

APPENDIX 2A

Appendix 2A

Best Management Practices

This appendix describes a number of Best Management Practices (BMPs) intended to reduce the potential for short- and long-term impacts to identified resources. These BMPs would be implemented by APS, its agents, and contractors during construction and operation of the Sun Valley to Morgan 500/230kV Transmission Line Project and would be incorporated into all construction specifications and contract documents, as appropriate. All construction personnel would be required to follow them. These BMPs are considered by BLM to be added to the Proposed Action and Action Alternatives evaluated in the Sun Valley to Morgan Project Draft EIS and Draft RMPA for the purposes of environmental impact analysis.

Air Quality

1. Project activities would be in compliance with all applicable federal, state, and local laws and regulations concerning prevention and control of air pollution during construction and operation. The POD and ROW Grant would include these BMPs.
2. APS and/or the construction contractor would obtain necessary air quality (i.e., fugitive dust control) permits before starting construction or operating equipment that would result in regulated atmospheric or fugitive dust emissions.
3. Project personnel would be required to implement measures to minimize fugitive dust emissions from construction activities. To accomplish this, the following measures would be implemented:
 - For the duration of construction activities, actively disturbed areas would be stabilized through the use of water or BLM-approved chemical dust suppressants as required to meet dust control plans and permits issued by state and local regulators. Disturbed areas, including soil storage piles, would be maintained and stabilized as appropriate to minimize fugitive dust emissions. Active stabilization may not be required if local conditions (i.e., soil moisture, natural crusting, low winds) are adequately maintaining ambient air impacts within requirements of the dust control permit and plan.
 - Bulk soil material stored onsite that is a possible fugitive dust source would be actively wetted, compacted, contoured, protected by wind breaks, controlled with BLM-approved chemical suppressants or a combination of these practices as needed, to minimize air quality impacts.
 - Fugitive dust emissions would be minimized by enforcing construction vehicle speed limits on dirt/gravel roads and a combination of active and passive dust suppression measures, including:

- Unpaved roads and yards onsite and within the authorized ROWs would be watered as necessary when being used. If dust suppressants other than water were to be proposed by the construction contractor, it would require prior approval by the BLM and possible NEPA analysis.
- Combustion emissions from mobile sources would be minimized by proper maintenance and tune-up of equipment.

Landscape Preservation and Impact Avoidance

1. All construction vehicle movement outside the ROW would be restricted to predesignated access, contractor-acquired access, or public roads. To the extent practicable, construction vehicle movement within the ROW would be limited to predesignated disturbance areas and access routes.
2. To the maximum extent practical, all trees, native shrubs, and other vegetation would be avoided or protected during construction activities except where safety clearances are required for structures and equipment, approved construction and permanent roads, construction yards and staging areas, and excavation operations.
3. All areas around transmission line structures would be backfilled, recontoured, and returned as close as possible to the original condition and grade.
4. Wherever possible stream channels, steep slopes, or sensitive environmental areas would not be used for equipment or materials storage or stockpiling; construction staging or maintenance, field offices, hazardous material or fuel storage, solid waste, handling, or temporary access roads.
5. Excavated or graded materials would not be stockpiled or deposited on or within 100 feet of any steep slopes, where defined, or seasonally active ephemeral drainages.
6. The width of construction and new temporary access roads would be kept to the absolute minimum needed, avoiding sensitive areas where possible, and limiting disturbance to vegetation.
7. When and where applicable, landscaping standards, including clearing of native vegetation, would be followed as prescribed by local land use and management agencies when work is within their jurisdictions. The BLM Authorized Officer would specify required special handling and recovery techniques to comply with the Arizona Native Plant Law.
8. Project facilities within the authorized rights-of-way would be managed for safe and reliable operation while maintaining vegetation and wildlife habitat to the maximum extent feasible.

Erosion and Sediment Control

1. Planting of native grasses, forbs, trees, or shrubs beneficial to wildlife, or placing of riprap and other materials as appropriate, would be used to prevent and minimize the potential for erosion during construction of project facilities and during the period needed to reestablish permanent vegetative cover on disturbed sites. Sediment fences would be used where appropriate to limit wind and water erosion. Application of water or chemical suppressants, as approved by BLM, would be used in disturbed areas during construction to limit wind erosion.
2. Final erosion control and site restoration measures would be initiated as soon as practical after a particular area is no longer needed for construction, stockpiling, or access. Clearing schedules would be arranged to minimize exposure of soils.
3. Cuts and fills for access roads and work areas would be sloped to prevent erosion and to facilitate revegetation.
4. Where appropriate (i.e., adjacent to sensitive areas or resources), signs would be placed along access roads to discourage off-road vehicle use and Project personnel from driving into unauthorized adjacent areas.
5. Soil or rock stockpiles, excavated materials, or excess soil materials would not be placed near sensitive habitats, including perennial, intermittent, and ephemeral drainage channels, where they may erode into these habitats or be washed away by high water or storm runoff. Long-term soil stockpiles would be revegetated to prevent wind and water erosion.
6. Treading on areas not immediately involved in Project construction activities would be avoided to reduce potential wind erosion and fugitive dust generated during construction.
7. When excessive soil moisture conditions are present in a construction area, construction activities would be relocated or diverted to drier areas to avoid excessive surface rutting in those areas. If wet areas cannot be avoided, weight dispersing systems (i.e., wide-track or balloon tires) or materials to minimize damage to the substrate (i.e., geotextile cushions, pre-fabricated pads, etc.) would be utilized.

Transmission Line ROW

1. Where existing soil and terrain conditions allow, the upper 12 to 18 inches of soil would be removed from structure foundation excavation areas and stockpiled for later use in site restoration.
2. Surface elevations would be returned to approximate pre-Project conditions as practicable.

3. Where roads that service transmission facilities cross fences, a wire gate would be installed to standard BLM specifications. The gates would be built prior to the construction activities and would be kept closed except during active construction at the fence site.
4. If construction activities cause damage to existing range improvements (such as pipelines, fences, troughs, etc.), they would be fixed using material that meets or exceeds the quality of the existing improvement. If damage occurs, the BLM and livestock operator would be notified immediately. If damage occurs during active livestock grazing, repairs would be made within 24 hours.
5. To promote public safety in proximity to transmission line facilities within areas of frequent visitation by the public, fence panels would be installed at the base of guy wires on transmission line structures, and the first 10 feet of guy wires would be marked with safety reflectors, high-visibility tape or plastic, or a similar material to make them highly visible to the public.

Biological Resources

1. The Project would adhere to an integrated pest management plan prepared for the Project (see POD).
2. Current guidelines and methodologies (APLIC 2006) would be used in the design of the proposed transmission facilities to minimize raptor and other bird electrocution and collision potential.

Cultural Resources

Specific cultural resource inventory and protection measures to be employed for the Project would be outlined in the Project-specific Section 106 Memorandum of Agreement, if needed. If needed, the Programmatic Agreement would be on file at the BLM's Phoenix District Office, and the Arizona State Historic Preservation Office. The POD would contain the Section 106 Memorandum of Agreement, which would contain the following provisions:

- Development of a Historic Properties Treatment Plan defining the treatment to be implemented at specific historic properties to avoid and mitigate adverse effects in compliance with Section 106 of the NHPA.
- Completion of additional Class III field inventories if the approved alternative contains previously unsurveyed areas, including portions of the area of potential effect on private land.
- Development and implementation of a Monitoring Plan that would specify procedures for monitoring of avoided historic properties during construction and through the life of the Project.

- Development and implementation of a Discovery Plan with procedures and timeframes for ceasing work, notifying the BLM and ASLD, protecting and evaluating the discovery, and conducting consultations to determine appropriate treatment and resumption of construction.
- The Discovery Plan would include procedures for addressing discoveries of human remains and other items protected under the Native American Graves Protection and Repatriation Act on Federal land and applicable State laws on State, County, municipal, and private lands.
- Cultural resource sensitivity training for Project workers to avoid damage to cultural resources and ensure that Project personnel understand procedures in the Monitoring and Discovery Plan.

(If needed, the general guidance for Treatment of Historic Properties from a Programmatic Agreement would be added as appropriate.)

Paleontological Resources

1. If paleontological resources are discovered during construction, the BLM would be notified immediately and measures would be taken to protect the resource. An appropriately sized buffer zone would be demarcated around any discovery and construction would not resume within this buffer zone until authorization is given by the BLM Authorized Officer. The significance of the resource would be evaluated and whether or not avoidance was possible. Stabilization and measures to mitigate construction damage might also be required even if avoidance was possible. Should avoidance prove infeasible, further procedures to protect the resource would be determined by the BLM.

Noxious and Invasive Weed Management

1. A noxious and invasive weed survey would be completed prior to any earth disturbing activity including cross-country travel. Noxious or invasive weeds that may be located on the site would be managed according to methods tiered to the BLM's Phoenix District Offices' Weed Management Plans. Should chemical methods be approved, the lessee must submit a Pesticide Use Proposal to the Authorized Officer 60 days prior to the planned application date. A Pesticide Application Report must be submitted to the Authorized Officer by the end of each fiscal year following chemical application.
2. To eliminate the introduction of noxious and invasive weed seeds, roots, or rhizomes; all straw, hay, straw/hay, or other organic products used for reclamation or stabilization activities would be certified free of plant species listed on the Arizona noxious weed list or specifically identified by the BLM Phoenix District Office.
3. To eliminate the introduction of noxious and invasive weed seeds, roots, or rhizomes; all source sites such as borrow pits, fill sources, or gravel pits used to supply

inorganic materials used for construction, maintenance, or reclamation would be inspected and found to be free of plant species listed on the Arizona noxious weed list or specifically identified by the BLM Phoenix District Office. Inspections would be conducted by a BLM-approved weed scientist or qualified biologist.

4. To eliminate the transport of vehicle-borne noxious and invasive weed seeds, roots, or rhizomes, all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities would be cleaned of soil and debris capable of transporting weed propagules prior to entering or leaving the work site or project area in a manner acceptable to the BLM Phoenix District Office Weed Coordinator or designated contact person.
5. Prior to entry of vehicles and equipment to a Project area, areas of concern would be identified, flagged, and recorded in the field by a weed scientist or qualified biologist in a manner acceptable to the BLM Phoenix District Office Weed Coordinator or designated contact person.
6. Prior to construction commencement, APS would ensure that all contractors, operators, or permit holders would receive information and training regarding noxious and invasive weed management and identification to all personnel who would be affiliated with the implementation and maintenance phases of the project. The importance of preventing the spread of weeds to uninfested areas and the importance of controlling existing populations of weeds would be explained.
7. To eliminate the transport of soil-borne noxious and invasive weed seeds, roots, or rhizomes, infested soils or materials would not be moved and redistributed on weed-free or relatively weed-free areas. In areas where infestations are identified or noted and infested soils, rock, or overburden must be moved, these materials would be salvaged and stockpiled adjacent to the area from which they were stripped. Appropriate measures would be taken to minimize wind and water erosion of these stockpiles. During reclamation, the materials would be returned to the area from which they were stripped.
8. Prior to Project approval, a site-specific noxious and invasive weed survey would occur and a weed risk assessment would be completed and provided to the BLM. Monitoring would be conducted for a period no shorter than the life of the permit or until bond release and monitoring reports would be provided to the BLM. If the spread of noxious and invasive weeds is noted on Project areas, appropriated weed control procedures would be determined in consultation with BLM personnel and would be in compliance with the appropriate BLM Handbook sections and applicable laws and regulations. All weed control efforts on BLM-managed public lands would be in compliance with BLM Handbook H-9011, H-9011-1 Chemical Pest Control, H-9014 Use of Biological Control Agents of Pests on Public Lands, and H-9015 Integrated Pest Management. A pesticide Application Report must be submitted to the Authorized Officer by the end of the fiscal year following any chemical application.

9. Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g. using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.).
10. Mixing of herbicides and rinsing of herbicide containers and spray equipment would be conducted only in areas that are a safe distance from environmentally sensitive areas and points of entry to bodies of water (storm drains, irrigation ditches, streams, lakes, or wells).
11. When managing weeds in areas of special status species, impacts of the treatment on such species would be carefully considered. Wherever possible, hand spraying of herbicides would be the preferred method in compliance with an approved Integrated Weed Management Plan and associated environmental impact analyses.

Reclamation

1. Reclamation would normally be accomplished with native species, if available. These would be representative of the indigenous species present in the adjacent habitat. Rationale for potential planting with selected non-natives would be documented. Possible exceptions could include use of non-natives for a temporary cover crop to out-compete weeds.
2. Seeding would occur during November through March to ensure a greater chance of success.
3. Reclamation release criteria are as follows:
 - Achieve an agreed upon percentage of the baseline perennial plant cover of selected comparison areas, normally like adjacent habitat. If the adjacent habitat is severely disturbed, a range site description may be used as a cover standard. Cover is normally crown cover as estimated by the point intercept method. Selected cover can be determined using a method as described in *Sampling Vegetation Attributes, Interagency Technical Reference* (BLM 1996, BLM/RS/ST-96/002+1730). The reclamation plan for the project area would identify the site-specific release criteria and associated statistical methods in the reclamation plan or permit.
 - No noxious and invasive weeds would be allowed on the sites for reclamation release. Control of noxious and invasive weeds would follow an integrated pest management plan approved by the authorizing officer. A list of Arizona noxious weeds would be provided by the Authorized Officer.
4. Where local conditions allow, up to the first 12 to 18 inches of growth medium would be salvaged, where soil and terrain conditions allow, and stockpiled prior to disturbance for all areas to be reclaimed after construction. All disturbance areas to be reclaimed would be recontoured to blend as nearly as possible with the natural

topography prior to revegetation. All compacted portions of the disturbance would be ripped to a depth of 12 inches unless solid rock is encountered. Adequate, fine-grain seedbed would be established to provide good seed to soil contact. Large blocks and clumps of soil with deep pockets would be avoided. This normally requires some type of tillage procedure after ripping.

5. All portions of access roads not needed for other uses as determined by the Authorized Officer would be reclaimed as soon as possible.
6. Mulching of the seedbed following seeding may be required under certain conditions, such as severe erosion.
7. Respread weed-free vegetation removed from the right-of-way to provide protection, nutrient recycling, and seed source.
8. The success of the vegetative growth on a reclaimed site may be evaluated for release no sooner than during the third growing season after earthwork and planting have been completed. Where it has been determined that revegetation success criteria have not been met, the agencies and the operator would meet to decide on the best course of actions necessary to meet the reclamation goal.
9. Where applicable, the following agencies would be consulted to determine the recommended plant species composition, seeding rates, and planting dates:
 - U.S. Fish and Wildlife Service
 - U.S. Natural Resources Conservation Service
 - U.S. Bureau of Land Management
 - Arizona Game and Fish Department
10. Grasses, forbs, shrubs, and trees appropriate for site conditions and surrounding vegetation would be included on the BLM-approved plant and seed mix list. Species chosen for a site would be matched for site drainage, climate, shading, resistance to erosion, soil type, slope, aspect, and vegetation management goals. Upland revegetation shall match the plant list to the site's soil type, topographic position, elevation, and surrounding natural communities.
11. Construction areas, including storage yards, would be free of waste material and trash accumulations, unless stored in appropriate containers.
12. All unused materials and solid waste would be removed from construction and storage sites during the final phase of work. Unused material may be sold or relocated to other work sites other than the Project. Solid waste would be placed in existing permitted solid waste management facilities.

13. Upon completion of construction, any land disturbed would be graded to provide proper drainage and blend with the natural contour of the land. Following grading and where appropriate, it would be revegetated using plants native to the area, suitable for the site conditions, and beneficial to wildlife.
14. Following completion of construction, all temporary staging areas and construction yards, would be removed from the site.
15. All construction roads not needed for ongoing operations and maintenance activities would be restored to the original contour, and made to discourage vehicular traffic when no longer needed for construction. Culverts would be removed as appropriate, road escarpments would be contoured and vegetated, and all road surfaces would be scarified to establish conditions appropriate for reseeding, drainage, and erosion prevention.

Visual Resources

1. The transmission structures would be finished with flat, Shadow Gray from the BLM color chart.
2. Non-specular conductors and non-reflective and non-refractive insulators would be used to reduce conductor and insulator visibility.
3. In areas of frequent visitation by the public, the base of guy-wires on transmission structures would have fence panels, and the first 10 feet of guy wires would be marked with safety reflectors, high-visibility tape or plastic, or a similar material to make them highly visible to the public.
4. During the implementation of vegetation treatments, irregular margins would be created around treatment areas to better maintain the existing scenic character of the landscape.

Water Pollution Prevention and Monitoring

1. Water needs for soil stabilization during facility construction would be transported by truck or other methods from local water sources.
2. All federal and state laws related to control and abatement of water pollution would be complied with. All waste material and sewage from construction activities or project-related features would be disposed of off-site according to federal and state pollution control regulations.
3. All disturbed drainage channels would be reclaimed as soon as practical, to a standard for aesthetic value comparable to what existed prior to disturbance. Where appropriate, native species capable of bank stabilization would be used to revegetate all disturbed stream banks.

4. Diversion structures would be used to re-direct flows from any drainages potentially impacted by facility features and would be designed to minimize potential destabilization and erosion of adjacent and downgradient drainages.
5. Stormwater management plans would be implemented for Project construction and facility operation to minimize and control erosion from stormwater runoff, and would be contained in the POD. During project construction, stormwater would be managed in compliance with applicable state and federal regulations, including compliance with requirements of the National Pollutant Discharge Elimination System (NPDES) stormwater general permits, which would be obtained for the project. Stormwater management elements would include:
 - Application of BMPs for erosion, sedimentation, and stabilization control during construction activities, and management of oils and other substances during operation to minimize contact with stormwater;
 - Structural controls during operation that could include stabilized stormwater conveyance systems (swales); and
 - Monitoring and maintenance to ensure long-term effectiveness of the management system.
6. Construction specifications would require construction methods that prevent pollutants from accidentally entering or spilling into flowing or dry watercourses, and ground water sources. Potential pollutants and wastes include refuse, garbage, cement, concrete, sewage effluent, industrial waste, oil and other petroleum products, aggregate processing tailings, mineral salts, drilling mud, and thermal pollution.
7. Any construction wastewater from construction operations would be directed to on-site temporary retention basins designed for zero discharge. The water may be reclaimed for construction purposes or evaporated. The residual as a result of evaporation would be removed.

Noise Prevention

Personnel would be required to comply with all applicable federal, state, and local laws and regulations concerning prevention and control of noise during project construction and operation.

Hazardous Material Storage, Handling, and Disposal and Safety Measures

1. Personnel, contractors, and transporters involved with hazardous materials management would be required to comply with federal and state regulations established for the transportation, storage, handling and disposal of hazardous substances, materials and wastes. "Hazardous material" means any substance, pollutant, or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 USC 9601 et seq., and its regulations (CERCLA). The definition of hazardous substances under CERCLA includes any "hazardous waste" as defined in the

Resource Conservation and Recovery Act of 1976 (RCRA), as amended 42 USC 6901 et seq., and its regulations.

2. The potential for adverse impacts from oil and fuel spills would be reduced through careful handling and designation of specific equipment repair and fuel storage areas. In the event that hazardous or regulated materials such as diesel fuel or gasoline are spilled, measures would be taken to control the spill and the National Response Center and/or Arizona Department of Environmental Quality would be notified immediately.
3. The permittee is responsible for clean-up and assumes liability for any and all releases of hazardous substances disposed on public land in accordance with state, federal and local laws and regulations. The permittee would immediately notify the BLM Authorized Officer of any and all releases of hazardous substances on public land.
4. Outdoor oil storage and use areas would be bermed with a capacity sufficient to contain the oil inventory contained in the single largest tank or equipment unit plus sufficient freeboard to prevent overflow. Outlets from these containment areas would be equipped with a normally closed valve. Regular inspections would determine if there had been a leak requiring special attention.
5. Waste materials known or found to be hazardous would be disposed of in approved off-site, permitted treatment or disposal facilities in accordance with federal, state, and local regulations, standards, codes, and laws.
6. Generation of wastes during construction would be minimized through detailed estimating of materials needed and through efficient construction practices. Wastes generated during construction would be recycled to the extent feasible. Concrete waste would be removed to a local licensed landfill. Non-recyclable wastes would be collected and transported to a local licensed landfill.
7. Fuels, lubricant chemicals, and welding gases used during construction would be in controlled storage until used. Any empty containers or waste material would be segregated in storage and properly recycled or disposed of by licensed handlers.
8. Wastewater from concrete truck washdown and cleaning of construction equipment would be managed such that there would be no discharge offsite or discharge to surface waters.
9. Portable toilets or a packaged treatment system would be provided at construction locations along the ROW. Sewage from the portable toilets would be removed regularly and disposed of off-site in accordance with applicable federal and state pollution control regulations. There shall be no dumping of black water, sewage or litter.

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