BUTTE
07202	BAMS BUTTE	C	160	47	CATTLE	HARDING
07203	BLACKROOT	C	160	53	CATTLE	HAAKON
07204	LONETREE	C	240	71	CATTLE & SHEEP	BUTTE
07205	SOUTH DOUBLE R	C	472	156	CATTLE	BUTTE
07206	PATS DRAW	C	592	151	CATTLE	PENNINGTON
07207	CLARKS FORK CREEK	C	40	10	CATTLE	HARDING
07208	PD	C	160	33	CATTLE	FALL RIVER
07209	BULL CREEK	C	37	11	CATTLE	HARDING
07210	F. ROCK CREEK	C	635	172	CATTLE	PERKINS
07211	HIGHWAY 73	C	40	14	CATTLE	JACKSON
07212	BIG CEDAR	C	521	163	CATTLE	PERKINS
07214	BEAVER CREEK	C	120	11	CATTLE	FALL RIVER
07215	LITTLE CEDAR	C	600	129	CATTLE	PERKINS
07216	RIVERSIDE	C	87	21	CATTLE	HARDING
07217	SPRING	C	39	13	CATTLE	HARDING

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07218	SEAL DRAW	C	904	234	CATTLE & SHEEP	HARDING
07219	GRAVEL	C	40	14	CATTLE	BUTTE
07220	SNAKE CREEK	C	120	43	CATTLE	STANLEY
07223	QUINN TABLE	C	319	100	CATTLE	PENNINGTON
07224	LITTLE ARROW	C	120	39	CATTLE	PENNINGTON
07225	TELEGRAPH DRAW	C	921	227	CATTLE	MEADE
07226	BIG SKY	C	75	25	CATTLE	HARDING
07227	HELL CANYON	C	2335	503	CATTLE & BISON	CUSTER
07228	SECTION 8	C	80	20	CATTLE	FALL RIVER
07229	MINNECONJOU	C	680	206	CATTLE	STANLEY
07230	WARREN CREEK	C	120	31	CATTLE	BUTTE
07231	HANSON	C	120	36	CATTLE	HARDING
07232	BOX ELDER	C	240	78	CATTLE	BUTTE
07233	ORTON FLAT	C	303	100	CATTLE	STANLEY
07234	GRAND RIVER	C	200	51	CATTLE	HARDING
07236	RC	C	80	25	CATTLE	BUTTE
07237	TRIPLE THREE	C	200	60	CATTLE	MEADE
07238	BARKER	C	398	142	SHEEP	BUTTE
07239	SUNNYSIDE	C	120	36	CATTLE	PENNINGTON
07241	BEAVER CREEK	C	73	18	CATTLE	FALL RIVER
07242	SLICK CREEK	C	40	10	CATTLE	HARDING
07243	RED OWL CREEK	C	520	158	CATTLE	MEADE
07244	LAKE CREEK	C	240	23	CATTLE	PENNINGTON
07245	COWBOY CREEK	C	840	228	CATTLE	HARDING
07246	RABBIT CREEK	C	120	38	CATTLE & BISON	PERKINS
07247	LITTLE DRAW	C	80	24	CATTLE	PENNINGTON
07248	POVERTY POINT	C	70	22	CATTLE	MEADE
07249	RIVER	C	60	9	CATTLE	FALL RIVER
07250	GRAND RIVER	C	118	31	CATTLE	HARDING
07251	ELK CREEK	C	80	27	CATTLE	MEADE
07255	STAGE HILL	C	240	40	CATTLE	FALL RIVER
07257	WILLUWEIT	C	40	12	CATTLE	PENNINGTON
07258	ANGUSTORA	C	15	3	CATTLE	FALL RIVER
07259	S. CAVE HILLS	C	280	88	CATTLE	HARDING
07260	SHOULDER CREEK	C	80	24	CATTLE	STANLEY
07261	BUCK SKIN	C	160	50	CATTLE	MEADE
07262	HOLLOW	C	37	13	CATTLE	BUTTE
07263	CHANTIER	C	882	232	CATTLE	STANLEY
07264	SANSARC	C	440	147	CATTLE	STANLEY
07265	SAGE CREEK	C	119	20	CATTLE	PENNINGTON
07266	RAPID CREEK	C	128	20	CATTLE	PENNINGTON
07267	LUCKY 7	C	20	7	CATTLE	HARDING
07269	WHITE DRAW	C	40	10	CATTLE	FALL RIVER

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07270	WHITE DRAW	C	40	10	CATTLE	FALL RIVER
07271	CHEYENNE	C	20	3	CATTLE	FALL RIVER
07272	BUFFALO GAP	C	120	12	CATTLE	CUSTER
07273	PLAINS VALLEY	C	40	5	CATTLE	FALL RIVER
07274	PASS CREEK	C	80	16	CATTLE	FALL RIVER
07275	HEIKKILA	C	40	10	SHEEP	HARDING
07276	CROSSING	C	40	9	CATTLE	HARDING
07277	DRY CREEK	C	80	14	CATTLE	FALL RIVER
07278	FROZENMANS CREEK	C	80	16	CATTLE	STANLEY
07279	PLUM CANYON	C	40	8	CATTLE	CUSTER
07280	WIND CAVE	C	40	10	BISON	CUSTER
07281	CHEYENNE	C	320	36	CATTLE	FALL RIVER
07282	GOBBLER CANYON	C	37	12	CATTLE	FALL RIVER
07283	CAVE HILLS	C	273	80	CATTLE	HARDING
07284	WAPITI CREEK	C	40	14	CATTLE	MEADE
07285	PRAIRIE CREEK	C	80	20	CATTLE	STANLEY
07286	KADOKA JUNCTION	C	40	13	CATTLE	JACKSON
07287	PLUM CREEK	C	40	10	CATTLE	STANLEY
07288	ELKHORN PEAK	C	160	19	CATTLE	CUSTER
07290	HAWKWRITE	C	40	10	CATTLE	CUSTER
07292	SAND CREEK	C	360	100	CATTLE	BUTTE
07293	CAR BODY	C	240	58	CATTLE	BUTTE
07294	COUNTY LINE	C	40	12	CATTLE	HARDING
07295	SHEEP MOUNTAIN	C	160	30	SHEEP	HARDING
07296	DRY CREEK	C	80	9	CATTLE	HARDING
07297	MATSON-FOWLER	C	144	59	SHEEP	HARDING
07298	GREY ROCK	C	40	14	CATTLE	HARDING
07299	L. MISSOURI	C	63	17	CATTLE	HARDING
07300	PLUM CR.	C	40	7	CATTLE	HARDING
07302	LITTLE WILLOW	C	80	22	SHEEP	BUTTE
07303	TRAIL CREEK	C	22	6	CATTLE	BUTTE
07304	GRANDVIEW	C	128	32	CATTLE	HARDING
07305	BIG NASTY CREEK	C	40	13	CATTLE	HARDING
07306	TURTLE CREEK	C	40	12	CATTLE	MEADE
07307	EAST BRANCH	C	40	12	CATTLE	MEADE
07308	PLAINVIEW	C	24	7	CATTLE	MEADE
07309	BUTTE LINE	C	40	7	CATTLE	BUTTE
07310	MUD BUTTE	C	40	12	CATTLE	MEADE
07311	TRAIL CREEK	C	40	13	CATTLE	MEADE
07312	WASTA	C	163	38	CATTLE	PENNINGTON
07313	NE MUD BUTTE	C	40	12	CATTLE	BUTTE
07314	RANCHSIDE	C	40	8	CATTLE	FALL RIVER
07315	LEGER DAM	C	80	20	SHEEP	HARDING
07316	LONE FORTY	C	40	11	CATTLE	MEADE
07317	LONE DRAW	C	40	10	CATTLE	HARDING
07318	STONE BUTTE	C	40	12	CATTLE	HARDING

<i>Allotment Number</i>	<i>Allotment Name</i>	<i>Allotment Category</i>	<i>Public Acres</i>	<i>Public AUMs</i>	<i>Livestock Class</i>	<i>County</i>
07319	BEAR CREEK	C	130	40	CATTLE	PENNINGTON
07320	SHIRT TAIL	C	160	50	CATTLE	MEADE
07321	NORTH	C	120	36	CATTLE	PERKINS, MEADE
07322	MUD CREEK	C	80	20	CATTLE	PERKINS
07323	FLINT ROCK CREEK	C	40	12	CATTLE	PERKINS
07324	DRY RUN CREEK	C	44	12	CATTLE	STANLEY
07325	LONE TREE	C	60	18	CATTLE	HARDING
07326	BIXBY ROAD	C	200	43	CATTLE	PERKINS
07327	HIGHLAND	C	40	8	CATTLE	PERKINS
07328	BIXBY	C	320	101	CATTLE	PERKINS
07329	MOSIER	C	320	42	CATTLE	FALL RIVER
07330	SIGNAL BUTTE	C	80	36	CATTLE	PERKINS
07331	SCHOOL SECTION	C	40	13	CATTLE	BUTTE
07333	MIDDLE CREEK BUTTE	C	562	84	CATTLE	BUTTE
07334	PORCUPINE CREEK	C	40	8	CATTLE	PERKINS
07335	S. BULL CREEK	C	80	20	CATTLE & SHEEP	HARDING
07336	DUHAMEL FLAT	C	160	54	CATTLE	PENNINGTON
07337	CLAY PIT	C	333	30	CATTLE	BUTTE
07338	LITTLE FLINT	C	40	13	CATTLE	PERKINS
07339	KIMBLE CREEK	C	71	24	CATTLE	HARDING
07340	DRIFT WOOD	C	43	10	CATTLE	FALL RIVER
07341	BENCH	C	40	12	CATTLE	MEADE
07342	M. BUTTE	C	54	15	CATTLE	MEADE
07343	WHITE THUNDER BOTTOM	C	40	15	CATTLE	HAAKON
07344	HORSE CREEK	C	160	45	CATTLE	BUTTE
07345	RAILROAD	C	40	7	CATTLE	HAAKON
07346	SPOTTED BEAR CREEK	C	40	10	CATTLE	HAAKON
07347	SOUTH	C	40	11	CATTLE	MEADE, PERKINS
07348	HAT CREEK	C	40	5	CATTLE	FALL RIVER
07349	SUNRISE BUTTE	C	200	47	CATTLE	PERKINS
07350	LAHTI BUTTE	C	280	92	CATTLE	HARDING
07351	LOCATE CREEK	C	91	46	CATTLE	PERKINS
07352	WEST BULL	C	40	8	CATTLE	MEADE
07354	BERRY CREEK	C	80	27	CATTLE	PERKINS
07355	PINE CREEK	C	40	12	CATTLE	MEADE
07356	SUNDING	C	49	14	SHEEP	HARDING
07357	MUELLER	C	80	17	CATTLE	CUSTER
07358	DOTY RIDGE	C	40	13	CATTLE	STANLEY
07359	PINEY CREEK	C	80	12	CATTLE	FALL RIVER
07360	SECTION 28	C	40	10	CATTLE	PERKINS
07361	ASH CREEK	C	40	11	CATTLE	HAAKON
07362	INDIAN SPRINGS	C	40	13	CATTLE	HAAKON
07363	WHITE RIVER	C	160	53	CATTLE	JACKSON

<i>Allotment Number</i>	<i>Allotment Name</i>	<i>Allotment Category</i>	<i>Public Acres</i>	<i>Public AUMs</i>	<i>Livestock Class</i>	<i>County</i>
07364	FOX RIDGE	C	40	12	CATTLE	MEADE
07365	HAXBY DRAW	C	40	13	CATTLE	HAAKON
07366	MEADOW LARK	C	40	10	CATTLE & SHEEP	PERKINS
07367	HILLSIDE	C	40	3	CATTLE	CUSTER
07368	ANTLER	C	40	10	CATTLE	PENNINGTON
07369	NASTY CREEK	C	28	9	CATTLE	PERKINS
07370	SORUM	C	40	10	CATTLE	HARDING
07372	LEMMON BUTTE	C	40	5	CATTLE	MEADE
07374	BUR OAK	C	40	6	CATTLE	LAWRENCE
07376	HWY 71	C	40	10	CATTLE	FALL RIVER
07377	CROW EAGLE CREEK	C	80	25	CATTLE	STANLEY
07378	LITTLE MO	C	55	18	CATTLE	HARDING
07379	BAMS	C	40	10	CATTLE	HARDING
20699	SECTION 19	C	40	11	CATTLE	BRULE



# APPENDIX H

## Grazing Allotment Categorization

The existing Selective Management Categories: Improve (I), Maintain (M), Custodial (C) are the foundation for designating allotment categories. The Selective Management Category process was initiated in 1982 and was used primarily to establish priorities for investing in range improvements. Criteria for the original designations can be found in Handbook 1740-1, Appendix 1, pages 3 and 4, and in the following table. Below are the criteria in addition to those found in Handbook 1740-1 that are to be used to designate allotments as Category I, M, or C. Allotments are categorized as appropriate and recorded in RAS. Allotments may be re-categorized as new information from monitoring, land health evaluations, habitat assessments, sensitive species data, etc. becomes available.

Assigning allotments to one of the three categories in accordance with the following criteria will help determine priorities for focusing staff and fiscal resources when processing grazing permits and leases, monitoring allotments, evaluating rangeland health, and implementing range improvements.

**Category I:** Allotments where current livestock grazing management or level of use on public land is, or is expected to be, a significant causal factor in the non-achievement of land health standards, or where a change in mandatory terms and conditions in the grazing authorization is or may be necessary. When identifying Category I allotments, review condition of critical habitat, conflicts with sage-grouse, and whether projects have been proposed specifically for implementing the land health initiatives.

**Category M:** Allotments where land health standards are met or where livestock grazing on public land is not a significant causal factor for not meeting the standards and current livestock management is in conformance with guidelines developed by the State Directors in consultation with Resource Advisory Councils. Allotments where an evaluation of land health standards has not been completed, but existing monitoring data indicates that resource conditions are satisfactory.

**Category C:** \*Allotments where public lands produce less than 10 percent of the forage in the allotment, are less than 10 percent of the land area, or are equal to or less than 320 acres in size. An allotment should generally not be designated Category C if the public land in the allotment contains: 1) critical habitat for a threatened or endangered species, 2) wetlands negatively affected by livestock grazing.

\*An exception to the percent land or forage base criteria for C Allotments may be allowed within the SD RMP Planning Area if the land ownership pattern limits the ability of BLM to manage it as an I or M Category Allotment, the Allotment is meeting standards for rangeland health, and the allotment does not contain critical habitat for a threatened or endangered species or wetlands negatively affected by livestock grazing.



# Appendix I

## Land Ownership Adjustment Criteria

### Retention Criteria

- Congressionally designated and other special management areas (i.e. ACECs, National or Historic Trails, etc.)
- Lands acquired using Land and Water Conservation Funds (LWCF)

### Disposal Criteria

- Tracts of land that because of its location or other characteristics is difficult and uneconomic to manage or is not suitable for management by another Federal department or agency as part of the public lands.
- Tracts of land that were acquired for a specific purpose and the tract is no longer required for that or any other Federal purpose.
- Disposal of tract of land that will serve important public objectives, including but not limited to, expansion of communities and economic development, which cannot be achieved prudently or feasibly on land other than public land and which outweigh other public objectives and values, including, but not limited to, recreation and scenic values, which would be served by maintaining such tract in Federal ownership.
- Surrounded by private land
- No improved public access
- No significant resource values
- Selected for management issues

### Acquisition Criteria

- Facilitate access to BLM land and resources
- Enhance the manageability of BLM land and resources
- Enhance important public values and uses, especially
  - Special Status Species plant, animal, and fish habitats
  - Significant historic, cultural resources or properties important to Native Americans
  - Significant recreational opportunities
  - Significant scenic values
- Facilitate implementation of other goals and objectives



## Appendix J

### Common Riparian Plant Species on BLM-Administered Lands in the SDFO RMP Planning Area and Common Ecological Sites and Plant Communities

<i>Grasses and Grasslike</i>	<i>Sedges and Rushes</i>	<i>Forbs</i>	<i>Shrubs</i>	<i>Trees</i>
Alkali sacaton ( <i>Sporobolus airoides</i> )	Alkali bulrush ( <i>Scripus maritimus</i> )	American licorice ( <i>Glycyrrhiza lepidota</i> )	Sandbar willow ( <i>Salix exigua</i> )	Boxelder ( <i>Acer negundo</i> )
Inland saltgrass ( <i>Distichlis spicata</i> )	Baltic rush ( <i>Juncus balticus</i> )	Annual sunflower ( <i>Helianthus annuus</i> )	Chokecherry ( <i>Prunus virginiana</i> )	Green ash ( <i>Fraxinus pennsylvanica</i> )
Bluejoint reedgrass ( <i>Calamagrostis canadensis</i> )	Beaked sedge ( <i>Carex rostrata</i> )	Cocklebur ( <i>Xanthium strumarium</i> )	Yellow willow ( <i>salix lutea</i> )	Narrowleaf cottonwood ( <i>Populus angustifolia</i> )
Canada wildrye ( <i>Elymus canadensis</i> )	Creeping spikerush ( <i>Eleocharis palustris</i> )	Duck potato ( <i>Sagittaria latifolia</i> )	Golden current ( <i>Ribes aureum</i> )	Plains cottonwood ( <i>Populus deltoides</i> )
Foxtail barley ( <i>Hordeum jubatum</i> )	Hardstem bulrush ( <i>Scripus acutus</i> )	Poison hemlock ( <i>Conium maculatum</i> )	Gooseberry ( <i>Ribes lacustre</i> )	American elm ( <i>Ulmus Americana</i> )
Nuttall alkaligrass ( <i>Puccinellia nuttalliana</i> )	Dudley rush ( <i>Juncus dudleyi</i> )	Marsh smartweed ( <i>Polygonum coccineum</i> )	Redosier dogwood ( <i>Cornus stolonifera</i> )	
Prairie cordgrass ( <i>Spartina pectinata</i> )	Softstem bulrush ( <i>Schoenoplectus tabernaemontani</i> )	Sheep sorrel ( <i>Rumex acetosella</i> )	Rose ( <i>Rosa woodsii</i> ) Wild rose ( <i>Rosa arkansana</i> )	
Kentucky bluegrass ( <i>Poa pratensis</i> )		Curled Dock ( <i>Rumex crispus</i> )	Buffaloberry ( <i>Shepherdia argentea</i> )	
		Canada thistle ( <i>Cirsium Arvense</i> )	Snowberry ( <i>Symphoricarpos occid</i> )	



## Common Ecological Sites in the Planning Area

### Clayey Ecological Site

#### Ecological Dynamics of the Site

This site developed under Northern Great Plains climatic conditions, natural influences of large herbivores, occasional fire, and other biotic and abiotic factors that typically influence soil/site development. Changes will occur in the plant communities due to short-term weather variations, impacts of native and/or exotic plant and animal species, and management actions. While the following plant community descriptions describe more typical transitions between communities that will occur, severe disturbances, such as periods of well-below average precipitation, can cause significant shifts in plant communities and/or species composition.

Black greasewood, ponderosa pine, Rocky Mountain juniper, eastern red cedar and bur oak occur in small amounts on several sites in the MLRA. These same species may encroach into associated sites, changing site characteristics. These shifts can alter site dynamics and potential.

The plant community upon which interpretations are primarily based is the Historic Climax Plant Community (HCPC). The HCPC has been determined by studying rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational grazing regimes. Trends in plant community dynamics ranging from heavily grazed to lightly grazed areas, seasonal use pastures, and historical accounts also have been used. Plant communities, states, transitional pathways, and thresholds have been determined through similar studies and experience.

The following diagram illustrates the common plant communities and vegetation states commonly occurring on the site and the transition pathways between communities and states.

#### Plant Communities of the Site

##### Western Wheatgrass/Green Needlegrass

The plant community upon which interpretations are primarily based is the Western Wheatgrass/Green Needlegrass Plant Community. This is also considered the Historic Climax Plant Community (HCPC). This plant community can be found on areas that are properly managed with grazing and/or prescribed burning, and on areas receiving occasional short periods of deferment.

The potential vegetation is about 80-90% grasses or grass-like plants, 5-10% forbs, and 5-10% shrubs. Cool season grasses dominate this plant community. The major grasses are western wheatgrass and green needlegrass. Other graminoids include blue grama, buffalograss, sideoats grama, prairie junegrass and sedge. Significant forbs include scarlet globemallow, wild parsley, biscuitroot, golden pea, sego lily, deervetch, American vetch, and milkvetch. Significant shrubs that occur include big sagebrush, cactus, winterfat, rose and fourwing saltbush.

##### Big Sagebrush/Western Wheatgrass

This plant community develops from continuous season long grazing and the absence of fire. It will also develop with extended periods of non-use and lack of fire. Sagebrush will typically increase whenever the vigor of the perennial herbaceous vegetation is reduced and fire is absent. This plant community is made up of 65-80% mid cool season and short warm season grasses, 5-10% forbs, and 15-25% shrubs. The dominant grasses include western wheatgrass, green needlegrass, blue grama and buffalograss. As conditions deteriorate, desirable species are replaced by big sagebrush. Blue grama, buffalograss, prairie junegrass and Sandberg bluegrass increase in the plant community. Annual brome, other annuals, and Kentucky bluegrass can invade the plant community.

##### Western Wheatgrass/Blue Grama/Buffalograss

This plant community develops under continuous seasonal grazing (i.e., grazing an area during the same season every year) or from over utilization during extended drought periods. The potential vegetation is made up of approximately 70-85 percent grasses and grass-like species, 10-15 percent forbs, and 5-10 percent shrubs. The dominant grasses include

blue grama, buffalograss, and western and/or thickspike wheatgrass. Other grasses may include green needlegrass, prairie junegrass, and Sandberg bluegrass. Significant forbs include scarlet globemallow, wild parsley, biscuitroot, phlox, golden pea, deer vetch, asters, and milkvetch. The significant shrubs that occur include big sagebrush, cactus, broom snakeweed and rose.

### **Blue Grama/Buffalograss Sod**

This plant community develops under heavy continuous season-long grazing, and with continuous seasonal grazing with concentrated use in the early part of the growing season (as in calving/lambing pastures). It is made up of approximately 75-90% grasses (primarily short, warm season grasses), 5-10% forbs, and 5-15% shrubs. The dominant grasses include blue grama and buffalograss. Other grasses may include western wheatgrass, prairie junegrass, threeawn, and annual brome. The dominant forbs include slimflower scurfpea, pussytoes, curlycup gumweed and scarlet globemallow. The dominant shrub is plains pricklypear.

## **Dense Clay**

### **Ecological Dynamics of the Site**

This site developed under Northern Great Plains climatic conditions, natural influences of large herbivores, occasional fire, and other biotic and abiotic factors that typically influence soil/site development. Changes will occur in the plant communities due to short-term weather variations, impacts of native and/or exotic plant and animal species, and management actions. While the following plant community descriptions describe more typical transitions between communities that will occur, severe disturbances, such as periods of well-below average precipitation, can cause significant shifts in plant communities and/or species composition. Green needlegrass is more prevalent in the western portions of the MLRA, and partially replaces the wheatgrasses.

Encroachment may occur from associated sites. Black greasewood, winterfat and saltbush may occur on areas that are higher in salt content. These are typically drier areas in association with the Saline Upland ecological site (e.g., west of Highway 85 in Butte County, SD). Slickspots are associated with Swanboy and Wasa soils. Slickspots are bare ground areas that are affected by high sodium concentrations. The soil factors are the dominant influence and grazing management does not affect these areas.

These soils are high in clay and have a low available water capacity. The shrink-swell potential is very high, resulting in cracks greater than 2 inches wide during dry periods. The native wheatgrasses with their strong rhizomes and high drought tolerance are able to thrive in these soils. Wheatgrasses dominate the site and production is closely related to the vigor of the native wheatgrass.

The plant community upon which interpretations are primarily based is the Historic Climax Plant Community (HCPC). The HCPC has been determined by studying rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational grazing regimes. Trends in plant community dynamics ranging from heavily grazed to lightly grazed areas, seasonal use pastures, and historical accounts also have been used. Plant communities, states, transitional pathways, and thresholds have been determined through similar studies and experience.

### **Plant Communities of the Site**

#### **Wheatgrass (HCPC)**

The plant community upon which interpretations are primarily based is the Wheatgrass Plant Community. This is also considered the Historic Climax Plant Community (HCPC). This plant community can be maintained with prescribed grazing, prescribed burning, or areas receiving occasional short periods of deferment. The potential vegetation is about 80-90% grasses or grass-like plants, 5-10% forbs, and 5-10% shrubs. Cool season grasses dominate the plant community. Major grasses include native wheatgrass such as western wheatgrass, Montana wheatgrass and thickspike wheatgrass. The plant diversity is low, being dominated by the wheatgrasses. Other grasses and grass-like species occurring on the plant community may include native bluegrasses, buffalograss, blue grama and sedge. The dominant forbs include biscuitroot, wild parsley, scarlet globemallow, and western yarrow. Shrubs that may occur on the plant community include big sagebrush, cactus, greasewood, saltbush, birdfoot sagebrush and winterfat. In the central to

eastern portions of the MLRA, greasewood will decrease with grazing pressure, while in the western portion greasewood encroaches from adjacent sites and will increase with grazing pressure.

This plant community is resilient and well adapted to the Northern Great Plains climatic conditions. However two to three years of drought can greatly reduce the vigor and abundance of the green needlegrass and wheatgrasses, increasing the percent bare ground and creating moderate to high soil erosion potential. The actual plant composition may not be greatly changed, however the production and viability of the site has greatly changed. With a few years of average to above average precipitation, the plant community will make a fast recovery. If disturbed, dense clays are resilient.

#### **Western Wheatgrass, Bare Ground**

This plant community develops under droughty conditions, heavy spring grazing or long-term heavy continuous grazing. The potential vegetation is made up of 70-85% grass, 10-20% forbs and 0-10% shrubs. The grass component is almost entirely native wheatgrasses. Other perennial grasses are generally not found. Forbs found in this plant community include pennycress, annual mustards, curlycup gumweed and sweet clover. Generally the shrub component has dropped out.

## **Thin Upland**

### **Ecological Dynamics of the Site**

This site developed under Northern Great Plains climatic conditions, natural influences of large herbivores, occasional fire, and other biotic and abiotic factors that typically influence soil/site development. Changes will occur in the plant communities due to short-term weather variations, impacts of native and/or exotic plant and animal species, and management actions. While the following plant community descriptions describe more typical transitions between communities that will occur, severe disturbances, such as periods of well-below average precipitation, can cause significant shifts in plant communities and/or species composition.

Encroachment of ponderosa pine, Rocky Mountain juniper and eastern redcedar may occur from associated sites, and can shift site characteristics. These shifts can alter the site dynamics and potential. These species may occur in small amounts on several plant communities.

### **Plant Communities of the Site**

#### **Needlegrass/Grama/Little Bluestem - Community Phase 4.1**

The plant community upon which interpretations are primarily based is the Needlegrass/Grama/Little Bluestem Plant Community. This is also considered to be the Historic Climax Plant Community (HCPC). This plant community can be found on areas that are properly managed with grazing and/or prescribed burning, and on areas receiving occasional short periods of deferment. The potential vegetation is about 75-85% grasses or grass-like plants, 5-15% forbs, and 5-10% shrubs. A mixture of cool and warm season grasses dominates the plant community. Major grasses include little bluestem, needleandthread, sideoats grama and blue grama. Other grasses and grass-likes occurring include sedge, western wheatgrass, green needlegrass and prairie junegrass. Significant forbs include purple coneflower, dotted gayfeather and prairie clover. Significant shrubs found in this plant community include fringed sagewort, rose and yucca.

#### **Blue Grama/ Sedge - Community Phase 2.3**

This plant community is a result from heavy grazing over many years. Diversity is diminished, as the short grasses become dominant in the plant community. The grazing tolerant blue grama and sedges replace little bluestem, western wheatgrass and the needlegrasses. Sideoats grama remains in the plant community, but is less productive because of competition and grazing pressure. Due to low palatability, cudweed sagewort, milkvetch, heath aster and green sagewort become more prevalent in the plant community. Fringed sagewort is the dominant shrub in this plant community. The potential vegetation is about 75-85% grasses or grass-like plants, 5-15% forbs, and 5-10% shrubs.

#### **Little Bluestem/ Grama - Community Phase 3.2**

This plant community develops under continuous seasonal grazing or continuous season-long grazing and a low fire frequency. This plant community can also result from extended periods of non-use and no fire. Little bluestem dominates

this plant community, as it takes advantage of soil disturbance (resulting from hoof action, or increased bare ground due to reduced plant vigor under non-use and no fire).

Other significant grasses or grass-likes include blue grama, sideoats grama and sedge. Forbs commonly found in this plant community include cudweed sagewort, purple coneflower and dotted gayfeather. Significant shrubs include fringed sagewort and rose. The potential vegetation is about 80-90% grasses or grass-like plants, 5-10% forbs, and 5-10% shrubs. Although production remains relatively high, little bluestem plants often become “wolfy” and largely unavailable to most herbivores. This plant community is moderately resistant to change. The herbaceous species present are well adapted to grazing; however, species composition can be altered through long-term overgrazing. If the herbaceous component is intact, it tends to be resilient if the disturbance is not long-term.

## **Loamy**

### **Ecological Dynamics of the Site**

This site developed under Northern Great Plains climatic conditions, natural influences of large herbivores, occasional fire, and other biotic and abiotic factors that typically influence soil/site development. Changes will occur in the plant communities due to short-term weather variations, impacts of native and/or exotic plant and animal species, and management actions. While the following plant community descriptions describe more typical transitions between communities that will occur, severe disturbances, such as periods of well-below average precipitation, can cause significant shifts in plant communities and/or species composition.

The plant community upon which interpretations are primarily based is the Historic Climax Plant Community (HCPC). The HCPC has been determined by studying rangeland relic areas, areas protected from excessive disturbance, and areas under long-term rotational grazing regimes. Trends in plant community dynamics ranging from heavily grazed to lightly grazed areas, seasonal use pastures, and historical accounts also have been used. Plant communities, states, transitional pathways, and thresholds have been determined through similar studies and experience.

### **Plant Communities of the Site**

#### **Western Wheatgrass/Needlegrass**

The interpretive plant community for this site is the Western Wheatgrass/Needlegrass Plant Community. This is also considered the Historic Climax Plant Community (HCPC). This plant community can be found on areas that are properly managed with grazing and/or prescribed burning, and sometimes on areas receiving occasional short periods of deferment.

The potential vegetation is about 80-90% grasses or grass-like plants, 5-10% forbs, and 1-10% shrubs. Cool season grasses dominate this plant community. The major grasses include western wheatgrass, needleandthread and green needlegrass. Other grasses occurring on the site include blue grama, big bluestem, sideoats grama, prairie junegrass, buffalograss and sedge. Significant forbs include scarlet globemallow, prairie coneflower, purple prairie clover, penstemon, American vetch, and milkvetch. The significant shrubs that occur include big sagebrush, leadplant, snowberry, winterfat and rose.

#### **Blue Grama/Western Wheatgrass**

This plant community develops under continuous seasonal grazing (i.e., grazing an area during the same season every year) or from over utilization during extended drought periods. The potential vegetation is made up of approximately 75-85% grasses and grass-like species, 5-15% forbs and 1-10% shrubs. The dominant grasses include blue grama and western wheatgrass. Other grasses may include sedge, buffalograss, needleandthread and prairie junegrass. Significant forbs include scarlet globemallow, scurfpea, western ragweed and green sagewort. The dominant shrubs that occur include cactus, broom snakeweed, fringed sagewort and rose.

Compared to the Historic Climax Plant Community, the shortgrass species including blue grama and threadleaf sedge have increased. The cool season species including western wheatgrass and green needlegrass have decreased in

composition. Annual bromes, curlycup gumweed, sweetclover and other annual grasses and forbs can invade the site. This plant community can have the appearance of a mosaic, with sod and mixed grass communities intermingled.

### **Blue Grama/Buffalograss Sod**

This plant community develops under heavy continuous season-long grazing, or with continuous seasonal grazing with concentrated use in the early part of the growing season (as in calving/lambing pastures). It is made up of approximately 75-85% grasses (primarily short, warm season grasses), 5-20% forbs, and 1-10% shrubs. The dominant grasses include blue grama and threadleaf sedge. Other grasses may include western wheatgrass, prairie junegrass, buffalograss, threeawn, and annual brome. The dominant forbs include western ragweed, green sagewort, cudweed sagewort and scarlet globemallow. The dominant shrubs include fringed sagewort, cactus and broom snakeweed.

## **Saline Upland**

### **Ecological Dynamics of the Site**

This site developed under Northern Great Plains climatic conditions, natural influences of large herbivores, occasional fire, and other biotic and abiotic factors that typically influence soil/site development. Changes will occur in the plant communities due to short-term weather variations, impacts of native and/or exotic plant and animal species, and management actions. While the following plant community descriptions describe more typical transitions between communities that will occur, severe disturbances, such as periods of well-below average precipitation, can cause significant shifts in plant communities and/or species composition.

The high salt content and hydrology properties greatly influence the vegetation of this site. This site tends to influence the vegetation of surrounding sites, but surrounding sites have little influence on it. Wheatgrasses and desirable shrubs such as Gardner's saltbush and winterfat are the dominant species on this site. As it declines from mismanagement (over grazing or lack of recovery periods) species such as inland saltgrass, greasewood, woody aster and annuals will increase. Grasses such as Indian ricegrass, alkali sacaton, and wheatgrasses, and desirable shrubs such as saltbush and winterfat decrease. Sweet clover tends to invade the site.

### **Plant Communities of the Site**

#### **Wheatgrass/Saltbush (HCPC)**

The plant community upon which interpretations are primarily based is the Wheatgrass/Saltbush Plant Community. This is also considered the Historic Climax Plant Community (HCPC). Potential vegetation is about 45-70% grasses or grass-like plants, 2-10% forbs, and 25-45% shrubs. Saline tolerant shrubs such as Gardner's saltbush, and winterfat dominate. Major grasses include rhizomatous wheatgrasses, inland saltgrass, alkali sacaton, and Indian ricegrass. Other grasses occurring include bottlebrush squirreltail and Sandberg bluegrass. This plant community provides valuable winter grazing for wildlife and domestic livestock.

This plant community is sensitive to management. Only plants that are adapted to high salt conditions comprise this site. Reduction in vigor and abundance of the desirable species (wheatgrasses, alkali sacaton, Indian ricegrass, Gardner's saltbush and winterfat) results in the loss of forage quantity and quality. These plants will generally be replaced by saltgrass. As the dominant desirable plant community declines this also creates more bare ground. The increase in bare ground will increase the susceptibility to soil erosion and invasive forbs such as sweet clover. Plant litter is properly distributed with some movement off-site and natural plant mortality is low.

#### **Forb/Saltgrass**

This plant community typically occurs more often in the western portion of the MLRA. Currently this plant community is found under moderate, season-long grazing by livestock. Greasewood, woody aster, cheatgrass and bare ground are a major part of this plant community. Sparse saline tolerant grasses make up the majority of the understory with the balance made up of annual cool-season grass, and miscellaneous forbs.

Dominant grasses include inland saltgrass, Sandberg bluegrass, and squirreltail. Other grasses that occur include threadleaf sedge, prairie junegrass and blue grama. Forbs commonly found in this plant community include hairy

goldaster, goldenpea, curlycup gumweed, broom snakeweed, and scarlet globemallow. Plains pricklypear and winterfat can also occur. Depending on precipitation and climatic factors various invasive forbs, such as sweetclover, will dominate the site.

## **Subirrigated**

### **Ecological Dynamics of the Site**

This site developed under Northern Great Plains climatic conditions, natural influences of large herbivores, occasional fire, and other biotic and abiotic factors that typically influence soil/site development. Changes will occur in the plant communities due to short-term weather variations, impacts of native and/or exotic plant and animal species, and management actions. While the following plant community descriptions describe more typical transitions between communities that will occur, severe disturbances, such as periods of well-below average precipitation, can cause significant shifts in plant communities and/or species composition.

### **Plant Communities of the Site**

#### **Big Bluestem/Prairie Cordgrass**

The plant community upon which interpretations are primarily based is the Big Bluestem/Prairie Cordgrass Plant Community. This is also considered to be the Historic Climax Plant Community (HCPC). This plant community can be found on areas where grazed plants receive adequate periods of deferment during the growing season in order to recover. Historically, fires occurred infrequently. The potential vegetation is about 80-90 percent grasses and grass-likes, 5-10 percent forbs, and 0-10 percent shrubs. Tall and mid warm season grasses dominate this community. Major grasses include big bluestem, prairie cordgrass and switchgrass. Other grasses and grass-likes occurring on the community include western wheatgrass, Canada wildrye, Baltic rush, spikerush, and bulrush. Key forbs and shrubs include American licorice, Maximilian sunflower, milkvetch, and willow.

#### **Cool-season Dominant**

This plant community developed under frequent and severe defoliation without periodic deferment. Big bluestem, prairie cordgrass, Indiangrass, switchgrass, and Canada wildrye have been significantly reduced. Western wheatgrass will increase, while Kentucky bluegrass will begin to invade. Non-palatable forbs such as heath aster and ironweed have increased. Palatable forbs and shrubs are still present in small amounts. This plant community is at risk of losing tall warm season grasses, palatable forbs, and shrubs.

#### **Decadent Plants, Excessive Litter**

This plant community occurs after an extended period of non-use, and where fire has been eliminated. The dominant plants tend to be similar to those found in the HCPC, however in advanced stages, frequency and production can be lower. Litter amounts have increased causing plants to become decadent. Much of the plant nutrients are tied up in excessive litter. Organic matter oxidizes in the air rather than being incorporated into the soil due to the absence of animal impact. Typically, bunchgrasses develop dead centers and rhizomatous grasses (prairie cordgrass) form small colonies because of a lack of tiller stimulation.

#### **Kentucky Bluegrass Sod**

This plant community developed with further frequent and severe defoliation. The plant community is predominantly cool season grasses and grass-likes. Kentucky bluegrass has fully invaded the community and persists in a sod-bound condition. Baltic rush, various sedges, and foxtail barley have increased. Remnant amounts of western wheatgrass may still persist in localized colonies. Big bluestem, prairie cordgrass, and switchgrass have been removed. Forbs such as kochia and Russian thistle have also increased.

## Appendix K

### Screening Criteria Checklist for South Dakota Field Office Ten Year Grazing Permit or Lease Renewals or Transfers

To find if a proposed grazing lease renewal or transfer is applicable, the following screening criteria would be applied. If the answer to every question here is NO, the proposed renewal or transfer qualifies and NEPA compliance can be achieved by preparing a Documentation of NEPA Adequacy form which references the South Dakota RMP EIS. However, if the answer to any question is Yes, the proposal represents an exception and site-specific analysis would be prepared.

#### 1. Do any of the Departmental Categorical Exclusion Exception Criteria apply?

Would the proposed action:

- Have significant adverse effects on public health or safety?
- Have adverse effects on such unique geographic characteristics as historic or cultural resources, park, recreation or refuge lands, wilderness areas, wild or scenic rivers, sole or principal drinking water aquifers, prime farmlands, wetlands, floodplains, or ecologically significant or critical areas, including those listed on the Department's National Register of Natural Landmarks?
- Have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources?
- Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks?
- Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects?
- Be directly related to other actions with individually insignificant but cumulatively significant environmental effects?
- Have adverse effects on properties listed or eligible for listing on the National Register of Historic Place?
- Have adverse effects on species listed or proposed to be listed on the List of Endangered or Threatened Species, or have adverse effects on designated Critical Habitat for these species?
- Have a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898).
- Threaten to violate a Federal, State, local or tribal law or requirement imposed for the protection of the environment?
- Limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (Executive Order 13007).
- Contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112).

2. **Has the allotment proposed for renewal or transfer been determined not to be meeting Range Health Standards?**
3. **Will the proposed renewal or lease have a change in class of livestock, change in season of use greater than 14 days, or a change in terms and conditions?**
4. **Will the active use (AUMs) previously authorized be exceeded by the proposed renewal or transfer?**
5. **Would the proposed renewal or transfer negatively impact crucial wildlife habitat?**
6. **Would the proposed renewal or transfer negatively impact any nesting raptor, or known Threatened or Endangered species habitat?**
7. **Does available monitoring data show rangeland health standards are not being met, vegetative conditions are not acceptable, or allotment objectives are not being met?**

You should be able to provide documentation or rationale to support all No answers if necessary.

# Appendix L

## Recreation Setting Characteristics Class Rating Method

Matrix characteristics rating from least developed (1) primitive lands, through relative levels of backcountry (2); middle country (3); front country (4); rural (5); to most urbanized (6) on physical, social, and operational components of recreation, as described in Appendix M. Alternative A is not included as there is no current rating; management most closely follows ratings identified for Alternative B.

	Fort Meade			Exemption Area			Fossil Cycad			Cedar Canyon, ½ Mile Buffer on Sagebrush, Adj. to Battle Mtn, Dogie Butte, Bluff View, East of Newell, Two Rivers			Planning Area		
	Alt B	Alt C	Alt D	Alt B	Alt C	Alt D	Alt B	Alt C	Alt D	Alt B	Alt C	Alt D	Alt B	Alt C	Alt D
<b>Physical</b>															
Remoteness	4	4	4	4	4	4	5	5	5	3	3	3	3	3	3
Naturalness	4	4	4	4	3	4	4	4	4	2	2	2	3	3	3
Facilities	5	5	5	4	3	4	2	2	2	2	2	2	2	2	2
<b>Social</b>															
Contacts	4	4	4	3	2	3	2	2	2	2	2	2	2	2	2
Group Size	3	3	3	3	2	3	1	1	1	1	1	1	1	1	1
Evidence of Use	4	4	4	4	3	4	3	3	3	2	2	2	3	3	3
<b>Operational</b>															
Access	4	4	4	4	3	4	2	2	2	3	2-3	2-3	3	3	3
Visitor Services	4-5	4-5	4-5	3	1	3	1	1	1	1	1	1	1	1	1
Management Controls	5	5	5	5	4	5	2	2	2	3	3	3	3	3	3
RSC Rating	4	4	4	4	3	4	2	2	2	3	2	3	3	3	3
<b>RSC Class</b>	Front Country	Front Country	Front Country	Front Country	Middle Country	Front Country	Back Country	Back Country	Back Country	Middle Country	Back Country	Middle Country	Middle Country	Middle Country	Middle Country

	Alternative B (approximate acres)	Alternative C (approximate acres)	Alternative D (approximate acres)
Back Country	313	178,163	313
Middle Country	261,325	88,539	261,325
Front Country	11,655	6,591	11,655

Source: P:\SouthDakotaFO\Projects\SDFO\_RMP\24K\Recreation\Visual\_Resource\_Management(VRM)\VRM\_SD\_RMP

*Discussion:* Fort Meade RSC class did not change between action alternatives due to the proximity of the city of Sturgis, the desires of the community to use the area, and the existing or potential facilities. Facilities will be maintained throughout the alternatives. The Fort Meade ACEC would be managed to provide a front country experience.

The Exemption Area would show some changes due to the alternative selected. Alternatives B and D would concentrate on development of the recreation use in the Exemption Area by designating it as a SRMA. The increase in development and access would be more in keeping with a front country class, increasing contacts, evidence of use, facilities, and visitor services. Access may change and become more structured, with designated single type use. Trails may be developed. It is likely there would be more management controls and visitor services in a designated SRMA. Alternative C does not encourage development, since the SRMA is not designated. The setting characteristic would be retained at middle country under Alternative C.

The Fossil Cycad ACEC would not change classifications between alternatives. The highway goes through the site so opportunities to favor remoteness and reduce contacts are limited, but further development is undesirable. Cattle grazing leasing would continue under all alternatives. Recreation setting would be retained as Back Country under all alternatives.

The areas listed in the columns between Fossil Cycad and Planning Area were identified by BLM staff as somewhat unique and as possibilities to manage for a more natural and isolated experience. They do not possess wilderness characteristics, but may provide an unusual recreation setting. Where vehicle travel may be limited or prohibited in subsequent travel management decisions, the recreation opportunities would change. The decreased road facilities, evidence of use, and mechanized use emphasized under Alternative C would result in more Back Country characteristics. Under Alternative D it is likely there would be some decrease in vehicle travel routes in some areas, but overall the characteristics would best match Middle Country.

The remainder of the planning area would not change overall recreation settings between alternatives, and would remain Middle Country.

# Appendix M

## Recreation Setting Characteristics Matrix Classes

Defining recreation setting characteristics (RSC) is used as a tool to help recreation managers create and maintain the appropriate recreation experiences that suit various types of land and visitors. The matrix characterizes recreation opportunities in terms of components: physical, social, and operational. The SDFO matrix contains six classes as described below: primitive, back country, middle country, front country, rural, and urban.

The BLM formerly used Recreation Opportunity Spectrum (ROS) Classes to define recreation experience potential. The ROS classes (particularly the names) had a heavier reliance on motorized travel availability. References within the RMP to ROS named classes do not necessarily directly correspond to specific Recreation Setting Characteristic (RSC) Classes since travel management decisions are not identified. However, the descriptions between the two classification systems are otherwise very similar.

<b>Classification</b>	<b>Primitive (1)</b>	<b>Back Country (2)</b>	<b>Middle Country (3)</b>	<b>Front Country (4)</b>	<b>Rural (5)</b>	<b>Urban (6)</b>
<i>Most Similar ROS Classification</i>	<i>Primitive</i>	<i>Semi-Primitive</i>		<i>Roaded Natural</i>	<i>Rural</i>	<i>Urban</i>
<b>Physical Component – Qualities of the Landscape</b>						
Remoteness (approximate distance from routes)	More than ½ mile from either mechanized or motorized routes.	Within ½ mile of mechanized routes.	Within ½ mile of four-wheel drive vehicle, ATV, and motorcycle routes.	Within ½ mile of low-clearance vehicle routes (includes unpaved County roads and private land routes).	Within ½ mile of paved/primary roads and highways.	Within ½ mile of streets and roads within municipal-ities and along highways.
Naturalness (landscape texture, form, line, color)	Undisturbed natural landscape.	Natural landscape with any modifications in harmony with surroundings and not visually obvious or evident.	Character of the natural landscape mostly retained. A few modifications contrast with the character of the landscape (e.g. fences, primitive roads).	Character of the natural landscape partially modified but does not overpower natural landscape (e.g. roads, structures, utilities).	Character of the natural landscape considerably modified (agriculture, residential, or industrial).	Urbanized development dominates landscape.
Facilities	No structures. Foot/horse and water trails only.	Developed trails made mostly of native materials. Structures are rare and isolated.	Maintained and marked trails, simple trailhead development and basic toilets.	Rustic facilities such as campsites, restrooms, trailheads, and interpretive displays.	Modern facilities (e.g. group shelters, campgrounds, boat launches, and exhibits).	Elaborate full-service facilities such as laundries, restaurants, and groceries.
<b>Social Component – Qualities Associated with Use</b>						
Contacts (avg. with any other group)	Fewer than 3 encounters/day at camp sites and fewer than 6	3-6 encounters/day off travel routes (e.g. campsites) and	7-14 encounters/day off travel routes (e.g. staging areas)	15-29 encounters/day off travel routes (e.g.	People seem to be generally everywhere.	Busy place with other people constantly in view.

<b>Classification</b>	<b>Primitive (1)</b>	<b>Back Country (2)</b>	<b>Middle Country (3)</b>	<b>Front Country (4)</b>	<b>Rural (5)</b>	<b>Urban (6)</b>
<i>Most Similar ROS Classification</i>	<i>Primitive</i>	<i>Semi-Primitive</i>		<i>Roaded Natural</i>	<i>Rural</i>	<i>Urban</i>
	encounters/day on travel routes.	7-15 encounters/day on travel routes.	and 15-29 encounters/day on travel routes.	campgrounds) and 30 or more encounters/day on travel routes.		
Group Size (avg.)	Fewer than or equal to 3 people per group.	4-6 people per group.	7-12 people per group.	13-25 people per group.	26-50 people per group.	Greater than 50 people per group.
Evidence of Use	No alteration of the natural terrain. Footprints only observed. Sounds of people rare.	Areas of alteration uncommon. Little surface vegetation wear observed. Sounds of people infrequent.	Small areas of alteration. Surface vegetation showing wear with some bare soils. Sounds of people occasionally heard.	Small areas of alteration prevalent. Surface vegetation gone with compacted soils observed. Sounds of people frequently heard.	A few large areas of alteration. Surface vegetation absent with hardened soils. Sounds of people regularly heard.	Large areas of alteration prevalent. Some erosion. Constantly hear people.
<b>Operational Component – Conditions Created by Management and Controls over Recreation Use</b>						
Access (types of travel allowed)	Foot, horse, and non-motorized float boat travel.	Mountain bikes and perhaps other non-mechanized use, but all is non-motorized.	Four-wheel drives, all-terrain vehicles, dirt bikes, or snowmobiles in addition to non-motorized, mechanized use.	Two-wheel drive vehicles predominant, but also four wheel drives and non-motorized, mechanized use.	Ordinary highway auto and truck traffic is characteristic.	Wide variety of street vehicles and highway traffic is ever-present.
Visitor Services (and information)	No maps or brochures available on-site. Staff is rarely present to provide on-site assistance.	Basic maps, staff infrequently present (e.g. seasonally, high use periods) to provide on-site assistance.	Area brochures and maps, staff is occasionally present (e.g. most weekends) to provide on-site assistance.	Information materials describe recreation areas & activities. Staff is periodically present (e.g. weekdays & weekends).	Information described to the left, plus experience and benefit descriptions, staff is regularly present (e.g. almost daily).	Information described to the left, plus regularly scheduled on-site outdoor demonstrations and clinics.
Management Controls	No on-site posting/signing of visitor regulations, interpretive information or ethics. Few use restrictions.	Basic user regulations at key access points. Minimum use restrictions.	Some regulatory and ethics signing. Moderate use restrictions (e.g. camping, human waste).	Rules, regulations and ethics clearly posted. Use restrictions, limitations and/or closures.	Regulations strict and ethics prominent. Use may be limited by permit, reservation, etc.	Enforcement in addition to rules to reduce conflicts, hazards, and resource damage.

## Appendix N

### Soils Monitoring

<i>Item</i>	<i>Location</i>	<i>Technique</i>	<i>Unit of Measure</i>	<i>Frequency and Duration</i>	<i>Remedial Action Trigger</i>	<i>Management Options</i>
Soil erosion, uplands	Area-wide where management activities are occurring or expected to occur.	Visual observation, rangeland health or proper functioning condition assessments, surface aggregate stability test, and surveyed erosion pins.	Soil loss in tons per acre.	Site will be visually examined quarterly. Where erosion is deemed excessive, measurements of site characteristics will be taken to determine rate of soil loss.	Visual evidence of pedestal, terracete, wind scour, rill, gully, or sheet erosion. Change in surface aggregate stability class. Loss of soil exceeding 10 T/ac/yr.	Report exceedance to BLM, State or EPA. Enforcement action will be taken.
Soil erosion, streambanks, riparian areas, and floodplains	Area-wide along rivers and tributaries where management activities are occurring or expected to occur.	Visual observation, rangeland health or proper functioning condition assessments, and surveyed erosion pins.	Area affected in square feet or acres.	Site will be visually examined quarterly. Where streambank erosion is deemed excessive, measurements of site characteristics will be taken to determine soil loss.	Visual evidence of headcut or bank slump. A 10% increase in streambank loss.	Report exceedance to BLM, State or EPA. Enforcement action will be taken.
Soil salinization and sodification	Area-wide where management activities are occurring or expected to occur.	Visual observation, measurement of soil characteristics such as EC, SAR, ESP, pH.	Area affected in square feet or acres.	Site will be visually examined quarterly. Where salinity levels show an increase because of vegetation or soil effects, measurements of site characteristics will be taken to determine salinity and sodicity levels.	A 20% increase in levels. EC greater than 8, SAR greater than 8, ESP greater than 10, or pH greater than 8.5	Report exceedance to BLM, State or EPA. Enforcement action will be taken.
Compaction	Area-wide where management activities are occurring or expected to occur.	Visual inspection, penetrometer, or ratio of penetration resistance or bulk density to that of the reference area.	Pounds per square inch, mass per volume.	Site will be visually examined 1 to 2 times yearly. Where compaction is deemed excessive, measurements would be taken.	10% increase in density. Ratio of penetration resistance or bulk density to that of the reference area greater than 1.	Limit or block access to compacted sites.
Rutting	Area-wide where management activities are occurring or expected to occur.	Visual observation and measured depth of rut.	Inches.	Site will be visually examined 1 to 2 times yearly. Where rutting is deemed excessive, measurements would be taken.	Ruts exceed 4 inch depth.	Limit or block access to rutted sites.

<i>Item</i>	<i>Location</i>	<i>Technique</i>	<i>Unit of Measure</i>	<i>Frequency and Duration</i>	<i>Remedial Action Trigger</i>	<i>Management Options</i>
Productivity	Areas where reclamation or restoration is occurring or expected to occur.	Visual observation, line-point intercept, gap intercept, and aggregate stability test, Total dry-weight production of vegetation.	Proportion of area, time to percent dissolved, dry weight per area.	Site will be visually examined 1 to 2 times yearly. Where fertility is deemed poor, measurements would be taken.	10% increase in percent of bare ground. Change in surface or subsurface aggregate stability class. 10% decline in total dry weight.	
Subsidence of fill material	Areas where management activities require fill material.	Visual observation and measured depth of subsidence.	Feet.	Site will be visually examined 1 to 2 times yearly. Where slumping/piping is deemed excessive, measurements would be taken.	10% increase in slumping or piping depth.	Limit or block access to affected sites until area is reclaimed.

## Appendix O

### Current Facilities at the Fort Meade Recreation Area ACEC and Exemption Area (does not include range improvements)

Facility	Current Condition	Trend	Indicator
<b>Alkali Creek Trailhead</b> (15 acres) contains a doweled rail enclosure fence, graveled parking area, 22 picnic units, 6 fee tent camping units, cabana, a male/female vault toilet, drinking water, three panel informational kiosk, fee tube, sign with fee information, walking bridge crossing Alkali Creek, host site with concrete pad, electricity, phone, septic system, and storage shed.	Good	Use Increasing	Visitor Numbers
<b>Alkali Creek Horsecamp</b> (11 acres) this equestrian campground contains a ¼ mile gravel access road, a doweled rail enclosure fence, 6 fee camp units with tables, fire rings, grills, informational kiosk, tie lines, cabana, water, and 2 vault toilets.	Good	Use Increasing	Visitor Numbers
<b>Fort Meade Trailhead</b> is a day use graveled parking area which serves as a trailhead for the Centennial Trail. It has a three panel informational kiosk, and interpretive sign with information about Camp Fechner, and rails to tie up horses.	Good	Steady	Visitor Numbers
<b>Fort Meade Reservoir Enclosure</b> (50 acres) contains a ½ mile access road, graveled parking area, 2 picnic tables, unisex vault toilet, barrier posts, buck and pole fence, and an informational sign panel.	Fair	Decrease due to drought	Visitor Numbers
<b>Muzzleloader Range</b> (8 acres) is authorized through a Recreation and Public Purposes Lease to the Muzzleloaders of the Black Hills. Several backstops have been erected to hold targets and absorb bullets. Access is by fording Bear Butte Creek.	Good	Steady	Visitor Numbers
<b>Veterans of Foreign Wars Memorial Chapel</b> (5 acres) site is authorized through a Recreation and Public Purposes Lease to the Veterans of Foreign Wars. It contains picnic facilities with water and male/female vault toilets. Water is supplied to campgrounds from an 1100 foot well drilled into the Madison aquifer. The well house on the chapel grounds is constructed from concrete and contains the electrical panel and water storage tank.	Good	Steady	Visitor Numbers
<b>Fort Meade Backcountry Byway</b> (4.5 miles) graveled road running through the south unit of FMRA; designated a byway on 7/21/1989.	Fair	Increasing	Visitor Numbers
<b>Centennial Trail</b> – twelve miles of this 112 mile interagency trail cross the FMRA. The Centennial trail was approved for designation as a National Recreation Trail on 6/13/1996.	Good	Steady	Visitor Numbers
<b>Alkali Creek Nature Trail</b> (5/8 mile) interpreted trail through riparian, mid-grass prairie, pine, and hardwood vegetation.	Good	Steady	Visitor Numbers
<b>VFW Hiking Trail</b> (½ mile) trail along Alkali Creek connecting the VFW Chapel Site to Alkali Creek Recreation Site.	Good	Steady	Visitor Numbers

## Recreation Area Water Systems

Four water systems are located at Fort Meade ACEC:

1. The Bear Butte Lease (north of State Highway 34) has a well house and a pipeline that provides water to water tanks throughout the lease. The well house is a concrete block building that houses the electrical system and a pump for a well 35 feet deep. The non-potable water system for livestock has approximately 27,000 feet of waterline.
2. The Fort Meade Lease (south of Highway 34) has a well and pipeline that provide water to the portion of the lease. The range water system has a concrete well house located on the south side of the Veterans of Foreign Wars (VFW) Memorial Chapel grounds and houses the other two systems that include: the electric and pump system for a cistern fed by the Alkali Creek drainage. This non-potable livestock water system has approximately 25,000 feet of pipeline.
3. The well and pump house for the recreation water system is also located on the VFW Chapel grounds. This system provides potable water for the VFW Chapel, the Alkali Creek Recreation Site and adjoining Horse Camp, and two range water tanks located near the Blucksberg Subdivision. The well is approximately 1,100 feet deep and pumps from about 875 feet. The system's water lines have a total length of about 12,000 feet.
4. A fourth water system was added in June 2010 as an American Recovery and Reinvestment Act (ARRA) project. This project is located south of State Highway 34. The system taps potable water from an existing 8-inch pipe on VA property and delivers it to a hydrant and watering trough at the Centennial Trail's Fort Meade Trailhead (see Section 3.2.3, Recreation). The system's length is some 550 feet. The City of Sturgis will eventually tap the line to provide drinking and irrigation water to an adjoining athletic field.

## Power and Phone Lines

Short underground power lines on the VFW Chapel grounds provide power to the range and recreation well houses, the chapel, the VFW outdoor toilet, and individual power posts for travel trailers and recreation vehicles in the VFW's parking lot. An additional underground power line about 2,000 feet in length provides power to the campground host's site at Alkali Creek Recreation Site. The power line is in the same trench as the host site phone line for most of its length.

The host site phone line, about 2,250 feet long, is located beside the Backcountry Byway from the Byway's south end near the VFW Chapel to the recreation site's west entrance. It then follows the access road to the host's campsite.

## Buildings

The 1985 SD RMP/EIS provides no direction about how to manage buildings, but the 1996 Fort Meade ACEC Plan mentions the ACEC's three historical structures. Buildings presently owned or leased by the BLM are maintained for office space, storage purposes, sheltering equipment, recreation site improvement, and protecting wells.

## Historic Structures

Fort Meade ACEC has three historic structures:

The Long Stone Building is located near the Centennial Trail and the Fort Meade Backcountry Byway. It has seven rooms of similar size and served as equipment storage for the nearby machine gun range. From what BLM can determine, it was constructed by the CCC or the Works Progress Administration (WPA) in the late 1930s or early 1940s. The stone building probably replaced a smaller wood structure which stood about 50 yards to the northeast that served the same purpose.

Two brick storage buildings known as the “powder houses” are co-located on BLM-managed land south of the VA complex. The smaller of the two was probably built in the early 1900s when most of Fort Meade’s buildings were constructed. The larger powder house building was probably built just before WWII. Both buildings are used by the BLM for storing fire equipment, signs, and recreation supplies.

Exemption Area structures:

Three Homestake Mining Company explosive storage buildings which were built in the early 1900s are located in the Exemption Area near Ruby Flats. They are single bay, brick construction buildings with outside dimensions of 20’ X 60.’ When originally constructed, the houses had full length loading docks and the entire site had its own railroad spur line. These buildings are kept, maintained and secured, but are not currently used. The basement of the house where the site’s caretaker lived is located a short distance away in Ruby Flats. The Little Elk Ditch, also known as the “Old Abe Aqueduct” (which supplied water to the Homestake Mine and the City of Lead) is near Ruby Flats and Englewood. It was originally an open flume but was converted to ceramic tile pipe during the late 1920s or early 1930s. The aqueduct remains in use and continues to provide water to Lead.

For more detail on management of these historic structures, see the Cultural Resources section of Chapter 3 and Appendix P).

<b>Historic Buildings/Structures</b>	<b>Current Condition</b>	<b>Trend</b>	<b>Indicator</b>
Fort Meade-Long Stone Building Stone Fence	Good		Condition Assessment
Fort Meade – Large Powder house	Good		Condition Assessment
Fort Meade – Small Powder house	Good		Condition Assessment
Fort Meade - Cavalry Jumps North and South	Good		Condition Assessment
Exemption Area -Homestake Powder houses (3) near Ruby Flats and Mickelson Trail	Fair		Condition Assessment

**Recreation Facilities**

Twelve structures or site developments related to recreation are located at the Fort Meade ACEC. (1, 2, and 3) Three are identical vault toilet structures of concrete construction. One is the unisex toilet located at the Fort Meade Reservoir and the other two are the male and female toilets at the Horse Camp. (4) A double male/female vault toilet structure is located at the Alkali Creek Recreation Site. (5) The Campground Host Site has a concrete parking pad and gravel driveway, and phone and power posts. The Host Site’s waterline is part of the “recreation” water system. (6 and 7) The Alkali Creek Recreation Site and Horse Camp each have identical 10’ x 20’ picnic shelters, basically open wooden pole barn structures with metal roofs. (8) A small wooden storage building located at the Host Site for seasonal equipment storage and supplies. (9) A wooden storage shed owned by the BLM is located on the Black Hills National Cemetery grounds. It provides winter storage for the lawn tractors, wheelbarrows, and tools used by the campground host. (10, 11 and 12) The remaining three structures are bridges. A bridge with reinforced concrete abutments and deck at the Alkali Creek Recreation Site spans the creek and provides access to most of the picnic area and the nature trail. It was constructed in 1995 to replace a pathway over a culvert which was displaced by a flood. The Horse Camp access road has a heavy timber bridge across Alkali Creek. During 2008, it replaced a gravel road and culvert which was washed away by high water. The last bridge, a large diameter log with a flat walking surface and handrails, spans Bear Butte Creek on the Centennial Trail. It was constructed as a National Public Lands Day project in June 2009. The toilets and the bridge at Alkali Creek Recreation Site should have the longest lifespan followed by the Host Site, picnic shelters and the bridge at the Horse Camp. The small prefabricated wooden storage buildings at the National Cemetery and the Host Site would have the least. The potential lifespan of the single log bridge over Bear Butte Creek is unknown.

## **Hazard Class Dams**

The South Dakota Field Office has only two hazard class dam sites. Both are located in Northern Butte County. The Battle Creek Dam is presently holding water but the Alkali Creek Dam has been breached.

## **Water Impoundments**

Other dams and water impoundments are found in the planning area; most are range improvements which either provide longer term livestock water or control erosion. Ducks Unlimited along with other entities has cooperated with the BLM on structures benefiting wildlife.

## Appendix P

### Cultural Resources Standard Lease Stipulations for Grazing Leases

NDM 79010-DR

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O. 13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations (e.g., State Historic Preservation Officer (SHPO) and tribal consultation) under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Cultural Resources 16-1

#### Stipulation for Cultural Resource Protection

“The lease holder is not allowed to collect or give others permission to collect historic or prehistoric artifacts on Public Lands. An artifact is any human-made object or object used in its natural state by humans, which is at least 50 years old. The unauthorized collecting of prehistoric and historic artifacts on public lands is punishable under Federal law. If you observe individuals collecting artifacts, immediately notify the authorized BLM official.”



## Appendix Q

### Range Improvement Summary List for South Dakota Field Office

Number of Existing Range Improvement Projects in SDFO											
<i>Listed by County and Project Type</i>											
Type and Purpose	019	033	047	055	063	081	093	103	105	117	Totals
<b>Stock Management</b>											
Total Fence Projects	209	2	6	1	59	8	37	19	8	10	358
Enclosure/Exclosure	8						2				10
Pumphouses							2				2
Cattleguards	1						9				10
Springs						4	8				12
Wells					2		4				6
Reservoirs	394		5	3	32		43	13		17	507
Pipelines	7				4		7	2	1	3	24
Catchments/Guzzlers	2						4				6
<b>Watershed</b>											
Retention dams					1		1				2
Dikes/Diversions	3				1			1			5
<b>Totals by County</b>	<b>624</b>	<b>2</b>	<b>11</b>	<b>4</b>	<b>99</b>	<b>12</b>	<b>117</b>	<b>34</b>	<b>9</b>	<b>30</b>	<b>942</b>
Size (Miles, Feet) of Projects in SDFO											
<i>Listed by County and Project Type</i>											
Type and Purpose	019	033	047	055	063	081	093	103	105	117	Totals
<b>Stock Management</b>											
Fence - Miles	249	4	6	3	36	17	54	14	5	14	402
Dikes/Diversions- Feet	1459				1650						3109
<b>Legend:</b>											
<b>County No. - County Name</b>						<b>County No. - County Name</b>					
019 - Butte						081 - Lawrence					
033 - Custer						093 - Meade					
047 - Fall River						103 - Pennington					
055 - Haakon						105 - Perkins					
063 - Harding						117 - Stanley					



## Appendix R

### Rights-of-Way and Renewable Energy Avoidance or Exclusion Areas by Alternative

	<i>Analysis Area</i>	<i>Alternative A (Current Management)</i>	<i>Alternative B</i>	<i>Alternative C</i>	<i>Alternative D (Preferred Alternative)</i>
Floodplains, flooded soils & riparian areas		Open	Avoidance	Exclusion	Avoidance – All types of ROWs
Sensitive soils (low restoration potential, low fugitive dust resistance)		Open	Avoidance	Exclusion	Avoidance - All types of ROWs
Steep slopes	Slopes over 25%	Open	Avoidance	Exclusion	Avoidance - All types of ROWs
Fisheries reservoirs with fisheries	0.25 mi. buffer	Open	Avoidance	Exclusion	Avoidance - All types of ROWs
Bighorn sheep habitat		Open	Avoidance	Exclusion	Avoidance - All types of ROWs
Big game wintering areas		Open	Avoidance	Exclusion	Avoidance – All Types of ROWs
Greater sage-grouse wintering areas		Open	Avoidance	Exclusion	Exclusion – Renewable Energy ROWs.
					Avoidance - Other types of ROWs
Sharp-tailed grouse/greater prairie-chicken brood rearing/nesting areas	2 mi. buffer	Open	Avoidance	---	Avoidance - All types of ROWs
	3 mi. buffer	---	---	Exclusion	---
Sharp-tailed grouse/greater prairie-chicken leks	0.25 mi. buffer	Open	Avoidance	---	---
	0.50 mi. buffer	---	---	Exclusion	Exclusion – Renewable Energy ROWs
					Avoidance – Other types of ROWs

	<i>Analysis Area</i>	<i>Alternative A (Current Management)</i>	<i>Alternative B</i>	<i>Alternative C</i>	<i>Alternative D (Preferred Alternative)</i>
Interior least tern & piping plover		Open	Avoidance	Exclusion	Avoidance - All types of ROWs
Peregrine falcon aerie	0.5 mi. buffer	Open	Avoidance	---	Exclusion – Renewable Energy ROWs
	1.0 mi. buffer	---	---	Exclusion	Avoidance – Other types of ROWs
Bald eagle nests	0.25 mi. buffer	Open	Avoidance	---	---
	0.5 mi. buffer	----	---	Exclusion	Exclusion – Renewable Energy ROWs
Sensitive raptor nests	0.25 mi	Open	Avoidance	---	Avoidance – Other types of ROWs
	0.5 mi. buffer	---	---	Exclusion	---
Other raptor nests	0.25 mi. buffer	Open	Avoidance	Exclusion	Exclusion – Renewable Energy ROWs
					Avoidance – Other types of ROWs
Greater sage-grouse PPAs	4 polygons	No similar	Avoidance	---	Exclusion – Renewable Energy ROWs
	5 polygons	No similar	---	Exclusion	Avoidance – Other types of ROWs
Greater sage-grouse leks	0.25 mi. buffer	Open	---	---	---
	0.50 mi. buffer	---	Avoidance	---	---

	<i>Analysis Area</i>	<i>Alternative A (Current Management)</i>	<i>Alternative B</i>	<i>Alternative C</i>	<i>Alternative D (Preferred Alternative)</i>
	1.0 mi. buffer	---	---	Exclusion	Exclusion – Renewable Energy ROWs Avoidance – Other types of ROWs
Greater sage-grouse brood rearing/nesting habitat outside of PPAs (in GHAs)	3 mi. buffer	Open	Avoidance	---	---
	4 mi. buffer	---	---	Exclusion	Avoidance - All types of ROWs
VRM	Class 2	Open	Avoidance	Exclusion	Exclusion – Renewable Energy ROWs
					Avoidance – Other types of ROWs
Fort Meade ACEC outside the ROW corridor		Exclusion	Avoidance	Exclusion	Exclusion - All types of ROWs
Fossil Cycad ACEC		Open	Avoidance	Exclusion	Exclusion - All types of ROWs
Fort Meade SRMA buffer only (Fort Meade ACEC addresses the interior area)	½ mile buffer	---	Avoidance	---	Exclusion – Renewable Energy ROWs Avoidance – Other types of ROWs
	1 mile buffer	--	---	Exclusion	---
Exemption Area SRMA and SRMA buffer	½ mile buffer	---	Avoidance	---	Exclusion – Renewable Energy ROWs Avoidance – Other types of ROWs
	1 mile buffer	---	---	Exclusion	---



# Appendix S

## **S.1 South Dakota Field Office Air Resource Management Plan: *Adaptive Management Strategy for Oil and Gas Resources***

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## Acronyms

APD	Application for Permits to Drill
AQRV	Air quality related value
AQS	Air Quality System
AQTW	Air Quality Technical Workgroup
ARMP	Air Resource Management Plan
ARTSD	Air Resource Technical Support Document
BLM	Bureau of Land Management
CAMx	Comprehensive Air Quality Model with Extensions
CFR	Code of Federal Regulations
CMAQ	EPA Models-3/Community Multiscale Air Quality
CO	Carbon monoxide
DOI	U.S. Department of Interior
EPA	U.S. Environmental Protection Agency
FLIR	Forward looking infrared
FS	U.S. Forest Service
FWS	U.S. Fish and Wildlife Service
hp	Horsepower
$\mu\text{g}/\text{m}^3$	Micrograms per cubic meter
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO	Nitric oxide
NO <sub>2</sub>	Nitrogen dioxide
NO <sub>x</sub>	Nitrogen oxides
NPS	National Park Service
O <sub>3</sub>	Ozone
Pb	Lead
PGM	Photochemical grid modeling
PM <sub>10</sub>	Particulate matter with a diameter less than or equal to 10 microns
PM <sub>2.5</sub>	Particulate matter with a diameter less than or equal to 2.5 microns
POD	Plan of Development
ppb	Parts per billion
ppm	Parts per million
REC	Reduced emissions completion
ROD	Record of Decision
RMP	Resource Management Plan
SDAAQS	South Dakota Ambient Air Quality Standards
SD DENR	South Dakota Department of Environment & Natural Resources
SLAMS	State or Local Air Monitoring Station
SO <sub>2</sub>	Sulfur dioxide
VOC	Volatile organic compound
WRAP	Western Regional Air Partnership
WRF	Weather and Research Forecasting

## 1.0 Introduction

### 1.1 Purpose of the Air Management Plan

The Bureau of Land Management (BLM) South Dakota Field Office (SDFO) Air Resource Management Plan (ARMP) for oil and gas activities describes the air quality adaptive management strategy that would be used to assess future air quality and Air Quality Related Values (AQRVs) and identify mitigation measures to address unacceptable impacts that may be associated with future oil and gas development. The adaptive management strategy focuses on oil and gas activity because aggregated emissions from multiple small sources at well sites can potentially cause significant air quality and AQRV impacts under certain circumstances. Many of these small oil and gas emission sources are not required to obtain air quality permits from the South Dakota Department of Environment & Natural Resources (SD DENR), unlike large stationary sources such as coal mines that are permitted and inspected by the SD DENR. The oil and gas adaptive management strategy was prepared in collaboration with the U.S. Environmental Protection Agency (EPA) and three federal land management agencies under the *Understanding Among the U.S. Department of Agriculture, U.S. Department of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act [NEPA] Process* (DOI 2011). This agreement is described in more detail in Section 0.

The ARMP includes both near-term actions and long-term actions. In the near-term, the ARMP sets forth initial actions to maintain good air quality until regional modeling can be performed to further assess potential impacts to air quality and AQRVs. In the long-term, the ARMP provides ongoing management strategies to assess and adapt to new air quality and AQRV ambient monitoring and modeling data during the life of this Resource Management Plan (RMP).

The ARMP includes a multifaceted approach involving the following activities.

- Oil and gas activity assessment
- Ambient air quality monitoring support
- Air quality and AQRV assessment
- Future air quality and AQRV modeling
- Mitigation

Pollutant emissions addressed by the ARMP include the criteria air pollutants listed below.

- Carbon monoxide (CO)
- Nitrogen dioxide (NO<sub>2</sub>)
- Ozone (O<sub>3</sub>)
- Particulate matter with a diameter less than or equal to 10 microns (PM<sub>10</sub>)
- Particulate matter with a diameter less than or equal to 2.5 microns (PM<sub>2.5</sub>)
- Sulfur dioxide (SO<sub>2</sub>)

Two criteria air pollutants, CO and lead, are not monitored within the planning area because high concentrations of these pollutants are unlikely. Elevated concentrations of CO are associated with vehicle traffic in very large urban areas, while high concentrations of lead are typically found near industrial facilities that emit large quantities of sulfur compounds. These situations do not occur in the planning area, as described in Chapter 3 of the Draft RMP. CO and SO<sub>2</sub> emissions would be modeled to demonstrate compliance with the NAAQS. Due to the lack of lead emissions from oil and gas activities, lead emissions would not be modeled as part of the air quality analysis.

The ARMP also addresses modeling and mitigation for the following AQRV assessments.

- Deposition of sulfur and nitrogen
- Lake acid neutralizing capacity
- Visibility

The adaptive management strategy for oil and gas resources provides the flexibility to respond to changing conditions that could not have been predicted during RMP development, as well as allow for the use of new technology and methods that may minimize or reduce impacts.

## **1.2 Revision of the Air Resource Management Plan**

This ARMP may be modified as necessary to comply with law, regulation, and policy and to address new information and changing circumstances. Changes to the goals or objectives set forth in the SDFO RMP/EIS would require maintenance or amendment of the RMP while changes to implementation, including modifying this ARMP, may be made without amending the RMP.

## **1.3 Current Air Quality**

Areas within the planning area are designated as areas that attain the National Ambient Air Quality Standards (NAAQS) and state-based standards known as the South Dakota Ambient Air Quality Standards (SDAAQS), which are identical to the NAAQS. Throughout this document references to the NAAQS will also be understood to include the SDAAQS.

## **1.4 Background of the AQTW and the MOU Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions through the NEPA Process**

The Air Quality Technical Workgroup (AQTW) includes representatives from the following agencies: the BLM, EPA, U.S. Forest Service (FS), U.S. Fish and Wildlife Service (FWS), and the National Park Service (NPS). Each of these agencies is a party to the *Memorandum of Understanding Among the U.S. Department of Agriculture, U.S. Department of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process* (DOI 2011) (herein referred to as the MOU). This agreement is designed to “. . . facilitate the completion of NEPA environmental analyses for Federal land use planning and oil and gas development decisions [DOI 2011].”

The Memorandum of Agreement (MOU) sets forth collaborative procedures that the AQTW agencies use to analyze potential air quality and AQRV impacts. The agencies also work together to identify potential mitigation measures that may be needed to reduce impacts to air quality and AQRVs. The lead agency (the BLM in this case), in collaboration with the other agencies, has the responsibility to identify reasonable mitigation and control measures and design features to address adverse impacts to air quality. Mitigation measures may also address impacts to AQRVs at Class I areas and at sensitive Class II areas that have been identified by the BLM, FS, FWS, and NPS.

The AQTW provided input to this ARMP and will continue to work collaboratively on future modeling efforts associated with this RMP. Provisions of the MOU continue to apply to future oil and gas activities in the planning area. In some cases, air quality and AQRV modeling performed under this ARMP may be sufficient to address modeling needs for future oil and gas projects that would otherwise require additional modeling under the MOU. However, the ARMP in no way replaces provisions of the MOU. Determinations of existing modeling adequacy for future oil and gas activities that trigger the MOU would be made collaboratively by the AQTW using the procedures included in the MOU.

The SD DENR has the primary authority to protect air quality within the state. Although the SD DENR is not a signatory to the national MOU, successful air quality management of BLM-authorized oil and gas activities depends on a close working relationship between the BLM and the SD DENR. The two agencies have worked together to improve air quality monitoring and will continue to cooperate by sharing data, planning modeling efforts, and working together to identify emission reduction measures needed to maintain good air quality.

## **2.0 Oil and Gas Activity Assessment**

Each year, the BLM would track the number and locations of new oil and gas wells drilled on federal mineral estate and the number of new and abandoned producing wells on federal mineral estate. These numbers would be compared to the planning area RFD and to the level of oil and gas development identified in the preferred alternative.

In addition, the BLM would estimate oil and gas emissions from federal mineral estate every three years for oil and gas wells drilled and producing after the ROD is signed. Emission estimates would be based on well types, well numbers, and knowledge of typical equipment and operations. Emission estimation methods are expected to improve over time as better data become available. The emission estimates would also account for implemented mitigation measures and for new emission control regulations as they become effective. The BLM would collect additional data related to oil and gas equipment and operations to improve emission inventory quality. One area identified for improvement involves acquiring better data on oil and gas equipment used in the planning area. In order to improve fugitive dust emission estimates, the number, type, and length of vehicle trips in high-activity areas would also be assessed.

Each three-year oil and gas emission inventory would be compared to emission estimates for the RFD and the preferred alternative.

### 3.0 Ambient Air Quality Monitoring Support

The Air Quality Program of the SD DENR has primary responsibility for siting and operating ambient air quality monitors within South Dakota and for reporting monitoring data to EPA and to the public. As described in its annual Ambient Air Monitoring Annual Network Plan (SD DENR 2012), the SD DENR identifies monitoring objectives for assessing ambient concentrations of criteria air pollutants and assessing compliance with the NAAQS.

Monitors that are located within the planning area and are representative of rural areas near oil and gas activity are listed in Table 1. These monitors would be used by the BLM when developing annual air quality assessments. If additional SD DENR monitoring stations are installed and operated for the purpose of assessing air quality impacts from oil and gas activity, data from these monitors would be used for ambient air quality assessments under this plan.

**Table 1. Representative Air Quality Monitoring Stations Within the Planning Area**

<i>Station Name</i>	<i>Pollutants Monitored by SLAMS</i>	<i>Station Number</i>	<i>County</i>	<i>Latitude</i>	<i>Longitude</i>
Badlands	NO <sub>2</sub> , O <sub>3</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub>	46-071-0001	Jackson	N 4,847,799.95	E 263,173.81
Wind Cave	O <sub>3</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>	46-033-0132	Custer	N 4,823,856.93	E 622,471.56

Latitude and longitude are provided in UTM coordinates based on Zone 13, NAD 83.

### 4.0 Air Quality and AQRV Assessment

The BLM would assess air quality and AQRVs on an annual basis using quality-assured data from the EPA, SD DENR, FS, FWS, NPS, and other sources. In addition, a preliminary assessment of ozone concentrations would be performed on a weekly basis using data provided by the SD DENR.

#### 4.1 Annual NAAQS Assessment

Based on the monitors listed in Section 0, the BLM would assess air quality monitoring data annually and would share the results of the assessment with the SD DENR and AQTW. The purposes of the annual assessment are to compare monitored data to NAAQS and to identify seasonal and long-term trends in air pollutant concentrations. The BLM would complete the annual assessment by May 31 of each year in order to ensure that quality-assured data are available for review.

NAAQS are provided in Table 2 for pollutants monitored within the planning area. As of December 1, 2012, CO and lead were not monitored within the planning area.

**Table 2. NAAQS for Pollutants Monitored in the Planning Area**

<i>Pollutant</i>	<i>Averaging Period</i>	<i>Concentration</i>	<i>Standard Type</i>	<i>Form of NAAQS<sup>1</sup> Primary Standard</i>
NO <sub>2</sub>	1-hour	100 ppb	Primary	3-year average of the 98 <sup>th</sup> percentile concentrations
	Annual	53 ppb	Primary, Secondary	Annual mean
Ozone	8-hour	0.075 ppm	Primary, Secondary	3-year average of the fourth highest daily maximum 8-hour average
PM <sub>2.5</sub>	24-hour	35 µg/m <sup>3</sup>	Primary, Secondary <sup>3</sup>	3-year average of the 98 <sup>th</sup> percentile concentrations
	Annual	12.0 µg/m <sup>3</sup> <sup>2</sup> 15.0 µg/m <sup>3</sup>	Primary, Secondary	3-year average annual mean
PM <sub>10</sub>	24-hour	150 µg/m <sup>3</sup>	Primary, Secondary	NTBE more than one per year on average over 3 years
SO <sub>2</sub>	1-hour	75 ppb	Primary	3-year average of the 99 <sup>th</sup> percentile concentrations
	3-hour	0.5 ppm	Secondary	Annual 2nd highest maximum of 3-hour block averages

µg/m<sup>3</sup> micrograms per cubic meter Standards  
 NAAQS National Ambient Air Quality Standards  
 NO<sub>2</sub> nitrogen dioxide  
 NTBE not to be exceeded  
 PM<sub>2.5</sub> particulate matter less than or equal to 2.5 microns  
 PM<sub>10</sub> particulate matter less than or equal to 10 microns  
 ppb parts per billion  
 ppm parts per million  
 SO<sub>2</sub> sulfur dioxide

<sup>1</sup> NAAQS are codified in Title 40 of the Code of Federal Regulations (CFR), Part 50.

<sup>2</sup> Effective March 18, 2013, the primary annual PM<sub>2.5</sub> standard was revised from 15.0 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>.

<sup>3</sup> The secondary annual PM<sub>2.5</sub> standard remains at 15.0 µg/m<sup>3</sup>.

The BLM would use design values to compare ambient monitoring data to the NAAQS. Design values reflect the form of the NAAQS; they define the statistical metric used to compare monitoring data to federal and state standards. Depending on the pollutant and averaging time being assessed, the NAAQS is typically stated in terms of the maximum or second maximum concentration, average concentration, or a percentile of the standard. The form of a standard also states whether the design value is determined based on one or more years of monitoring data. EPA-calculated design values serve a critically important regulatory purpose; they determine whether areas are designated attainment or nonattainment. As such, EPA's design value determinations may take more than one year to finalize.

In order to review air quality trends more quickly, the BLM would calculate "mitigation design values" by May 31 of each year for the previous calendar year(s). The mitigation design value would be a metric calculated by the BLM that uses procedures similar to EPA's regulatory design value calculation methodology, with the advantage that the BLM-calculated values can be determined more quickly. The timing allows the SD DENR adequate time to quality assure monitoring data. However, the SD DENR may not yet have EPA concurrence on data that has been flagged by the SD DENR due to exceptional events, such as wildfires. Consequently, the BLM-calculated mitigation design values would exclude monitoring data associated with SD DENR-identified exceptional events. Each BLM annual assessment would look back the requisite number of years for each pollutant and include data from the time period prior to ROD issuance for the first several annual BLM assessments. Additional information concerning design value calculations is provided in Section 0.

## 4.2 Preliminary Ozone Assessment

BLM would perform weekly preliminary ozone concentration reviews to determine if high ozone events occur at the monitors identified in Section 0. If a high-ozone event occurs, the BLM would document meteorological and other conditions that may have contributed to the event. Because high-ozone events in other rural parts of the nation are not

well understood and contributing factors can be site-specific, the BLM would gather data to develop baseline information relevant to any high-ozone events that may occur within the planning area. Relevant baseline information includes capturing meteorological data for each event, determining the amount of snow on the ground (if applicable), and identifying any other data that may help describe circumstances associated with the event. For the purposes of this effort, a high-ozone event would be defined as a day for which the maximum 8-hour average ozone concentration is at or above 0.065 ppm.

In order to quickly ascertain relevant circumstances, the preliminary ozone assessments would use non-quality-assured data provided by the SD DENR. As part of the annual NAAQS assessment, quality-assured ozone data would be reviewed to determine if the preliminary ozone monitoring data were valid or if monitored high ozone concentrations were due to monitor malfunctions.

If high-ozone events occur within the planning area, a summary of events and a discussion of relevant meteorological data and circumstances would be developed as part of the annual NAAQS assessment. These summaries and the underlying data may provide important information that can be used to predict potential occurrences of high-ozone events and to identify mitigation measures and/or proactive measures that could prevent future events.

### **4.3 Annual AQRV Assessment**

Federal land managers track the status, condition, and trends of AQRVs for Class I and sensitive Class II areas under their jurisdictions. Consequently, the BLM would request visibility, sulfur and nitrogen deposition, and lake acid neutralizing capacity data from the FS, FWS, and NPS and would include agency-submitted data in the BLM's annual review of AQRV trends. The annual review would also include AQRV data from any Class I or sensitive Class II areas under BLM jurisdiction.

Based on these reviews, the BLM would maintain an awareness of AQRV trends. However, it should be noted that the reviews would not necessarily link AQRV trends to oil and gas development within the planning area. AQRV impacts are often associated with pollutants that can be transported long distances from many different types of sources. For example, sources outside South Dakota play a major role in visibility degradation at Wind Cave National Park and at Badlands National Park, as described in the South Dakota's Regional Haze State Implementation Plan (SD DENR 2011).

## **5.0 Future Modeling**

The BLM has committed to perform PGM in order to assess regional air quality and AQRV impacts. Due to insufficient monitoring and regional emissions data available during development of the RMP, PGM would not be completed prior to issuance of the RMP/EIS and the ROD. In order to complete PGM expeditiously, the BLM has begun data acquisition and initiated steps needed to proceed with PGM. When PGM is completed and the results assessed, the BLM may identify additional emission mitigation measures for oil and gas activity.

### **5.1 Photochemical Grid Modeling**

Comprehensive regional air quality and AQRV regional modeling of emission sources within the planning area and surrounding areas requires PGM. This type of modeling can predict ozone and regional haze impacts, for which major pollutants and precursors can be transported many hundreds of miles.

#### **5.1.1 Data Acquisition**

PGM requires three main types of concurrent data: meteorological data, ambient monitoring data, and comprehensive emission data. BLM's analysis determined that the latter two types of data need to be augmented and updated prior to performing PGM.

### ***Additional Monitoring***

Ambient monitoring data throughout the PGM domain is needed in order to validate model performance, which is assessed by modeling a previous year and comparing the model's predicted concentrations to actual monitored concentrations. New monitors in northern and central Montana near the towns of Malta and Lewistown will provide much-needed data to assess model performance in areas with oil and gas activity northwest of the planning area.

### ***Updating Emission Inventories***

Comprehensive emission inventories are also critically important in predicting cumulative air quality and AQRV impacts. Current oil and gas regional emission inventories for South Dakota are known to lack important emission sources, particularly sources of volatile organic compounds (VOCs), which contribute to ozone formation. The existing regional oil and gas inventory for the Williston Basin represents the year 2002 and was developed as part of the Western Regional Air Partnership (WRAP) Phase II inventory. Since then, 2006 Phase III emission inventories have been developed for oil and gas basins within Colorado, Utah, Wyoming, and New Mexico, but have not yet been completed for Montana, North Dakota, and South Dakota. The Phase III inventories have more comprehensive emission inventories of VOC sources at oil and gas facilities.

The BLM Montana and Dakotas State Office is providing financial assistance to the WRAP so that Phase III oil and gas emission inventories can be completed in 2013 for the Williston Basin and the Central Montana Basin. These inventories would represent calendar year 2011 emissions. In addition to covering the planning area, the inventories would include comprehensive recent emission estimates for oil and gas activity in North Dakota and Montana.

#### **5.1.2 PGM Schedule**

In order to use a full 12 months of ambient monitoring data from the new monitors in northern and central Montana, the baseline year for PGM is expected to be 2013 or may be a 12-month period beginning in late 2012 and ending in 2013. PGM planning began in 2012 and development of the PGM modeling protocol is expected to be completed during 2013, with modeling occurring primarily in 2014 and early 2015. Review and assessment of PGM results would be completed in June 2015. Table 3 provides the data acquisition and PGM schedule.

The Weather Research and Forecasting (WRF) model would be used to model meteorological conditions and the photochemical grid model to be used would be either the EPA Models-3/Community Multiscale Air Quality (CMAQ) modeling system or the Comprehensive Air Quality Model with Extensions (CAMx). In addition, multiple models would be used to develop and process emission inventories for input into the photochemical grid model. When modeling is completed, an Air Resource Technical Support Document (ARTSD) would be developed.

Initial PGM would include future year modeling for a year between 2017 and 2020. The specific year would be determined by the BLM based on the ability to predict future regional oil and gas emissions in the Williston and Central Montana Basins. After initial PGM is completed, the BLM would begin an assessment process to determine when additional PGM updates are needed. Factors to be considered in determining when additional PGM is needed include: 1) the adequacy of the adaptive management strategy to maintain good air quality, and 2) the level of BLM-authorized oil and gas activity and emissions compared to modeled levels.

**Table 3. Data Acquisition and PGM Schedule**

<i>Task / Subtask</i>	<i>Duration (calendar days)</i>	<i>Start Date</i>	<i>End Date</i>
<b>Pre-Modeling Emission Inventory Development</b>			
Emission Inventory Contracting	56	7/16/2012	8/27/2012
"WRAP" Williston and Central Montana Basin Inventory	270	11/1/2012	7/29/2013
<b>Contracting for WRF Model and PGM Protocol</b>			
WRF Model and PGM Protocol RFP	56	7/16/2012	9/10/2012
Select PGM Modeling Protocol Contractor	14	9/11/2012	9/25/2012

<b>Table 3. Data Acquisition and PGM Schedule</b>			
<i>Task / Subtask</i>	<i>Duration (calendar days)</i>	<i>Start Date</i>	<i>End Date</i>
<b>PGM Protocol</b>			
Develop Initial Draft WRF and PGM Protocol	102	10/1/2012	1/10/2013
AQTW and SD DENR Protocol Review	26	1/11/2013	2/6/2013
Finalize Protocol	54	2/7/2013	4/2/2013
<b>Contracting for WRF and PGM Modeling</b>			
WRF and PGM RFP	30	4/2/2013	5/2/2013
Select WRF and PGM Contractor	21	5/3/2013	5/24/2013
<b>Base Year (calendar year 2013) Modeling and Evaluation</b>			
WRF Modeling	120	10/23/2013	2/20/2014
Draft WRF Model Evaluation	30	2/20/2014	3/22/2014
AQTW and SD DENR WRF Evaluation Review	30	3/22/2014	4/21/2014
Emission Modeling (Base and Future Year) & Report	120	10/23/2013	2/20/2014
Photochemical Grid Modeling	150	2/20/2014	7/20/2014
Draft PGM Evaluation	30	7/20/2014	8/19/2014
AQTW and SD DENR PGM Evaluation Review	30	8/19/2014	9/18/2014
Finalize WRF and PGM Evaluations	21	9/18/2014	10/9/2014
<b>Future Year Modeling and Evaluation</b>			
Photochemical Grid Modeling	150	10/9/2014	3/8/2015
Analyze Air Quality and AQRV Impacts	21	3/8/2015	3/29/2015
Draft ARTSD	21	3/29/2015	4/19/2015
AQTW ARTSD Review	30	4/19/2015	5/19/2015
Finalize ARTSD	21	5/19/2015	6/9/2015

AQTW = Air Quality Technical Workgroup  
 ARTSD = Air Resource Technical Support Document  
 SD DENR = South Dakota Department of Environment & Natural Resources  
 PGM = Photochemical grid modeling  
 RFP = Request for Proposal  
 WRF = Weather Research and Forecasting Model  
 WRAP = Western Regional Air Partnership

**5.1.3 SD DENR and AQTW Review and Input to PGM**

Throughout the PGM data collection and modeling process, the BLM would work collaboratively with the SD DENR and the AQTW that was formed to provide input on this ARMP, and with and other agencies or Tribes that request to be involved in the PGM effort. These collaborators would provide technical review and comment on the draft modeling protocol, on WRF and PGM performance evaluations, and on the draft ARTSD. Substantial time has been included in the schedule shown in Table 3 to allow adequate review and comment periods during the PGM process.

**5.1.4 Availability of PGM Results**

Future PGM results would be presented in the final ARTSD and in a summary of the results. The ARTSD and summary document would be posted on the SDFO website. In addition, the WRF and PGM protocol document would be provided

via the website when the photochemical modeling ARTSD is made available. Outreach information regarding the availability of the results would be made through the AQTW and agencies involved in the PGM process, as well as other interested parties.

## 5.2 Post-PGM Modeling

To the extent that future emission increases are within the levels modeled with PGM or other modeling and are proximate to modeled emission locations, far-field air quality and AQRV impact analysis may incorporate by reference PGM and other modeling results. The BLM and the AQTW would determine whether previous modeling is sufficient to satisfy MOU requirements. This air quality management approach is consistent with the Air Quality Oil and Gas MOU (DOI 2011) and allows for efficient air quality and AQRV impact analysis.

If additional modeling is performed after PGM is complete, an assessment of air quality and AQRV impacts would be made and, if necessary, additional mitigation measures may be identified.

## 6.0 Mitigation

Air quality and AQRV impact mitigation would involve two types of mitigation: 1) initial mitigation measures that become effective when the ROD is signed, and 2) enhanced mitigation measures that may be identified based on future ambient monitoring data or modeling results.

### 6.1 Initial Mitigation Actions

The following air quality mitigation measures would be applied upon issuance of the ROD through leasing documents and project-specific NEPA documents. To the extent practical, emission reductions associated with these mitigation measures have been included in the RMP/EIS emission inventory.

1. Design and construct roads and well pads to reduce the amount of fugitive dust generated by traffic or other activities. During construction activities, apply water, apply dust-suppression chemicals, apply gravel, or use other control methods to achieve 50 percent fugitive dust control efficiency, except when ground is wet or frozen.
2. Use water or other BLM-approved dust suppression during drilling, completion, and well workover operations for dust abatement on access roads, as needed, to achieve a 50 percent fugitive dust control efficiency, except when ground is wet or frozen.
3. Use water or other BLM-approved dust suppression in high traffic areas during production operations for dust abatement, as needed, to achieve 50 percent fugitive dust control efficiency, except when ground is wet or frozen. Operators will work with local government agencies to improve dust suppression on roads.
4. For oil and gas Project Plans of Development (PODs), oil and gas operators will establish speed limits for project-required unpaved roads in and adjacent to the project area; oil and gas operator employees will comply with these speed limits.
5. For oil and gas Project PODs, oil and gas operators will be encouraged to reduce surface disturbance, vehicle traffic, and fugitive dust emissions by consolidating facilities (e.g., using multi-well pads, storage vessels) when feasible.
6. Diesel drill rig engines greater than 200 hp will meet Tier 4 emission standards for non-road diesel engines. Alternatively, oil and gas operators may use drill rig engines that exceed Tier 4 emission standards if modeling demonstrates compliance with the NAAQS and protection of AQRVs.
7. For hydraulically fractured gas wells that do not qualify as “low pressure wells”, “wildcat,” or “delineation” wells, oil and gas operators will comply with reduced emissions completion (REC) requirements specified in Subpart OOOO, Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution (40 CFR §60.5375) within six months of ROD issuance.

8. Non-road diesel engines will be required to use ultra-low sulfur diesel fuel (15 ppmw) as required by 40 CFR §80.610(e)(3)(iii).

## 6.2 Monitoring-Based Mitigation

Enhanced mitigation would be evaluated and implemented if ambient monitoring data at monitors located in oil and gas activity areas within the planning area indicate that pollutant concentrations are approaching or threatening the NAAQS. If additional SD DENR monitoring stations are placed in oil and gas activity areas for the purpose of assessing air quality impacts from oil and gas activity, data from these stations would be included in ambient air quality assessments used to determine whether enhanced mitigation is needed.

Prior to completion of initial PGM, monitoring-based thresholds would be based on evaluation of exceedances of the NAAQS, as described in Section 0. After completion of initial PGM, monitoring-based thresholds would be based on BLM-calculated design values, as described in Section 0.

### 6.2.1 Monitoring-Based Thresholds before PGM Completion

Based on requests from EPA during the MOU review process, the BLM would review NAAQS exceedances and determine if enhanced mitigation would be warranted during the interim period between ROD issuance and PGM completion. The BLM would require enhanced mitigation for BLM-authorized oil and gas activities if there is a monitored exceedance of the NAAQS at a monitor listed in Section 0, unless the BLM determines that enhanced mitigation is not warranted after completing specified steps as outlined below.

1. The BLM would notify the EPA and SD DENR within 30 days after monitoring data showing an exceedance has been posted on EPA's Air Quality System (AQS). The notification would state that the BLM is reviewing the exceedance according to this procedure.
2. After consulting with the SD DENR, the BLM would determine whether an exceptional event<sup>1</sup> may have caused the exceedance.
  - If the SD DENR informs the BLM that an exceptional event likely caused the exceedance, the BLM would provide a letter to that effect to the EPA. No further action would be necessary.
  - If an exceptional event did not cause the exceedance or if SD DENR would not submit an exceptional event waiver to EPA, the BLM would perform Step 3.
3. The BLM would conduct a screening level analysis<sup>2</sup> to determine the likely source and location of the exceedance and whether mitigation is needed.<sup>3</sup>
  - If the screening analysis indicates that the exceedance was not caused by BLM-authorized oil and gas source(s) within the planning area or indicates that the BLM-authorized oil and gas source(s) within

<sup>1</sup> The BLM would not formally decide that an exceptional event occurred as this decision would be made by the SD DENR. Until a final determination of an exceptional event is presented to EPA by the SD DENR, and the EPA has concurred, the BLM would assume that an exceptional event occurred based on a stated intention by the SD DENR to submit an exceptional event waiver.

<sup>2</sup> Publicly available web based applications suggested by the EPA to identify sources of air pollution and potential impacts include the following sites: trajectory analysis tools like HySplit (<http://ready.arl.noaa.gov/>), air quality data at the EPA's AQS site (<http://airnow.gov>), state regulatory agency sites and airnowtech.org, an interactive snow site (<http://www.nohrsc.nws.gov/interactive/html/map.html>), daily ozone modeling (<http://airquality.weather.gov/>), daily ozone and PM<sub>2.5</sub> modeling site (<http://www.getbluesky.org/>), and daily satellite imagery site (<http://ge.ssec.wisc.edu/modis-today/>).

<sup>3</sup> If data necessary to conduct a screening level analysis is not available, the BLM would consult with the SD DENR and the EPA regarding source attribution and the need for mitigation.

the planning did not contribute to the exceedance, the BLM would convey this finding in writing to the SD DENR and EPA for review and comment. No further action would be necessary.

- If the screening analysis indicates that the exceedance was caused or contributed to by BLM-authorized oil and gas sources inside the planning area, the BLM would perform Step 4.
4. The BLM would consult with the SD DENR and EPA to determine whether there is a need for: 1) a refined attribution analysis (e.g., attribution test using CAMx ozone source attribution technology or anthropogenic precursor's culpability assessment) or 2) mitigation on BLM-authorized oil and gas emission sources within the planning area. If the refined analysis:
- Is warranted, BLM would perform the refined analysis within 6 months of completing Step 3 in consultation with SD DENR and EPA.
  - Indicates that the exceedance was not caused or contributed to by BLM-authorized oil and gas sources inside the planning area, the BLM would provide that recommendation to the SD DENR and EPA for review and comment. No further action would be necessary.
  - Indicates that the exceedance was caused by BLM-authorized oil and gas sources within the planning area, the BLM would evaluate enhanced mitigation measures, as described in Section 0.

#### **6.2.2 Determination of Enhanced Mitigation Measures before PGM Completion**

If a NAAQS exceedance occurs prior to completion of PGM and the refined analysis in Step 4 above determined that the exceedance was caused by BLM-authorized oil and gas sources within the planning area, enhanced mitigation measures would be evaluated and selected by the BLM, in cooperation with the SD DENR and the AQTW, when appropriate. Preference would be given to mitigation methods that the SD DENR intends to impose as new regulations or air quality permitting provisions. Selected mitigation measures would be implemented within one year after the BLM decision to apply additional mitigation.

Potential enhanced mitigation measures include the measures listed below based on current information concerning potential emission reduction technologies. Additional measures or equivalent methods or emission restrictions may be identified in the future.

- Drilling and/or blowdown activity restrictions based on meteorological conditions
- Construction activity restrictions based on meteorological conditions
- Centralization of gathering facilities
- Electric drill rigs
- Field electrification for compressors and/or pumpjack engines
- Plunger lift systems with smart automation
- Oil tank load out vapor recovery
- VOC controls on tanks with a potential to emit less than 5 tons per year
- Selective catalytic reduction on non-drill rig stationary engines
- Reduced emission completions beyond those required by EPA regulations, if determined to be technically and economically feasible
- Well pad density limitations
- Reducing the total number of drill rigs operating simultaneously
- Seasonally reducing or ceasing drilling during specified periods
- Using only lower-emitting drill and completion rig engines during specified time periods
- Using natural gas-fired drill and completion rig engines
- Replacing internal combustion engines with gas turbines for natural gas compression
- Employing a monthly forward looking infrared (FLIR) leak detection program to reduce VOCs
- Tank load out vapor recovery
- Enhanced VOC emission controls with 95% control efficiency on additional production equipment having a potential to emit of greater than 5 tons/year
- Enhanced direct inspection and maintenance program

### **6.2.3 Monitoring-Based Thresholds After PGM Completion**

By May 31 of each year following completion of PGM, the BLM would calculate design values for each pollutant monitored at a federal reference monitor within the planning area and identified as a representative monitor in Section 0. The design value would be calculated based on calendar year monitoring data available at the time. Monitoring data from the appropriate prior period would be used. For example, based on PGM completion in summer 2015, the first annual design value calculation would be performed by May 31, 2016 and would include monitoring data for calendar years 2013, 2014, and 2015 for three-year design values and on monitoring data for calendar year 2015 for single-year design values.

Calculation methods would, to the extent possible, follow EPA procedures provided in the following appendices within Title 40 of the Code of Federal Regulations (CFR), Part 50 in effect as of December 1, 2012. These procedures may be updated by future EPA regulations and this section of the ARMP would be revised to reflect changing regulations.

- NO<sub>2</sub> (Appendix S)
- O<sub>3</sub> (Appendix P)
- PM<sub>10</sub> (Appendix K)
- PM<sub>2.5</sub> (Appendix N)
- SO<sub>2</sub> (Appendix T)

Design values would be calculated on a site-specific basis (i.e., no spatial averaging of multiple monitors). BLM design value calculations would exclude data associated with exceptional events identified by SD DENR.

### **6.2.4 Determination of Enhanced Mitigation Measures After PGM Completion**

If the air quality assessment described in Section 0 indicates that a BLM-calculated design value is greater than 85 percent of a NAAQS, enhanced mitigation measures addressing that pollutant or pollutant precursor would be evaluated and selected by the BLM, in cooperation with the SD DENR and EPA, when appropriate. Potential enhanced mitigation measures include the measures listed above in Section 0, as well as additional measures that may be identified in the future.

## **6.3 Modeling-Based Mitigation**

### **6.3.1 Modeling-Based Thresholds**

Future modeling would assess air quality and AQRV impacts from future BLM-authorized oil and gas activity and would include regional PGM and project-specific modeling. Modeling-based thresholds for evaluating enhanced mitigation would include potential future impacts on NAAQS or impacts above specific levels of concern for AQRVs in Class I or sensitive Class II areas (as identified on a case-by-case basis by SD DENR or a federal land management or tribal agency).

### **6.3.2 Modeling-Based Enhanced Mitigation Measures**

If BLM-authorized oil and gas activity is predicted to cause or contribute to impacts above the thresholds described above, the BLM would facilitate an interagency process to ensure that a comprehensive strategy is developed to manage air quality impacts from future oil and gas development within the region. The local, state, federal, and Tribal agencies involved in the regulation of air quality and the authorization of oil and gas development would evaluate modeling results from future modeling studies and identify potential air quality concerns and necessary reductions in air emissions. If the modeling predicts significant impacts, these agencies would use their respective authorities to implement enhanced emission control strategies, operating limitations, equipment standards, and/or pacing of development as necessary to ensure continued compliance with applicable ambient air quality standards, including the enhanced mitigation measures listed in Section 0, other future mitigation measures identified through BLM's adaptive management strategy, or reasonable mitigation measures suggested by the SD DENR or AQTW. If necessary, implementation of mitigation measures would occur within one year of obtaining final modeling results for mitigation measures that conform to currently implemented land use planning decisions and constraints.

## Bibliography

DOI 2011. Memorandum of Understanding Among the U.S. Department of Agriculture, U.S. Department of the Interior, and U.S. Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the National Environmental Policy Act Process. June 23, 2011.

<http://www.epa.gov/oecaerth/resources/policies/nepa/air-quality-analyses-mou-2011.pdf>

SD DENR 2011. South Dakota's Regional Haze State Implementation Plan. August 18.

<http://denr.sd.gov/des/aq/aqnews/RegionalHaze.aspx>

SD DENR 2012. South Dakota Ambient Air Monitoring Annual Network Plan. South Dakota Department of Environment & Natural Resources, Air Quality Program.

<http://denr.sd.gov/des/aq/aqnews/Ann%20plan%202012%20Final.pdf>

## **S.2 South Dakota Field Office Emission Summaries for Alternatives A, B, C, and D**

*Future year emission estimate summaries, by alternative, for the South Dakota Field Office are shown on the following pages.*

**Alternative A**  
**SDFO Future Year Emission Estimate Summary**

Ownership	Emissions (tpy)										
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	HAPs	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2ea</sub>
<b>Federal / BLM</b>											
<i>Oil and Gas Development and Production</i>											
Oil	83	36	286	1	16	3	18	8,039	46	0	9,029
Natural Gas	17	6	10	0	3	1	2	2,068	19	0	2,459
CBNG	2	1	1	0	1	0	0	178	5	0	286
Bentonite Mining	66	0	0	0	71	11	0	157	0	0	157
BLM Travel	1	0	0	0	9	1	0	42	0	0	44
BLM Road Maintenance	0	0	0	0	0	0	0	1	0	0	1
Fire Management <sup>1</sup>	198	6	11	1	59	21	4	75	10	1	744
Forestry Management	2	3	0	0	3	1	0	347	0	0	349
Livestock Grazing	0	0	0	0	8	1	0	18	322	0	6,788
Vegetation Management	0	0	0	0	1	0	0	2	0	0	2
<b>Federal Emission Total</b>	<b>369</b>	<b>52</b>	<b>308</b>	<b>2</b>	<b>171</b>	<b>39</b>	<b>25</b>	<b>10,925</b>	<b>403</b>	<b>2</b>	<b>19,859</b>
<b>Non-Federal</b>											
<i>Oil and Gas Development and Production</i>											
Oil	295	247	1,147	2	62	17	73	29,355	183	0	33,230
Natural Gas	50	34	38	0	9	2	10	4,983	67	0	6,378
CBNG	34	22	12	2	7	2	2	2,783	53	0	3,904
<b>Non-Federal Emission Total</b>	<b>379</b>	<b>303</b>	<b>1,196</b>	<b>4</b>	<b>77</b>	<b>21</b>	<b>84</b>	<b>37,121</b>	<b>303</b>	<b>0</b>	<b>43,512</b>

tpy = short tons per year

<sup>1</sup> Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires.

**Comparison to Current Total County Emissions**

<b>Emissions</b>	<b>Emissions (tpy)</b>					
	<b>CO</b>	<b>NO<sub>x</sub></b>	<b>VOC</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
<i>2008 NEI Emissions</i>	<i>46,173</i>	<i>8,485</i>	<i>9,035</i>	<i>132</i>	<i>15,327</i>	<i>2,319</i>
<i>Alt. A O&amp;G (%) of NEI Emissions</i>	<i>0.2%</i>	<i>0.5%</i>	<i>3.3%</i>	<i>0.1%</i>	<i>0.1%</i>	<i>0.2%</i>
<i>Alt. A (%) of NEI Emissions</i>	<i>0.8%</i>	<i>0.6%</i>	<i>3.4%</i>	<i>1.3%</i>	<i>1.1%</i>	<i>1.7%</i>

*County Emissions (Butte, Custer, Fall River, Haakon, Harding, Lawrence, Meade, Pennington, Perkins, and Stanley counties).*

*Source: EPA 2008 National Emission Inventory (NEI), <http://neibrowser.epa.gov/eis-public-web/geo/county-emissions.html?stateJurisdictionId=43&inventoryYear=2008>, accessed December 12, 2011.*

**Alternative B**  
**SDFO Future Year Emission Estimate Summary**

Ownership	Emissions (tpy)										
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	HAPs	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2ea</sub>
<b>Federal / BLM</b>											
<i>Oil and Gas Development and Production</i>											
Oil	67	29	230	0	13	3	15	6,446	37	0	7,240
Natural Gas	15	5	8	0	3	1	2	1,873	16	0	2,204
CBNG	2	1	1	0	1	0	0	178	5	0	286
Bentonite Mining	66	0	0	0	71	11	0	157	0	0	157
BLM Travel	1	0	0	0	9	1	0	42	0	0	44
BLM Road Maintenance	0	0	0	0	0	0	0	1	0	0	1
Fire Management <sup>1</sup>	905	25	47	7	130	82	8	75	48	7	3,215
Forestry Management	2	3	0	0	3	1	0	347	0	0	349
Livestock Grazing	0	0	0	0	9	1	0	18	340	0	7,148
Vegetation Management	0	0	0	0	1	0	0	2	0	0	2
<b>Federal Emission Total</b>	<b>1,058</b>	<b>64</b>	<b>286</b>	<b>7</b>	<b>240</b>	<b>99</b>	<b>24</b>	<b>9,138</b>	<b>445</b>	<b>7</b>	<b>20,646</b>
<b>Non-Federal</b>											
<i>Oil and Gas Development and Production</i>											
Oil	295	247	1,147	2	62	17	73	29,355	183	0	33,228
Natural Gas	50	34	38	0	9	2	10	4,984	67	0	6,378
CBNG	34	22	12	2	7	2	2	2,783	53	0	3,904
<b>Non-Federal Emission Total</b>	<b>379</b>	<b>303</b>	<b>1,196</b>	<b>4</b>	<b>77</b>	<b>21</b>	<b>84</b>	<b>37,122</b>	<b>303</b>	<b>0</b>	<b>43,510</b>

tpy = short tons per year

<sup>1</sup> Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires.

**Comparison to Current Total County Emissions**

<i>Emissions</i>	<i>Emissions (tpy)</i>					
	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
2008 NEI Emissions	46,173	8,485	9,035	132	15,327	2,319
<i>Alt. B O&amp;G (%) of NEI Emissions</i>	0.2%	0.4%	2.6%	0.1%	0.1%	0.1%
<i>Alt. B (%) of NEI Emissions</i>	2.3%	0.8%	3.2%	5.4%	1.6%	4.3%

County Emissions (Butte, Custer, Fall River, Haakon, Harding, Lawrence, Meade, Pennington, Perkins, and Stanley counties).

Source: EPA 2008 National Emission Inventory (NEI), <http://neibrowser.epa.gov/eis-public-web/geo/county-emissions.html?stateJurisdictionId=43&inventoryYear=2008>, accessed December 12, 2011.

**Comparison to Other Alternatives**

<i>Emissions</i>	<i>Emissions (tpy)</i>										
	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>HAPs</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2ea</sub></i>
<i>Alt. B - Alt. A</i>	689	12	(22)	5	68	60	(0)	(1,787)	43	5	787
<i>Alt B % Increase Over Alt A</i>	186.9%	22.0%	(7.2%)	317.5%	40.0%	156.7%	(1.8%)	(16.4%)	10.6%	347.3%	4.0%

**Alternative C**  
**SDFO Future Year Emission Estimate Summary**

Ownership	Emissions (tpy)										
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	HAPs	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2ea</sub>
<b>Federal / BLM</b>											
<i>Oil and Gas Development and Production</i>											
Oil	37	16	129	0	7	1	8	3,481	21	0	3,924
Natural Gas	8	3	4	0	1	0	1	995	9	0	1,179
CBNG	2	1	1	0	1	0	0	178	5	0	286
Bentonite Mining	66	0	0	0	71	11	0	157	0	0	157
BLM Travel	1	0	0	0	9	1	0	42	0	0	44
BLM Road Maintenance	0	0	0	0	0	0	0	1	0	0	1
Fire Management <sup>1</sup>	456	13	24	3	85	43	5	75	24	3	1,645
Forestry Management	2	3	0	0	3	1	0	347	0	0	349
Livestock Grazing	0	0	0	0	8	1	0	18	322	0	6,788
Vegetation Management	0	0	0	0	1	0	0	2	0	0	2
<b>Federal Emission Total</b>	<b>571</b>	<b>36</b>	<b>159</b>	<b>4</b>	<b>186</b>	<b>59</b>	<b>15</b>	<b>5,295</b>	<b>381</b>	<b>3</b>	<b>14,375</b>
<b>Non-Federal</b>											
<i>Oil and Gas Development and Production</i>											
Oil	295	247	1,147	2	62	17	73	29,355	183	0	33,224
Natural Gas	50	38	38	0	9	2	10	4,984	67	0	6,377
CBNG	34	22	12	2	7	2	2	2,783	53	0	3,904
<b>Non-Federal Emission Total</b>	<b>379</b>	<b>307</b>	<b>1,196</b>	<b>4</b>	<b>77</b>	<b>21</b>	<b>84</b>	<b>37,122</b>	<b>303</b>	<b>0</b>	<b>43,505</b>

tpy = short tons per year

<sup>1</sup> Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires.

**Comparison to Current Total County Emissions**

<b>Emissions</b>	<b>Emissions (tpy)</b>					
	<b>CO</b>	<b>NO<sub>x</sub></b>	<b>VOC</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
2008 NEI Emissions	46,173	8,485	9,035	132	15,327	2,319
Alt. C O&G (%) of NEI Emissions	0.1%	0.2%	1.5%	0.0%	0.1%	0.1%
Alt. C (%) of NEI Emissions	1.2%	0.4%	1.8%	2.7%	1.2%	2.5%

County Emissions (Butte, Custer, Fall River, Haakon, Harding, Lawrence, Meade, Pennington, Perkins, and Stanley counties).

Source: EPA 2008 National Emission Inventory (NEI), <http://neibrowser.epa.gov/eis-public-web/geo/county-emissions.html?stateJurisdictionId=43&inventoryYear=2008>, accessed December 12, 2011.

**Comparison to Other Alternatives**

<b>Emissions</b>	<b>Emissions (tpy)</b>										
	<b>CO</b>	<b>NO<sub>x</sub></b>	<b>VOC</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>HAPs</b>	<b>CO<sub>2</sub></b>	<b>CH<sub>4</sub></b>	<b>N<sub>2</sub>O</b>	<b>CO<sub>2ea</sub></b>
Alt. C - Alt. A	203	(16)	(149)	2	15	20	(10)	(5,630)	(22)	2	(5,484)
Alt. C - Alt. B	(486)	(28)	(127)	(3)	(53)	(40)	(9)	(3,843)	(64)	(3)	(6,271)
Alt C % Increase Over Alt A	55.0%	(30.7%)	(48.5%)	113.2%	8.7%	52.2%	(40.3%)	(51.5%)	(5.4%)	124.3%	(27.6%)
Alt B % Increase Over Alt B	(46%)	(43%)	(44%)	(49%)	(22%)	(41%)	(39%)	(42%)	(14%)	(50%)	(30%)

**Alternative D**  
**SDFO Future Year Emission Estimate Summary**

Ownership	Emissions (tpy)										
	CO	NO <sub>x</sub>	VOC	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	HAPs	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2ea</sub>
<b>Federal / BLM</b>											
<i>Oil and Gas Development and Production</i>											
Oil	67	29	230	0	13	3	15	6,446	37	0	7,240
Natural Gas	15	5	8	0	3	1	2	1,873	16	0	2,204
CBNG	2	1	1	0	1	0	0	178	5	0	286
Bentonite Mining	66	0	0	0	71	11	0	157	0	0	157
BLM Travel	1	0	0	0	9	1	0	42	0	0	44
BLM Road Maintenance	0	0	0	0	0	0	0	1	0	0	1
Fire Management <sup>1</sup>	905	25	47	7	130	82	8	75	48	7	3,215
Forestry Management	2	3	0	0	3	1	0	347	0	0	349
Livestock Grazing	0	0	0	0	9	1	0	18	340	0	7,148
Vegetation Management	0	0	0	0	1	0	0	2	0	0	2
<b>Federal Emission Total</b>	<b>1,058</b>	<b>64</b>	<b>286</b>	<b>7</b>	<b>240</b>	<b>99</b>	<b>24</b>	<b>9,138</b>	<b>445</b>	<b>7</b>	<b>20,646</b>
<b>Non-Federal</b>											
<i>Oil and Gas Development and Production</i>											
Oil	295	247	1,147	2	62	17	73	29,355	183	0	33,228
Natural Gas	50	34	38	0	9	2	10	4,984	67	0	6,378
CBNG	34	22	12	2	7	2	2	2,783	53	0	3,904
<b>Non-Federal Emission Total</b>	<b>379</b>	<b>303</b>	<b>1,196</b>	<b>4</b>	<b>77</b>	<b>21</b>	<b>84</b>	<b>37,122</b>	<b>303</b>	<b>0</b>	<b>43,510</b>

tpy = short tons per year

<sup>1</sup> Excludes smoke emissions from wildfires, but includes smoke emissions from prescribed fires.

**Comparison to Current Total County Emissions**

<i>Emissions</i>	<i>Emissions (tpy)</i>					
	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
2008 NEI Emissions	46,173	8,485	9,035	132	15,327	2,319
Alt. D O&G (%) of NEI Emissions	0.2%	0.4%	2.6%	0.1%	0.1%	0.1%
Alt. D (%) of NEI Emissions	2.3%	0.8%	3.2%	5.4%	1.6%	4.3%

County Emissions (Butte, Custer, Fall River, Haakon, Harding, Lawrence, Meade, Pennington, Perkins, and Stanley counties).

Source: EPA 2008 National Emission Inventory (NEI), <http://neibrowser.epa.gov/eis-public-web/geo/county-emissions.html?stateJurisdictionId=43&inventoryYear=2008>, accessed December 12, 2011.

**Comparison to Other Alternatives**

<i>Emissions</i>	<i>Emissions (tpy)</i>										
	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>HAPs</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2ea</sub></i>
Alt. D - Alt. A	689	12	(22)	5	68	60	(0)	(1,787)	43	5	787
Alt. D - Alt. B	0	0	0	0	0	0	0	0	0	0	0
Alt. D - Alt. C	486	28	127	3	53	40	9	3,843	64	3	6,271
Alt D % Increase Over Alt A	186.9%	22.0%	(7.2%)	317.5%	40.0%	156.7	(1.8%)	(16.4%)	10.6%	347.3%	4.0%
Alt D % Increase Over Alt B	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Alt D % Increase Over Alt C	85%	76%	80%	96%	29%	69%	64%	73%	17%	99%	44%



## **Appendix T**

### **South Dakota Field Office Resource Management Plan**

#### **Areas of Critical Environmental Concern Nominations and Evaluation of the Relevance and Importance Criteria**

#### **Fossil Cycad ACEC Fort Meade Recreational Area ACEC SD Sage Grouse Protection Priority Areas ACEC**

**Prepared by:  
United States Department of the Interior  
Bureau of Land Management  
South Dakota Field Office**

**September 17, 2012**

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## I. Executive Summary

As part of the South Dakota Resource Management Plan (RMP) process, the RMP Interdisciplinary Team (IDT) analyzed whether areas analyzed met the relevance and importance criteria for nomination as Areas of Critical Environmental Concern (ACEC). The South Dakota Field Office (SDFO) analyzed three proposed areas (existing and externally proposed). Based on the analysis, the three areas met the relevance and importance criteria for nomination. The following table summarizes the findings.

<b>Table 1 – ACEC Determinations</b>			
<i>Area Analyzed</i>	<i>Identified By:</i>	<i>Rationale</i>	<i>Carried Forward For Analysis</i>
<b>Fort Meade Recreational Area</b>	Internal (previous decision)	Protect unique historic and cultural values	Yes
<b>Fossil Cycad</b>	Internal (previous decision)	Protect paleontological values	Yes
<b>SD Sage Grouse Protection Priority Areas</b>	WildEarth Guardians	Protect Sage-Grouse	Yes

The Fort Meade ACEC and Fossil Cycad ACEC will be nominated as potential ACECs and will be fully considered for designation and management in the RMP (BLM Manual 1613.2.21).

The SD Sage Grouse Protection Priority Areas nomination meets Relevance criteria 2 and 3 and Importance criterion 3. The sage grouse protection priority areas are not recommended by the interdisciplinary team to be designated as an ACEC. An ACEC designation for Greater Sage-Grouse Protection Priority Areas is evaluated in Alternative C of the South Dakota RMP/EIS.

## II. Introduction

As part of the process for developing the South Dakota RMP, the BLM, South Dakota Field Office (SDFO) IDT reviewed all BLM-administered public lands in the planning area to determine whether any areas should be considered for designation as Areas of Critical Environmental Concern (ACECs). The public was also requested (through scoping and notification in the *Federal Register* Notice of Intent to identify areas they feel should be considered for management as an ACEC (or other special designation).

The Federal Land Policy and Management Act (FLPMA) **requires that priority** shall be given to the designation and protection of ACECs. Areas of Critical Environmental Concern are defined in the FLPMA Sec. 103[43 U.S.C 1702] (a) and in 43 C.F.R. 1601.0-5(a) as “areas within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards.”

The following analysis and the resultant findings for ACEC relevance and importance criteria has been performed pursuant to FLPMA Sec. 202[43 U.S.C. 1712] (c)(3), 43 C.F.R. 1610-7-2 and BLM 1613 Manual.

## III. Requirements for ACEC Designation

To be eligible for designation as an ACEC, an area must meet the relevance and importance criteria described in 43 Code of Federal Regulations (CFR) 1610.7-2 and BLM Manual 1613, *Areas of Critical Environmental Concern*, and need special management. Special management attention refers to “*management prescriptions developed during preparation of an RMP or amendment expressly to protect the important and relevant values of an area from the potential effects of*

actions permitted by the RMP, including proposed actions deemed to be in conformance with the terms, conditions, and decisions of the RMP.” Thus, these are management measures that would not be necessary and prescribed if the relevant and important values were not present. A management prescription is considered to be special if it is unique to the area involved and includes terms and conditions specifically to protect the values occurring within the area. The determinations in this report deal strictly with the relevance and importance criteria, and not special management attention.

Relevance and importance are defined as follows:

**Relevance:** There shall be present a significant historic, cultural, or scenic value, a fish or wildlife resource or other natural system or process, or natural hazard.

**Importance:** The above described value, resource, system, process, or hazard shall have substantial significance and value, which generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern. A natural hazard can be important if it is a significant threat to life or property.

## Relevance

An area meets the relevance criterion if it contains one or more of the following:

1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans)
2. A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).
3. A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).
4. Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action might meet the relevance criteria if it is determined through the resource management planning process to have become part of a natural process.

## Importance

An area meets the importance criterion if it meets one or more of the following:

1. Have more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
2. Have qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
3. Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of the Federal Land Policy and Management Act (FLPMA).
4. Have qualities that warrant highlighting to satisfy public or management concerns about safety and public welfare.
5. Poses a significant threat to human life and safety or to property.

## IV. Evaluation Process

In compiling a list of areas to be analyzed in this report, the BLM ID teams followed the guidance set forth in BLM Manual 1613 and considered:

1. Existing ACECs
2. Areas recommended for ACEC consideration (external and internal nominations)
3. Areas identified through inventory and monitoring
4. Adjacent designations of other Federal and State agencies.

ACECs may be nominated by BLM staff, other agencies, or members of the public at any time. During the RMP revision scoping process, the BLM specifically solicited nominations from the public and other agencies. Information on special designations and ACECs was part of the scoping package and included in information made available at the public scoping meetings.

The BLM received no external nominations from the public (refer to Table I) as part of the formal outreach process. The BLM staff reviewed information from BLM inventories, data, and other reports to ensure that all potentially relevant and important values within the planning areas were considered, and proposed two areas for consideration.

The maps included in this Appendix, along with the ACEC evaluations, are for those areas that were found to meet the relevance and importance criteria. The boundaries of some of the proposed external nominations were modified to accurately represent where the values exist. The size and management prescriptions for each ACEC may vary by alternative to reflect a balance between the goals and objectives of the alternative and values being protected (BLM Manual 1613.2.22.B.1&2). The range of alternatives for the size of each ACEC being carried forward for further study is included in this Appendix.



**AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC) NOMINATION EVALUATION**

NAME:	<b>Fort Meade Recreational Area ACEC</b>	LOCATION:	Meade County, SD
SIZE:	6,587 acres	NOMINATED BY:	BLM and Dakotas Resource Advisory Council

RATIONALE: protect unique cultural and historic values  
 EVALUATED BY: SD RMP Interdisciplinary Team, 2010

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In 1996, the Fort Meade Recreational Area was designated as an ACEC through a Resource Plan Amendment (BLM 1996) because of its significant historic and cultural values. This report documents the re-evaluation of the ACEC status for the Fort Meade Recreational Area.

**Background and History of the Fort Meade Area**

In 1996, the BLM made a decision to manage Fort Meade as an ACEC (BLM 1996 Decision Record for the Fort Meade Recreation ACEC BLM). The Decision Record noted that “the Fort Meade Recreational Area contains historic and cultural values that are regionally significant, irreplaceable, unique and vulnerable to vandalism. Special Management is needed to protect cultural and historic values from vandalism and adverse change.”

The early history of the area, and its strategic proximity to the Black Hills, may be the most significant feature of the area. Its location between Bear Butte (sacred mountain of the American Indians) and the Black Hills was not only of great importance to the American Indian people but later played a significant role in the settlement of South Dakota. A portion of the area is listed on the National Register of Historic Places. (MAP)

An early Oglala campsite on Bear Butte Creek, a Ute campsite and burial ground and several lithic scatter sites consisting of local raw material (chert and chalcedony), flakes and tools, give evidence to Native American use. Continuing oral tradition also indicates the importance of the area (particularly Bear Butte, but surrounding areas as well) to Native American culture.

Fort George W. Meade was established in 1878 as a cavalry fort to protect the new settlements in the northern Black Hills, especially the nearby gold mining area around Deadwood. Several stage and freighting routes passed through Fort Meade enroute to Deadwood. The ruts of several historic trails, used for transport of passengers and freight, are still visible in places.

For most of the past 120 years, there has been some military presence at Fort Meade. Many cavalry and infantry units were stationed here, including the 7th Cavalry after the Battle of the Little Bighorn, the Buffalo soldiers of the 10th Cavalry, and the 4th Cavalry which saw the transition from horses to mechanization. Fort Meade still serves as a training site for the South Dakota National Guard and an Army National Guard Officer Candidate School.

A variety of structures and features dating as far back as the 1870s are present. Many of these remnants of early cavalry life remain in good condition. Some examples include Curley Grime's grave, stone cavalry jumps, rock carvings, Fort Meade Post Cemetery, Ute Indian campsite, and Camp Fechner--an old Civilian Conservation Corp camp and World War II POW camp.

The Fort Meade Recreational area is located next to the city of Sturgis and receives high levels of recreational use. Since 1996 growth of the city and development of adjacent land has increased. Recreational use has also increased since 1996. A wide variety of recreational uses occur.

A portion of the areas surrounding the present-day Veterans Administration medical center is listed on the National Register of Historic Places. The Historic District consists of 3,180 acres, 2,180 acres are administered by BLM and 1,000 acres administered by the Veterans Administration. Any undertaking proposed by the BLM within this area requires Section 106 and Determination of Effect consultation with the State Historic Preservation Office (SHPO) and Advisory Council on Historic Preservation (ACHP). The remaining 3,380 acres of the FMRA outside of the Historic District is also potentially eligible for the National Register, also requiring extensive SHPO and ACHP consultation.

**RELEVANCE** (must contain one or more of the following):

1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans).
2. A fish and wildlife resource including but not limited to habitat for endangered, sensitive or threatened species, or habitat essential for maintaining species diversity.
3. A natural process or system including but not limited to endangered, sensitive or threatened plant species; rare endemic or relic plants or plant communities which are terrestrial, aquatic, or riparian; or rare geological features.
4. Natural hazards including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs.

**The Fort Meade Recreational Area meets Relevance criterion 1.**

Significant historic, cultural, and scenic values are present including rare and sensitive archeological resources and religious or cultural resources important to Native Americans. The Fort Meade Recreational Area contains a wide variety of cultural resources that are important to providing an understanding of Native American use, early settlement of the Black Hills area, and military history.

**IMPORTANCE** (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
3. Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of the Federal Land Management Policy Act.
4. Has qualities, which warrant highlighting to satisfy public or management concerns about safety and public welfare.
5. Poses a significant threat to human life and safety to property.

**The Fort Meade Recreational Area meets Importance Criterion 1.**

The Fort Meade Recreational Area contains numerous significant historic, cultural, qualities which provide special worth, distinction, and meaning. The Fort Meade Recreational Area contains features associated with a Military Fort, Native American use, and early settlement of South Dakota. The area is known locally and regionally as an important source of these features associated with these activities. Many of these sites have interpretative signs, while other are not interpreted because of sensitivity to damage or vandalism.

**The Fort Meade Recreational Area meets Importance Criterion 2.**

The Fort Meade Recreational Area is easily accessed and experiences high levels of visitor use. The numerous cultural and historic features that are present are unique and vulnerable to adverse change. The close proximity of the area to Bear Butte contributes to the cultural and scenic values of the area.

The Fort Meade Recreational Area is a transition zone between the pine forests of the Black Hills and the surrounding prairies. Currently the northern edge of the Black Hills is experiencing rapid growth and development of lands for homes and subdivisions. The abundance of undeveloped lands along the northern edge of the Black Hills is likely to decrease as a result of the development of private land and construction of roads and other infrastructure.

**AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC) NOMINATION EVALUATION**

NAME: **Fossil Cycad ACEC**

LOCATION: T7S, R3E, Sec. 35, SW¼NE¼, SE¼, S½SW¼, NE¼SW¼; Fall River County, South Dakota

SIZE: 313\* acres

NOMINATED BY: BLM and Dakotas Resource Advisory Council

RATIONALE: protect unique paleontological values  
 EVALUATED BY: SD RMP Interdisciplinary Team, 2010

\*Current GIS acres, Public Land Survey area is 320 acres.

**Background and History of the Fossil Cycad Area**

The Fossil Cycad Area was designated as an ACEC through a Resource Plan Amendment (BLM 1999) because of its unique paleontological values.

This report documents the re-evaluation of the ACEC status for the Fossil Cycad (hereafter referred to as Fossil Cycad) ACEC.



*Pseudotsugis lanei*-type Cycadale with a striking similarity to the modern *Encephalartos*, Middle Jurassic. John Sibbick

The Fossil Cycad contained a rare fossilized plant species that is known in only 3 other places on earth. The fossils give indications as to the development of flowering plants. Described in 1893, the value of the find resulted in National Monument status for the Fossil Cycad in 1922.

The lack of visible fossil material led to the deauthorization of the Monument in 1957. The management of the area was turned over to the BLM. In 1980, construction within a 300 foot highway right-of-way occurred within the boundaries

of the revoked monument. During construction activities, fossil cycad material was unearthed. Though no visible fossil material remains, it is likely there continues to be a fossil remnant, as was shown in the 1980 highway construction. The Fossil Cycad Area was designated as an ACEC through a Resource Plan Amendment (BLM 1999) in order to protect the rare and valuable potential for remaining fossil material.

The entire area is in the same Geological Group/Formations:

**Inyan Kara Group (Lower Cretaceous)** - Includes the Fall River and Lakota Formations.

**Fall River Formation (Lower Cretaceous)** - Variegated brown, red, and gray to purple, calcareous, well-sorted, fine-grained sandstone, siltstone, and shale containing mica. Thickness 100-200 ft. (30-61 m).

**Lakota Formation (Lower Cretaceous)** - Yellow, brown, red-brown, and gray to black claystone, silty pebble conglomerate, and massive to thin-bedded, cross-bedded sandstone. Locally interbedded with freshwater limestone and bituminous coal beds. Thickness 35-500 ft. (11-152 m).

Current management actions and activities on Fossil Cycad ACEC:

- VRM is Class IV.
- Air Quality is Class II.
- Managed with conditional fire suppression.
- Timber and wood product sales not allowed.
- Rights-of-way are not allowed.
- Livestock grazing is allowed, annual grazing occurs and the parcel is fenced on the perimeter.
- Surface and mineral rights are retained in public ownership.
- Locatable minerals are withdrawn from entry (320 public mineral acres, discretionary closure).
- Geophysical exploration for oil and gas is not allowed.
- Area closed to oil and gas leasing.
- Off-road vehicle use is limited to designated roads and trails.
- Vehicle travel off designated roads and trails is allowed only for authorized or permitted uses such as medical and other emergencies, and livestock management practices.
- Noncommercial collection of common invertebrate and plant fossils is not allowed.
- Area is not signed or advertised based on past vandalism.
- State Highway 18 bisects the ACEC parcel.

The BLM discussed the nomination of the area to the Dakota Resource Advisory Council (RAC) on September 2, 2009. The RAC moved that Fossil Cycad Area be carried forward with the ACEC designation. The recommendation carried unanimously.

In order to be considered as a potential ACEC and analyzed in resource management plan alternatives, an area must meet both the relevance and importance criteria:

**RELEVANCE** (must contain one or more of the following):

1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans).
2. A fish and wildlife resource including but not limited to habitat for endangered, sensitive or threatened species, or habitat essential for maintaining species diversity.
3. A natural process or system including but not limited to endangered, sensitive or threatened plant species; rare endemic or relic plants or plant communities which are terrestrial, aquatic, or riparian; or rare geological features.
4. Natural hazards including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs.

**The Fossil Cycad Area meets Relevance criterion 3.**

The natural process or system of prehistoric conditions and adaptations is evidenced in the fossils found, and others as yet undiscovered, in the area. The rare fossilized plant species, found only in three other places on earth, has contributed significantly to the understanding of geologic time, life and earth history. It may lead to improved knowledge about the paleoenvironment during the Cretaceous Period, evolutionary processes, and the development of flowering plant species and conifers.

**IMPORTANCE** (characterized by one or more of the following):

1. Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
3. Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of the Federal Land Management Policy Act.
4. Has qualities, which warrant highlighting to satisfy public or management concerns about safety and public welfare.
5. Poses a significant threat to human life and safety to property.

**The Fossil Cycad Area meets Importance criteria 1 and 2.**

The Fossil Cycad Area possessed and likely still possesses more than locally significant qualities, and geologic values that are fragile, rare, irreplaceable and unique. The rarity of the fossil resource and its impact on understanding of evolutionary development is significant on a larger than local scale. The damage to the resource in the past underscores the vulnerability of the area. Interpretation is not advised due to the likelihood of vandalism and/or unauthorized collection.



**AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC) NOMINATION EVALUATION**

NAME: **SD Sage Grouse Protection Priority Areas** LOCATION: Butte and Harding Counties, SD  
 SIZE: 96,379 acres NOMINATED BY: WildEarth Guardians  
 RATIONALE: protect Greater Sage-Grouse and sage-grouse habitat  
 EVALUATED BY: SD RMP Interdisciplinary Team, 2012

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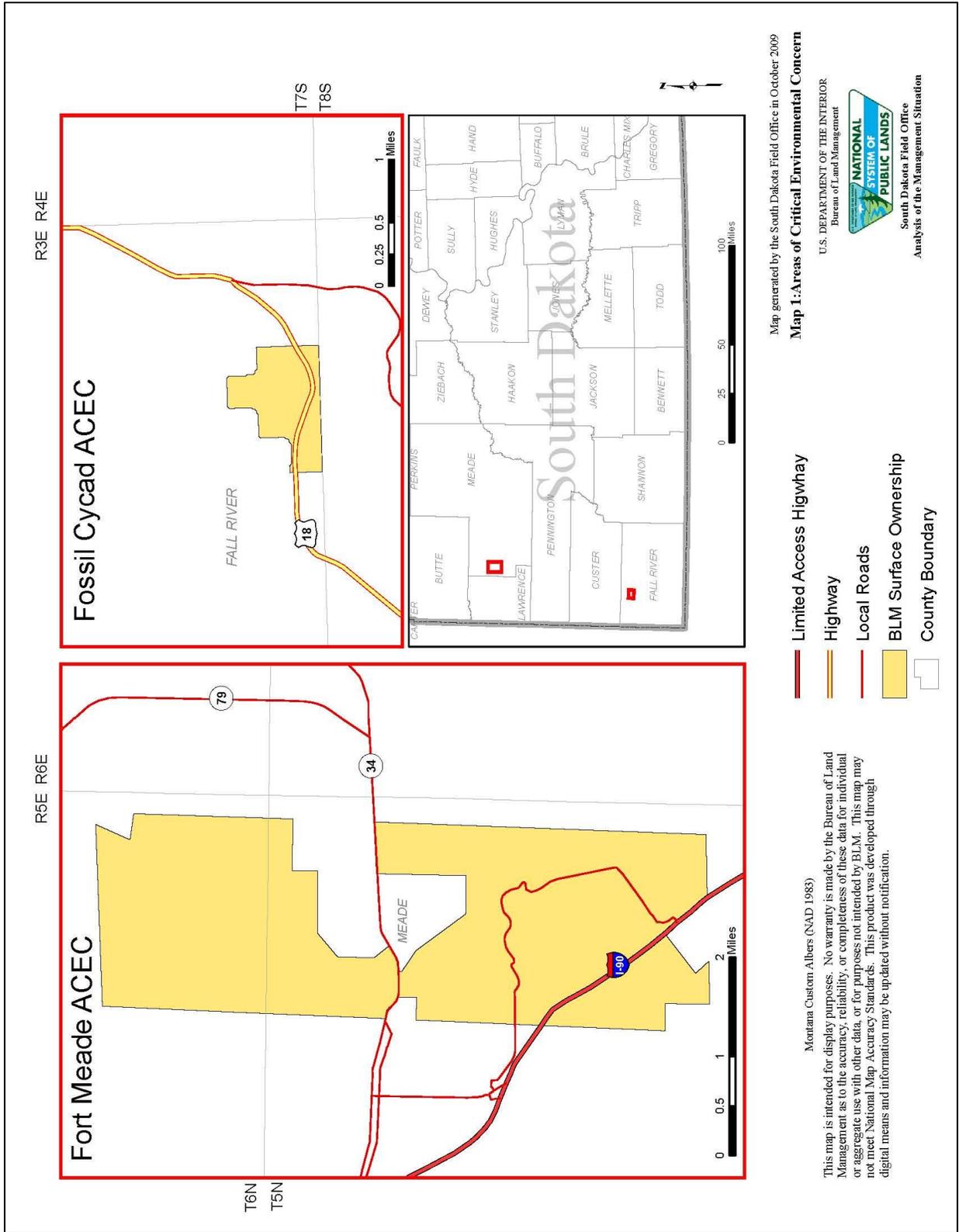
In response to the “Notice of Intent to Prepare Environmental Impact Statements To Incorporate Greater Sage-Grouse Conservation Measures Into Land Use Plans and Land Management Plans” (76 Fed. Reg. 77008), the BLM received an ACEC nomination for Greater Sage-Grouse from WildEarth Guardians that will be considered in this planning process.

This report presents the completed evaluation form for the nominated ACEC in the planning area as shown in the table below. An ACEC that meets both Relevance and Importance criteria is included in Alternative C and analyzed in the SD Draft RMP/EIS. Reference Map 2 (identified as Map 2-5, Greater Sage-Grouse Protection Priority Areas (PPAs) ACEC, Alternative C) shows the locations of the nominated ACEC.

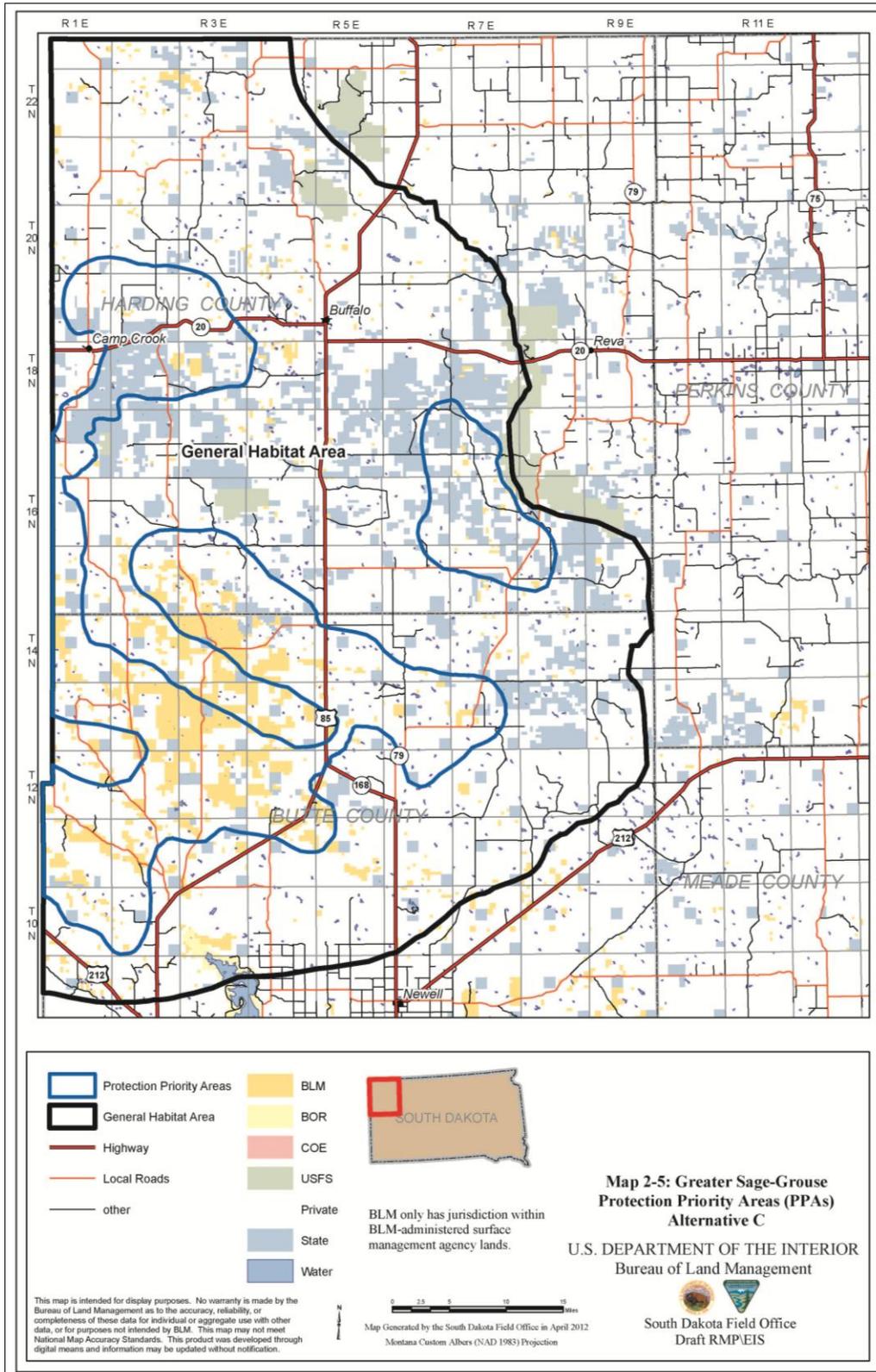
<b>Greater Sage-Grouse Relevance and Importance Evaluation</b>		
<b>Area Considered: Butte and Harding Counties South Dakota.</b>		
<b>General Location: Central and Northern Butte County, Southern Harding County</b>		
<b>General Description: Protection priority habitat for Greater Sage-Grouse</b>		
<b>Acreage: 96,379 BLM-administered surface acres and 289,899 BLM-administered mineral estate acres</b>		
<b>Values Considered: Greater Sage-Grouse habitat</b>		
<i>Relevance Value</i>	<i>Yes/No</i>	<i>Rationale for Determination</i>
1. A significant historic, cultural, or scenic value	No	No significant historic or cultural values are known. Scenic values are moderate, but are similar to those of many other areas in the planning area.
2. A fish and wildlife resource	Yes	The nomination meets the relevance criterion for wildlife resources. The nominated area provides habitat for Greater Sage-Grouse (96,379 acres of BLM administered surface estate) a BLM sensitive species. South Dakota Game, Fish and Parks has reviewed and concurred with BLM’s approach to designate this area as a core area.
3. A natural process or system	Yes	The nomination also meets the criterion for a natural system or process because of the condition of the sagebrush habitat in the nomination area.
4. Natural hazards	No	No natural hazards are known.

<i>Importance Value</i>	<i>Yes/No</i>	<i>Rationale for Determination</i>
1. More than locally significant qualities	No	<p>Although the area contains habitat for Greater Sage-Grouse conservation as noted in the nomination material, the area is not significantly unique or more important than other habitat areas in this region.</p> <p>Greater Sage-Grouse are distributed throughout the western United States. The portion of the distribution in Montana, Wyoming, North Dakota, South Dakota, Alberta, and Saskatchewan are designated as Management Zone I (Stiver, et al. 2006). Management zones are delineations of Greater Sage-Grouse populations and sub-populations within floristic zones with similar management issues. Within Management Zone I in the PPA shown in map 2-5 identify sage-grouse PPAs in South Dakota that were developed by BLM and reviewed by South Dakota Game Fish and Parks and US FWS Ecological Service in Pierre, SD.</p> <p>While all of these areas are considered important to Greater Sage-Grouse conservation, the areas are dispersed throughout the region and are not significantly unique to a specific region or planning unit. In addition, Greater Sage-Grouse habitat in these core areas is owned by a number of different entities and habitat on BLM lands is not distinct from habitat managed by other ownership.</p>
2. Special qualities	No	The area is not particularly fragile or sensitive to change as compared to other sites in Montana.
3. Warrants national priority/FLPMA protection	Yes	Satisfies national priority concerns.
4. Safety/public welfare concerns	No	No safety or public welfare concerns are known.
5. Poses a significant threat	No	No significant threats.

### Reference Map 1 Existing ACECs; Fort Meade and Fossil Cycad



**Reference Map 2**  
**Greater Sage-Grouse Protection Priority Areas highlighted as blue polygons from RMP Map 2-5**



**RESOURCE SPECIALISTS' RECOMMENDATIONS FOR ACEC CONSIDERATION IN THE SOUTH DAKOTA RMP/EIS**

The Fort Meade Recreational Area ACEC meets Relevance criterion 1 and Importance criteria 1 and 2. It is recommended that the Fort Meade Recreational Area ACEC be retained as an ACEC.

The Fossil Cycad ACEC meets Relevance criterion 3 and Importance criteria 1 and 2. It is the specialists' (interdisciplinary team) recommendation that Fossil Cycad be retained as a designated ACEC.

The SD Sage Grouse Protection Priority Areas nomination meets Relevance criteria 2 and 3 and Importance criterion 3. The sage grouse protection priority areas are not recommended by the interdisciplinary team to be designated as an ACEC. An ACEC designation for Greater Sage-Grouse Protection Priority Areas is evaluated in Alternative C of the South Dakota RMP/EIS.

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Field Manager

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Date



# Appendix U

## Wild and Scenic River Evaluation

As part of the South Dakota Field Office Resource Management Plan revision an assessment must be made as to the eligibility and suitability for Wild and Scenic River (WSR) designation on identified river segments. In addition, determination must be made whether land management activities or proposed projects will have a direct, indirect, or adverse effect upon any eligible or designated WSR river (BLM Manual 6400, Chapter 1.2).

### Identification

The Nationwide River Inventory (NRI) List is an accepted source for identifying potential Wild and Scenic Rivers. The Belle Fourche River from the Cheyenne River to Vale is listed; however, no BLM land is adjacent to this segment, so no evaluation of the Belle Fourche River was made. The Little Missouri River runs through the NW corner of the planning area. The State of North Dakota designates the river as scenic as it flows through the Theodore Roosevelt National Park and Elkhorn Ranch Site. The NRI does not identify the Little Missouri River south of Marmarth, N.D. The BLM considered this an indication of the river’s potential, so it was not evaluated. The BLM evaluated the Cheyenne River as identified on the NRI.

<i>River</i>	<i>Segment Description</i>	<i>Reason for Consideration</i>	<i>Total River Segment Length (miles)</i>	<i>River Length Adjacent to BLM (approximate miles)</i>	<i>BLM Jurisdiction<sup>1</sup> (acres)</i>
Cheyenne River	Lake Oahe to Slate Springs Draw Dam (Sec. 1, T8S, R6E)	Nationwide Rivers Inventory List	206	10	1071

<sup>1</sup>Shoreline and adjacent lands within ¼ mile of the river segment mile measured from the ordinary high water mark on both sides of the river.

### Evaluation

Where a particular river segment is predominately non-federal in ownership and contains interspersed BLM-administered lands, the BLM shall evaluate only its segment as to eligibility and defer to the State or to the private landowners’ discretion as to their determination of eligibility. This is the case in western South Dakota. Only 28 parcels of BLM intersect the 1/2 mile wide river study boundary (See Map attached), and this evaluation will consider no more than those parcels. In accordance with the provisions of the Wild and Scenic Rivers Act (WSRA), evaluation of identified rivers involves the following sequential determinations: eligibility; tentative classification; and suitability for inclusion in the National Wild and Scenic Rivers System (NWSRS).

### Eligibility

- A. Basis for Determination. To be eligible, a river segment must be “free-flowing” and must possess at least one river-related value considered to be “outstandingly remarkable.”
- B. Free-flowing. Free-flowing is defined by Section 16(b) of the WSRA as “existing or flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway.”

ASSESSMENT: The Cheyenne River is essentially free-flowing in the area under consideration. The Slate Springs Draw Dam is at the beginning of the river section under consideration.

- C. Outstandingly Remarkable Values. Section 1(b) of the WSRA requires that, in order for a river segment to be eligible for inclusion as a component of the NWSRS, it must possess one or more of the following outstandingly remarkable values: scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values.

1. Scenic. The landscape elements of landform, vegetation, water, color, and related factors must result in notable or exemplary visual features and/or attractions within the geographic region.

ASSESSMENT: The rolling bluffs of the river, the scattered juniper draws and cottonwoods, the river condition of flat, methodical water, and the muted browns and greens of the river corridor do not result in notable or exemplary visual features or attractions. Widespread, and familiar throughout the region, these features are not extraordinary.

2. Recreational. Recreational opportunities are or have the potential to be unusual enough to attract visitors to the geographic region. Visitors are willing to travel long distances to use the river resources for recreational purposes.

ASSESSMENT: Use of the area for recreation purposes is incidental. Local residents infrequently use the area for hunting. Values are not impressive enough to attract other visitors.

3. Geologic. The river or river corridor contains examples of a geologic feature, process, or phenomenon that are rare, unusual, or unique to the geographic region.

ASSESSMENT: No geologic features, processes or phenomenon are rare, unusual, or unique to the geographic region.

4. Fish. Fish values may be judged on the relative merits of either fish populations or habitat, or a combination of these river-related conditions.

- a. Populations. The river is nationally or regionally one of the top producers of resident, indigenous, and/or anadromous fish species. Of particular significance may be the presence of wild or unique stocks, or populations of State, federally listed, or candidate threatened and endangered species.

ASSESSMENT: The river in this area carries a population of 55 fish species, of which 32 are native and 23 are introduced. Two State threatened species are found in this river. These populations are not federally listed, or candidate threatened and endangered species. These populations are not of outstanding significance.

Habitat. The river provides exceptionally high quality habitat for fish species indigenous to the region. Of particular significance is habitat for State, federally listed, or candidate threatened and endangered species.

ASSESSMENT: Habitat is provided for two State listed threatened species; however, the habitat is not of exceptionally high quality.

5. Wildlife. Wildlife values may be judged on the relative merits of either wildlife populations or habitat, or a combination of these conditions.

- a. Populations. The river or river corridor contains nationally or regionally important populations of resident or indigenous wildlife species dependent on the river environment.

ASSESSMENT: Wildlife species use the river corridor, but are not dependent on the river environment.

- b. Habitat. The river or river corridor provides exceptionally high quality habitat for wildlife of national or regional significance, or may provide unique habitat or critical link in habitat conditions for State, federally listed, or candidate threatened and endangered species. Contiguous habitat conditions are such that the biological needs of the species are met.

ASSESSMENT: The river corridor is important habitat; however, it does not provide exceptionally high quality habitat for wildlife of national or regional significance.

6. Cultural. The river or river corridor contains a site(s) where there is evidence of occupation or use by Native Americans. Sites must be rare, have unusual characteristics, or exceptional human-interest value(s).

ASSESSMENT: Occasional cultural sites are not rare, do not have unusual characteristics or do not have exceptional human interest value(s).

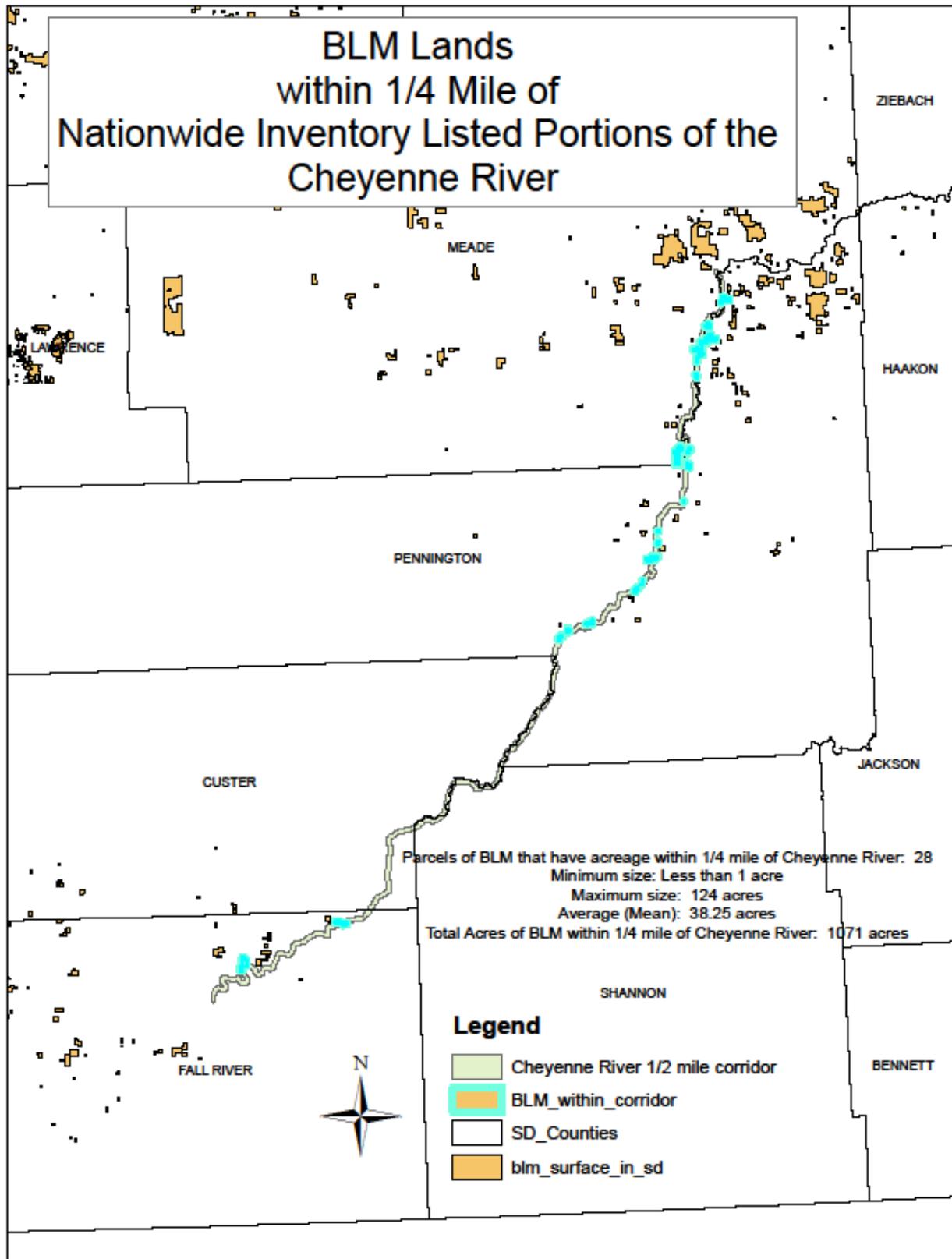
7. Historic. The river or river corridor contains a site(s) or feature(s) associated with a significant event, an important person, or cultural activity of the past that was rare, or unusual in the region.

ASSESSMENT: The river corridor was used in the past; however, no significant event, important person, or cultural activity of the past that was rare or unusual in the region.

8. Other Similar Values. While no specific evaluation guidelines have been developed for the “other similar values” category, additional values deemed relevant to the eligibility of the river segment should be considered in a manner consistent with the foregoing guidance—including, but not limited to, hydrologic, ecologic/biologic diversity, paleontologic, botanic, and scientific study opportunities.

ASSESSMENT: No other similar values were identified.

- D. Eligibility Determination. Based on the above assessments the identified segment of the Cheyenne River is free-flowing, and DOES NOT possess an outstandingly remarkable value; therefore, it is ineligible for Wild and Scenic River designation.



# Appendix V

## Mitigation Measures and Conservation Actions For Greater Sage-Grouse Habitat

### Introduction

These Mitigation Measures, and Conservation Actions for Greater Sage-Grouse Habitat are a compilation of management strategies and project design features employed by the Bureau of Land Management (BLM) to mitigate impacts from surface disturbance and disruptive activities in priority and general sage-grouse habitat in order to meet the goals and objectives set forth in the BLM National Sage-grouse Conservation Strategy and in individual land use plans. They apply to activities such as road or pipeline construction, range improvements, and permitted land uses or recreation activities. These guidelines are presented as an appendix for easy reference as they apply to many resources and were derived from many laws and other guidelines such as the Management Plan and Conservation Strategies for Sage-grouse in Montana, the BLM National Technical Team Report (WO IM No. 2012-044, BLM National Greater Sage-Grouse Land Use Planning Strategy), Western Association of Fish and Wildlife Agencies (WAFWA), Conservation Strategy for Greater Sage-grouse, and others.

The guidelines are primarily included to provide consistency within the Montana/Dakotas BLM in how management practices and requirements are identified and applied to avoid and mitigate environmental impacts and resource and land use conflicts in greater sage-grouse (*Centrocercus urophasianus*; hereafter, 'sage-grouse') habitat. Consistency in this sense does not mean that identical requirements would be applied for all similar types of land use activities, nor does it mean that the requirements or guidelines for a single land use activity would be identical in all areas.

There are two ways the mitigation guidelines are used in the RMP and EIS process: (1) as part of the planning criteria in developing the RMP alternatives; and (2) in the analytical processes of both developing the alternatives and analyzing the impacts of the alternatives. In the first case, an assumption is made that any one or more of the mitigation measures or conservation actions will be appropriately included as conditions of relevant actions being proposed or considered in each alternative. In the second case, the mitigations are used (1) to develop a baseline for measuring and comparing impacts among the alternatives; (2) to identify other actions and alternatives that should be considered; and (3) to help determine whether more stringent or less stringent mitigations should be considered.

The EIS for the RMP does not decide or dictate the exact wording or inclusion of these guidelines. Rather, the guidelines are used in the RMP and EIS process as a tool to help develop the RMP alternatives and to provide a baseline for comparative impact analysis in arriving at RMP decisions. These guidelines will be used in the same manner in analyzing activity plans and other site-specific proposals. These guidelines and their wording are matters of policy. As such, specific wording is subject to change primarily through administrative review, not through the RMP and EIS process. Any further changes that may be made in the continuing refinement of these guidelines and any development of program-specific standard stipulations will be handled in another forum, including appropriate public involvement and input.

### Purpose

The purpose of these mitigation measures and conservation actions is to mitigate impacts from surface disturbance in priority and general sage-grouse habitat in order to meet the goals and objectives set forward in the BLM National Sage-grouse Conservation Strategy and in individual land use plans. Application of mitigation measures and conservation actions will reserve for the BLM the right to modify the operations of surface-disturbing and/or disruptive activities as part of the statutory requirements for environmental protection. Those measures selected for implementation will be

identified in the Record of Decision (ROD) or Decision Record (DR) for those activities and will inform a potential lessee, permittee, or operator of the requirements that must be met when using BLM lands and minerals. These measures have been written in a format that will allow for either their direct use as stipulations or operating standards and/or in addition to specific or specialized mitigation following the submission of a detailed development plan or other project proposal and an environmental analysis. These operating standards are given as acceptable methods for mitigating anticipated effects and achieving the desired plan outcomes but are not prescribed as the only method for achieving the outcomes.

Those resource activities or programs currently without a standardized set of permit or operation stipulations can use the mitigation measures and conservation actions for greater sage-grouse as stipulations or as conditions of approval, or as a baseline for developing specific stipulations for a given activity or program.

These mitigation measures and conservation actions are primarily written for priority sage-grouse habitats. Within general habitat the mitigation measures and conservation actions applied are determined at a project-by-project level and may be similar in many cases to the priority habitat measures. A selection of mitigation measures and conservation actions for general habitat is also included for some programs. At the project level, in order to prioritize certain general habitat areas over marginal or substandard sage-grouse habitat areas, consideration should be given to:

- The capability of the habitat to provide connectivity among priority areas.
- Habitats occupied by sage-grouse where enhancing general sage-grouse habitat can offset losses to habitat and/or populations elsewhere within the habitat.
- The potential to replace lost priority habitat or needed changes in total priority habitat due to perturbations and/or disturbances, providing connectivity between priority areas, and restoring historical habitat functionality to support meeting objectives to maintain or enhance connectivity.

## Threats to Greater Sage-Grouse and Their Habitat

A number of threats and risks to sage-grouse and their habitat have been identified during conservation planning efforts and assessments. Range wide issues were covered in listing decisions made by the U.S. Fish and Wildlife Service in 2007 and 2010. In addition, the BLM National Technical Team Report (WO IM No. 2012-044) covered BLM program areas with the potential to impact sage-grouse populations. The 2005 Management Plan and Conservation Strategies for Sage-Grouse in Montana - Final identified twelve major issues:

- *Fire Management*
- *Grazing Management*
- *Harvest Management*
- *Noxious Weed Management*
- *Mining and Energy Development*
- *Outreach and Education*
- *Power Lines and Generation Facilities*
- *Predation*
- *Recreational Disturbance*
- *Roads and Motorized Vehicles*
- *Vegetation*
- *Managing Other Wildlife in Sage-Grouse Habitats*

## Conservation Actions

These mitigation measures and conservation actions for sage-grouse would be implemented on a project-specific basis in sage-grouse priority habitat, depending on the specific characteristics of the project area and the types of disturbance being proposed. They may not be appropriate to implement in all cases. The mitigation would be requirements, procedures, management practices, or design features that the BLM, through issuance of the Record of Decision (ROD),

would adopt as operational requirements. The BLM may add additional site-specific restrictions as deemed necessary by further environmental analysis and as developed through coordination with other federal, state, and local regulatory and resource agencies. Because mitigation measures change or are modified based on new information, the guidelines will be updated periodically.

In the very early stages of the development of siting and design plans, project developers shall coordinate with appropriate federal, state, and local agencies that regulate activities that affect sage-grouse and their habitats to determine what expected level of mitigation will be needed to ensure the RMP goals and objectives can be met within the proposed action. An environmental review shall demonstrate how the mitigation measures and conservation actions being applied to the project avoid impacts (direct, indirect, and cumulative) that may result in BLM authorizing actions which would exceed habitat level thresholds and prevent achievement of goals and objectives in the priority area. This will analyze at the project level at least two considerations to examine functionality of sage-steppe systems and thresholds where populations are known to be impacted:

- At the landscape scale, priority areas should be maintained with enough land cover composed of adequate sagebrush habitat to provide habitat for sage-grouse and to meet priority habitat objectives. This is measured using broad-scale habitat classification to determine the amount of potential habitat based on ecological sites and is compared against permanent habitat loss and/or short-term habitat loss from disturbances such as agricultural tillage, fire, etc.
- At the local population scale discrete anthropogenic disturbances should be avoided, minimized, or mitigated to maintain the highest quality habitat. Two thresholds have been proposed to maintain populations within priority areas. The National Technical Team proposed a 3% surface disturbance cap for priority sage-grouse habitat while Wyoming issued an Executive Order utilizing a 5% cap. The actual impact to sage-grouse will depend on the amount of direct disturbance, the level of activity associated with the direct disturbance that leads to indirect disturbance, and the cumulative effects of the disturbance level, which result in habitat loss and habitat degradation.

In analyzing the impact from a project, consideration should be given to the type of activity, the amount of anthropogenic disturbance to seasonal sage-grouse habitat utilized by the local population, and the landscape context. As an area moves from direct disturbance exceeding 3% and then 5%, put in context of the condition of the larger landscape, increased mitigation, habitat enhancement, and off-site considerations will be important to maintaining goals and objectives for sage-grouse and priority habitats. Specifically, at the site level the BLM will analyze and disclose how permitted actions, including mitigation measures and conservation actions already in place, affect the ability of priority area goals and objectives to be met and ensure permitted activities are in conformance with the RMP.

## **Priority Habitat**

### **Travel Management**

Travel management should evaluate, during site-specific travel planning, the need for permanent or seasonal road or area closures to protect sage-grouse priority habitat areas.

Use existing roads or realignments to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new roads would be constructed to the absolute minimum standard necessary.

Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal or beneficial impacts on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road.

Reclaim roads, primitive roads and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in Wilderness Study Areas and within lands with wilderness characteristics that have been selected for protection.

When reclaiming roads, primitive roads, and trails, use appropriate seed mixes and consider transplanting sagebrush.

Evaluate impacts of existing roads, including two-tracks, in relation to known lek locations and greater sage-grouse winter ranges.

Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such as during oil and gas development.

Manage on-road travel and OHV use in sage-grouse habitat to avoid disturbance during critical times such as winter, breeding, and nesting periods.

Plan or permit organized events to avoid impacts to sage-grouse.

Manage motorized and mechanized travel to minimize impacts to sage-grouse and their habitat by developing standards for future roads to give to BLM, FS, BIA, state, county, and private parties.

Manage motorized and mechanized travel to minimize impacts to sage-grouse by enforcing existing OHV and travel management plans.

Provide educational opportunities for users of OHVs dealing with the possible effects they may have on sage-grouse.

Develop a transportation management plan across ownership boundaries in sage-grouse habitats.

Participate in travel planning efforts and educate the general public about the impacts of roads on sage-grouse and their habitat.

Consider buffers, removal, realignment, or seasonal closures of roads where appropriate to avoid degradation of habitat.

Reclaim closed roads with locally adapted native plant species beneficial to sage-grouse.

Close and reclaim travel ways in sage-grouse habitat where appropriate.

## **Recreation**

Document leks where recreational viewing occurs.

Provide educational materials to the public describing effects of concentrated recreational activities and the importance of seasonal ranges to sage-grouse.

Issue special use permits for certain activities with distance and timing restrictions to maintain the integrity of breeding, nesting, and winter habitat.

## **Lands and Realty**

Where designated ROW corridors are encumbered by existing ROW authorizations, new ROWs should be co-located to the extent practical and feasible so that the entire footprint of the proposed project is contained within the existing disturbance associated with the authorized ROWs.

Subject to valid, existing rights, where new ROWs associated with valid existing rights are required, co-locate new ROWs within existing ROWs or where it best minimizes impacts to sage-grouse. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary.

Upon project completion, roads used for commercial access on public lands would be reclaimed unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts.

For powerlines:

- Document the segment(s) of line detrimental to sage-grouse.
- Determine by cooperative action – agencies, utilities, and landowners – whether or not modification of poles to limit perching will prevent electrocution of raptors and decrease predation on sage-grouse.
- Emphasize the following if perch prevention modifications do not work to protect sage-grouse and sagebrush habitat:
  - reroute the line using distance, topography, or vegetative cover; or
  - bury the line.
- Explore opportunities for technical assistance and funding.
- Remove power line when use is completed.
- Encourage the use of off-grid systems such as solar, natural gas micro-turbines, and wind power where feasible in sage-grouse habitats.
- Use the best available information for siting power lines on important breeding, brood-rearing, and winter habitat in an appropriate vicinity of the proposed line.
- Initiate collision prevention measures using guidelines (Avian Power Line Action Committee 1994) on identified segments. Measures are subject to restriction or modification for wind and ice loading or other engineering concerns, or updated collision prevention information.
- Remove power lines that traverse sage-grouse habitats when facilities being serviced are no longer in use or when projects are completed.

## **Livestock Grazing**

### **Conducting Land Health Assessments and Permit Renewals in Priority Greater Sage-Grouse Habitat**

#### **Land Health Assessments**

When conducting land health assessments:

- Prioritize allotments that have the best opportunities for conserving, enhancing or restoring habitat for sage-grouse.
- Include (at a minimum) indicators and measurements of structure/condition/composition of vegetation specific to achieving sage-grouse habitat objectives (Doherty, et al. 2011). If local/state seasonal habitat objectives are not available, use sage-grouse habitat recommendations from Connelly, et al. (2000b) and Hagen, et al. 2007.

#### **Permit Renewals**

When conducting permit renewals:

- If an effective grazing system that meets sage-grouse habitat requirements is not already in place, analyze at least one alternative that conserves, restores or enhances sage-grouse habitat in the NEPA document prepared for the permit renewal if the size of the allotment and/or cooperative opportunities warrant it.
- Work cooperatively on integrated ranch planning within sage-grouse habitat so ranch operations with deeded BLM allotments can be planned as single units.
- Analyze springs, seeps and associated pipelines to determine if modifications are necessary to maintain the continuity of the predevelopment riparian area within priority sage-grouse habitats. Make modifications where necessary, considering impacts to other water uses when such considerations are neutral or beneficial to sage-grouse. Only authorize new spring or seep developments where the impacts to sage-grouse would be beneficial.
- Evaluate the role of existing seedings that are currently composed of primarily introduced perennial grasses in and adjacent to priority sage-grouse habitats to determine if they should be restored to sagebrush steppe for sage-grouse. If these seedings are part of an AMP/Conservation Plan or if they provide value in conserving or enhancing the rest of the priority habitats, then no restoration would be necessary. Assess the compatibility of these seedings for sage-grouse habitat or as a component of a grazing system during the land health assessments (Davies, et al. 2011).

- Evaluate existing structural range improvements and location of supplements (salt or protein blocks) to make sure they conserve, enhance or restore sage-grouse habitat.
  - This includes evaluating methods to reduce outright sage-grouse strikes and mortality, through removing, modifying, or marking fences in high risk areas within priority sage-grouse habitat based on proximity to lek, lek size, and topography (Christiansen 2009, Stevens 2011, Stevens, et al. 2012).
- Monitor for, and treat invasive species associated with existing range improvements (Gelbard and Belnap 2003 and Bergquist, et al. 2007).

Include terms and conditions on grazing permits and leases that assure plant growth requirements are met, and residual forage remains available for greater sage-grouse hiding cover. Utilize techniques appropriate for uplands vs. riparian/meadow areas and enhancement vs. reclamation/restoration. Across all these types of projects consider singly, or in combination, changes as necessary:

- Season or timing of use;
- Numbers of livestock (includes temporary non-use or livestock removal);
- Distribution of livestock use;
- Intensity of use (utilization or stubble height objectives)
- Kind of livestock (e.g., cattle, sheep, horses, llamas, alpacas and goats)
- Class of livestock (e.g., yearlings versus cow-calf pairs)

Within riparian areas specifically, consider practices such as:

- Within priority sage-grouse habitat, reduce hot season grazing on riparian and meadow complexes to promote recovery or maintenance of appropriate vegetation and water quality. Utilize fencing/herding techniques or seasonal use or livestock distribution changes to reduce pressure on riparian or wet meadow vegetation used by sage-grouse in the hot season (summer).
- Ensure the sustainability of desired soil conditions and ecological processes within upland plant communities following implementation of strategies to protect riparian areas. This can be achieved by:
  - protecting natural wet meadows and springs from over-use while developing water for livestock, and
  - planning the location, design, and construction of new fences to minimize impacts on sage-grouse.

### **Range Management Mitigation Measures and Conservation Actions**

Design any new structural range improvement and location of supplements (salt or protein blocks) to conserve or enhance sage-grouse habitat through an improved grazing management system relative to sage-grouse management objectives. Structural range improvements in this context include, but are not limited to: cattleguards, fences, exclosures, corrals, or other livestock handling structures; pipelines, troughs, storage tanks (including moveable tanks used in livestock water hauling), windmills, ponds/reservoirs, solar panels, and spring developments.

Discourage concentration of livestock on sage-grouse leks and winter habitat.

If portions of existing fences are found to pose a threat to sage-grouse, mitigate through moving or modifying posts, increasing the visibility of the fences by flagging, or by designing “take-down” fences.

### **Pesticides and Herbicides Use**

- Evaluate ecological consequences of using pesticides to control grasshoppers or other insects.
- Evaluate ecological consequences of broadcast herbicide use on forbs and other important sage-grouse foods.
- Minimize use of pesticides and herbicides in sage-grouse nesting, breeding and brood-rearing habitat.

### **Noxious Weed Management**

- Promote measures that prevent the introduction and spread of weed seeds and other reproducing plant parts.
- Develop and implement management techniques that minimize the risk of infestation.
- Where feasible, isolate livestock from known infestations and avoid vehicle movement through infested areas.
- Use weed-free seed for reestablishment of vegetation.

- Eliminate unnecessary soil disturbance and vehicle access/movement into occupied sage-grouse habitat.
- Limit vehicle use to established roads only.
- Regularly monitor access points and roads for weed establishment.
- Develop partnerships with regional public and private land management units.
- Establish goals and set priorities that encompass the needs of both livestock and wildlife managers so all parties are working under a similar plan.
- Conduct monitoring and develop follow-up procedures for treated areas.
- Educate all field personnel on weed identification, the manner in which weeds spread, and methods of treating weed infestations.
- Employ integrated weed management treatment methods such as a combination of biological and cultural, like grazing, mowing, or seeding treatments in conjunction with herbicides to manage weeds in greater sage-grouse habitat.
- Use the most selective herbicides where chemical treatment is appropriate, to minimize loss of non-target plant species.
- Restore plant communities with desired species adapted to the site, using proven management techniques where biologically feasible. A restoration program may be necessary if conditions prevent natural re-establishment of native plant species.

## Fluid Minerals

Other protective measures will be necessary in cases where federal oil and gas leases have been issued without adequate stipulations for the protection of sage-grouse or their habitats being provided in the applicable RMP decision, as revised or amended. In these cases, mitigation measures and conservation actions will be applied as permit conditions of approval (COAs) when approving exploration and development activities through completion of the environmental record of review or an environmental assessment, as appropriate (43 CFR 3162.5).

General or typical COAs are mitigation measures that may be required when processing Applications for Permits to Drill (APDs), Sundry Notice Drilling Plans, and Surface Use Plans when they are: 1) not specifically addressed in those plans or existing lease stipulations; and 2) needed to mitigate impacts to resource values identified at the onsite inspection or during review of the plans. The use of COAs is intended to reduce, mitigate, or minimize impacts from development but they do not necessarily avoid or preclude resulting significant impacts from the project.

The COAs also allow the BLM to prescribe resource protection measures for lands that were previously leased with varying sets of lease stipulations. However, for lands that are already leased, BLM restrictions on development must be reasonable and consistent with existing lease rights. The COAs must not constrain or restrict development beyond the measures anticipated or authorized by the lease terms or regulations and/or interfere with the lessee's opportunity to economically recover the oil and gas resources, considering the lease as a whole.

Evaluation of these COAs will consider during the NEPA process:

- Whether the conservation measure is "reasonable" (43 CFR 3101.1-2) and consistent with valid existing rights;
- Whether the action is in conformance with the approved RMP; and
- The effectiveness of the mitigation measures proposed.

When incorporated into BLM's program in the Record of Decision (ROD), mitigation approaches and conservation practices detailed in the Surface Use Plan of Operations (see 43CFR 3162-1(f)) shall address, at a minimum, the proposed project's anticipated noise, density and amount of disturbance, mechanical movement (e.g., pumpjacks), permanent and temporary facilities, traffic, phases of development over time, offsite mitigation, and expected periods of use. Following larger-scale considerations for minimizing impacts to sage-grouse this section contains BMPs that will be included, as applicable, as COAs to address to categories of concern. Due to site-specific circumstances, some categories may not apply to some projects and/or may require slight variations from the approach described. It is anticipated the applicability and/or variation in approach will be limited to project siting and configuration. Additional mitigation measures may be identified and required during individual planning. Applicants will be required to discuss any proposed variations with BLM staff. All variations will require appropriate analysis and disclosure as part of future

project authorizations. Those design features that do not apply to a given project will need to be described as part of the project file along with an appropriate rationale.

The following hierarchical approach and guidelines should be followed during project development to address these and other areas of concern for sage-grouse:

#### Density and Amount of Disturbance

Do not allow new surface occupancy on Federal leases within priority habitat areas, including winter concentration areas during any time of the year (Doherty, et al. 2008, Carpenter, et al. 2010). Where this is not possible due to valid existing rights and development requirements for the specific geologic and fluid mineral resources, consider the following disturbance and surface occupancy limits to the extent practicable:

If the lease is partially or entirely within priority habitat areas:

- Subject to topographic and other environmental constraints, require any development within priority habitat to be placed in the area least harmful to sage-grouse based on vegetation, topography, or other habitat features.
- To the extent possible and consistent with valid existing rights, limit disturbances to an average of one site per 640 acres on average, with no more than 3% direct surface disturbance in the analysis area.
- When additional mitigation is necessary, conduct it in the impacted priority sage-grouse habitat areas when possible or, if that is not possible, in general sage-grouse habitat with the ability to increase sage-grouse populations tied to the impacted priority area(s).

#### Breeding and Nesting Habitat

To limit impacts to breeding and nesting habitat, surface-disturbing and disruptive activities shall be prohibited or restricted within 4 miles of a lek to the extent possible and consistent with valid existing rights. If the entire lease is completely within the 4-mile perimeter of a lek, require any development to be placed at the part of the lease farthest from the lek or, based depending on topography and other habitat features, in an area demonstrably the least harmful to sage-grouse.

To ensure comprehensive planning relative to sage-grouse conflicts, complete Master Development Plans or PODS during planning and review of projects involving multiple proposed disturbances within a logical geographic area, with an exception for individual wildcat (exploratory) wells.

Encourage unitization when deemed necessary for proper development and operation of an area or to facilitate more orderly (e.g., phased and/or clustered) development as a means of minimizing adverse impacts to sage-grouse (see Federal Lease Form, 3100-11, Sections 4 and 6).

#### Brood-Rearing Habitat

Apply a seasonal timing restriction on exploratory drilling that avoids construction, drilling, completion, and reclamation surface-disturbing activities during the nesting and early brood-rearing seasons in all priority sage-grouse habitats for this period.

### **Best Management Practices for Fluid Mineral Development**

Prioritize pad development based on suitability of habitat; construct pads that are in less suitable habitat (i.e., along existing roadways or within degraded habitats) during the breeding season, and construct pads located in more suitable habitat prior to or after the critical breeding, nesting, and brood rearing periods.

Avoid sagebrush, but if disturbance is necessary, interim reclamation should include sage plantings/seedings and/or the use of minimum disturbance practices to protect sage on well pads and pipelines.

## Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Locate roads to avoid important areas and habitats.
- Coordinate road construction and use among ROW holders.
- Construct road crossing at right angles to ephemeral drainages and stream crossings.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Establish trip restrictions or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).
- Do not issue ROWs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (use signing, gates, etc.)
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads.

## Operations

- Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Consider using oak (or other material) mats for drilling activities to reduce vegetation disturbance and for roads between closely spaced wells to reduce soil compaction and maintain soil structure to increase likelihood of vegetation reestablishment following drilling.
- Apply a phased development approach with concurrent reclamation.
- Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority areas (minimizes perching and nesting opportunities for ravens and raptors and truck traffic). Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury distribution power lines.
- Corridor power, flow, and small pipelines under or immediately adjacent to roads.
- Design or site permanent structures which create movement (e.g., a pumpjack) to minimize impacts to sage-grouse.
- Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce sage-grouse mortality.
- Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (e.g., by washing vehicles and equipment)
- Mitigate pit and impoundment construction to reduce or eliminate threats from West Nile virus.
- Limit noise to less than 10 decibels above ambient measures (20-24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli, et al. 2010; Blickley, et al. *In preparation*).
- Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.
- Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).
- Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.
- Clean up refuse.

## Reclamation

- Include objectives for ensuring habitat restoration to meet sage-grouse habitat needs in reclamation practices/sites. Address post-reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitat.

- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.
- Irrigate interim reclamation if necessary for establishing seedlings more quickly.
- Utilize mulching techniques to expedite reclamation and to protect soils.

BLM would utilize Oil and Gas BMPs for Wildlife (2012) to reduce impacts to sage-grouse and other wildlife. These BMPs address: In 2012, BLM developed BMPs for wildlife protection. Best practices established in the policy focus on the following five industry situations:

1. Open pits and tanks containing freestanding liquid;
2. Chemical tank secondary containment;
3. Pit, tank, and trench entrapment hazards;
4. Open exhaust stacks; and
5. Wire enclosure fencing.

These BMPs are summarized in Appendix B and can also be found at [http://www.blm.gov/wo/st/en/info/regulations/Instruction\\_Memos\\_and\\_Bulletins/national\\_instruction/2013/IM\\_2013-033.html](http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2013/IM_2013-033.html).

## **Solid Minerals**

Recommend minimization of surface-disturbing or disrupting activities (including operations and maintenance) where needed to reduce the impacts of human activities on sage-grouse habitats. Apply these measures during activity level planning.

Encourage development in incremental stages to stagger disturbance; design schedules that include long-term strategies to localize disturbance and recovery within established zones over a staggered timeframe.

Use off-site mitigation or purchase conservation easements with industry dollars to offset habitat losses.

Remove facilities and infrastructure when use is completed.

Allow no surface use in nesting habitat from March 1 through June 15.

Restrict maintenance and related activities in sage-grouse breeding/nesting complexes – March 1 through June 15 – between the hours of 4:00 – 8:00 a.m. and 7:00 – 10:00 p.m.

Allow no surface use activities within sage-grouse wintering areas from December 1 through March 31.

Use minimal surface disturbance to install roads and pipelines and reclaim site of abandoned wells to natural communities.

Locate storage facilities, generators, and holding tanks outside the line of sight and sound of breeding habitat.

See conservation actions related to preventing the spread of weeds and controlling infestations of noxious weeds.

Develop and establish new sources of seed of native plant species for restoration of sites disturbed by development actions.

Design impoundments and manage discharge so as not to degrade or inundate leks, nesting sites, and wintering sites.

Protect natural springs from any source of disturbance or degradation from energy-related activities.

Provide for long-term monitoring of siting requirements to examine effects of current and future development on sage-grouse.

Set up a schedule for reviewing and revising siting and use criteria with industry.

### **Roads**

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Locate roads to avoid important areas and habitats.
- Coordinate road construction and use among ROW holders.
- Construct road crossings at right angles to ephemeral drainages and streams.
- Establish speed limits on BLM system roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Do not issue ROWs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing, gates, etc.)
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

### **Operations**

- Cluster disturbances associated with operations and facilities as close as possible.
- Place infrastructure in already disturbed locations where the habitat has not been restored.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs to reduce disturbance to sagebrush habitats.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury power lines.
- Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce sage-grouse mortality.
- Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (Gelbard and Belnap 2003; Bergquist, et al. 2007).
- Mitigate pit and impoundment construction to reduce or eliminate threats from West Nile virus
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, limit favorable mosquito habitat through reservoir design.
- Require sage-grouse-safe fences around sumps.
- Clean up refuse.

### **Reclamation**

- Include restoration objectives to meet sage-grouse habitat needs in reclamation practices/sites. Address post-reclamation management in reclamation plan such that goals and objectives are to protect and improve sage-grouse habitats.
- Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.
- Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community.
- Irrigate interim reclamation as necessary during dry periods.
- Utilize mulching techniques to expedite reclamation.

## **Wildfire Suppression, Fuels Management and Fire Rehabilitation**

### **Fuels Management**

Design and implement fuels treatments with an emphasis on protecting existing sagebrush ecosystems.

- Do not reduce the existing sagebrush canopy cover unless a fuels management objective requires additional reduction in sagebrush cover to meet strategic protection of priority sage-grouse habitat and conserve habitat quality for the species. Closely evaluate the benefits of the fuel break against the additional loss of sagebrush cover in an environmental analysis.
- Apply appropriate seasonal restrictions for implementing fuels management treatments according to the type of seasonal habitats present in a priority area.
- Allow no treatments in known winter range unless the treatments are designed to strategically reduce wildfire risk or enhance habitat around or in the winter range and will maintain habitat quality.
- Do not use fire to treat sagebrush in less than 12-inch precipitation zones (e.g., Wyoming big sagebrush or other xeric sagebrush species). However, if as a last resort and after all other treatment opportunities have been explored and site-specific variables allow, the use of prescribed fire for fuel breaks that would disrupt the fuel continuity across the landscape could be considered in stands where cheatgrass is a very minor component in the understory.
- Monitor and control invasive vegetation post-treatment.
- Require use of native seeds for fuels management treatment based on availability, adaptation (site potential), and probability of success. Where probability of success or native seed availability is low, non-native seeds may be used as long as they meet sage-grouse habitat objectives.
- Design post-fuels management projects to ensure long-term persistence of seeded or pre-treatment native plants. This may require temporary or long-term changes in livestock grazing management, wild horse and burro management, travel management, or other activities to achieve and maintain the desired condition of the fuels management project.
- Design fuels management projects in priority greater sage-grouse habitat to strategically and effectively reduce wildfire threats in the greatest area. This may require fuels treatments implemented in a more linear versus block design.
- For the project to be approved the authorizing official should consider:
  - biological and physical limitations of the site and the impact on sage-grouse;
  - management objectives for the site, including those for wildlife, are clearly defined;
  - potential for weed invasion and successional trends are well understood;
  - capability exists to manage the post-burn site properly, including a funded monitoring schedule, to achieve a healthy sagebrush community.

Develop local or regional guidelines or consider the following guidelines if fire is used as a tool:

- Analyze cumulative effects of sagebrush treatment by considering ecological units, evaluate the degree of fragmentation, and maintain a good representation of mature sagebrush.
- Predict effects for the length of time necessary for sagebrush to return to desired condition for determined treatment types and intervals.
- Identify suitable patch size based on site-specific characteristics of the natural community and treat patches in a mosaic pattern that provides sagebrush cover for snow capture, hiding cover, and a seed source.
- Use available literature to research the effects of fire on sagebrush communities.
- Use caution in reducing sagebrush cover in and following drought periods.

During fuels management project design, consider the utility of using livestock to strategically reduce fine fuels, and implement grazing management that will accomplish this objective.

Consult with ecologists to minimize impacts to native perennial grasses.

Develop criteria for managing fuels and other risks to sage-grouse habitat.

Identify all sage-grouse habitats and prioritize on the basis of risk of loss to wildfire.

Develop appropriate actions on a site by site basis, such as using existing roads as fire breaks.

Develop treatments to improve habitats over the long term if sagebrush stands do not meet objectives for sage-grouse, such as confining treatments to small patches.

Consider mechanical treatment as the primary method and prescribed fire as a secondary method to remove conifers that encroach on greater sage-grouse habitat, except where forested habitat is limited.

Avoid treatments to sage-grouse habitat in areas that are susceptible to invasion by cheatgrass or other invasive plant species. Treatment will be accompanied by restoration, and reseeding if necessary, to re-establish native vegetation.

Protect sagebrush along riparian zones, meadows, lakebeds, and farmlands that are adjacent to intact/known/PPH sage-grouse habitat.

Wash vehicles and heavy equipment for fires prior to arrival at a new location to avoid introduction of noxious weeds.

Apply Fuels Management and Fire Operations BMPs (see WO IM 2011-138) as appropriate.

### **Emergency Stabilization and Rehabilitation (ES&R)**

Prioritize native seed allocation for use in sage-grouse habitat in years when preferred native seed is in short supply. This may require reallocation of native seed from ES&R projects outside of priority sage-grouse habitat to those inside it. Use of native plant seeds for ES&R seedings is required based on availability, adaptation (site potential), and probability of success (Richards, et al. 1998). Where probability of success or native seed availability is low, non-native seeds may be used as long as they meet sage-grouse habitat conservation objectives (Pyke 2011). Re-establishment of appropriate sagebrush species/subspecies and important understory plants, relative to site potential, shall be the highest priority for rehabilitation efforts.

Design post-ES&R management to ensure long term persistence of seeded or pre-burn native plants. This may require temporary or long-term changes in livestock grazing, wild horse and burro, and travel management, etc. to achieve and maintain the desired condition of ES&R projects to benefit sage-grouse.

Consider potential changes in climate when proposing post-fire seedings using native plants. Consider seed collections from the warmer component within a species' current range for selection of native seed.

Assure that long-term wildfire rehabilitation objectives are consistent with the desired natural plant community.

Revegetate burned sites in greater sage-grouse habitat within one year unless natural recovery of the native plant community is expected. Areas disturbed by heavy equipment will be given priority consideration.

Emphasize native plant species adapted to the site that are readily available and economically and biologically feasible.

Monitor the site and treat for noxious weeds.

### **Restoration**

Prioritize implementation of restoration projects based on environmental variables that improve chances for project success in areas most likely to benefit sage-grouse.

Prioritize restoration in seasonal habitats that are thought to be limiting sage-grouse distribution and/or abundance.

Include sage-grouse habitat parameters as defined by Connelly, et al. (2000); Hagen, et al. (2007) or, if available, state sage-grouse conservation plans and appropriate local information in habitat restoration objectives.

Require use of native seeds for restoration based on availability, adaptation (ecological site potential), and probability of success. Where probability of success or adapted seed availability is low, non-native seeds may be used as long as they support sage-grouse habitat objectives.

Design post-restoration management to ensure long term persistence. This could include changes in livestock grazing management, wild horse and burro management and travel management, etc. to achieve and maintain the desired condition of the restoration effort that benefits sage-grouse.

Consider potential changes in climate when proposing restoration seedings when using native plants. Consider collection from the warmer component of the species current range when selecting native species.

Restore native plants and create landscape patterns which most benefit greater sage-grouse.

Make re-establishment of sagebrush cover and desirable understory plants (relative to ecological site potential) the highest priority for restoration efforts.

In fire prone areas where sagebrush seed is required for sage-grouse habitat restoration, consider establishing seed harvest areas that are managed for seed production and are a priority for protection from outside disturbances.

Map and inventory areas believed to be impacted by conifer expansion. If conifer encroachment is a concern, options for treatment include:

- Prescribed fires when and where feasible,
- Remove trees mechanically when feasible, and
- Apply herbicides when and where feasible.

Evaluate the site potential and desired condition, and develop specific objectives accordingly within specific landscapes.

If sagebrush is lacking:

- Develop and implement grazing practices that influence sagebrush growth,
- Inter-seed historical breeding and winter habitats with the appropriate sagebrush species,
- Identify and promote seed sources for habitat restoration efforts,
- Reclaim and/or re-seed areas disturbed by treatments when necessary, and
- Promote sage plantings, where appropriate, on project areas occurring within sage-grouse habitats.

If mature sagebrush dominates with suppressed herbaceous understory:

- Identify areas of dense mature cover that do not appear to be serving as quality habitat and analyze these areas within the context of a larger landscape,
- Design sagebrush treatments to be compatible with sage-grouse needs,
- Develop specific objectives for greater sage-grouse in breeding or winter habitats, and
- If treatment is deemed appropriated, interrupt seral stages within the appropriate patch size using the appropriate method, such as brush beating, chaining, chemical means, prescribed fire, etc. that is compatible with local conditions.

If residual understory is lacking in sagebrush stands:

- Manage grazing by domestic livestock and wild herbivores to retain and promote adequate residual cover in all breeding habitats with an emphasis on nesting areas.
- Ensure that grazing allotment plans include objectives for greater sage-grouse in sage-grouse habitats.
- Monitor allotment plans and regulations, and make changes where necessary.
- Include native grasses in all reclamation and restoration activities.

## Other Wildlife

Initiate studies to better understand sage-grouse mortality rates, the factors that influence these rates and the effectiveness of management actions to change them. These studies should determine the relationships between predation, habitat fragmentation, and habitat condition.

Implement actions to improve the structure and composition of sagebrush communities to meet desired conditions for sage-grouse seasonal habitats.

Maintain and restore sagebrush communities where appropriate for sage-grouse populations.

Reduce man-made issues and conifer encroachment in sage-grouse breeding, nesting, and wintering habitats.

- Reduce the availability of predator “subsidies” such as human-made den sites (nonfunctioning culverts, old foundations, wood piles) and supplemental food sources (garbage dumps, spilled grains, etc.) that contribute to increased predator numbers.
- Placement of power poles should follow prescription detailed in the discussion of transmission lines.
- Placement of fences should follow prescriptions detailed in the discussion of grazing management, and
- Treatment of conifer encroachment should be implemented in ways to minimize loss of sagebrush habitats.

BLM would utilize Oil and Gas BMPs for Wildlife to reduce impacts to wildlife. These BMPs address: In 2012, BLM developed BMPs for wildlife protection. Best practices established in the policy focus on the following five industry situations:

1. Open pits and tanks containing freestanding liquid;
2. Chemical tank secondary containment;
3. Pit, tank, and trench entrapment hazards;
4. Open exhaust stacks; and
5. Wire enclosure fencing.

These BMPs are summarized in Appendix B and can also be found at

[http://www.blm.gov/wo/st/en/info/regulations/Instruction\\_Memos\\_and\\_Bulletins/national\\_instruction/2013/IM\\_2013-033.html](http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2013/IM_2013-033.html).

## General Habitat

Within general habitat mitigation measures and conservation actions will mirror management actions in the selected alternative. Mitigation measures would be applied during activity level planning if an evaluation of the project area indicates the presence of important wildlife species, seasonal wildlife habitat, or other resource concern. Exceptions may be granted by the authorized officer if an environmental review demonstrates that effects could be mitigated to an acceptable level, habitat for the species is not present, or portions of the area can be occupied without affecting a particular species. Exceptions may also be granted where the short-term effects are mitigated by the long-term benefits (e.g., prescribed fire or forest health treatments).

In addition to actions below and in Chapter 2, best management practices for all resources may be found in Appendix C, and will help form the COAs applied to specific projects. These practices would be implemented at the discretion of the appropriate Field Office on a project-specific basis in general habitat, depending on the specific characteristics of the project area and the types of disturbance being proposed. They may not be appropriate to implement in all cases and in many cases may mirror those for priority habitat. Mitigation of surface-disturbing or disruptive activities would be applied where needed to minimize impacts and could be applied consistent with the oil and gas stipulations outlined in the Fluid Minerals section of Chapter 2. The mitigation would be requirements, procedures, management practices or design features that the BLM, through issuance of the Record of Decision, would adopt as operational requirements. The BLM may add additional site-specific restrictions as deemed necessary by further environmental analysis and as developed through consultation with other federal, state, and local regulatory and resource agencies.

## Greater Sage-Grouse Leaks

Surface-disturbing and disruptive activities would be avoided if possible within 1 mile of sage-grouse leks.

## Greater Sage-Grouse Nesting Habitat

Surface-disturbing or disruptive activities may be restricted or prohibited.

Prioritize activities based on suitability of habitat; construct projects that are in less suitable habitat (i.e., along existing roadways or within degraded habitats) during the breeding season, and construct projects located in more suitable habitat prior to or after the critical breeding season.

Avoid sagebrush, but if disturbance is necessary, interim reclamation should include sage plantings/seedings and/or the use of minimum disturbance practices to protect sage on well pads, pipelines, and other disturbances.

Manage produced water to reduce the spread of West Nile virus within greater sage-grouse habitat areas.

### Roads

- Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.
- Do not issue ROWs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.
- Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.
- Coordinate road construction and use among ROW holders.
- Construct stream crossings of roads at right angles to ephemeral drainages and streams.
- Use dust abatement practices on roads and pads.
- Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

### Operations

- Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.
- Use directional and horizontal drilling to reduce surface disturbance.
- Clean up refuse.
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce greater sage-grouse mortality.
- Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use.
- Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment.)
- Mitigate pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus.

Include restoration objectives to meet greater sage-grouse habitat needs in reclamation practices/sites. Address post-reclamation management in reclamation plans such that goals and objectives are to enhance or restore sage-grouse habitat.

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## Appendix W

### Monitoring of Sage-Grouse and Sagebrush Habitats

#### Background

On March 5, 2010 the 12-Month Findings for Petitions to List the greater sage-grouse (*Centrocercus urophasianus*) as Threatened or Endangered were posted as a Federal Register notice (75 FR 13910 14014). This notice stated:

“...the information collected by BLM could not be used to make broad generalizations about the status of rangelands and management actions. There was a lack of consistency across the range in how questions were interpreted and answered for the data call, which limited our ability to use the results to understand habitat conditions for sage-grouse on BLM lands. For example, one question asked about the number of acres of land within sage-grouse habitat that was meeting rangeland health standards. Field offices in more than three States conducted the rangeland health assessments, and reported landscape conditions at different scales (Sell 2009, pers. comm.). In addition, the BLM data call reported information at a different scale than was used for their landscape mapping (District or project level versus national scale) (Buckner 2009b, pers. comm.).”

Given the degree of uncertainty associated with managing natural resources, adaptive management approaches that include rigorous monitoring protocols to support them are essential if conservation goals are to be realized (Walters 1986; Burgman, et al. 2005; Stankey, et al. 2005; Turner 2005; Lyons, et al. 2008). Recent efforts to develop range-wide policy and conservation measures for sage-grouse have emphasized the importance of improving monitoring efforts on both sage-grouse distribution and population trends, as well as the habitat they depend on (Wambolt et al. 2002; Connelly, et al. 2003; Stiver, et al. 2006; Reese and Boyer 2007; Connelly, et al. 2011). Connelly, et al. (2003) and Stiver, et al. (2010) identified the need to assess and monitor sage-grouse habitats based on habitat characterization that should follow habitat selection processes identified by Johnson (1980). These processes identify four selection orders: (1) rangewide, (2) physical and geographic range of populations, (3) physical and geographic range within home ranges, and (4) physical and geographic areas within seasonal ranges to meet the life requisites of sage-grouse. These four habitat selection orders each have unique habitat indicators that should be assessed and monitored to properly evaluate sage-grouse habitats and relate those habitat indicators back to sage-grouse populations.

Monitoring tied to Resource Management Plan (RMP) decisions has two parts: (1) implementation monitoring (implementation of decisions, waivers, modifications, etc.), and (2) effectiveness monitoring. Through effectiveness monitoring, BLM can answer questions about how our decisions and actions impact habitat. Understanding the effectiveness and validating results of RMPs and management decisions is an important part of BLM measuring its performance under the Government Performance Results Act. For example, riparian condition is a primary measure for RMP effectiveness (see WO IM 2010-101). Monitoring that is applicable for evaluating management effectiveness can also be used to address a number of other critical habitat variables (e.g., location, condition, habitat conversion, size of patches, number of patches, species composition, connectivity and linkage, etc.). Ideally, monitoring attributes of sage-grouse habitat and sage-grouse populations will allow linking real or potential habitat changes (from both natural events and management actions) to vital rates of sage-grouse populations (Stiver, et al. 2006; Naugle and Walker 2007). These conclusions will enable managers to identify indicators associated with population change across large landscapes and to ameliorate negative effects with appropriate conservation actions (Burgman, et al. 2005; Turner 2005).

#### Sage-Grouse Habitat Assessment Framework

In August 2010, the Sage-Grouse Habitat Assessment Framework (HAF): Multi-scale Habitat Assessment Tool was completed (Stiver, et al. 2010). The HAF provides policy makers, resource managers, and natural resource specialists a comprehensive framework for sage grouse specific habitat assessments within sagebrush ecosystems. Assessment and monitoring of sage-grouse habitat is scale dependent. The HAF provides consistent indicators, metric descriptions, and habitat suitability characteristics for each of these scales specific to sage-grouse. It also provides consistent terminology

so that biologists, other resource specialists, and managers from a wide range of agencies can address sage-grouse habitats. Monitoring inappropriate indicators for various scales can result in monitoring results that cannot correctly evaluate sage-grouse habitats and can misinform management of the effectiveness of land use plan decisions and activity level management actions.

## **BLM Assessment, Inventory, and Monitoring Strategy**

The BLM Assessment, Inventory, and Monitoring (AIM) Strategy (Toevs, et al. 2011) was completed in 2011 (BLM IB 2012-080) and describes a vision for integrated, cross-program assessment, inventory, and monitoring of resources at multiple scales of management. Following the AIM Strategy, the BLM is modernizing its resource monitoring approach to more efficiently and effectively meet local, regional, and national resource information needs. The AIM Strategy provides a process for the BLM to collect quantitative information on the condition, trend, amount, location, and spatial pattern of natural resources on the public lands. Each AIM-Monitoring survey, at any scale of inquiry (from the plot level to westwide deployments), uses a set of core indicators, standardized field methods, remote sensing, and a statistically valid study design to provide nationally consistent and scientifically defensible information to determine condition (e.g., rangeland health) and trend on public lands.

The National-scale deployment of AIM (i.e. Landscape Monitoring Framework [LMF]) commenced in 2011 with the collection of 1,000 plots of field-collected monitoring data across the Western U.S. The LMF will add approximately 1,000 new plots per year on non-forested public rangeland West-wide, plus an additional 1,000 plots per year in greater sage-grouse priority habitats. These national core data sets will be integrated with locally collected, project level, core data and remote sensing data to determine the condition and trend of sage-grouse habitats and the effectiveness of BLM management actions. This will be used to address threats and stressors, restore priority habitats, and maintain spatial connectivity at multiple scales of inquiry (from plots to landscapes and regions). Further, these multi-scale data will provide information to determine long-term achievement of planning goals and objectives, analyze cumulative effects, and serve as the basis for adaptive management actions. A critical element of greater sage-grouse monitoring will be the production of an annual public report summarizing the broad scale condition and trend of priority habitats. Analysis of condition and trend reports will adaptively feed back into the monitoring process and will be refined as necessary. Additional site- or population-scale monitoring or habitat assessments, specific to greater sage-grouse needs, may be implemented when necessary through the Sage-Grouse HAF to answer specific local management questions or refine adaptive management needs that are not addressed by the AIM-Monitoring core indicators.

## **Implementation**

The standardization of monitoring methods and implementation of a defensible monitoring approach (within and across jurisdictions) is vital if BLM and other conservation partners are to use the resulting information to guide implementation of conservation activities. Monitoring strategies for sage-grouse habitat and populations must be collaborative, as habitat occurs across jurisdictional boundaries (52% BLM, 31% private, 8% USFS, 5% state, 4% tribal and other Federal; 75 FR 13910), and because state fish and wildlife agencies have primary responsibility for population level management of wildlife, including population monitoring. Population efforts therefore will continue to be conducted in partnership with state fish and wildlife agencies. The BLM will coordinate our multiple internal, habitat-based protocols among jurisdictions, as feasible, to provide large scale data sets to understand trends in sagebrush ecosystems.

Implementation policy directing use of the HAF, and the HAF in conjunction with AIM-Monitoring in addition to other guidance in the BLM National Greater Sage-Grouse Land Use Planning Strategy will be necessary to provide a framework for consistent approaches to sage-grouse habitat condition and trend monitoring across planning units and jurisdictions. This implementation policy will be developed by BLM in cooperation with our conservation partners.

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