APPENDIX B

DESIGN CRITERIA, MITIGATION MEASURES, AND MONITORING

Appendix B
Design Criteria, Mitigation Measures, and Monitoring

Specific design criteria, mitigation measures, and monitoring procedures described herein have been developed to be used as part of the action alternatives. Certain federal, state, local, or other permits, approvals, cooperative agreements, memorandums of Understanding (MOUs), etc., will be necessary or required as part of implementing the Teckla Osage Rapid City (T-O-RC) Transmission Line Project (the Project) actions. The appropriate documentation will be developed prior to initiation of applicable actions.

Forest Service Manual and Handbook direction, Regional Watershed Conservation Practices (WCP, Forest Service Handbook 2509.25), Forest Plan standards and guidelines, South Dakota and Wyoming Best Management Practices, and other management requirements apply to the proposed activities. Management requirements such as applicable Forest Plan standards are repeated here only if clarification is required.

The design criteria, mitigation measures, and monitoring procedures that would be applicable to each resource area and, where applicable, that would be applicable for portions of the Project in South Dakota and Wyoming are described below. Because of the overlap of criteria and measures that would be applicable to multiple resources and both States, duplication and redundancy of the measures occurs to ensure they are accurately exhibited.

LAND USE AND LAND MANAGEMENT

The following measures would be implemented to minimize impacts to land use and land management:

- If construction activities damage or destroy existing improvements, such improvements would be repaired or replaced to their condition prior to disturbance as agreed to by the parties involved.
- Fences and gates would be installed, or repaired and replaced to their original condition, as required by the land management agency or landowner if they are damaged or destroyed. Temporary gates would be installed only with the permission of the land management agency or landowner and would be restored to their original condition following construction.
- All existing roads would be left in a condition equal to or better than their condition prior to the construction of the transmission line.
- Survey markers found in the ROW would be protected. Survey markers include, but are not limited to, Public Land Survey System line and corner markers, other property boundary line and corner markers, bearing trees and posts, and horizontal and vertical geodetic monuments.

MONITORING

No monitoring requirements are applicable to land use / land management.

SOCIOECONOMICS

BHP would pay private landowners, the USFS, and the BLM the fair market value, or another agreed-upon cost, for acquiring the needed ROW, reducing the amount of timber available for sale, and reducing the amount of land available for grazing.

MONITORING

No monitoring requirements are applicable to socioeconomics.

HAZARDOUS MATERIALS

BHP would train field personnel in spill prevention, control, and countermeasure procedures, and use totally enclosed containers to dispose of hazardous and non-hazardous waste. Hazardous materials would not be drained onto the ground or into streams or drainage areas. Additionally, BHP would ensure that hazardous and non-hazardous wastes are transported to facilities that are authorized to accept such wastes. Furthermore, should a hazardous material spill occur, all contaminated soil would be removed and disposed of properly.

MONITORING

BHP would monitor Project activities to ensure that appropriate BMPs are implemented.

RECREATION

The following measures would be incorporated into the project to minimize impacts to recreation:

- To reduce potential impacts on recreation values and safety, at highway, canyon, and trail crossings, poles would be placed at the maximum feasible distance from the crossing within limits of standard tower design.
- Existing improvements would be repaired or replaced if they are damaged or destroyed by construction activities to their condition prior to disturbance as agreed to by the parties involved.
- All existing roads would be left in a condition equal to or better than their condition prior to the construction of the transmission line.
- Fences and gates would be installed, or repaired and replaced to their original condition prior to the Proposed Action's disturbance as required by the landowner or the land management agency if they are damaged or destroyed by construction activities. Temporary gates would be installed only with the permission of the landowner or the land management agency and would be restored to original condition prior to the Proposed Action's disturbance following construction.
- Any temporary fences and gates installed would be coordinated to allow movement for livestock, big game, recreation, fire protection, and mineral development, if feasible.

- Construction crews would not be permitted to use Redbank Spring Campground, which includes only four campsites.
- During construction activities, BHP would monitor Beaver Creek Campground and adjust its activities to limit indirect effects on this campground. Adjustments may include limiting construction crews to only one campsite and pumping the toilet vault more frequently.

MONITORING

No monitoring requirements are applicable to recreation.

RANGE / WEEDS / BOTANY

The PDFs discussed in this section are measures that BHP would apply as a part of the Proposed Action. These measures, designed to avoid or reduce the impacts of the Proposed Action, are organized by resource topics.

Common to Multiple Resources

- The area limits of construction activities would be predetermined, with activity restricted to and confined within those limits. This area is generally limited to the existing ROW and other approved areas such as local routing options and staging areas.
- Mitigation measures developed during the consultation period under Section 7 of the Endangered Species Act (1973) as amended would be adhered to as specified by the USFS, U.S. Fish and Wildlife Service (USFWS), and National Oceanic and Atmospheric Administration (NOAA) fisheries.
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.
- Prior to construction, all supervisory construction personnel would be instructed on the protection of ecological resources. To assist in this effort, the construction contract would address: (a) federal, state, and tribal laws regarding plants and wildlife; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources including specific mitigation measures.
- BMPs and SOPs would be implemented for herbicide application, soil protection, revegetation, and use of weed-free plant materials.
- Weed control methods that may negatively impact special status plants, snails, wetlands, or riparian areas would be avoided. Treat individual plants rather than broadcast application in areas where special status species occur. Control weeds at snail occurrences, but use herbicides when snails are not on the surface. Monitor weed treatments used at special status plant occurrences and retreat as needed during the season.
- Two Biological Assessments would be prepared, one for South Dakota and one for Wyoming. One Biological Evaluation would be prepared, so that is combined for Black Hills National Forest (BHNF) and Thunder Basin National Grassland (TBNG).
- Ground disturbance would be prohibited within 500 feet of surface water and/or riparian areas unless or until a permittee or his designated representative and the surface management

agency (SMA) arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation would occur prior to development.

- Riparian areas or wetlands where populations of sensitive species are located are to be avoided during ground disturbing activities. Use one or more of the following tied to the site-specific conditions for disturbances adjacent to known sensitive species occurrences:
  a. Avoid removing riparian or wetland vegetation; filling or dredging the riparian area or wetland; diverting stream flow from the current channel.
  b. Prevent storm runoff from washing silt into the stream or wetland.
  c. Reseed and/or replant cut and fill slopes with native seed and/or native plants promptly to control erosion and for prevention of noxious-weed infestations. Use appropriate measures to control erosion on disturbed areas that are steep, are highly erosive, and/or adjacent to the riparian area.
  d. Timing, placement, and installation of temporary stream diversions shall allow passage of aquatic life and protect sensitive and species of local concern.
- Where feasible, existing landscape features would be utilized to span the conductor over non-forested riparian wetlands to avoid cutting woody vegetation.

Range

- Project construction activities would be coordinated with livestock permittees. Fences would be kept closed during construction if cattle are in the pasture. Any temporary fences and gates installed would be coordinated to allow movement for livestock, big game, recreation, fire protection, and mineral development, if feasible.
- Impacts to range improvement structures (i.e., gates, fences, spring developments, stock ponds, pipelines) would be avoided.

Noxious Weeds

- Noxious weeds include weeds designated as "noxious" by the states of South Dakota and Wyoming, and additional weed species designated for project counties, as applicable.
- Before ground-disturbing activities begin, inventory and prioritize weed infestations for treatment in project operating areas and along access routes. Identify what weeds are on site, or within reasonably expected potential invasion vicinity, and do a risk assessment accordingly. Control weeds as necessary.
- Prior to construction, a noxious weed, reclamation, and revegetation plan would be completed in consultation with the agencies to minimize the effects of noxious weeds and ground disturbance due to Proposed Action activities. The plan would address any required cleaning of construction vehicles, weed treatment protocols, and anything else to remain compliant with all involved agencies.
- A high-pressured washer would be used to clean construction equipment before it is used for the first time and before being used in each project county, as well as before equipment is moved from noxious weed infested areas to new work sites.
- Only herbicides approved by the USFS would be used. To protect avian endangered and threatened species, organochlorine pesticides would not be used as chemical agents.
- Best Management Practices and SOPs would be implemented for herbicide application, soil protection, revegetation, and use of weed-free plant materials.

- Initiate re-vegetation as soon as possible, not to exceed six months, after termination of ground-disturbing activities. Revegetate all disturbed soils with native species in seed/plant mixtures that are certified noxious-weed-free. On areas needing the immediate establishment of vegetation non-native, non-aggressive annuals (e.g., wheat, oats, rye), or sterile species may be used while native perennials are becoming established, or when native species are not available (e.g., during drought years or years when wildfire burns large acreages in the U.S.). Other aggressive non-native perennials (e.g., smooth brome, timothy) would not be used. Seed would be tested for noxious weeds. If mulches are used they are to be certified noxious-weed free. Weed-free alfalfa seed may be used only when native legume seed is not available and only when there is extensive disturbance associated with road construction or mine reclamation where topsoil is no longer available.
- Use certified noxious-weed-free seed, feed and mulch. Submit proof-of-purchase to appropriate land agency before using plant materials.
- Inspect, document, and treat weeds in all limited term ground-disturbing operations for at least three growing seasons following completion of the project.
- Inspect, document, and treat weeds in the proposed ROW and roads only used by BHP for life of the SUP.
- The approved seed/plant mixtures for the BHNF would be applied at the rate of 20 pounds per acre, and are stratified by zone and use to include the following:
    a) High elevation uplands: 25 percent slender wheatgrass (Elymus trachycaulus), 30 percent annual ryegrass (Lolium multiflorum), 10 percent Canada wildrye (Elymus canadensis), 10 percent Canby bluegrass (Poa canbyi), 20 percent green needlegrass (Nassella viridula), and five percent purple prairie clover (Dalea purpurea) or American vetch (Vicia americana).
    b) Low elevation uplands: 35 percent annual ryegrass (Lolium multiflorum), 25 percent slender wheatgrass (Elymus trachycaulus), 15 percent green needlegrass (Nassella viridula), five percent purple prairie clover (Dalea purpurea) or American vetch (Vicia americana), and 20 percent any combination of four warm season grasses, including blue grama (Bouteloua gracilis), switchgrass (Panicum virgatum), Indiangrass (Sorghastrum nutans), or sideoats grama (Bouteloua curtipendula).
    c) Mystic Mix is a sod-forming mix available at Warne Chemical in Rapid City that may be used in areas where regeneration of ponderosa pine is not desired, for example in utility corridors and road cuts. This includes 32 percent slender wheatgrass (Elymus trachycaulus), 22 percent western wheatgrass (Agropyron smithii), 26 percent annual ryegrass (Lolium multiflorum), five percent side oats grama (Bouteloua curtipendula), 10 percent green needlegrass (Stipa viridula), and five percent little bluestem (Schizachyrium scoparium).

Botany

- Special status plant species include those species with any of the following status: federal Threatened or Endangered, USFS Region 2 Sensitive, BHNF Species of Local Concern, TBNG Species of Local Concern, BLM Newcastle Forest Office Sensitive, BHNF target species, or tracked by the State of South Dakota.
- Habitat suitability for special status plants would be assessed on all federal lands.
- Special status plants would be surveyed on the BHNF where there are suitable habitats that would have project-related ground disturbance and have not been surveyed within the past

five to seven years. If habitat associated with special status plant species occurs on the TBNG and BLM Newcastle Forest Office, Black Hills Power would coordinate with these agencies whether special status plant surveys would be required. Surveys for special status plants would be conducted by qualified botanists to determine presence, absence, and habitat occupancy.

- Weed control methods that may negatively impact special status plants, snails, wetlands, or riparian areas would be avoided. Treat individual plants rather than broadcast application in areas where special status species occur. Control weeds at snail occurrences, but use herbicides when snails are not on the surface. Monitor weed treatments used at special status plant occurrences and retreat as needed during the season.
- Ground disturbance would not occur in occupied habitat for federal Threatened or Endangered plant species, Forest Service Sensitive species, BHNF Species of Local Concern, and BLM Sensitive species, or in Botanical Areas and Research Natural Areas. In the event that any surface disturbing activities would occur in the vicinity of federal Threatened or Endangered plant species, Forest Service Sensitive species, Species of Local Concern, or BLM Sensitive species, the USFS or BLM would be consulted to ensure minimal impact.
- Ground disturbance would be avoided to the extent possible within 50 feet of BHNF target plant species. BHNF target plant occurrences would be flagged to ensure that these "no disturbance" areas are visible to project personnel. If ground-disturbing activities cannot be avoided in these areas, a Forest Service botanist or biologist would be consulted to ensure minimal impact.
- The boundaries of sensitive plant populations would be delineated with clearly visible flagging or fencing based on surveys conducted prior to construction. In the event any special-status plants would require relocation, permission would be obtained from the USFS or BLM. If avoidance or relocation were not practical, the topsoil surrounding the plants would be salvaged, stored separately from subsoil and respread during the restoration process.
- Any special status species discovered after issuance of the permit would be appropriately managed by active coordination between Black Hills Power and the Forest Service or BLM. Solutions would be based on circumstances of the discovery and consider the species' needs, contractual obligations and cost, and mitigation measures available at the time of discovery.
- New construction spur roads would be located out of riparian areas or wetlands, and avoided in white spruce habitat to the extent possible.

TRANSPORTATION

BHP would adhere to the following design criteria:

- Locate road closure devices on the ground to provide the most effective means of accomplishing the desired travel management strategy. Devices include gates, barriers, slash, or other devices needed to prohibit or eliminate use;
- Use physical closures, such as slash, stumps, rocks, and revegetation to eliminate use. Use earthen barriers if there is not adequate material available for slash, stumps, or rock closures. This shall be done after activities to allow use of a road by BHP and their contractors;

- Relocate or construct roads out of draw bottoms and drainages to improve drainage and protect soil and water resources;
- Revegetate abandoned roadbeds and return them to as natural a state as possible;
- After construction is complete, return motorized trails and access roads to pre-construction conditions;
- Coordinate with BHNF hydrologist, fisheries biologist, silviculturist, and engineering staff for any road reconstruction or realignment along protected stream courses;
- Minimize the number of road stream crossings. Coordinate with BHNF fisheries biologist, hydrologist, and engineering staff for any unavoidable road stream crossings;
- Develop a construction plan, which would include method(s) of road construction, length and width of roads, curve radii, type of equipment, and method for maintenance;
- Install signage on project road/trails "closed to public access" to be maintained for the life of the project and constructed of Carsonite;
- Construct vehicle turnouts for traffic safety;
- Adhere to timing restrictions presented on the MVUM, based on project activities;
- In construction areas disturbance would be limited to overland travel where feasible to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access;
- All construction vehicle movement outside the ROW would be restricted to designated access, contractor-required access, or public roads; and
- During construction, appropriate traffic control measures that meet standards outlined in the *Manual of Uniform Traffic Control Devices* would be utilized for public safety. Prior notice would occur for any extended delays or road blockage.
- BHP would coordinate with USFS and BLM engineering staff to verify the access routes to show staff specialists the location and design of any planned road widening, relocation, realignment, and new construction to ensure that roads would not have additional adverse effects on resources. Changes may occur based on field review.
- BHP would also ensure that maintenance on all roads is current during use for power line access and construction for the life of the contract. Maintenance includes cleaning out silt from sediment collecting ponds and depositing it in upland locations, keeping silt fence upright and functioning by cleaning out any sediment collected in front of the silt fence and depositing it in upland locations, keeping all drainage structures clear and functional, eliminating erosion of cut and fill slope and roadway soils, maintaining vegetative buffers, encouraging revegetation, and blading road surfaces. Post use maintenance is also required by BHP or their contractors.

Additionally, BHP would implement the following mitigation measures:

- Protect water quality by implementing the BMPs;
- Revegetate and block temporary roads and closed roads when no longer needed;
- During periods of excessive wet weather, prohibit using roads to haul trees out of the area and to prevent deterioration of roads;
- Keep all trails, roads, ditches, and other improvements free of logs, slash, and debris;
- Promptly repair any road, trail, or improvement damaged by operations;

- After power line construction is complete, return roads and trails to suitable conditions;
- Protect and improve roads and trails where soil and water resource damage occurs or is likely to occur;
- Apply native seed mixture as soon as practical, to road cut and fill slopes and other areas disturbed during construction activities. Seed mixture specifications shall be supplied by the USFS; and
- Train field personnel in spill prevention, control, and countermeasure procedures, and use totally enclosed containers to dispose of hazardous and non-hazardous waste. Hazardous materials would not be drained onto the ground or into streams or drainage areas. Additionally, BHP would ensure that hazardous and non-hazardous wastes are transported to facilities that are authorized to accept such wastes. Furthermore, should a hazardous material spill occur, all contaminated soil would be removed and disposed of properly.

MONITORING

BHP would coordinate with USFS and BLM personnel to conduct site inspections and verify that road maintenance, reconstruction, and new construction activities meet contract specifications. The inspections would include measurements to determine physical effects, success of natural and enhanced revegetation, and to ensure traffic safety and compliance with state and federal laws.

BHP would adhere to USFS Road Damage Guidelines to limit soil movement and road damage during hauling activities (Road Damage Guidelines are found in USDA-FSH, 2409.15 – Timber Sale Administration Handbook, Chapter 50, Specified Transportation Facilities, Black Hills Supplement No. 2409.15-92-1).

SCENERY

Project design features (PDFs) and mitigation measures relevant to scenery resources and common to several resources include the following:

- In construction areas where recontouring is not required, disturbance would be limited to overland travel where feasible to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access.
- To reduce visual contrast and reduce siltation in construction areas (e.g., marshaling yards, tower sites, spur roads from existing access roads) where ground disturbance is substantial, surface preparation (including decompaction, redistribution of topsoil, etc.), redistribution of coarse woody debris, and reseeding would occur. The method of restoration could normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches. BHP may prepare a revegetation plan in consultation with the USFS and BLM. The plan would specify disturbance types and their appropriate revegetation techniques to be applied for all Proposed Action work areas, access roads, and all sidecast materials. Techniques could include reseeding native or other acceptable vegetation species. The plan would include management and maintenance procedures approved by the USFS and BLM for ongoing use of access roads and temporary work areas.

- To minimize ground disturbance and/or reduce scarring (visual contrast) of the landscape, the alignment of any cross-country route would follow the landform contours in designated areas where practicable, providing that such alignment does not impact other resources.
- In construction areas where recontouring is not required, no grading would occur to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access. Restoration could include reseeding (if required). Methods would be detailed in the USFS-and BLM approved Revegetation Plan.
- To reduce potential impacts on recreation values and safety, at highway, canyon, and trail crossings, poles are to be placed at the maximum feasible distance from the crossing within limits of standard tower design.
- The area limits of construction activities will be predetermined, with activity restricted to and confined within those limits. This area is generally limited to the existing ROW and other approved areas such as local routing options and staging areas.
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.

PDFs specific to scenery resources include the following:

- No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate limits of survey or construction activity. Exceptions could be made for paint use on vegetation to mark avoidance of sensitive species or plants considered to have ethnobotanic significance.
- To reduce visual contrast in designated areas, poles would be placed so as to avoid impacts to sensitive viewpoints within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance by spanning the sensitive area. Similarly, to reduce visual impacts, poles are to be placed at the maximum feasible distance from the crossing of roads or trails within limits of standard tower design.

Mitigation measures specific to scenery resources include the following:

- All steel structures shall be treated to have a dulled finish.
- To reduce visual contrast, tree removal within the ROW would be limited to the minimum required area that is necessary to meet Federal Energy Regulatory Commission (FERC) Standards, to ensure proper clearances and safe operation, and to provide safe access for construction, line inspection and maintenance operations.
- To reduce potential impacts on scenery and reduce visual contrast, preserve low growing shrub vegetation up to five feet in height in areas within the ROW where clearing is not necessary for proper clearances, safe operation and safe access for construction, line inspection, and maintenance operations.
- To reduce potential impacts on scenery and reduce visual contrast in the residential area along SD Hwy 44 in the Hisega area and in the area of concentrated recreation activity east of Pactola Reservoir where high impacts to sensitive viewers would occur, preserve low growing trees and shrubs up to 25-feet in height in areas within the ROW, but outside the conductor path and where clearing is not necessary for proper clearances, safe operation and safe access for construction, line inspection, and maintenance operations.

a) This includes the following locations: South Dakota portion of the Proposed Action, mile 29.1 to 31.6; mile 31.8 to 31.9; mile 32.0 to 32.8; mile 33.9 to 34.4; and mile 34.5 to 37.0.

MONITORING

No monitoring requirements are applicable to scenery / visual resources.

WILDLIFE

The following PDFs and mitigation measures would be implemented by the Proposed Action to minimize or eliminate potential impacts to wildlife and botanical resources throughout construction areas. These PDFs and mitigation measures would be universally applied to the entire length of the Proposed Action. Species specific mitigation measures designed to minimize or eliminate potential impacts to a particular species are largely based on Standards and Guidelines identified in TBNG and BHNF LRMPs.

South Dakota

Common to Multiple Resources

- The area limits of construction activities would be predetermined, with activity restricted to and confined within those limits. This area is generally limited to the existing ROW and other approved areas such as local routing options and staging areas.
- Mitigation measures developed during the consultation period under Section 7 of the Endangered Species Act (1973) as amended would be adhered to as specified by the USFS, USFWS, and NOAA fisheries. *Will ensure the Proposed Action complies with FSM 2670:*
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.
- Prior to construction, all supervisory construction personnel would be instructed on the protection of ecological resources. To assist in this effort, the construction contract would address: (a) federal, state, and tribal laws regarding plants and wildlife; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources including specific mitigation measures.
- BMPs and SOPs would be implemented for herbicide application, soil protection, revegetation, and use of weed-free plant materials. *Will ensure the Proposed Action complies with FSMs 2150 and 2900.*
- Weed control methods that may negatively impact special status plants, snails, wetlands, or riparian areas would be avoided. Treat individual plants rather than broadcast application in areas where special status species occur. Control weeds at snail occurrences, but use herbicides when snails are not on the surface. Monitor weed treatments used at special status plant occurrences and retreat as needed during the season. *Will ensure the Proposed Action complies with BHNF Standards 3103 and 8.2-2104, Guideline 4304, and Noxious Weed Management Plan.*
- Ground disturbance would be prohibited within 500 feet of surface water and/or riparian areas unless or until a permittee or his designated representative and the surface management agency (SMA) arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation would occur prior to development. *Will ensure the Proposed Action complies with BHNF Standard 3104 and 3106 and BHNF Guidelines 4111 and 9204.*

- Riparian areas or wetlands where populations of sensitive species are located are to be avoided during ground disturbing activities. Use one or more of the following tied to the site-specific conditions for disturbances adjacent to known sensitive species occurrences:
    - Avoid removing riparian or wetland vegetation; filling or dredging the riparian area or wetland; diverting stream flow from the current channel.
    - Prevent storm runoff from washing silt into the stream or wetland.
    - Reseed and/or replant cut and fill slopes with native seed and/or native plants promptly to control erosion and for prevention of noxious-weed infestations. Use appropriate measures to control erosion on disturbed areas that are steep, are highly erosive, and/or adjacent to the riparian area.
    - Timing, placement, and installation of temporary stream diversions shall allow passage of aquatic life and protect sensitive and species of local concern. *Will ensure the Proposed Action complies with BHNF Standards 3103, 3106, and 8.2-2104.*
- Where feasible, existing landscape features would be utilized to span the conductor over non-forested riparian wetlands to avoid cutting woody vegetation.
- In construction areas where recontouring is not required, disturbance would be limited to overland travel where feasible to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access.
- To reduce visual contrast and reduce siltation in construction areas (e.g., marshaling yards, tower sites, spur roads from existing access roads) where ground disturbance is substantial, surface preparation (including decompaction, redistribution of topsoil, etc.), redistribution of coarse woody debris, and reseeding would occur. The method of restoration could normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches. BHP may prepare a revegetation plan in consultation with the USFS. The plan would specify disturbance types and their appropriate revegetation techniques to be applied for all Proposed Action work areas, access roads, and all side cast materials. Techniques could include reseeding native or other acceptable vegetation species. The plan would include management and maintenance procedures approved by the USFS for ongoing use of access roads and temporary work areas.
- To minimize the amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features such as, but not limited to, riparian areas, cultural resource sites of significance, and watercourses and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance. *Will ensure the Proposed Action complies with BHNF Standard 3104 and 3106 and BHNF Guidelines 4111 and 9204.*
- Erosion and sediment control measures would conform to applicable federal and state regulations.
- In construction areas disturbance would be limited to overland travel where feasible to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access.
- A USFS Sensitive Species located after contract or permit issuance will be appropriately managed by active coordination between permittee, contractor or purchaser, Forest Service line officer, project administrator, and biologist and/or botanist. Solutions need to be based on the circumstances of each new discovery and must consider the species need, contractual obligations and costs, and mitigation measures available at the time of discovery. *Will ensure*

the Proposed Action complies with BHNF Standard 3115. Will ensure the Proposed Action complies with FSM 2670.

Noxious Weeds

- Noxious weeds include weeds designated as "noxious" by the states of South Dakota and Wyoming, and additional weed species designated for project counties, as applicable. *Will ensure the Proposed Action complies with state law in South Dakota and Wyoming.*
- Before ground-disturbing activities begin, inventory and prioritize weed infestations for treatment in project operating areas and along access routes. Identify what weeds are on site, or within reasonably expected potential invasion vicinity, and do a risk assessment accordingly. Control weeds as necessary. *Will ensure the Proposed Action complies with BHNF Standard 4301.*
- Prior to construction, a Noxious Weed, Reclamation, and Revegetation Plan would be completed in consultation with the agencies to minimize the effects of noxious weeds and ground disturbance due to proposed project activities. The plan would address any required cleaning of construction vehicles, weed treatment protocols, and anything else to remain compliant with all involved agencies. *Will ensure the Proposed Action complies with FSM 2900. Will ensure the Proposed Action complies with BHNF Standard 3106 and Objective 231, and Noxious Weed Management Plan.*
- A high-pressured washer would be used to clean construction equipment before it is used for the first time and before being used in each project county, as well as before equipment is moved from noxious weed infested areas to new work sites. *Will ensure the Proposed Action complies with FSM 2900. Will ensure the Proposed Action complies with BHNF Objective 231 and Noxious Weed Management Plan.*
- Only herbicides approved by the USFS would be used. To protect avian endangered and threatened species, organochlorine pesticides would not be used as chemical agents. *Will ensure the Proposed Action complies with FSM 4500.*
- As part of the Noxious Weed and Rehabilitation Plan, incorporate measures that would reduce the introduction and/or translocation aquatic nuisance species identified in the BHNF Aquatic Nuisance Action Plan (USFS 2009). Measures should be taken to reduce the pathways of spread of these species. Mitigation measures should include designated water sources, decontamination of equipment (prior to construction and during construction) and staging area locations in relation to water sources. *Will ensure the Proposed Action complies with FSM 2900. Will ensure the Proposed Action complies with BHNF Standard 3106.*
- Initiate re-vegetation as soon as possible, not to exceed six months, after termination of ground-disturbing activities. Revegetate all disturbed soils with native species in seed/plant mixtures that are certified noxious-weed-free. On areas needing the immediate establishment of vegetation non-native, non-aggressive annuals (e.g., wheat, oats, rye), or sterile species may be used while native perennials are becoming established, or when native species are not available (e.g., during drought years or years when wildfire burns large acreages in the U.S.). Other aggressive non-native perennials (e.g., smooth brome, timothy) would not be used. Seed would be tested for noxious weeds. If mulches are used they are to be certified noxious-weed free. Weed-free alfalfa seed may be used only when native legume seed is not available and only when there is extensive disturbance associated with road construction or mine reclamation where topsoil is no longer available. *Will ensure the Proposed Action complies with BHNF Standard 1110, Guideline 8402, Objective 231, and Noxious Weed Management Plan.*

- Use certified noxious-weed-free seed, feed and mulch. Submit proof-of-purchase to appropriate land agency before using plant materials. *Will ensure the Proposed Action complies with FSM 2900. Will ensure the Proposed Action complies with BHNF Standard 4306 and Noxious Weed Management Plan.*
- Inspect, document, and treat weeds in all limited term ground-disturbing operations for at least three growing seasons following completion of the project. *Will ensure the Proposed Action complies with BHNF Standard 2.2-4201 and Objective 231.*
- Inspect, document, and treat weeds in the proposed ROW and roads only used by BHP for life of the SUP. *Will ensure the Proposed Action complies with BHNF Standard 2.2-4201 and Objective 231.*
- The approved seed/plant mixtures for the BHNF would be applied at the rate of 20 pounds per acre, and are stratified by zone and use to include the following (*Will ensure the Proposed Action complies with BHNF Approved Seed Mixes (M. Vedder, 2012, personal communication*):

b) High elevation uplands: 25 percent slender wheatgrass (*Elymus trachycaulus*), 30 percent annual ryegrass (*Lolium multiflorum*), 10 percent Canada wildrye (*Elymus canadensis*), 10 percent Canby bluegrass (*Poa canbyi*), 20 percent green needlegrass (*Nassella viridula*), and five percent purple prairie clover (*Dalea purpurea*) or American vetch (*Vicia americana*).

c) Low elevation uplands: 35 percent annual ryegrass (*Lolium multiflorum*), 25 percent slender wheatgrass (*Elymus trachycaulus*), 15 percent green needlegrass (*Nassella viridula*), five percent purple prairie clover (*Dalea purpurea*) or American vetch (*Vicia americana*), and 20 percent any combination of four warm season grasses, including blue grama (*Bouteloua gracilis*), switchgrass (*Panicum virgatum*), Indiangrass (*Sorghastrum nutans*), or sideoats grama (*Bouteloua curtipendula*).

d) Mystic Mix is a sod-forming mix available at Warne Chemical in Rapid City that may be used in areas where regeneration of ponderosa pine is not desired, for example in utility corridors and road cuts. This includes 32 percent slender wheatgrass (*Elymus trachycaulus*), 22 percent western wheatgrass (*Agropyron smithii*), 26 percent annual ryegrass (*Lolium multiflorum*), five percent side oats grama (*Bouteloua curtipendula*), 10 percent green needlegrass (*Stipa viridula*), and five percent little bluestem (*Schizachyrium scoparium*).

Botany

- Habitat suitability for special status plants would be assessed on all federal lands. Will ensure the Proposed Action complies with BHNF request (K. Owens, 2012, personal communication).
- Special status plants would be surveyed on the BHNF where there are suitable habitats that would have project-related ground disturbance and have not been surveyed within the past five to seven years. If habitat associated with special status plant species occurs on the TBNG and BLM Newcastle Forest Office, Black Hills Power would coordinate with these agencies whether special status plant surveys would be required. Surveys for special status plants would be conducted by qualified botanists to determine presence, absence, and habitat occupancy.
- Ground disturbance would not occur in occupied habitat for federal Threatened or Endangered plant species, Forest Service Sensitive species, BHNF Species of Local Concern, and BLM Sensitive species, or in Botanical Areas and Research Natural Areas. In the event that any surface disturbing activities would occur in the vicinity of federal Threatened or

Endangered plant species, Forest Service Sensitive species, Species of Local Concern, or BLM Sensitive species, the USFS or BLM would be consulted to ensure minimal impact. Will ensure the Proposed Action complies with BHNF Standard 8.2-2104.

- Ground disturbance would be avoided to the extent possible within 50 feet of BHNF target plant species. BHNF target plant occurrences would be flagged to ensure that these "no disturbance" areas are visible to project personnel. If ground-disturbing activities cannot be avoided in these areas, a Forest Service botanist or biologist would be consulted to ensure minimal impact. Will ensure the Proposed Action complies with BHNF request (K. Owens, 2012, personal communication).
- The boundaries of sensitive plant populations would be delineated with clearly visible flagging or fencing based on surveys conducted prior to construction. In the event any special-status plants would require relocation, permission would be obtained from the USFS or BLM. If avoidance or relocation were not practical, the topsoil surrounding the plants would be salvaged, stored separately from subsoil and respread during the restoration process.
- Any special status species discovered after issuance of the permit would be appropriately managed by active coordination between Black Hills Power and the Forest Service or BLM. Solutions would be based on circumstances of the discovery and consider the species' needs, contractual obligations and cost, and mitigation measures available at the time of discovery. Will ensure the Proposed Action complies with BHNF Standard 3115.
- New construction spur roads would be located out of riparian areas or wetlands, and avoided in white spruce habitat to the extent possible. Will ensure the Proposed Action complies with BHNF request (K. Owens, 2012b, personal communication).

Wildlife

- All waste products and food garbage from construction sites would be deposited in a covered waste receptacle, or removed daily. Garbage would be hauled to a suitable disposal facility.
- No holes or pits will be left open overnight or when the site is not manned to prevent inadvertently trapping or injuring wildlife.
- All construction and maintenance activities would be conducted in a manner that would minimize disturbance to drainage channels and stream banks.
- All construction vehicle movement outside the ROW would be restricted to designated access, contractor-acquired access, or public roads.
- Hazardous materials would not be drained onto the ground or into streams or drainage areas. Totally enclosed containment would be provided for all hazardous materials trash.
- The transmission line would be constructed according to Avian Power Line Interaction Committee (APLIC 2006, 2012) standards to eliminate the risk of electrocution to raptors and other large birds. *Will ensure the Proposed Action complies with BHNF Standards 8308 and 8309.*
- BHP would prepare an Avian and Bat Protection Plan which would include monitoring for collision mortalities. Bird flight diverters would be installed if areas of high mortality are identified during monitoring.

BHNF Sensitive, SOLC, MIS Wildlife

- In Management Area (MA) 5.4, consider limiting the amount of disturbance from construction and maintenance activities during the winter periods (December 15 through May 15). BHNF personnel will be contacted prior to any winter construction in MA 5.4 regarding the implementation of seasonal restriction. Maintain current seasonal closures, limiting use of access routes by the public during the winter months following the current BHNF Motorized Vehicle Use Map. *Will ensure the Proposed Action complies with BHNF Goal 2, Objective 238a, Standard 2101, Standard 3102, and Standard 9101.*
- Construction and maintenance activities in Rocky Mountain bighorn sheep lambing areas should be restricted from April 1 through June 15. Activities may also include road work, noxious weed treatment and on the ground personnel (e.g., layout, saw crews). Coordinate with the SDGFP to determine acceptable management activities, length of timing restriction and the size of area to be avoided. *Will ensure the Proposed Action complies with BHNF Standard 3216.*
- Helicopter flight paths should avoid known high use areas of bighorn sheep unless sheep become accustomed to activity. Timing restrictions may be required to reduce the negative effects of bighorn sheep movement. Coordinate with the SDGFP to determine the length of timing restriction and the size of area to be avoided. *Will ensure the Proposed Action complies with BHNF Standard 5.4-9101.*
- Vegetation clearing would take place outside of the migratory bird nesting season (April 15 – July 31). If vegetation clearing is planned in the nesting season, preconstruction migratory bird nest surveys would preclude the clearing and appropriate nest buffers, to be determined through discussions with USFWS, would be applied. *Will ensure the Proposed Action complies with BHNF Standard 3102.*
- Prior to construction, active raptor nests would be identified within the analysis area. Nests would be avoided while active. Timing and disturbance buffers would be maintained around identified nests of raptor SOLC and sensitive species using USFWS-recommended spatial and temporal buffers for construction-related activities (USFWS 2012). The distance may be reduced where forest characteristics or topography reduce the line-of-site distance from the nest, based on site-specific analysis. Similarly, timing and disturbance buffers would be maintained around Bald Eagle winter roost areas, in season (Table W1). *Will ensure the Proposed Action complies with BHNF Standard 3204.*
- Permanently avoid known Bald Eagle nests by 660 feet if structures will be visible from existing nest, and 330 feet if structures will not be visible from existing nest, as per the USFWS National Bald Eagle Management Guidelines (USFWS 2007c). *Will ensure the Proposed Action complies with BHNF Standard 3101 and the BGEPA.*

TABLE W1 DISTURBANCE BUFFERS AND TIMING RESTRICTIONS ON RAPTOR NESTS IN SOUTH DAKOTA				
SPECIES	NEST		WINTER ROOST	
	DISTANCE (MILES)	DATES	DISTANCE (MILES)	DATES
Bald Eagle	1.0	2/1 – 9/1	1.0	11/1 - 4/1
Northern Goshawk[1]	0.5	4/1 – 8/15		
Cooper's Hawk[2]	0.25	4/1 – 8/31		
Sharp-shinned Hawk[2]	0.25	4/15 – 8/31		
Peregrine Falcon[2]	1	3/15 – 8/31		
Broad-winged Hawk[2]	0.25	4/15 – 8/15		
Northern Harrier[2]	0.25	4/15 – 8/31		
Flammulated Owl[2]	0.25	4/1 – 9/30		
Northern Saw-whet Owl[2]	0.125	4/1 – 8/31		
Burrowing Owl	0.25	4/15 – 8/31		

[1]Source: USFS 2005

[2]Source: USFWS 2012

*Dates may vary depending on the species

- With the exception of emergency repair situations, construction, restoration, maintenance, and termination activities in designated areas would be modified or curtailed during sensitive periods (e.g., nesting and breeding periods) for candidate, proposed, threatened, and endangered, or other sensitive animal species. The Authorized Officer in advance of construction or maintenance would approve sensitive areas and timeframes.
- Species specific mitigation measures aimed to protect nesting Northern Goshawks, including retaining at least 180 of suitable nesting habitat around active nests, avoidance of construction activities within one-half mile of active Northern Goshawk nests from April 1 through August 15, and route selection to avoid known Northern Goshawk historic and current nesting areas identified during 2012 field surveys. *Will ensure the Proposed Action complies with BHNF Standard 3108 and BHNF Standard 3111.*
- No structures, access roads, or overland travel access paths will be placed through Black Tailed Prairie Dog (BTPD) colonies. *Would ensure the Proposed Action complies with BHNF Standard 3121.*
- Where caves or abandoned mines serve as nurseries or hibernacula for bats, vegetative changes within 500 feet of the opening will be avoided unless topography or other features protect the openings from disturbance. *Will ensure the Proposed Action complies with BHNF Standard 3102 and BHNF Standard 3207.*
- Design of all access road crossings of permanent or intermittent water bodies to allow aquatic species, including USFS Sensitive fish species, to pass through unimpeded. *Will ensure the Proposed Action complies with BHNF Standard 1203 and BHNF Standard 3106.*
- Avoid placing slash piles in meadows and grasslands. If unavoidable, slash piles and log deck areas should be placed on the edges of these meadows and grasslands. *Will ensure the Proposed Action complies with BHNF Guidelines 4111 and 9204.*
- New roads and temporary roads should avoid being placed within meadows or grasslands. If topography is constraining, roads/trails should be placed as far as possible from meadow edge and avoid bisecting meadow/grassland. *Will ensure the Proposed Action complies with BHNF Guidelines 4111 and 9204.*
- No known Black Hills red-bellied snake hibernacula occur within the South Dakota Sensitive Species Analysis Area. Should a previously unidentified hibernacula be identified, the

Proposed Action would communicate with the appropriate BHNF personnel to reduce potential impacts to Black Hills red-bellied snake. *Will ensure the Proposed Action complies with BHNF Standard 3116.*

Wyoming

The following Project Design Features (PDF) and mitigation measures would be implemented as part of the Proposed Action to minimize or eliminate potential impacts to wildlife and botanical resources throughout construction areas. These PDFs and mitigation measures would be universally applied to the entire length of the Proposed Action. Species specific mitigation measures designed to minimize or eliminate potential impacts to a particular species are largely based on Standards and Guidelines identified in TBNG and BHNF LRMPs.

Common to Multiple Resources

- The area limits of construction activities would be predetermined, with activity restricted to and confined within those limits. This area is generally limited to the existing ROW and other approved areas such as local routing options and staging areas.
- Mitigation measures developed during the consultation period under Section 7 of the Endangered Species Act (1973) as amended would be adhered to as specified by the USFS, USFWS, and NOAA fisheries. *Will ensure the Proposed Action complies with FSM 2670.*
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.
- Prior to construction, all supervisory construction personnel would be instructed on the protection of ecological resources. To assist in this effort, the construction contract would address: (a) federal, state, and tribal laws regarding plants and wildlife; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources including specific mitigation measures.
- Best Management Practices (BMPs) and Standard Operating Procedures (SOPs) would be implemented for herbicide application, soil protection, revegetation, and use of weed-free plant materials. *Will ensure the Proposed Action complies with FSMs 2150 and 2900. Will ensure the Proposed Action complies with TBNG Standards 1.J.2 and 5*
- Weed control methods that may negatively impact special status plants, snails, wetlands, or riparian areas would be avoided. Treat individual plants rather than broadcast application in areas where special status species occur. Control weeds at snail occurrences, but use herbicides when snails are not on the surface. Monitor weed treatments used at special status plant occurrences and retreat as needed during the season. *Will ensure the Proposed Action complies with TBNG Guidelines 1.F.38 and 1.J.10.*
- Ground disturbance would be prohibited within 500 feet of surface water and/or riparian areas unless or until a permittee or his designated representative and the surface management agency (SMA) arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation would occur prior to development. *Will ensure the Proposed Action complies with TBNG Standard 1.B. 3, 4, 5, 6, 10, 13, and 14, 1.F.44, 45, and Guideline 1.F.8, and 43.*
- Riparian areas or wetlands where populations of sensitive species are located are to be avoided during ground disturbing activities. Use one or more of the following tied to the site-specific conditions for disturbances adjacent to known sensitive species occurrences:
    a. Avoid removing riparian or wetland vegetation; filling or dredging the riparian area or wetland; diverting stream flow from the current channel.
    b. Prevent storm runoff from washing silt into the stream or wetland.

c. Reseed and/or replant cut and fill slopes with native seed and/or native plants promptly to control erosion and for prevention of noxious-weed infestations. Use appropriate measures to control erosion on disturbed areas that are steep, are highly erosive, and/or adjacent to the riparian area.

d. Timing, placement, and installation of temporary stream diversions shall allow passage of aquatic life and protect sensitive and species of local concern. *Will ensure the Proposed Action complies with TBNG Standards Standards1.B.1, 2, 3, 6, 7, 8, 9, 13, 1.F.44, 45, and Guideline 1.B.14 and 1.F.43.*

- Where feasible, existing landscape features would be utilized to span the conductor over non-forested riparian wetlands to avoid cutting woody vegetation. *Will ensure the Proposed Action complies with TBNG Standards1.B.1, 2, 3, 6, 7, 9, 13, 1.F.44, 45 and Guideline 1.B.14 and 1.F.43.*
- In construction areas where recontouring is not required, disturbance would be limited to overland travel where feasible to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access.
- To reduce visual contrast and reduce siltation in construction areas (e.g., marshaling yards, tower sites, spur roads from existing access roads) where ground disturbance is substantial, surface preparation (including decompaction, redistribution of topsoil, etc.), redistribution of coarse woody debris, and reseeding would occur. The method of restoration could normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches. BHP may prepare a revegetation plan in consultation with the USFS. The plan would specify disturbance types and their appropriate revegetation techniques to be applied for all proposed Project work areas, access roads, and all side cast materials. Techniques could include reseeding native or other acceptable vegetation species. The plan would include management and maintenance procedures approved by the USFS for ongoing use of access roads and temporary work areas.
- To minimize the amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features such as, but not limited to, riparian areas, cultural resource sites of significance, and watercourses and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance. *Will ensure the Proposed Action complies with TBNG Standard 1.B.1, 2, 3, 5, 6, 13, and 15, and Guideline 1.B.14.*
- Erosion and sediment control measures would conform to applicable federal and state regulations. *Will ensure the Proposed Action complies with TBNG Standard 1.B.11, 12, 13, and 15 and Guideline 1.B.14.*
- In construction areas disturbance would be limited to overland travel where feasible to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access.
- A USFS Sensitive Species located after contract or permit issuance will be appropriately managed by active coordination between permittee, contractor or purchaser, Forest Service line officer, project administrator, and biologist and/or botanist. Solutions need to be based on the circumstances of each new discovery and must consider the species need, contractual obligations and costs, and mitigation measures available at the time of discovery. *Will ensure the Proposed Action complies with FSM 2670. Will ensure the Proposed Action complies with TBNG Standard 1.F.73 and Guideline 1.F.13*

Noxious Weeds

- Noxious weeds include weeds designated as "noxious" by the states of South Dakota and Wyoming, and additional weed species designated for project counties, as applicable. *Will ensure the Proposed Action complies with state law in South Dakota and Wyoming.*
- Before ground-disturbing activities begin, inventory and prioritize weed infestations for treatment in project operating areas and along access routes. Identify what weeds are on site, or within reasonably expected potential invasion vicinity, and do a risk assessment accordingly. Control weeds as necessary. *Will ensure the Proposed Action complies with TBNG Guideline 1.F.38.*
- Prior to construction, a Noxious Weed, Reclamation, and Revegetation Plan would be completed in consultation with the agencies to minimize the effects of noxious weeds and ground disturbance due to proposed project activities. The plan would address any required cleaning of construction vehicles, weed treatment protocols, and anything else to remain compliant with all involved agencies. *Will ensure the Proposed Action complies with FSM 2900. Will ensure the Proposed Action complies with TBNG Standard 1.J.2 and Guideline 1.F.38.*
- A high-pressured washer would be used to clean construction equipment before it is used for the first time and before being used in each project county, as well as before equipment is moved from noxious weed infested areas to new work sites. *Will ensure the Proposed Action complies with FSM 2900.*
- Only herbicides approved by the USFS and BLM would be used. To protect avian endangered and threatened species, organochlorine pesticides would not be used as chemical agents. *Will ensure the Proposed Action complies with FSM 4500.*
- As part of the Noxious Weed and Rehabilitation Plan, incorporate measures that would reduce the introduction and/or translocation aquatic nuisance species identified in the BHNF Aquatic Nuisance Action Plan (USFS 2009). Measures should be taken to reduce the pathways of spread of these species. Mitigation measures should include designated water sources, decontamination of equipment (prior to construction and during construction) and staging area locations in relation to water sources. *Will ensure the Proposed Action complies with FSM 2900. Will ensure the Proposed Action complies with TBNG Standard 1.J.5 and Guideline 1.J.7.*
- Initiate re-vegetation as soon as possible, not to exceed six months, after termination of ground-disturbing activities. Revegetate all disturbed soils with native species in seed/plant mixtures that are certified noxious-weed-free. On areas needing the immediate establishment of vegetation non-native, non-aggressive annuals (e.g., wheat, oats, rye), or sterile species may be used while native perennials are becoming established, or when native species are not available (e.g., during drought years or years when wildfire burns large acreages in the U.S.). Other aggressive non-native perennials (e.g., smooth brome, timothy) would not be used. Seed would be tested for noxious weeds. If mulches are used they are to be certified noxious-weed free. Weed-free alfalfa seed may be used only when native legume seed is not available and only when there is extensive disturbance associated with road construction or mine reclamation where topsoil is no longer available. *Will ensure the Proposed Action complies with TBNG Guideline 1.J.7.*
- Use certified noxious-weed-free seed, feed and mulch. Submit proof-of-purchase to appropriate land agency before using plant materials. *Will ensure the Proposed Action complies with FSM 2900. Will ensure the Proposed Action complies with TBNG Standard 1.J.5.*
- Inspect, document, and treat weeds in all limited term ground-disturbing operations for at least three growing seasons following completion of the project.
- Inspect, document, and treat weeds in the proposed ROW and roads only used by BHP for life of the SUP.

Botany

- Habitat suitability for special status plants would be assessed on all federal lands.
- Special status plants would be surveyed on the BHNF where there are suitable habitats that would have project-related ground disturbance and have not been surveyed within the past five to seven years. If habitat associated with special status plant species occurs on the TBNG and BLM Newcastle Forest Office, Black Hills Power would coordinate with these agencies whether special status plant surveys would be required. Surveys for special status plants would be conducted by qualified botanists to determine presence, absence, and habitat occupancy.
- Ground disturbance would not occur in occupied habitat for federal Threatened or Endangered plant species, Forest Service Sensitive species, BHNF Species of Local Concern, and BLM Sensitive species, or in Botanical Areas and Research Natural Areas. In the event that any surface disturbing activities would occur in the vicinity of federal Threatened or Endangered plant species, Forest Service Sensitive species, Species of Local Concern, or BLM Sensitive species, the USFS or BLM would be consulted to ensure minimal impact. *Will ensure the Proposed Action complies with TBNG Guideline 1.F.35 and Standard 1.F.40.*
- The boundaries of sensitive plant populations would be delineated with clearly visible flagging or fencing based on surveys conducted prior to construction. In the event any special-status plants would require relocation, permission would be obtained from the USFS or BLM. If avoidance or relocation were not practical, the topsoil surrounding the plants would be salvaged, stored separately from subsoil and respread during the restoration process. *Will ensure the Proposed Action complies with TBNG Guideline 1.F.35.*
- Any special status species discovered after issuance of the permit would be appropriately managed by active coordination between Black Hills Power and the Forest Service or BLM. Solutions would be based on circumstances of the discovery and consider the species' needs, contractual obligations and cost, and mitigation measures available at the time of discovery.

Wildlife

- All waste products and food garbage from construction sites would be deposited in a covered waste receptacle, or removed daily. Garbage would be hauled to a suitable disposal facility.
- No holes or pits will be left open overnight or when the site is not manned to prevent inadvertently trapping or injuring wildlife.
- All construction and maintenance activities would be conducted in a manner that would minimize disturbance to drainage channels and stream banks. *Will ensure the Proposed Action complies with TBNG Standard 1.F.44, and 45.*
- All construction vehicle movement outside the ROW would be restricted to designated access, contractor-acquired access, or public roads.
- Hazardous materials would not be drained onto the ground or into streams or drainage areas. Totally enclosed containment would be provided for all hazardous materials trash. *Will ensure the Proposed Action complies with TBNG Guideline 1.F.43.*
- The transmission line would be constructed according to Avian Power Line Interaction Committee (APLIC 2006, 2012) standards to eliminate the risk of electrocution to raptors and other large birds. *Will ensure the Proposed Action complies with TBNG Guideline 1.F.1.*
- BHP would prepare an Avian and Bat Protection Plan which would include monitoring for collision mortalities. Bird flight diverters would be installed if areas of high mortality are identified during monitoring.

Greater Sage-grouse

- Tubular steel monopoles with davit arms shall be utilized when the Proposed Action passes through Greater Sage-grouse core area to limit raptor perching and nesting substrate.
- The use of guy-wires shall be restricted when the Proposed Action passes through Greater Sage-grouse core area.
- Bird flight diverters shall be positioned on overhead shield wires when the Proposed Action passes through Greater Sage-grouse core area to reduce potential line collisions.
- Blade-style perch discouragers (see Appendix A for description) shall be employed on davit arms when the Proposed Action passes through Greater Sage-grouse core area.
- No construction activities shall take place within two miles of a known active Greater Sage-grouse lek between March 1 and June 30. *Will ensure the Proposed Action complies with TBNG Guidelines 1.F.48, 49, 51 and 52.*
- No project-related infrastructure will be placed within a quarter mile of a known active Greater Sage-grouse lek on TBNG property. *Will ensure the Proposed Action complies with TBNG Standard 1.F.46.*
- Compensatory mitigation will be applied to lands on TBNG identified as high suitability Greater Sage-grouse habitat. Funds from compensatory mitigation will go towards ongoing habitat enhancement efforts for Greater Sage-grouse, such as cheatgrass eradication programs and conifer encroachment reduction.

TBNG Sensitive, SOLC, MIS Wildlife

- No structures, access roads, or overland travel access paths shall be placed through BTPD colonies. *Will ensure the Proposed Action complies with TBNG Standard 1.F.65 and Guideline 1.F.64 and 66.*
- Structural elements intended to discourage raptor perching on structures shall be installed on structures when adjacent to BTPD colonies. *Will ensure the Proposed Action complies with TBNG Guideline 1.F.33.*
- Construction activities would be avoided within a quarter of a mile of potential Mountain Plover nesting habitat and known Mountain Plover nests between March 15 and July 31. *Will ensure the Proposed Action complies with TBNG Guideline 1.F.27, 29, and 30 and Standards 1.F.25, 26, 28, 31, and 32.*
- Construction activities would be avoided within a quarter of a mile of known occupied swift fox den between March 1 and August 31. *Will ensure the Proposed Action complies with TBNG Standard 1.F.67 and Guideline 1.F.68.*
- Prior to construction, active raptor nests would be identified within the analysis area. Timing and disturbance buffers would be maintained around identified nests as included in the TBNG LRMP for construction-related activities (Table W2). *Will ensure the Proposed Action complies with TBNG Standard 1.F.74, Guideline 1.F.75, and Standard 1.F.76.*
- With the exception of emergency repair situations, construction, restoration, maintenance, and termination activities in designated areas would be modified or curtailed during sensitive periods (e.g., nesting and breeding periods) for candidate, proposed, threatened, and endangered, or other sensitive animal species. The Authorized Officer in advance of construction or maintenance would approve sensitive areas and timeframes. *Will ensure the Proposed Action complies with TBNG Standard 1.F.6, 29, 74, 76 Guideline 1.F.75.*

TABLE W2 DISTURBANCE BUFFERS AND TIMING RESTRICTIONS ON RAPTOR NESTS IN WYOMING				
SPECIES	NEST		WINTER ROOST	
	DISTANCE (MILES)	DATES	DISTANCE (MILES)	DATES
Bald Eagle	1.0	2/1 – 7/31	1.0	11/1 -3/31
Golden Eagle	0.5	2/1 – 7/31	None	
Merlin	0.5	4/1 – 8/15	None	
Ferruginous Hawk	0.5	3/1 – 7/31	None	
Swainson's hawk	0.5	3/1 – 7/31	None	
Burrowing Owl	0.25	4/15 – 8/31	None	
Other raptors*	0.125	2/1 – 7/31*	None	

Source: USFS 2001 *Dates may vary depending on the species.

- Vegetation clearing in Wyoming would occur outside of the migratory bird nesting season (April 15 to July 15) on TBNG and BLM properties. *Will ensure the Proposed Action complies with TBNG Guideline 1.F.6.*
- Prior to construction, active raptor nests would be identified within the analysis area. Timing and disturbance buffers would be maintained around identified nests as identified in the TBNG LRMP for construction-related activities (see Table C1). *Will ensure the Proposed Action complies with TBNG Standard 1.F.74, Guideline 1.F.75, and Standard 1.F.76.*
- Permanently avoid known Bald Eagle nests by 660 feet if structures will be visible from existing nest, and 330 feet if structures will not be visible from existing nest, as per the USFWS National Bald Eagle Management Guidelines (USFWS 2007c). *Will ensure the Proposed Action complies with TBNG Standard 1.F.73, and BGEPA.*

HYDROLOGY

The design criteria/mitigation techniques that follow are measures that BHP would apply as a part of the Proposed Action to avoid or reduce impacts to surface water and surface water quality:

- USFS Watershed Conservation Practices for water features and forest plan direction would be followed.
- Equipment service and refueling would be away from ephemeral, intermittent and perennial streams, wetlands, springs, and riparian areas. Equipment staging areas would be at least 300 feet from riparian areas. There would be no construction within 100 feet of drainages and wetlands. BMPs would be implemented to contain sediments and pollutants and disturbed areas would be reclaimed and/or revegetated to maintain water quality.
- To reduce siltation in construction areas (e.g., marshaling yards, tower sites, spur roads from existing access roads) where ground disturbance is substantial, surface preparation (including decompaction, redistribution of topsoil, etc.), redistribution of coarse woody debris, and reseeding would occur. The method of restoration could normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches. BHP may prepare a revegetation plan in consultation with the USFS for disturbance on National Forest. The plan would specify disturbance types and their appropriate revegetation techniques to be applied for all Proposed Action work areas, access roads, and all sidecast materials. Techniques could include reseeding native or other acceptable vegetation species. The plan would include management and maintenance procedures approved by the USFS for ongoing use of access roads and temporary work areas.

- To minimize ground disturbance of the landscape, the alignment of any cross-country route would follow the landform contours in designated areas where practicable, providing that such alignment does not impact other resources. To the extent practicable, avoid driving down, through or across streams, draws, arroyos and ravines.
- To minimize the amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features such as, but not limited to, riparian areas, cultural resource sites of significance, and watercourses and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance.
- Cutting and thinning of vegetation in bottoms and low areas would be minimized and work would be limited to periods of low flows or dry channel to the extent practicable.
- Erosion and sediment control measures would conform to applicable federal and state regulations.
- In construction areas disturbance would be limited to overland travel where feasible to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access. Restoration could include reseeding (if required). Methods would be detailed in a USFS-approved revegetation plan.
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.
- BMPs and SOPs will be implemented for herbicide application, soil protection, revegetation, spill prevention, and use of weed-free plant materials.
- Riparian areas or wetlands where populations of sensitive species are located are to be avoided during ground disturbing activities. Use one or more of the following tied to the site-specific conditions for disturbances adjacent to known sensitive species occurrences:
    a) Avoid removing riparian or wetland vegetation; filling or dredging the riparian area or wetland; diverting stream flow from the current channel.
    b) Prevent storm runoff from washing silt into the stream or wetland.
    c) Reseed and/or replant cut and fill slopes with native seed and/or native plants promptly to control erosion and for prevention of noxious-weed infestations. Use appropriate measures to control erosion on disturbed areas that are steep, are highly erosive, and/or adjacent to the riparian area.
    d) Timing, placement, and installation of temporary stream diversions shall allow passage of aquatic life and protect sensitive and species of local concern.
- All construction and maintenance activities would be conducted in a manner that would minimize disturbance to drainage channels and stream banks.

BHP would implement erosion and sediment controls throughout construction of the project, including stabilization measures for disturbed areas and structural controls to divert runoff and remove sediment. Proper implementation of these and BMPs described above, as well as compliance with federal and state regulation, would minimize impacts to surface waters and surface water quality. Impacts to surface water and surface water quality would be reduced to negligible levels.

South Dakota

All information in this section is from the 1997 BHNF Plan of Land and Resource Management.

General

- In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those actions that maintain or improve long-term stream health and riparian ecosystem condition.
- Maintain long-term ground cover, soil structure, water budgets, and flow patterns in wetlands to sustain their ecological function, per 404 regulations
- Vegetative type conversion should only be done in riparian areas to reestablish riparian vegetation for the protection and/or enhancement of those ecosystems.
- As opportunities arise, and need dictates, relocate or implement mitigation measures for roads, trails, watering tanks, ponds, water catchments, and similar facilities currently located within the Water Influence Zone.
- Locate camping sites for contractual purposes (e.g., mining, logging, etc.) such that channel and riparian areas are not impacted.
- Prohibit log land, decking areas and mechanical slash piling within riparian areas unless the integrity of the riparian area can be protected (e.g., frozen, snow-covered ground conditions).

Stream Channels

- Conduct actions so that stream pattern, geometry, and habitats are maintained or improved toward robust stream health.
- Move stream channels only if all other practical alternatives to protect critical resources or capital investments have been exhausted and other legal requirements have been met. If streams are put in channels:
- Use methods that create stable beds and banks and beneficial aquatic habitat features; and
- Use stream geometry relationships to reestablish meanders, width/depth ratios, etc. consistent with each major stream type.
- Design and construct all stream crossings and other in-stream structures to provide for passage of flow and sediment, withstand expected flood flows, and allow free movement of resident aquatic life.
- Naturally occurring debris shall not be removed from stream channels unless it is a threat to life, property, important resource values, or otherwise covered by legal agreement.
- When projects are implemented which can affect: large, woody debris; retain natural and beneficial volumes of large, woody debris for fish habitat; stream energy dissipations; and as sources of organic matter for the stream ecosystem.
- When stabilizing damaged stream banks, preferentially use methods that emphasize vegetative stabilization. Use native vegetation for stream bank stabilization whenever possible.
- Manage water-use facilities to prevent gully erosion of slopes and to prevent sediment and bank damage to streams.
- Design water developments to minimize damage to channel capacity, aquatic habitat and riparian vegetation.

In-stream Flows

- Manage vegetation treatments so that stream flows are not changed to the extent that long-term stream health is degraded.
- Maintain enough water in perennial streams to sustain existing stream health. Return some water to dewatered perennial streams when needed. Comply with Section 505 of the FLPMA and 36 CFR 251.56 when issuing and re-issuing authorizations for water storage and diversion facilities.

Water Quality

- Place new sources of chemical and pathogenic pollutants where such pollutants will not reach surface or ground water.
- Apply runoff controls to disconnect new pollutant sources from surface and ground water.
- Apply chemicals using methods which minimize risk of entry to surface and ground water.
- Where natural background water pollutants cause degradation, it is not necessary to implement improvement actions. Short-term or temporary failure to meet some parameters of the applicable federal or state standard, such as increased sediment from road crossing construction or water resource development, may be permitted in special cases.
- Deposit no waste material (silt, sand, gravel, soil, slash, debris, chemical, or other material) below high water lines, in riparian areas, in the areas immediately adjacent to riparian areas, in the areas immediately adjacent to riparian areas or in natural drainage ways (draws, land surface depressions or other areas where overland flow concentrates and flows directly into streams or lakes).
- Prohibit deposition of soil material in natural drainage ways.
- Locate the lower edge of disturbed or deposited soil banks outside the active floodplain.
- Prohibit stockpiling of topsoil or any other disturbed soil in the active floodplain.
- Locate drilling mud pits outside riparian areas, wetlands and floodplains. If location is unavoidable in these areas, seal and dike all pits to prevent leakage.
- Rehabilitate gravel pits, if located in riparian zones, to simulate a natural riparian/aquatic situation.
- Do not allow new roads to parallel streams when road location must occur in riparian areas unless alternatives have been assessed and determined to be more environmentally damaging. Cross streams at right angles. Locate crossings at points of low bank slope and firm surfaces.
- Further information can be found in the Water Conservations Practices Handbook FSH 2509.25.

Wyoming

All information in this section is from the 2001 Land and Resource Management Plan for TBNG.

Water

- Manage land treatments to conserve site moisture and to protect long-term stream health from damage by increased runoff.

- Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful increased runoff (exceptions shall occur in special habitat situations (e.g., prairie dog habitat).
- In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those actions that maintain or improve long-term health and riparian ecosystem condition.
- Design and construct all stream crossings and other in-stream structures to provide for passage of flow and sediment, withstand expected flood flows, and allow free movement of resident aquatic life.
- Conduct actions so that stream pattern, geometry, and habitats are maintained or improved toward robust stream health.
- Maintain long-term ground cover, soil structure, water budgets, and flow patterns of wetland to sustain their ecological function, per 404 regulations. The 404 regulations are guidelines established by the Environmental Protection Agency. They constitute the substantive environmental criteria used in evaluating activities regulated under Section 404(b)(1) of the Clean Water Act. The full text of these regulations can be found at 40 CFR 230.
- Return and/or maintain sufficient stream flows, under appropriate authorities, to minimize damage to scenic and aesthetic values, fish, and wildlife habitat, and to otherwise protect the environment.
- Manage water-use facilities to prevent gully erosion of slopes to prevent sediment and bank damage to streams.
- Construct roads and other disturbed sites to minimize sediment discharge into stream, lakes, and wetlands.
- Place new sources of chemicals and pathogenic pollutants where such pollutants will not reach surface or ground water.
- Apply runoff controls to disconnect new pollutant sources from surface and ground water.
- Apply chemicals using method that minimize risk of entry to surface and ground water.
- Design activities to protect and manage the riparian ecosystems. Maintain the integrity of the ecosystem including quantity and quality of water.
- Locate activities and facilities away from the water's edge or outside the riparian areas, woody draws, wetlands, and floodplains unless alternatives have been assessed and determined to be more environmentally damaging. If necessary to locate activities or facilities in these areas, then:
    a) Deposit no waste material (silt, sand, gravel, soil, slash, debris, chemical, or other material) below high water lines, in riparian areas, in the areas immediately adjacent to riparian areas, in the areas immediately adjacent to riparian areas or in natural drainage ways (draws, land surface depressions or other areas where overland flow concentrates and flows directly into streams or lakes).
    b) Prohibit deposition of soil material in natural drainage ways.
    c) Locate the lower edge of disturbed or deposited soil banks outside the active floodplain.
    d) Prohibit stockpiling of topsoil or any other disturbed soil in the active floodplain.
    e) Locate drilling mud pits outside riparian areas, wetlands and floodplains. If location is unavoidable in these areas, seal and dike all pits to prevent leakage.

f) Rehabilitate gravel pits, if located in riparian zones, to simulate a natural riparian/aquatic situation.

- Do not allow new roads to parallel streams when road location must occur in riparian areas unless alternatives have been assessed and determined to be more environmentally damaging. Cross streams at right angles. Locate crossings at points of low bank slope and firm surfaces.

Further information can be found in the Water Conservations Practices Handbook FSH 2509.25.

MONITORING

There would be monitoring of BMPs during and after construction until permanent stabilization has been achieved as described by the SWPPP, Forest Plan, and other applicable permits and regulations.

WETLANDS

The design criteria/mitigation techniques that follow are measures that BHP would apply as a part of the Proposed Action to avoid or reduce impacts to wetlands:

- All construction areas would be a minimum of 100 feet from wetlands.
- No overhead vegetation would be cut within 100 feet of wetlands unless the overhead vegetation would interfere with the transmission line or safety requirements of the transmission line.
- To reduce visual contrast and reduce siltation in construction areas (e.g., marshaling yards, tower sites, spur roads from existing access roads) where ground disturbance is substantial, surface preparation (including decompaction, redistribution of topsoil, etc.), redistribution of coarse woody debris, and reseeding would occur. The method of restoration would normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches. BHP may prepare a revegetation plan in consultation with the USFS. The plan would specify disturbance types and their appropriate revegetation techniques to be applied for all Proposed Action work areas, access roads, and all sidecast materials. Techniques may include reseeding native or other acceptable vegetation species. The plan would include management and maintenance procedures approved by the USFS for ongoing use of access roads and temporary work areas. A Forest Service approved Revegetation Plan would be submitted.
- To minimize ground disturbance and/or reduce scarring (visual contrast) of the landscape, the alignment of any cross-country route would follow the landform contours in designated areas where practicable, providing that such alignment does not impact other resources.
- To minimize the amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features such as, but not limited to, riparian areas, cultural resource sites of significance, and watercourses and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance.
- Erosion and sediment control measures would conform to applicable federal and state regulations.
- In construction areas where recontouring is not required, no grading would occur to minimize changes in the original contours. Large rocks and vegetation may be moved within these

areas to allow vehicle access. Restoration could include reseeding (if required). Methods would be detailed in a Forest Service approved Revegetation Plan.

- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.
- Prior to construction, all supervisory construction personnel would be instructed on the protection of ecological resources. To assist in this effort, the construction contract would address: (a) federal, state, and tribal laws regarding plants and wildlife; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources including specific mitigation measures.
- BMPs, WCPs, and SOPs would be implemented for herbicide application, soil protection, revegetation, and use of weed-free plant materials.
- Riparian areas or wetlands where populations of sensitive species are located are to be avoided during ground disturbing activities. Use one or more of the following tied to the site-specific conditions for disturbances adjacent to known sensitive species occurrences:
  a) Avoid removing riparian or wetland vegetation; filling or dredging the riparian area or wetland; diverting stream flow from the current channel.
  b) Prevent storm runoff from washing silt into the stream or wetland.
  c) Reseed and/or replant cut and fill slopes with native seed and/or native plants promptly to control erosion and for prevention of noxious-weed infestations. Use appropriate measures to control erosion on disturbed areas that are steep, are highly erosive, and/or adjacent to the riparian area.
  d) Timing, placement, and installation of temporary stream diversions shall allow passage of aquatic life and protect sensitive and species of local concern.
- All construction and maintenance activities would be conducted in a manner that would minimize disturbance to drainage channels and streambanks.

BHP would implement erosion and sediment controls throughout construction of the project, including stabilization measures for disturbed areas and structural controls to divert runoff and remove sediment. Proper implementation of these and BMPs described above, Forest Service WCPs, as well as compliance with federal and state regulation, would minimize impacts to receiving waters, which includes wetlands. Impacts to wetlands would be reduced to negligible levels.

MONITORING

There would be monitoring of project compliance to BMPs, WCPs, and design criteria during and after implementation, until permanent stabilization has been achieved and as described by the SWPPP, Forest Plan, and other applicable permits and regulations.

TIMBER AND SILVICULTURE

The PDFs discussed in this section are measures that BHP would apply as a part of the Proposed Action. These measures, designed to avoid or reduce the impacts of the Proposed Action, are organized by resource topics.

Common to Multiple Resources

- A Fire Protection Plan would be developed.
- The area limits of construction activities would be predetermined, with activity restricted to and confined within those limits. This area would generally be limited to the existing ROW and other approved areas such as local routing options and staging areas.
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.
- BHNF forestry BMPs would be adhered to.

Timber and Silviculture

- A Logging Plan would be prepared prior to construction that includes: specifications for pre-construction timber cruising; determination of area and volume of timber to be removed; acres of trees to be removed that were killed by beetle infestation; snags to be removed or retained; and the quantity of timber available for sale.
- Tree clearing would be kept to the minimum required to construct the Project and meet Federal Energy Regulatory Commission (FERC) standards regarding clearances between transmission lines and trees.
- A Road Use Permit would be required by BHNF if timber removed from private land would be hauled on BHNF managed roads.
- Timber removal on state lands would be coordinated with Wyoming State Forestry Division and/or South Dakota State Resource Conservation and Forestry Division.
- Skidder-type yarding would not be allowed on: 1) USFS lands with greater than 40 percent slopes; or 2) BLM lands with slopes greater than 45 percent. Areas with highly erodible soils would have more restrictive thresholds. Other logging operations on slopes steeper than these would be limited to technically and environmentally acceptable methods such as cable yarding.
- Trees would be felled if they occur in the proposed ROW or are hazard trees located directly adjacent to the ROW. Lop and scatter or chip, whole tree skidding and piling are all acceptable. Limbing would be done where trees are felled; and logs would be cut to length and transported to decking areas. Remaining slash would be lop and scattered to a depth of 12 inches. With prior authorization, BHP would also extend lop and scatter 50 feet from either side of ROW in BHNF to reduce fire risk. Windrowing of slash along timber edge would be avoided.

FIRE AND FUELS

The PDFs discussed in this section are measures that BHP would apply as a part of the Proposed Action. These measures, designed to avoid or reduce the impacts of the Proposed Action, are organized by resource topics.

Common to Multiple Resources

- A Fire Protection Plan would be developed to minimize fire risk. The area limits of construction activities would be predetermined, with activity restricted to and confined within

those limits. This area is generally limited to the existing ROW and other approved areas such as local routing options and staging areas.

Fire and Fuels

- Rules and regulations administered by USFS would be followed concerning the use, prevention, and suppression of fires on federal lands, including any fire prevention orders that may be in effect at the time of the permitted activity.
- Internal and external combustion engines used on federally managed lands would be operated as per 36 CFR 261.52(j), which requires all such engines to be equipped with a qualified spark arrester that is maintained and not modified.
- Vehicles and equipment would be outfitted with shovels, water, and fire extinguishers that are rated at a minimum as ABC-10 pound.
- Trees would be felled if they occur in the proposed ROW or are hazard trees located directly adjacent to the ROW. Lop and scatter or chip, whole tree skidding, and piling are all acceptable. Limbing would be done where trees are felled; and logs would be cut to length and transported to decking areas. Remaining slash would be lop and scattered to a depth of 12 inches. With prior authorization, BHP would also extend lop and scatter 50 feet from either side of ROW in BHNF to reduce fire risk. Windrowing of slash along timber edge would be avoided.
- Slash would not be piled near transmission line structures, sensitive plants, or meadows that contribute to Waters of the United States.
- For collector and arterial roads, manage activity fuels to remove 70 to 90 percent of the activity fuels seen from the road's edge up to a maximum distance of 300 feet.

MONITORING

No monitoring requirements are applicable to fire and fuels.

SOILS

The design criteria/mitigation techniques that follow are measures that BHP would apply as a part of the Proposed Action to avoid or reduce impacts to soils:

- The areal limits of construction activities would be predetermined, with activity restricted to and confined within those limits. This area is generally limited to the existing ROW and other approved areas such as local routing options and staging areas.
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.
- To minimize ground disturbance, the alignment of any cross-country route would follow the landform contours in designated areas where practicable, providing that such alignment does not impact other resources.
- In construction areas disturbance would be limited to overland travel where feasible to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access.

- Operate heavy equipment for land treatments only when soil moisture is below the plastic limit, or protected by at least one foot of packed snow or two inches of frozen soil (Watershed Conservation Practices Handbook [WCPH] design criteria).
- Restrict roads, landings, skid trails, concentrated-use sites, and similar soil disturbances to designated sites (WCPH design criteria).
- On soils with surface soil (A-horizon) thinner than one inch, topsoil organic matter less than two percent, or effective rooting depth less than 15 inches, retain 80 to 90 percent of the fine (less than three inches in diameter) post treatment logging slash in the stand after each clearcut and seed-tree harvest. Consider need for retention of coarse woody debris slash in each activity area to balance soil quality requirements and fuel loading concerns (WCPH design criteria). These criteria would apply only in areas that would be restored at the end of construction.
- If machine piling of slash is done, conduct piling to leave topsoil in place and to avoid displacing soil into piles or windrows (WCPH design criteria).
- In areas where soils are particularly sensitive to disturbance, existing access roads would only be repaired to the extent necessary to make them passable.
- In construction areas, work would be halted where wet conditions cause excessive rutting of roads and/or work areas. Work would not resume until conditions improve.
- Minimize soil compaction by reducing off-road vehicle passes, and/or operate construction vehicles during frozen or dry soil conditions.
- Stabilize and maintain roads and other disturbed sites during and after construction to control erosion.
- Reclaim roads and other disturbed sites when use ends.
- Initiate revegetation as soon as possible, not to exceed six months after termination of ground disturbing activities. Revegetate all disturbed soils with native species in seed/plant mixtures that are noxious-weed free.
- Reseed and/or replant cut and fill slopes with native seed and/or native plants promptly to control erosion. Use appropriate measures to control erosion on disturbed areas that are steep, are highly erosive, and/or adjacent to the riparian area. See the Hydrology Technical Report for additional design criteria for the protection of riparian areas.
- Stabilize, scarify or recontour temporary roads, construction yards, decking areas and pulling and tensioning sites prior to seeding.
- BHP would prepare a revegetation plan in consultation with the USFS. The plan would specify disturbance types and their appropriate revegetation techniques to be applied for all Proposed Action work areas, access roads, and all sidecast materials. Techniques would include reseeding native or other acceptable vegetation species. The plan would include management and maintenance procedures approved by the USFS for ongoing use of access roads and temporary work areas.
- Perform an onsite slope-stability examination on slopes over 30 percent prior to design of roads or activities that remove most or all of the timber canopy for the following areas and soils:
  - Lakoa, Larkson, and Citadel soils found in the Bear Lodge Mountains;
  - Rockoa and Mathias soils on the Dakota Hogback; and

  - Citadel soil found in the northern and eastern Black Hills (BHNF Land and Resource Management Plan).
- Perform an onsite slope-stability examination on slopes over 55 percent prior to design of roads or activities that remove most or all of the timber canopy on all other soil types. Limit intensive ground-disturbing activities on unstable slopes identified during slope-stability exams (BHNF Land and Resource Management Plan).
- Avoid soil disturbing activities on all slopes over 40 percent (TBNG).
- Manage land treatments to maintain enough organic ground cover to prevent harmful increased runoff.
- Install waterbars or similar structures on temporary roads to divert runoff when needed.
- When ground disturbance occurs, use vegetative buffer strips or barriers to reduce sediment.
- Erosion and sediment control measures would conform to applicable federal and state regulations.
- BMPs and SOPs would be implemented for soil protection.
- BMPs would be implemented to minimize sediment discharge into streams, lakes and wetlands (sedimentation discussion and needs are addressed in the Hydrology Technical Report).
- Prior to construction, all supervisory construction personnel would be instructed on the protection of ecological resources, including soils.

Proper implementation of the design criteria and mitigation measures described above, as well as compliance with federal and state regulations, would reduce soil impacts to negligible levels.

MONITORING

Not all monitoring is known at this time; however, monitoring is to include inspection of BMPs during construction and monitoring seeded areas for successful establishment.

HERITAGE/CULTURAL RESOURCES

In construction areas where recontouring (usually grading) is not required, disturbance would be limited to cross-county or overland travel by tracked or rubber tired vehicles. Large rocks and vegetation may be removed, either mechanically or by hand, within these areas to allow vehicle access. To minimize ground disturbance and/or reduce scarring (visual contrast) of the landscape, the alignment of any overland route would follow the landform contours where practicable, providing that such alignment does not impact other resources.

- The specific areas of ground disturbing activities (e.g., access roads or overland trails, transmission structure sites, staging areas) will be identified prior to construction. If any of these areas have not been sufficiently inventoried for cultural resources, they would be intensively surveyed prior to construction in that specific area.

- The United States Department of Agriculture Forest Service (USFS) may require a cultural resource monitor onsite during construction in areas the respective agency determines to be culturally sensitive.
- Prior to construction, all supervisory construction personnel would be instructed on the significance and protection of cultural resources. Cultural resources training for construction personnel will include:
    - Definition of cultural resources and cultural background;
    - How the T-O-RC Project will comply with stipulations in the programmatic agreement (PA) in addition to USFS cultural resources protocol;
    - Cultural resource regulations associated with this Project;
    - Monitoring plan;
    - Avoidance and mitigation measures (e.g., environmentally-sensitive areas (ESA)s, stop work procedures); and
    - Consequences of looting.
- To minimize the risk of cultural sites being disturbed in designated areas, Black Hills Power (BHP) would avoid them or design the line to allow conductor spanning of the sites.
- In the event that potentially significant cultural resources are discovered during construction, potentially destructive work within the area of the find and a designated buffer area would be halted. BHP's construction inspector would immediately implement the following measures:
    - Flagging would be erected to prohibit potentially destructive activities from occurring.
    - BHP's archeologist would make a preliminary assessment of the newly discovered resource.
    - If the archeologist determines that the discovery represents a potential new site, or an undocumented feature of a documented site, USFS would be notified and protocol identified by the agency would be followed.
    - Construction would not resume in the identified area until cleared by the USFS' Authorized Officer (for publicly managed lands).
    - Pursuant to 43 CFR Part 10.4(g), the holder of this authorizations must notify the Authorized Officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR Parts 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the Authorized Officer.

Common to Multiple Resources

- Restoration following the completion of overland travel could include reseeding (if required). Methods would be detailed in a USFS-approved Revegetation Plan. Erosion and sediment control measures would conform to applicable federal and state regulations.
- To minimize the amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features such as, but not limited to, riparian areas, historic properties and potential historic properties, and watercourses and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance.
- Overall ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.

- The area limits of construction activities will be predetermined, with activity restricted to and confined within those limits. This area is generally limited to the existing ROW and other approved areas such as design modifications and staging areas.
- Prior to construction, all supervisory construction personnel would be instructed on the protection of ecological and cultural resources. To assist in this effort, the construction contract would address: (a) federal, state, and tribal laws regarding cultural resources, plants, and wildlife; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources including specific mitigation measures.

SOUTH DAKOTA

Mitigation measures include agency agreements, avoidance, route changes, and monitoring during ground disturbing activities. Mitigation measures which are presented in this document in support of the NEPA process may also be included a PA being prepared by the USFS, BLM, Wyoming and South Dakota SHPOs and other parties in to comply with Section 106 of the NHPA.

For Section 106 compliance, a PA may be used when, as in the case of the T-O-RC Project, effects on historic properties cannot be fully determined before approval of the undertaking (i.e., issuance of the Record of Decision) [36 CFR Part 800.14(b)(1)(ii)]. A PA is also warranted in this case because of the Proposed Action's multi-state scope [36 CFR Part 800.14(b)(1)(i)]. The PA will stipulate specific roles and responsibilities for Signatories and Invited Signatories governing the treatment of known and unknown cultural resources that may be affected by the undertaking. Stipulations may include: 1) identification of the APE for the selected Alternative; 2) procedures for completing cultural resource survey within the APE; 3) procedures for evaluating the National Register eligibility of identified cultural resources; 4) steps in assessing effects; 5) appropriate measures for mitigating adverse effects on cultural resources that cannot be avoided; 6) when, how, where, and by whom construction monitoring would be carried out; 7) appropriate responses to the discovery of unanticipated cultural resources during construction; 8) the contents and schedule for technical reports resulting from surveys, test excavations, data recovery excavations, documentation of historic structures, and other studies; and 9) procedures for ensuring timely review by appropriate agencies throughout the process.

The general objective of the PA will be to avoid or minimize adverse effects whenever and wherever feasible. Other site-specific measures (e.g., test excavation, data recovery) may be implemented in instances where potential effects are deemed unavoidable, or where unanticipated discoveries occur during construction, operation or maintenance.

The following measures that BHP would apply as a part of the Proposed Action are designed to avoid or reduce the impacts of the Proposed Action:

WYOMING

Mitigation measures include agency agreements, avoidance, route changes, and monitoring during ground disturbing activities. For this Project specific mitigation measures will be determined through the Section 106 compliance process. For the Proposed Action, mitigation planning would comply with NEPA requirements. Additionally, mitigation planning would comply with Section 106 of the National Historic Preservation Act (NHPA) through a PA being prepared by the USFS, BLM, Wyoming State Historic Preservation Office) SHPO, South Dakota SHPO, and other parties.

For Section 106 compliance, a PA may be used when, as in the case of the T-O-RC Project, effects on historic properties cannot be fully determined before approval of the undertaking (i.e., issuance of the Record of Decision) (36 CFR Part 800.14[b] [1][ii]). A PA is also warranted in this case because of the Proposed Action's multi-state scope (36 CFR Part 800.14[b][1][i]). The PA will stipulate specific roles and responsibilities for Signatories and Invited Signatories governing the treatment of known and unknown cultural resources that may be affected by the undertaking. Stipulations may include: 1) identification of the Area of Potential Affect (APEs) for the selected Alternative; 2) procedures for completing cultural resource survey within the APE; 3) procedures for evaluating the National Register eligibility of identified cultural resources; 4) steps in assessing effects; 5) appropriate measures for mitigating adverse effects on cultural resources that cannot be avoided; 6) when, how, where, and by whom construction monitoring would be carried out; 7) appropriate responses to the discovery of unanticipated cultural resources during construction; 8) the contents and schedule for technical reports resulting from surveys, test excavations, data recovery excavations, documentation of historic structures, and other studies; and 9) procedures for ensuring timely review by appropriate agencies throughout the process.

The general objective of the PA will be to avoid or minimize adverse effects whenever and wherever feasible. Other site-specific measures (e.g., test excavation, data recovery) may be implemented in instances where potential effects are deemed unavoidable, or where unanticipated discoveries occur during construction, operation or maintenance.

The following measures that BHP would apply as a part of the Proposed Action are designed to avoid or reduce the impacts of the Proposed Action:

PALEONTOLOGICAL RESOURCES

The Project Design Features (PDF) discussed in this section are measures that BHP would apply as a part of the Proposed Action. These measures are common to multiple resources and are designed to avoid or reduce the impacts of the Proposed Action.

- To minimize ground disturbance and/or reduce scarring (visual contrast) of the landscape, the alignment of any cross-country route would follow the landform contours in designated areas where practicable, providing that such alignment does not impact other resources.
- To minimize the amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features such as, but not limited to, significant paleontological or cultural resource sites, riparian areas, and watercourses and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance.

- Erosion and sediment control measures would conform to applicable federal and state regulations.
- In construction areas where recontouring is not required, no grading would occur to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access. Restoration could include reseeding (if required). Methods would be detailed in the USFS-approved Revegetation Plan submitted.
- The area limits of construction activities will be predetermined, with activity restricted to and confined within those limits. This area is generally limited to the existing ROW and other approved areas such as local routing options and staging areas.
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities.
- Best Management Practices (BMP) and Standard Operating Procedures (SOP) will be implemented for herbicide application, soil protection, revegetation, and use of weed-free plant materials.
- All existing roads would be left in a condition equal to or better than their condition prior to the construction of the transmission line.
- Prior to construction, all supervisory construction personnel would be instructed on the protection of cultural/paleontological resources. To assist in this effort, the construction documents would address: (a) federal and state laws regarding antiquities and paleontological resources, including collection and removal; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources.
- To minimize the risk of high value cultural or paleontological resource sites being disturbed in designated areas, BHP would avoid them or design the line to allow conductor spanning of the sites.
- In the event that potentially significant paleontological resources are discovered during construction, potentially destructive work within 100 feet of the find would be halted. BHP's construction inspector would immediately implement the following measures:
    a) Flagging would be erected to prohibit potentially destructive activities from occurring.
    b) BHP's paleontologist would make a preliminary assessment of the newly discovered resource.
    c) If the paleontologist determines that the discovery represents a potential new site or an undocumented feature of a documented site, USFS would be notified and protocol identified by the agency would be followed.
    d) Construction on public lands would not resume in the identified area until cleared by the USFS's Authorized Officer.
- The specific areas of ground disturbing activities, for example access road construction, structure sites, staging areas, will be identified prior to construction. If any of these areas have not been sufficiently inventoried for cultural or paleontological resources, they would be surveyed prior to construction in that specific area.
- The USFS may require the presence of a paleontological resource monitor onsite during construction on public lands in areas the agency determines to be sensitive.
- All construction and maintenance activities would be conducted in a manner that would minimize disturbance to drainage channels and streambanks.

- In areas where soils are particularly sensitive to disturbance, existing access roads would be repaired only to where they are passable.
- In construction areas, work would be halted where wet conditions cause excessive rutting of roads and/or work areas. Work would not resume until conditions improve.
- All construction vehicle movement outside the ROW would be restricted to designated access, contractor-acquired access, or public roads.

Paleontological Recommended Mitigation Measures

Project specific Paleontological Resources Monitoring and Mitigation Plans (PRMM) have been developed to minimize the likelihood that potential direct or indirect impacts associated with the Proposed Action will create high or moderate impacts as defined above. The need to implement these PRMMs at any specific location along the ROW will be determined by the jurisdictional land owner (BLM, USFS, Wyoming State Lands) based on applicable regulations and policies. The following PRMMs have been developed for this project to minimize or avoid direct and indirect initial impacts associated with project activity.

- **PRMM 1:** Preparation and implementation of a Paleontological Resources Monitoring Plan (PRMP). The PRMP will be prepared to outline construction monitoring requirements for paleontological resources wherever they are encountered, most likely in FYPC/PFYC Class 3, 4 or 5 formations. In anticipation of encountering paleontological resources on federally-owned property, a qualified paleontologist will apply for and receive a paleontological resource use permit (PRUP) from BLM prior to starting ground disturbing activity. As part of the PRUP, the BHP qualified paleontological consultant will enter into an agreement with a repository to receive the recovered resources. The PRMM plan will be prepared in accordance with guidance provided in BLM IM2009-011 (BLM 2008).
- Paleontological monitoring will include observation of exposed rock units to ascertain if paleontological resources are present. The monitor will have authority to temporarily divert grading away from exposed resources to recover the specimens.
- **PRMM 2:** Prepare and implement a Worker Training Plan. Construction supervisors and crew will receive training by a qualified paleontologist in the procedures for identification and protection of paleontological resources as well as procedures for implementation in the event these resources are encountered during ground-disturbing activities. The Worker Training Plan will include instructions for protection of significant paleontological resources from indirect impacts such as vandalism and theft.
- **PRMM 3:** Prepare and implement a Paleontological Resource Data Recovery Plan. In the event paleontological resources are encountered on federally-owned lands during construction, construction activities will be temporarily diverted from the discovery and the monitor will notify all concerned parties and collect material for testing and processing as directed by the supervising paleontologist. Implementation of the plan would be contingent on discovery of significant paleontological resources within the disturbed areas.

A final technical report will be prepared summarizing construction monitoring and present the results of the resource recovery program. The report will be prepared in general accordance guidelines established in BLM IM2009-011 (BLM 2008).