POD Appendices:

Appendix A – Access Road Siting and Management Plan

Appendix B – Biological Resource Protection Plan

Appendix C – Cultural Resource Protection Plan

Appendix D – Paleontological Resource Plan

Appendix E – Visual Resource Protection Plan

Appendix F – Water Resource Protection Plan

Appendix G – Environmental Monitoring and Compliance Plan

Appendix H – Blasting Plan

Appendix I – Dust Control and Air Quality Plan

Appendix J – Emergency Preparedness Plan

Appendix K – Fire Protection Plan

Appendix L – Flagging, Fencing, and Signage Plan

Appendix M – Geotechnical Plan

Appendix N – Hazardous Materials Management and Oil Spill Plan

Appendix O – Health, Safety, and Noise Plans

Appendix P – Reclamation Plan

Appendix Q – Storm Water Management Plan

Appendix R – Traffic and Transportation Management Plan

Appendix S – Noxious Weed Management Plan

Appendix T – Draft Operations, Maintenance, and Vegetation Management

Appendix U – Permits and Authorizations

Appendix V – Right of Way Legal Descriptions

Appendix W – Map Atlas

Appendix X – Environmental Protection Measures

Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project

Plan of Development

Montrose, Ouray, San Miguel, and Dolores Counties, Colorado

Appendix O

Health, Safety, and Noise Plans

Appendix O

Health, Safety, and Noise Plans

The objective of these Health, Safety, and Noise Plans is to detail practices designed to address potential impacts from construction of the Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project (Project). Tri-State Generation and Transmission Association, Inc. (Tri-State) has developed this plan as part of the Plan of Development (POD) that accompanies its application to the Bureau of Land Management (BLM) for a Right of Way (ROW) grant. If the ROW grant is approved, the final POD and all appendices will be attached to the Decision Record. This plan provides guidance to construction and field personnel on measures identified by Tri-State, BLM, and US Forest Service (USFS) to minimize effects during construction activities associated with the Project. It will be the responsibility of Tri-State and its project contractors, working with designated environmental inspectors, to comply with measures identified in this plan.

Draft Health and Safety Plan

The following text includes standard language included in Tri-State contracts regarding health and safety. These measures may be modified in the final POD to include measures specifically designed for the project.

1.0 Overview

For purposes of this Appendix, Tri-State Safety and Health Requirements (Requirements), Contractor will mean the Construction Contractor (as such term is defined in the Contract) and Contractor Representative will mean Contractor's Representative (as such term is defined in the Contract).

Tri-State's Construction Contractor has the sole responsibility for the health and safety of all contractor staff (Contractor Representatives) including the provision of required safety equipment and personal protective equipment. Tri-State is not obligated to provide Contractor or Contractor Representatives with any safety and health consultation services, advice, training, or safety equipment. Tri-State has the right, but not the obligation, to inspect Contractor's compliance and/or enforce compliance with these Requirements.

NOTICE: This attachment is intended to be an overview of Tri-state's safety and health requirements and is not intended to be a comprehensive or exhaustive list. This attachment is not intended to supersede or replace Contractor's obligations under this contract to comply with (and ensure Contractor Representatives comply with) all applicable laws, all reasonable directions and orders given by representatives of Tri-State, and all other guidelines, rules, and procedures of Tri-State that may be given to Contractor from time to time, including without limitation, safety and health standards, policies, and procedures resulting from a pre-job risk assessment, amendments by Tri-State, or amendments resulting from changes in applicable laws.

2.0 Safety & Health Requirements

2.1 Regulatory Compliance

The Contractor will comply with all applicable federal, state, and local occupational safety and health laws, regulations, and standards. Contractor using its own judgment, experience, and

knowledge will identify such additional health and safety measures as may be required for their services to be performed safely.

2.2 Safety and Occupational Health Supervisor

Before on-site services begin, Contractor will assign a designated safety and health supervisor, qualified by experience and/or education, for all services taking place. This person will be dedicated to managing the implementation of the Contractor's safety and health program but may have additional project functions provided they do not interfere with the effective implementation of the program. Contractor will provide Tri-State's Owners Authorized Technical Representative (OATR) with the name and contact information of the assigned supervisor(s) and/or any changes in the assignment.

2.3 Competent and Qualified Persons

Contractor will also employ a "competent person" and/or "qualified person" capable of identifying unsafe hazards. Such person(s) will have the authority to take prompt corrective measures to correct such hazards, and to carry out the responsibilities of a "competent" and/or "qualified" person as required by applicable Occupational Safety and Health Administration ("OSHA") standards. Contractor will provide Tri-State's OATR with the name and contact information of the assigned person(s) and/or any changes in the assignment.

2.4 Project Safety Plan (PSP)

Contractor will develop a PSP that describes how the Contractor will safely provide Contractor's Services. Content of the plan will address regulatory compliance and any additional health and safety measures as may be required for the Contractor's Services to be performed safely. A copy of the Contractor's PSP will be provided to the Tri-State OATR prior to the start of on-site work.

2.4.1 Job Safety and PPE Analysis

Before on-site Services begin, a written job safety analysis will be completed by Contractor to identify occupational safety and health hazards associated with the Services to be provided. The analysis will be included in the PSP. For each identified hazard, hazard controls must be specified and implemented. A hazard analysis defining the required personal protective equipment for the services will also be completed in accordance with OSHA standard, 29 C.F.R. §1910.132(d) and other applicable federal, state and local occupational safety and health laws, regulations and standards.

2.4.2 Emergency Action Plan (EAP)

Contractor will develop a written emergency action plan (EAP) in accordance with OSHA standard 29 C.F.R. §1910.38 and other applicable federal, state and local occupational safety and health laws, regulations and standards. Contractor will include the EAP in Contractor's PSP. Contractor will train all Contractor Representatives on the provisions of the EAP.

2.5 Monthly Safety and Health Reports

Within five (5) working days of the end of each calendar month, or after all Services are performed, Contractor will provide Tri-State's OATR with a written report containing the following information:

- Number of first aid injuries
- Number of OSHA recordable injuries

- Number of OSHA recordable illnesses
- Number of lost work day cases and lost days
- Number of restricted work day cases and number of restricted days
- Monthly person-hours
- Copies of all incident investigations (regardless of previous transmittal or notification)
- Copies of all completed safety inspections
- Status on all corrective actions required as a result of completed incident investigations or safety inspections
- Copies of all safety meeting minutes and sign-in sheets
- Copies of monitoring and sampling results for personnel and work areas

This information will be provided for Contractor and all subcontractors to Contractor. A sample report is either provided in Figure O-1, Contractor Monthly Safety Report, to this Appendix or available upon request from the OATR or contract administrator.

2.6 Safety Meetings

At a minimum, Contractor will conduct daily "tail gate" safety meetings with each work crew to review workplace safety and proper work practices.

2.7 Accident Reporting and Emergency Care

Contractor will report to Tri-State any of the following incidents and complete an incident investigation and corrective action report: all OSHA recordable injuries and illnesses; all property damage; all fires; and near misses which could have resulted in personal or property damage.

In the event of a medical emergency or injury requiring offsite treatment, oral notification must be made to Tri-State's OATR within twenty (20) minutes after attending to the affected employee. All other incidents require oral notification within one (1) working day. Written incident reports are due to Tri-State's OATR within one (1) working day of the incident. Completed investigations with corrective actions are due within seventy (72) hours. Corrective actions must be tracked to completion.

2.8 Safety and Health Program Enforcement; Work Stoppage

Contractor is expected to implement and enforce its safety and health program and these Requirements during the term of the Contract in a proactive manner without direction from Tri-State.

If safety or health deficiencies are observed by Tri-State during the performance of the Services, Tri-State may, in its sole discretion, issue a written "safety deficiency notice" or oral notice to Contractor for items such as, but not limited to, unsafe conditions, unsafe acts, or non-compliance with OSHA regulations. Contractor will address and correct the conditions identified in the oral or written notice in a timely fashion and notify Tri-State in writing when it has been corrected. Tri-State's issuance of a "safety deficiency notice" or an oral notice does not relieve Contractor of any obligations, responsibilities, or liability under the Contract, these Requirements or applicable laws.

Tri-State has the authority to direct Contractor to stop work and/or to remove personnel, from Tri-State's premises. This direction may be given orally and/or in writing to any Contractor Representatives by Tri-State.

Examples of reasons Tri-State may direct Contractor to stop work and/or remove personnel from Tri-State's premises include, but are not limited, to the following: imminent or serious hazards, unsafe behaviors or conduct, serious accidents or near misses, issuance of serious, repetitive, or high numbers of oral notices or safety deficiency notices to Contractor, failure of Contractor to correct safety and health hazards, inspection or surveillance findings, or other subjects of deficiency notices, unprofessional conduct, possession of firearms, weapons, alcohol, illegal substances, or drug paraphernalia, or working under the influence of alcohol or illegal substances.

Tri-State will not compensate Contractor for costs and expenses associated with safety and health related work stoppages or personnel removal. In addition, Contractor may be liable to Tri-State for any costs and expenses incurred by Tri-State associated with any safety and health related work stoppages. Contractor will not be allowed to add time to schedules, miss milestones, or avoid liquidated damages agreed to in this Contract due to safety or health related work stoppages or personnel removals.

All Contractor Representatives will have the authority to refuse work if they determine that their work conditions are unsafe. A Contractor Representative's supervisor will be notified and the condition documented and corrected if necessary. The documentation will be provided to Tri-State's OATR within one (1) working day after the occurrence.

2.9 Inspection and Oversight

2.9.1 Contractor Inspections

Contractor will make daily informal safety and health inspections to identify and correct hazards and review work practices. Documented weekly inspections will also be completed and must be kept onsite and available for review by Tri-State. The weekly inspections will encompass Contractor's entire worksite. Deficiencies found during the weekly inspection will be tracked by Contractor until corrected.

2.9.2 Tri-State Safety and Health Inspections

Tri-State may conduct safety and health inspections of the Contractor's work, as it determines appropriate. These inspections may or may not be announced. Deficiencies found during the inspection may be provided to Contractor for correction in an Occupational Safety/Health Notice or oral notice. All deficiencies will be tracked by Contractor until corrected. Contractor will notify Tri-State in writing when all deficiencies are corrected. Such inspections do not relieve Contractor of any obligations, responsibilities, or liability under the Contract, these Requirements or applicable laws and regulations

2.9.3 Regulatory Agencies

Contractor will immediately notify Tri-State of any and all government inspectors or compliance officers actually or expected to be on-site. Tri-State may elect, at its discretion, to participate in all inspections and reviews conducted on Tri-State's premises and any subsequent related

activities. Contractor will also notify Tri-State of any written complaints, notices of violations, citations, etc. Copies of such materials will be provided to Tri-State upon request.

2.10 Training and Orientation

2.10.1 Contractor Training

Before the on-site services begin, Contractor will provide occupational safety and health training in accordance with applicable federal, state and local occupational safety and health laws, regulations and standards including the OSHA standards and these Requirements. Contents of the PSP, the job safety analysis and the EAP will also be covered. This training will be documented and available for review onsite by Tri-State.

2.10.2 Tri-State Provided Orientation

Tri-State will provide Contractor with an orientation that discusses location-specific requirements necessary to perform work at Tri-State's facility. Attendance and adherence to this orientation by Contractor is mandatory. Tri-State is not obligated to provide safety and health training, advice, consultation, or safety equipment to Contractor.

2.10.3 Visitor Orientation

Contractor will notify Tri-State of all visitors, including agency representatives, and provide all visitors with a visitor orientation that includes, at a minimum, Contractor's Emergency Action Plan and PPE requirements. Visitors will be escorted at all times by a Contractor's employee and will comply with Tri-State's security requirements set forth in the Contract.

2.11 Representative Conduct

- Contractor's Representatives must conduct themselves in a professional and orderly manner at all times while on Tri-State's premises.
- Special areas of Tri-State's facilities have been designated "No Smoking" areas. Fighting, scuffling, horseplay, and practical joking are dangerous and strictly forbidden. Contractor's Representatives involved with these activities may be removed from Tri-State's premises and/or removed from performance of Services under this Contract.
- No Contractor's Representatives will remove, displace, damage, destroy, or carry off any safety device, notice or warning sign.
- No Contractor's Representatives will be permitted to work if, in the judgment of Tri-State, the Contractor's Representative is unable to carry on the work safely.
- Clothing suitable to work must be worn at all times. Shorts, sleeveless shirts, and open footwear are not permitted. Additionally, if specific clothing or protective gear is required by the Contractor's PPE hazard analysis, it must be worn.
- All personnel must follow posted speed limits and traffic postings at all times.
- All vehicle operators and passengers must use seat belts any time the vehicle is in motion. Seat belts will be worn at all times during the operation of heavy equipment except as provided in by applicable law.
- All vehicles must be registered and insured.
- All drivers must have a valid driver's license.
- Personal and Contractor vehicles will be parked only in designated areas.

2.12 Permit-Required Confined Spaces

Contractor will comply with OSHA standard 29 C.F.R. §1910.146 and other applicable federal, state, and local occupational safety and health laws, regulations, and standards for all confined space work and entries on site.

2.13 Control of hazardous energy (Lockout/Tagout)

Contractor will comply with OSHA standard 29 C.F.R. §1910.147 and other applicable federal, state and local occupational safety and health laws, regulations and standards for the safe control of all hazardous energy on site.

2.14 Hot work

All hot work permits will be approved by Tri-State before welding or other hot work begins.

2.15 Hazard Communication

Contractor will comply with OSHA's Hazard Communication Standard. Before the Services begins, Contractor will provide Tri-State with a copy of its Hazard Communication Program, a copy of all Material Data Safety Sheets (MSDS) for all hazardous chemicals Contractor brings on to the job site, information regarding any precautionary measures which need to be taken during normal operating conditions and foreseeable emergencies and information regarding the labeling system used on the job site.

2.16 Other Safety and Health Requirements

Other job-specific occupational safety and health requirements may be addressed in the technical specifications or scope of work of this Contract.

Figure O-1: Contractor Monthly Safety Report

Contractor Report
Contractor Monthly Safety Report

COMPANY:

Project Name:		Total Number of Employees Onsite:	
Percent Complete:		Monthly Man-hours:	
Month/Year:		Subcontractor Monthly Man-hours:	
Contact Name:		Total Monthly Man-hours:	
		Total Project to Date Man-hours:	

Current Construction Activity/Problem Areas			
Current Month Activity			
Number of First Aid Cases:			
Description:			
Number of Medical Treatment Non-Lost Time Cases:		# of Recordable Cases:	
Description and Date of Incident(s):			
Number of Lost-Time Cases:		Number of Lost Days:	
Description and Date of Incident(s):			
Number of Near-Miss Cases:			
Description:			
Number of Equipment/Property Damage Cases:			
Description:			
Written Safety and Health Deficiency Notices:			
Number of Notices Received This Month	Project-to-Date	Description of Notice	

Additional Comments:

Draft Noise Plan

In order to reduce construction noise and minimize disturbance to nearby residents, Tri-State will require construction contractors to use approved mufflers and spark arresters on all internal combustion engines. Construction activities on private land will be limited to the hours of 7:00 a.m. to 8:00 p.m., Monday through Friday. In addition, no work will occur on state and federal holidays.

In the event blasting is required, the following measures will be implemented to minimize potential noise impacts from blasting activities:

- Blasting will be conducted between sunrise and sunset.
- Contractor will provide the Tri-State Inspector anticipated blasting plans one week prior to the proposed date. The Inspector will immediately notify the Tri-State Land Department, which will notify the affected adjacent property occupants a minimum of 24 hours prior to any blasting**.**

In addition, the following EPMs will be implemented:

Table O-1. Environmental Protection Measure for Noise

Topic - No.	Applicant Committed EPMs And Design Features For Construction (C), Operation, And Maintenance (O&M)	Applicable to C and/or O&M*
Noise		
N-1	Construction vehicles and equipment will be maintained in proper operating condition and will be equipped with manufacturers' standard noise control devices or better (e.g. mufflers, engine enclosures). Improperly functioning equipment will be removed from the construction site until the issue is corrected.	C and O&M
N-2	Noise associated with project construction activities shall comply with C.R.S 25-12-103(5). Maximum permissible noise levels. Post construction noise levels for project operation shall comply with C.R.S. 25-12-103(12)	C and O&M

Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project

Plan of Development

Montrose, Ouray, San Miguel, and Dolores Counties, Colorado

Appendix P

Reclamation Plan

Appendix P

Reclamation Plan

The objective of this Reclamation Plan is to detail practices designed to address temporary impacts resulting from construction of the Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project (Project). Tri-State Generation and Transmission Association, Inc. (Tri-State) has developed this plan as part of the Plan of Development (POD) that accompanies its application to the Bureau of Land Management (BLM) for a Right of Way (ROW) grant. The final POD will be developed in coordination with federal agencies and landowners and will provide a detailed reclamation plan specific for the project. If the ROW grant is approved, the final POD and all appendices will be attached to the Decision Record.

Reclamation Objectives
This reclamation plan provides a framework approach and various techniques and options that may be employed to successfully restore temporarily disturbed areas from construction of the Project. The reclamation plan is intended to be implemented in conjunction with the other plans in the POD, with particular focus on the following:

- Appendix Q: Storm Water Management Plan
- Appendix S: Noxious Weed Plan
- Appendix T: Operations, Maintenance and Vegetation Management

Revegetation will be considered successful if species composition and vegetative cover was similar to preconstruction conditions three years following treatment. The Storm Water Management Plan (SWMP) requires that 70% of surrounding or pre-existing cover be established before the site is considered permanently stabilized. Tri-State's SWMPs for the transmission lines and substations will address both temporary erosion control and long-term stabilization of disturbed soils, and these plans are incorporated here by reference. Many of the Environmental Protection Measures (EPMs) that Tri-State has committed to also contribute to successful reclamation and revegetation and can be found in Chapter 3.0 of the POD. Appendices A (Road Siting) and T (Operations, Maintenance, and Vegetation Management) also overlap with revegetation practices and should be reviewed along with this appendix. More specific detail of the site-specific reclamation treatment will be included in the final POD.

Reclamation of Temporarily Disturbed Areas Post-Construction
Permanent disturbance will occur primarily at each structure location and along new access routes. Temporary disturbance will include areas where additional cut and fill are needed to construct new access roads, improve existing access roads, construct pull sites, construct pad sites around structures where necessary, and set up staging areas. New disturbance also captures alignment changes, including the proposed two miles of new ROW for the proposed Dolores River crossing.

Noxious Weeds
Noxious weed management is critical to successful reclamation activities. A detailed noxious weed management plan is included in Appendix S.

Topsoil Salvage
Generally, topsoil salvage is not proposed because most areas will not be extensively graded. The final reclamation plan will identify areas where topsoil salvage is warranted and feasible. Topsoil is identified as the top 6 to 12 inches of soil containing organic matter. Salvaged topsoil will be protected and

stabilized by practices identified in Appendix Q, the Storm Water Management Plan. Salvaged topsoil will be re-spread before seeding.

During construction activity, some excess spoils (subsoil and/or waste rock) will be generated. Spoil will be spread close to the site of disturbance in a uniform manner to match existing contours or will be hauled off-site. Where feasible, spoils will be spread, covered with topsoil if available, mulched if needed, and seeded.

ROW Reclamation

Re-contouring may be required for areas proposed for temporary disturbance as discussed above. Areas within the ROW, laydown or staging areas, or other areas with heavy vehicle traffic and exposure to water may become compacted. These areas will be "de-compacted" on a case-by-case basis using appropriate equipment such as discs and rippers.

Shallow soils, steep slopes, rocks, or exposed bedrock may not be seeded but will be treated to restore contours and visually blend with surrounding areas to the degree possible. Placement of boulders or special grading and contouring will be considered in visually sensitive areas.

Seed Bed Preparation

Re-contouring, surface roughening, and/or de-compaction will prepare a suitable rough surface with friable soils for seeding. Soil amendments are generally not proposed since they tend to favor weedy annual species that compete with native grasses. Soil amendments may be proposed on a case-by-case basis with agency or landowner approval.

Seeding Methods

Seeding will utilize a variety of methods depending on the timing of seeding and site conditions. Generally, methods that apply the seed directly to the soil, such as with a drill seeder, broadcast spreader, or by hand, are preferred. The preferred method for seeding is drill seeding with a rangeland drill; however, if the areas of bare soil and disturbance are patchy and small, broadcast seeding will be used. Broadcast seeding rate will be double the drill seed rates. Broadcast seed will be covered by raking, harrowing, or dragging a chain over the surface.

In some cases, such as on steep, inaccessible slopes, hydro-seeding/mulching may be needed. Where possible, seed will be broadcast first before applying hydro-mulch, tackifier, or erosion blankets.

Timing

Reclamation and revegetation will begin as soon as construction is complete. The preferred timing of seeding is late fall, before frost. Tri-State's goal and plan is to treat all areas on the Montrose-Nucla segment in Fall 2017 and on the Nucla-Cahone segment in Fall 2018. However, given weather and other unforeseen conditions or delays, some seeding may not be completed until the following spring. The federal land management agency and/or landowners will be consulted regarding timing and methods of seeding if seeding cannot be completed immediately following construction due to weather or site conditions.

Seed Mixes

Site specific seed mixes will be developed for different elevations, plant communities, and soils in coordination with a local seed bank, such as the Uncompahgre Partnership, or another BLM-approved source such as the BLM regional seed warehouse. It is understood the seed availability will vary from year to year and that the final seeding plan will need to be reviewed prior to the initiation of reclamation activities. All seed mixes will be state certified weed-free. These seed mixes will be comprised primarily

of native species readily available for purchase or specifically collected locally for Tri-State (through the Uncompahgre Partnership) for sensitive habitats such as Gunnison sage-grouse habitat. Seed rates will be given in pounds per live seed (PLS). Proper testing, labeling, storage, handling and protection of seed will be required.

Tri-State will work with the Natural Resources Conservation Service (NRCS), BLM, Colorado Parks and Wildlife (CPW), USFS, and landowners to develop seed mixes compatible with current conditions and land uses. In some cases a sterile cover crop may be added to the mixes to ensure germination and cover on severe slopes, under erosion blankets, or on sensitive sites. Cover crop seeding can serve as a nurse crop for native species. Many native species need a season to break dormancy. Cover crop provides quick vegetative cover, soil stabilization, and competes well with invasive weedy species but not with native species.

The following are proposed seed mixes for USFS lands and BLM lands including Dry Creek Basin. For the Dry Creek Basin, the final seed mix will be approved by the BLM, CPW, and affected landowners 45 days prior to the initiation of reclamation activities. Tri-State will coordinate with each agency's reclamation specialists to determine the availability of recommended species and seek out alternative species if availability of preferred options is limited.

Table P-1. Grand Mesa Uncompahgre and Gunnison and San Juan National Forest Seed Mix

Forest Service-Uncompahgre Plateau Species in bold, italics

Common Name *(Cultivar)*	Scientific Name	% of Mix Desired (PLS)
Forbs		
Blue-eyed grass	*Sisyrinchium species*	0.1
Globemallow	*Sphaeralcea coccinea*	0.1
Rocky Mountain penstemon	*Penstemon strictus*	0.1
Splitleaf Indian paintbrush	*Castilleja rhexifolia*	0.1
Yarrow - UP Dryfork	*Achillea millefolium*	**0.3**
Showy Fleabane – (Dry Fork)	*Erigeron speciosus*	**0.3**
Dusty Penstemon – (Delta)	*Penstemon comarrhenus*	**0.6**
Bluestem Penstemon – (San Miguel)	*Penstemon cyanocaulis*	**0.5**
Sulphur Buckwheat – (UP)	*Eriogonum umbellatum*	**0.3**
Grass and grasslike species		
Arizona fescue	*Festuca arizonica*	0.5
Basin wildrye	*Leymus cinereus*	0.5
Blue wildrye	*Elymus glaucus*	0.5
Bottlebrush squirreltail	*Elymus elymoides*	5.0
Sandberg bluegrass – (UP Colorado)	*Poa secunda*	**15.0**
Columbia needlegrass	*Stipa columbiana* (*S.nelsonii*)	0.5
Fendler's bluegrass	*Poa fendleriana*	2.0
Idaho fescue	*Festuca idahoensis*	0.5
Indian ricegrass	*Oryzopsis hymenoides* (*Stipa hymenoides*)	0.5
Prairie Junegrass – (Sims Mesa)	*Koeleria cristata/K.nitida* (*K.macrantha*)	**10.0**
Letterman needlegrass	*Stipa lettermanii*	3.0
Mountain brome – (Cold Springs)	*Bromus marginatus*	**14.0**
Needle and thread	*Stipa comata*	0.5
Sand dropseed – (UP Dolores)	*Sporobolus cryptandrus*	**8.0**
Slender wheatgrass – (San Luis)	*Elymus trachycaulus*	**20.0**
Thurber fescue	*Festuca thurberi*	0.5
Western wheatgrass – (Arriba)	*Pascopyrum smithii*	**15.0**

Shrubs		
Antelope bitterbrush	*Purshia tridentata*	0.1
Chokecherry	*Prunus virginiana* (*Padus virginiana*)	0.1
Drummond willow	*Salix drummondiana*	0.1
Golden currant	*Ribes aureum*	0.1
Mormon tea	*Ephedra viridis*	0.1
Mountain mahogany	*Cercocarpus montanus*	0.1
Mountain willow	*Salix monticola*	0.1
Sagebrush	*Artemisia tridentata* ssp. t*ridentata*	0.1
Saskatoon serviceberry	*Amelanchier alnifolia*	0.1
Serviceberry	*Amelanchier utahensis*	0.1
Wax currant	*Ribes cereum*	0.1
Wild rose	*Rosa woodsii*	0.1
	Total	99.6

*Final species list and percentages of mix can be negotiated, based on availability of seed and price.

BLM Seed Mix Tables

Table P-2. BLM Ecosite Seedmix Crosswalk

BLM Lands Ecosites	Vegetation Type	Seed Mix
Alkaline Slopes	Xeric Sagebrush	Salt Desert
Basin Shale	Xeric Sagebrush	Sage and PJ
Foothill Swale	Xeric Sagebrush	Sage and PJ
Foothill Valley	Xeric Sagebrush	Sage and PJ
Semidesert Loam	Xeric Sagebrush	Sage and PJ
Semidesert Sandy Loam	Xeric Sagebrush	Sage and PJ
Saltdesert Over Flow	Dry Sagebrush/greasewood	Salt Desert
Loamy Park	Mixed Mtn. Shrub	Mixed Mtn. Shrub
Mtn. Clay Loam	Mixed Mtn. Shrub	Mixed Mtn. Shrub
Mtn. Loam	Mixed Mtn. Shrub	Mixed Mtn. Shrub
Pine Grasslands	Mixed Mtn. Shrub	Mixed Mtn. Shrub
Shallow Subalpine	Mixed Mtn. Shrub	Mixed Mtn. Shrub
Loamy Clay PJ	PJ	Sage and PJ
PJ	PJ	Sage and PJ
Shallow Clay Loam PJ	PJ	Sage and PJ
Shallow Loam PJ	PJ	Sage and PJ
Clayey Salt Desert	Salt Desert Shrub	Salt Deseret
Loamy Saltdesert	Salt Desert Shrub	Salt Desert
Salt Flats	Salt Desert Shrub	Salt Desert
Silty Saltdesert	Salt Desert Shrub	Salt Desert
Stoney Saltdesert	Salt Desert Shrub	Salt Desert
Clayey Foothills	Mesic Sagebrush	Sage and PJ
Loamy Foothills	Mesic Sagebrush	Sage and PJ

Note: A seed mix calculator (Excel spreadsheet) provided by the BLM UFO, converting acres of ecosystem habitat to pounds of seed required, will be used for final calculations based on seed availability.

Table P-3. BLM Seed Mix: Sagebrush & PJ including GuSG

Common Name (Cultivar)	Scientific Name	% of Mix Desired (PLS)
Western wheatgrass (X-ARRIBA)	*Pascopyrum smithii*	0.03
Bottlebrush squirreltail[1] (Accession #9092275)	*Elymus elymoides*	0.20
Indian ricegrass[4] (UP White River)	*Achnatherum hymenoides*	0.20
Slender wheatgrass (White River)	*Elymus trachycaulus*	0.20
Sand dropseed (UP Dolores)	*Sporobolus cryptandrus*	0.05
Prairie junegrass (UP Sims Mesa)	*Koeleria macrantha*	0.05
Sandburg bluegrass[3] (UP Colorado)	*Poa secunda*	0.10
Annual sunflower (X-VNS)	*Helianthus annuus*	0.01
Dusty penstemon[2] (UP Delta)	*Penstemon comarrhenus*	0.01
Northern (Utah) sweetvetch (TIMP)	*Hedysarum boreale*	0.01
Lewis blue flax (Mapel Grove)	*Linum lewisii*	0.02
Wyoming big sage[4] (X-VNS)	*Artemisia tridentata ssp. Wyomingensis*	0.05
	Total	1.00

[1]If bottlebrush squirreltail (Accession # 9092275) is not available, use Tusas.
[2]If dusty penstemon is not available, use Bluestem Penstemon (UP San Miguel) (*Penstemon cyanocaulis*)
[3]If Sandburg bluegrass is not available, use muttongrass (UP Ruin Canyon) (*Poa fendleriana*).
[4]Wyoming sagebrush shall be collected within 10 air miles of the ROW and certified as to the proper species.

Table P-4. BLM Seed Mix: Mixed Mountain Shrub.

Common Name (Cultivar)	Scientific Name	% of Mix Desired (PLS)
Western wheatgrass (X-ARRIBA)	*Pascopyrum smithii*	0.07
Bottlebrush squirreltail[1] (Accession #9092275)	*Elymus elymoides*	0.23
Mountain brome (UP Cold Springs)	*Bromus marginatus*	0.10
Slender wheatgrass (White River)	*Elymus trachycaulus*	0.21
Muttongrass (UP Ruin Canyon)	*Poa fendleriana*	0.11
Prairie junegrass (UP Sims Mesa)	*Koeleria macrantha*	0.09
Showy fleabane/Oregon daisy[2]	*Erigeron speciosus*	0.03
Annual sunflower (X-VNS)	*Helianthus annuus*	0.01
Western white yarrow (UP Dry Fork)	*Achillea millefolium*	0.07
Northern (Utah) sweetvetch (TIMP)	*Hedysarum boreale*	0.01
Lewis blue flax (Mapel Grove)	*Linum lewisii*	0.01
Mountain big sage (X-VNS)	*Artemisia tridentata ssp. Vaseyana*	0.05
	Total	1

[1]If bottlebrush squirreltail (Accession # 9092275) is not available, use Tusas.
[2]If showy fleabane/Oregon daisy is not available, omit.
[3]Mountain sagebrush shall be collected within 10 air miles of the ROW and certified as to the proper species.

Table P-5. BLM Seed Mix: Salt Desert Shrub

Common Name (Cultivar)	Scientific Name	% of Mix Desired (PLS)
Bottlebrush squirreltail (Toe Jam)	*Elymus elymoides*	0.20
Western wheatgrass (X-Arriba)	*Pascopyrum smithii*	0.20
Galleta grass* (Viva)	*Pleuraphis jamesii*	0.30
Indian ricegrass (UP White River)	*Achnatherum hymenoides*	0.10
Sandburg bluegrass[3] (UP Colorado)	*Poa secunda*	
Cleftleaf wild heliotrope[1] (UP Wildland Collection)	*Phacelia crenulata*	0.05
Redwhisker clammyweed[1] (UP Wildland Collection)	*Polanisia dodecandra*	0.02
Annual sunflower (X-VNS)	*Helianthus annuus*	0.03
Winterfat* (X-VNS)	*Krascheninnikovia lanata*	0.01
Shadscale (X-VNS)	*Atriplex cofertifolia*	0.01
Four wing saltbush[2] (X-VNS)	*Atriplex canescens spp. Canescens*	0.05
Basin big sage (X-VNS)	*Artemisia tridentata ssp. Tridentata*	0.05
	Total	1.02

[1]If these products cannot be supplied through collection, replace with 0.5 lb/acre Scarlet globemallow (*Sphaeralcea coccinea spp. Coccinea*).
[2]Request that source be from western Colorado, E Utah.
*Recommend requesting that seed be de-bearded for better drill flow.
Basin sagebrush - shall be collected within 10 air miles of the right of way and certified as to the proper species.

Mulching

Mulch (clean, certified weed-free straw) will be applied at one to two tons (2000-4000 pounds [lbs.]) per acre where deemed necessary by the agencies in coordination with the environmental monitor and Tri-State's reclamation contractor. This will primarily take place on areas of steeper slope. Where practical, mulch will be crimped, tackified, or otherwise incorporated into the soil to the degree possible. Crimping or anchoring of mulch will occur immediately following treatment, no longer than 24 hours after treatment. If machine crimping is not possible, straw may be spread by hand, anchored with shovel

crimps, or sprayed with tackifier. Masticated brush or slash may be spread and used as a natural mulch layer. On steep slopes such as along roads or at substations, hydro-mulch may be sprayed with water to minimize erosion and help establish vegetation. Hydro-mulch will be applied at a rate of 2,000 lbs. /acre.

Monitoring Recovery/Maintenance

The reclaimed ROW and substations will be inspected after the first growing season to assess germination and reclamation success. Monitoring requirements will follow measures required in the Storm Water Management Plan (Appendix Q) until final stabilization is achieved. Following construction, inspection of site recovery will be done on a monthly basis until 70% of pre-existing vegetation cover is achieved. Tri-State will consult with land management agencies and landowners regarding the relative success of reclamation and the potential need for additional treatment.

Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project

Plan of Development

Montrose, Ouray, San Miguel, and Dolores Counties, Colorado

Appendix Q

Storm Water Management Plan

Appendix Q

Storm Water Management Plan

The objective of this Storm Water Management Plan (SWMP) is to detail practices designed to address potential impacts from construction of the Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project (Project). Tri-State Generation and Transmission Association, Inc. (Tri-State) has developed this plan as part of the Plan of Development (POD) that accompanies its application to the Bureau of Land Management (BLM) for a Right of Way (ROW) grant. If the ROW grant is approved, the final POD and all appendices will be attached to the Decision Record. This plan provides guidance to construction and field personnel on measures identified by Tri-State, BLM, and US Forest Service (USFS) to minimize effects during construction activities associated with the Project. It will be the responsibility of Tri-State and its project contractors, working with designated environmental inspectors, to comply with measures identified in this plan.

Application for coverage under Colorado's General Permit for Construction Activity must be submitted to the Colorado Department of Public Health and Environment (CDPHE) 10 days before construction. When the site has been stabilized in accordance with the SWMP, Tri-State will submit an Inactivation Notice to CDPHE. Details on Storm Water Management Plans and permit requirements are available from CDPHE at the following website: WQ construction general permits | Department of Public Health and Environment.

Tri-State will be required to submit five SWMP and obtain five SWMP (two for each transmission line segment as well as for the three substations). The final storm water maps and plans will be available to CDPHE and the affected land management agencies, if requested, 45 days prior to construction.

The timetable for development of the final, detailed storm water management plans is as follows in Table Q-1:

Table Q-1. Timetable for Storm Water Management Plan.

Timetable	Deliverable/Task
Final EA	Description of process and plan components for the SWMP, evaluation of risk/need for BMPs, types of BMPs anticipated for use, and management/reporting for the storm water plan(s) (complete)
Substation construction	SWMP provided to CDHPE for three substations as follows Montrose Substation (2016) Maverick Substation (2018) Cahone Substation (2019)
45 Days prior to Notice to Proceed for Montrose to Nucla segment (2017)	Final Detailed plan for the Montrose to Nucla segment provided to CDHPE and to the BLM and affected land management agencies, including storm water maps showing any streams or drainages in the vicinity of construction areas, drainage patterns or direction of storm water flow, and location and type of best

Timetable	Deliverable/Task
Final EA	Description of process and plan components for the SWMP, evaluation of risk/need for BMPs, types of BMPs anticipated for use, and management/reporting for the storm water plan(s) (complete)
	management practice (BMP) to be employed. Coordination with the BLM, USFS and the CDHPE as needed.
45 Days prior to Notice to Proceed for Nucla to Cahone segment (2017)	Final Detailed plan for the Nucla to Cahone segment provided to CDHPE and to the BLM and affected land management agencies, including storm water maps showing any streams or drainages in the vicinity of construction areas, drainage patterns or direction of storm water flow, and location and type of best management practices (BMP) to be employed. Coordination with the BLM, USFS and the CDHPE as needed.

The National Pollutant Discharge Elimination System (NPDES) Process and Construction (SWMP)

This document establishes a plan to manage the quality of storm water runoff from construction activities associated with Tri-State's construction of the Montrose-Nucla-Cahone Transmission Line located in Montrose, Dolores, Ouray, and San Miguel Counties, Colorado. For construction projects that require the disturbance of more than 1 acre, the U.S. Environmental Protection Agency (EPA) requires that the project owner or contractor apply for a storm water permit under the NPDES program. For the purposes of the NPDES program, construction activities are defined as clearing, grubbing, excavating, grading, etc.

This NPDES permit program is administered in Colorado by the Colorado Department of Public Health and Environment (CDPHE). CDPHE has a general permit for storm water discharges from construction activities. The USEPA and the State of Colorado have substantial penalties for non-compliance with the permit. Any permit non-compliance constitutes a violation of the Clean Water Act and is considered grounds for enforcement action including: permit termination; revocation; reissuance; modifications; or, denial of permit renewal application. Individuals responsible for such violations are subject to criminal, civil, and administrative penalties.

CDHPE requires that the SWMP include the following items:

- Site Description;
- Site Map(s);
- Storm water Management Controls;
- Long-term Storm water Management; and
- Inspection and Maintenance.

Site Description and Site Maps

The final storm water maps and plans will be submitted to CDPHE and the affected land management agencies, if requested, 45 days prior to construction. Site maps will include drainage patterns or direction of storm water flow, location and type of best management practices (BMP) to be employed. Site maps will also include any streams or drainages in the vicinity of the activity.

Potential Pollutants

Evaluation of potential pollutants is based on the construction activity completed. The following is a rough sequence of major activities performed by the contractor or subcontractor(s) for transmission line construction:

- Surveying;
- Access roadway grading;
- Culvert and rock bedding installation in streams;
- Tower pad grading;
- Construction materials hauling;
- Erection of transmission towers and power lines; and
- Right-of-way cleanup, restoration and revegetation.

Major streams and drainages in the vicinity of the types of construction activities will be identified in the final site maps. Specific locations for streams and drainages at risk to potential pollutants will be shown on the site maps in the final SWMP. The following chart identifies the potential pollutants that need to be addressed per the CDPS General Permit and their applicability to this project.

Table Q-2. Pollution Risk Assessment and Controls

Potential Pollutant	Potential with this Project?	Description of Activities	BMPs Selected to Control Source
All disturbed and stored soils	High	Soil is to be disturbed on the access roads and the tower pads.	Sediment Control Logs, Vehicle Tracking Control, Straw Bale Check Dams, and Sediment Traps will capture silt from leaving areas where soil disturbance occurs.
Vehicle Tracking of Sediments	High	Trucks moving on and off the access roads from paved street.	Vehicle Tracking Control
Management of Contaminated soils	None	None	Soil will not be contaminated by project activities.
Loading and Unloading Operations	High	Delivery of Materials to Site and Daily Construction Traffic	Material Storage Areas

Potential Pollutant	Potential with this Project?	Description of Activities	BMPs Selected to Control Source
Outdoor storage activities	High	Construction Materials will be on Site.	Materials Storage Area and Perimeter Controls
Vehicle and equipment maintenance and refueling	Medium	None	Vehicles and motorized devices will not be fueled on site.

Storm water Management Controls (Best Management Practices)

The following sections provide a general approach to storm water management controls, and include a menu of potential erosion and sediment control options that Tri-State will incorporate into the final plan.

Phased BMP Installation

Structural BMPs such as Sediment Control Logs, Vehicle Tracking Control, Sediment Traps, and Straw Bale Check Dams will be installed during the pre-construction phase and kept in place throughout the construction phase, until the final stabilization phase of the project is complete. Seeding and any other final stabilization BMPs will be installed after construction is complete and will occur in the final stabilization phase of the project.

BMP Maintenance

BMPs will be maintained by the construction contractor as recommended by the storm water inspector or environmental monitor. Maintaining BMPs may include replacement of wattles, cleaning sediment, re-grading and seeding bare or areas of thin vegetative growth, and/or adding additional BMPs as appropriate. Changes including repairs or modifications to BMPs will be tracked on inspection logs and site plan drawings. See Inspection and Maintenance section below.

Structural Practices for Erosion and Sediment Control

Structural practices are those physical structures implemented at the site to minimize erosion and sediment transport. The BMPs that may be implemented for the project are described below. Specific locations for BMP implementation at the site will be provided in the final site plan. Tri-State may employ a variety of temporary control measures including but not limited to: tracking pads, vegetative buffers, surface roughening, dikes or drainage swales, check dams, sediment control logs, sediment traps, dust control, straw mulch, slash mulch, hydraulic mulch, and temporary seeding. At substations, additional measures may include slope benching or terraces, sediment basins, rolled erosion control products, and inlet/outlet protection. Additional BMPs or changes in BMPs may be added as site conditions change and will be identified in the modification log and/or on site maps prior to installation. The following section describes common control measures used by Tri-State. Installation of BMPs will follow Urban Storm Drainage Criteria Manual Volume 3 (2010).

Check Dams

Check dams are generally constructed from rock, straw wattles, or straw bales. They are designed to slow water velocity, allowing some sediment to settle. Check dams will be used in areas of concentrated flows (along drainage swales). Installation includes one of the following: stacked rock, straw wattles, or straw bales. The center of the check dam should be lower than the sides. The check dam will be installed across the entire width of the drainage swale in order to function properly. Check dams will be inspected for proper installation and sediment accumulation on the up-gradient side. Accumulated sediment and debris will be removed from a BMP when the sediment level reaches one-half the height of the BMP or at any time that sediment or debris adversely impacts the functioning of the BMP. Check dam materials will be cleaned and replace, as needed, to maintain function and design.

Vehicle Tracking Control (VTC)

Vehicle tracking control may consist of an excavated area with a geotextile liner and gravel, metal grate, or asphalt/concrete "rumble strip." Tracking control is designed to cause soil to vibrate off equipment and vehicles as they transition from disturbed soils to paved areas. The vehicle tracking control will remain in place until access to the areas used by the control are stabilized or no longer needed. All appropriate points of ingress and egress, where traffic transitions from a stabilized road surface (e.g. gravel or pavement) to disturbed soil, will have vehicle tracking control installed. Tracking control may be moved or eliminated as on-site conditions and activities change. Tracking control will be inspected for depth of gravel/rock, presence of excess soil, proper usage, and the overall general condition. The most common maintenance items include the removal of accumulated soil and addition of gravel/rock.

Sediment Control Logs (Wattles)

Sediment Control Logs (wattles) consist of a net or geotextile fabric filled with straw, excelsior, wood mulch, or other fillers. Wattle applications include, but are not limited to: slope stabilization, check dams in swales, back of curb protection and temporary secondary containment for stock piles, materials storage, or masonry. Wattles reduce water velocity allowing sediment to accumulate on the up-gradient side of the wattle. Wattles should be installed based on the manufacturer's directions. The basic installation for a net wrapped wattle is to prepare a trench approximately three inches deep, secure the wattle in the trench using a stake or landscape pin, and backfill on the up-gradient side. Wattles should be inspected for proper installation, structural integrity, and sediment accumulation. A wattle that has been flattened out of round may not need to be replaced if it remains sufficiently sound to function appropriately on the up-gradient side of the wattle.

Wattles will be placed along the bottom of the proposed slopes of the access roadways to prevent erosion and silt from leaving the disturbed area. Wattles will also be placed around the area of disturbance surrounding the transmission line towers that require grading before areas are disturbed. All BMPs will be placed within the ROW of the transmission line or access roadways.

Non-Structural BMPs for Erosion and Sediment Control

Non-structural practices are those practices which minimize erosion and transport of sediment and other pollutants. Practices may include personnel training as well as good housekeeping BMPs such as

establishing material staging areas, vehicle fueling stations, equipment maintenance practices, waste handling and storage techniques, and oil spill clean-up procedures.

Good housekeeping will be used to keep potential areas where pollutants exist clean and orderly. Containers, drums, and bags will be stored away from direct traffic routes to prevent the risk of accidental spills. Stacking containers according to manufacturer instructions will avoid damaging the containers from improper weight distribution. Containers will be stored on pallets or similar devices to prevent corrosion of containers that results from containers coming in contact with moisture on the ground. Toxic or hazardous liquids will be stored within secondary containment. See also Appendix N for oil spill planning and hazardous materials handling.

Stabilized Staging Areas

A stabilized staging area is a specific location for stockpiling/staging materials and equipment for use on-site. A stabilized staging area allows for a central location for deliveries and storage of equipment when not in use, and to reduce disturbance of areas of the site not scheduled for disturbance through construction activities. Stabilized staging areas generally consist of a cleared area of the site with vehicle tracking control and perimeter control (e.g. silt fence and/or construction fencing). Stabilized staging areas will be implemented as needed on site. They should be sited to reduce the need for relocation and be located out of areas of active construction activity. Stabilized staging areas will be inspected for adequate vehicle tracking control and perimeter control. Stabilized staging areas should be repaired or modified as needed.

Dedicated Concrete or Asphalt Batch Plants

To the extent possible, concrete batch plants will not be located on public lands. However, small concrete batch plants may be needed and environmentally preferred if located in staging areas near the Dolores River crossing. Large amounts of concrete are needed for the foundations for the steel structures at the river canyon crossing. Having small concrete batching equipment will minimize concrete truck traffic on public roads and the need to improve existing roads extensively. Final SWMP plans will identify locations and BMPs for concrete batching equipment.

Concrete Washouts

Concrete washouts will not be constructed on public lands without specific authorization. Washouts will not be located within 400 feet of waterways and will be contained within a plastic tank or plastic-lined pit. Washouts will have signs posted to identify the location of washouts. Solid concrete wastes will be removed to an approved disposal site when no longer needed. Pits will be re-graded and reclaimed and seeded after waste is disposed of.

See Appendix N for oil spill planning and hazardous materials handling. Waste material will be collected and stored in a secure container or removed from the project site in accordance with the contract specifications. The waste container will be inspected regularly with contents disposed of properly by the owner. No waste products will be disposed of onsite (e.g., buried, poured, etc.) but will be taken off-site for proper disposal. Drums and other small waste containers will be labeled appropriately.

Portable Sanitary Facilities

Portable sanitary facilities will be provided in a convenient, level location away from traffic areas at least three feet from curb flowlines and paved surfaces, storm drains, or retention areas. A licensed company will be hired to maintain and clean the units, inspect for any deficiencies, and keep the units in good working order. Portable sanitary facilities will be adequately anchored to prevent them from tipping over. The construction contractor will be responsible for ensuring that the units are properly used and maintained.

Solid Waste

Large amounts of solid waste are not anticipated to be generated during this project. The majority of solid waste will be collected, removed from site, and properly disposed. If larger quantities are generated than can be handled by individuals on site, then dumpsters will be provided in a convenient, level location away from traffic areas, storm drains, drainage areas, or retention areas. The dumpsters will be kept off of paved surfaces, and a licensed company will be contracted to empty the dumpsters, as needed. The site manager will be responsible for monitoring the site to ensure that all site personnel and subcontractors utilize the proper waste disposal practices and facilities.

Hazardous Wastes

Any hazardous waste material will be disposed of in the manner specified by Tri-State Environmental Services and the manufacturer. These disposal methods will meet state and local regulations. Site personnel will be instructed to be aware of this requirement. The discharge of hazardous substances or oil in the storm water discharges from the site will be prevented. See Appendix N for oil spill planning and hazardous materials handling.

Product Specific Practices

Due to the chemical makeup of specific products, certain handling and storage procedures are required to promote the safety of personnel and prevent the possibility of pollution. Care will be taken to follow all directions and warnings for products used on the site. All pertinent information can be found on the Safety Data Sheets for each product. Each Safety Data Sheet will be located with each product container it represents or in a readily accessible central location.

Dewatering

Geotechnical investigations will determine if there are areas where dewatering may be required. These locations and procedure for dewatering if required will be outlined in the final SWMP and approved by the affected agency 45 days prior to issuance of the NTP.

Long-Term Storm Water Management

Tri-State may use several long-term storm water management BMPs including but not limited to: slope benching, drainage ditches, sediment basins (substations), inlet and outlet protection, and permanent seeding. Specific locations for BMP implementation, especially substations, will be provided on the final site maps.

Upon completion of earth-disturbing activities, the site will be restored with vegetation in areas that currently have vegetation and with pavement in areas that are currently paved. For areas of trenching or clearing and grubbing, final stabilization will consist of seeding in combination with surface roughening, crimp mulching, and/or installation of rolled erosion control products as appropriate for the site slope. The site map indicating which BMPs will be used at specific locations will be included in the final storm water plan. Final stabilization for disturbed areas within roadways or road shoulders will be to return areas to their original condition or to the improved design.

Final Stabilization Methods

Final stabilization includes those measures taken to control pollutants in storm water after soil disturbing activities are complete. Revegetation is the primary method used for achieving final stabilization. More details on reclamation and revegetation activities are included in Appendix P, Reclamation Plan. Successful reestablishment of vegetation requires:

- Identification of appropriate seed mix and application methods and rate (include mix detail; see Appendix P, Reclamation Plan);
- Preparation and amendment of the soil prior to seed application;
- Selection and correct installation of soil stabilization methods (e.g. surface roughening, crimped mulch, or rolled erosion control products);
- Maintaining appropriate erosion and sediment control BMPs until final stabilization is achieved; and
- Removal of temporary BMPs once work is completed and final stabilization executed.

Seeding involves the mechanical or hand application of specific seed mixes appropriate for the site location and soil type. Seeding provides plant growth to stabilize the soil, reducing the likelihood of erosion or sediment transport. As soon as practical, after completing construction activities, soil should be properly prepared and seeded. The choice of seed mix will dictate application rates and methods. Seed mixes will be developed with land owners and managers. Seeding may be accompanied by an additional BMP, such as mulching, to protect the seed and soil from erosion during the germination and growth process. Seeded areas will be inspected to ensure that the soil stabilization method (e.g. surface roughening, crimp mulch, hydro-mulch, etc.) was applied correctly and has not been compromised. The area will also be inspected for erosion and/or sediment deposition.

Final Stabilization Achievement

Final stabilization is achieved when all ground surface disturbing activities at the site have been completed and uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance vegetative cover, or other equivalent permanent cover is in place, such as rock or concrete. Coverage under the Storm Water Construction Permit may be terminated by the permittee when the site has attained final stabilization, all temporary erosion and sediment control measures have been removed, and all components of the SWMP are complete. CDPHE will issue an Inactivation Notice once the entire site has reached final stabilization.

Inspection and Maintenance

Minimum Inspection Schedule

The designated responsible party for inspections at the site will make a thorough inspection at least every 14 days during active construction to ensure the BMPs implemented on site are functioning as specified.

In addition to every 14 days, inspections will be conducted within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. Provided the timing is appropriate, the post-storm inspections may be used to fulfill the routine inspection requirement, but this resets the 14-day schedule.

Post-storm Inspections

Post-storm inspections will occur within 24 hours of a precipitation event that causes surface erosion. If no construction activities will occur following a storm event, post-storm event inspections will be conducted prior to re-commencing construction activities, but no later than 72 hours following the storm event. The delayed inspection will be documented in the inspection record.

Inspections at Completed Sites/Areas

For completed construction sites, an inspection of the site will be made at least once every month until final stabilization is reached. The following must be met in order for the site to be inspected on a monthly basis instead of every 14 days:

- All construction activities that will result in surface ground disturbance are completed;
- All activities required for final stabilization have been completed, with the exception of the application of seed that has not occurred due to seasonal conditions or the necessity for additional seed application to augment previous efforts; and
- The SWMP has been amended to indicate those areas that will be inspected in accordance with the reduced schedule.

The reduced frequency schedule also applies to sites or portions of sites where continuing construction activities can be conducted without disturbance of the ground surface, such as, for example, interior building construction.

Winter Conditions Inspections Exclusion

Inspections will not be conducted where construction activities are temporarily halted, snow cover exists over the entire site for an extended period, and melting conditions posing a risk of surface erosion do not exist. The following information will be documented in the inspection record for use of this exclusion:

- Dates when snow cover occurred;
- Date when construction activities ceased; and
- Date when melting conditions began.

Inspection Requirements

Inspection Scope

The following items will be examined for evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the storm water drainage system, or discharging to state waters during the inspection and reported on the inspection reports:

- Construction site perimeter;
- All disturbed areas;
- Material and/or waste storage areas that are exposed to precipitation;
- Discharge locations; and
- Locations where vehicles access the site.

All erosion and sediment control practices identified in the SWMP will be evaluated to ensure that they are maintained and operating correctly.

Inspection Reports

The inspection record will note evidence of, or the potential for, pollutants leaving the construction site boundaries, entering the storm water drainage system, or discharging to state waters.

The inspection report will include:

- The inspection date;
- Name(s) and title(s) of personnel making the inspection;
- Location(s) of discharges of sediment or other pollutants from the site;
- Location(s) of BMPs that need to be maintained;
- Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- Location(s) where additional BMPs are needed that were not in place at the time of inspection;
- Deviations from the minimum inspection schedule;
- Description of corrective action for locations where discharges occurred or BMPs that require maintenance, repair, are ineffective or inadequate, and where additional BMPs are needed;
- Dates that corrective action(s) were taken;
- Measures taken to prevent future violations, including requisite changes to the SWMP, as necessary; and
- After adequate corrective action(s) have been taken, or where a report does not identify any incidents requiring corrective action, the report will contain a signed statement indicating the site is in compliance with the permit to the best of the signer's knowledge and belief.

BMP Maintenance

All erosion and sediment control practices and other protective measures identified in the SWMP will be maintained in effective operating condition. BMPs that are not adequately maintained in accordance with

good engineering, hydrologic, and pollution control practices are considered to be no longer operating effectively and will be modified or replaced. BMPs implemented at the site must be adequately designed and maintained to provide control for all potential pollutant sources associated with the construction activity to prevent pollution or degradation of state waters. Where site inspections note the need for BMP maintenance activities, BMPs will be maintained until these conditions are met. Maintenance items include, but are not limited to: removal of accumulated sediment; repair or replacement of worn or damaged sections; repositioning to correct placement; and, reinstallation of BMPs displaced. Accumulated sediment and debris will be removed from a BMP when the sediment level reaches one-half the height of the BMP or at any time that sediment or debris adversely impacts the functioning of the BMP.

Replacement and Failed BMPs

Adequate site assessment will be performed as part of the comprehensive inspection and maintenance procedures, to assess the adequacy of BMPs at the site, and the necessity of changes to those BMPs to ensure continued effective performance. Where site assessment results in the determination that new or replacement BMPs are necessary, the BMPs will be installed to ensure ongoing implementation of BMPs. Where BMPs have failed, resulting in noncompliance, they will be addressed as soon as possible, immediately in most cases, to minimize the discharge of pollutants. When new BMPs are installed or BMPs are replaced, the SWMP will be updated.

SWMP Requirements

SWMP Availability

The SWMP will be implemented prior to commencement of construction activities. The SWMP will be kept accurate and up-to-date, and will reflect the actual on-site ground conditions. Only changes in site conditions that require new or modified BMPs need to be addressed in the SWMP.

SWMP Retention

A copy of the SWMP must be retained on-site unless another location, specified by the permittee, is approved by the Division. SWMP records are kept by Tri-State for 3 years after the completion of the project.

SWMP Amendment

The SWMP will be amended under the following circumstances:

- When there is a change in design, construction, operation, or maintenance of the site, which will require the implementation of new or revised BMPs; or
- If the SWMP proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity; or
- When BMPs are no longer necessary and are removed.

SWMP changes will be made prior to changes in the site conditions, except as noted below under "responsive SWMP changes." SWMP revisions may include, but are not limited to: potential

pollutant source identification; selection of appropriate BMPs for site conditions; BMP maintenance procedures; and, interim and final stabilization practices.

The SWMP changes may include a schedule for further BMP design and implementation, provided that, if any interim BMPs are needed to comply with the permit, they are also included in the SWMP and implemented during the interim period.

All changes to the SWMP will be documented on the site maps.

Responsive SWMP Changes

The majority of SWMP revisions to address changing site conditions can be made immediately with simple field revisions to the SWMP. In the less common scenario where more complex development of materials to modify the SWMP is necessary, SWMP revisions will be made in accordance with the following requirements:

- The SWMP will be revised as soon as practicable, but in no case more than 72 hours after the change(s) in BMP installation and/or implementation occur at the site; and,
- A notation must be included in the SWMP prior to the site change(s) that includes the time and date of the change(s) in the field, an identification of the BMP(s) removed or added, and the location(s) of those BMP(s).

Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project

Plan of Development

Montrose, Ouray, San Miguel, and Dolores Counties, Colorado

Appendix R

Traffic and Transportation Management Plan

Appendix R

Traffic and Transportation Management Plan

The objective of this Traffic and Transportation Plan is to detail practices designed to address potential impacts from construction of the Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project (Project) on access roads and trails. Tri-State Generation and Transmission Association, Inc. (Tri-State) has developed this plan as part of the Plan of Development (POD) that accompanies its application to the Bureau of Land Management (BLM) for a Right of Way (ROW) grant. If the ROW grant is approved, the final POD and all appendices will be attached to the Decision Record. This plan provides guidance to construction and field personnel on measures identified by Tri-State, BLM, and US Forest Service (USFS) to minimize effects during construction activities associated with the Project. It will be the responsibility of Tri-State and its project contractors, working with designated environmental inspectors, to comply with measures identified in this plan. This traffic and transportation management plan applies to transmission line construction as well as vegetation management activities.

The timetable for development of the final, detailed Traffic and Transportation Management Plan is as follows:

Table R-1. Timetable for Final Traffic and Transportation Plan

Timetable	Task/Deliverable
By Preliminary Final EA (internal review step)	Produce map set (Appendix W) with all roads to be used for project Construction, Operations/Maintenance (complete) The draft plan outlining a general approach to signage, flagging, and traffic/transportation issues is complete and attached as Appendix L
45 Days prior to Notice to Proceed (NTP) for each Phase	Final Detailed Plan provided to BLM and USFS, including site-specific information throughout the project area: • Overview of roadways directly affected by project work zones • Specific traffic restrictions expected on roadways during the work (e.g., shoulder closures, lane closures, lane shifts) • Notification of other permittees in the ROW

The purpose of this plan is to ensure the safety of construction contractors, inspectors, agency personnel, and the general public during construction and future maintenance activities and to reduce potential impacts to traffic on public roads associated with construction and future heavy maintenance activities.

Multiple entities have jurisdiction over the transportation and traffic permitting and safety requirements within the project area. These entities include the Colorado Department of Transportation (CDOT); Montrose, Dolores, and San Miguel Counties; BLM; USFS; Colorado Parks and Wildlife (CPW); and law enforcement.

Prior to construction, Tri-State will acquire the necessary permits from CDOT as well as Montrose, Dolores, and San Miguel Counties. Crossing and driveway permits are the responsibility of the selected construction contractor and will be acquired prior to initiation of construction activities. If a traffic control plan is required on state and county roads, the contractor will be required to prepare and submit these plans to the appropriate agency ahead of construction.

On federal and state lands, Tri-State will coordinate directly with each agency's designated representatives including road engineers and recreation specialists to identify critical junctures for signing and providing flaggers to notify the public of vegetation management and construction activities.

If major maintenance work is required in the future, Tri-State's transmission maintenance staff will be responsible for acquiring any necessary access and crossing permits on state and private lands. Types of facilities that may require special coordination include trail heads, access points for hunting, and state highways. In areas where project construction intersects with trails and NFSR's, signage will be used to identify short-term re-routes. Where project activity may overlap with hunting access, construction schedules and access information will be posted on existing kiosks, and Tri-State will coordinate with CPW. Access and signage during construction near state highways will be coordinated with CDOT and comply with CDOT requirements.

The transmission line currently spans areas used for recreational purposes on lands administered by the BLM, USFS, and CPW. Hunting, hiking, camping, and off-highway vehicles (OHV) use are the most common forms of recreation in the project area. In order to reduce impacts to recreational activities Tri-State will implement the following:

- Tri-State will stake and flag overland access and spur roads within line of sight (outlined more specifically in Appendix L) to ensure vegetation management and construction contractors stay within areas authorized by the Notice to Proceed. Compliance with the access road plan is critical to public and contractor safety and to ensure protection of sensitive resources.
- Prior to issuance of the Notice to Proceed, Tri-State will work closely with the BLM and USFS recreation and road specialists to identify areas where signing and flaggers will be required during construction and vegetation management activities. The type of signing and number of flaggers required will also be determined in coordination with the affected agencies' recreation and road specialists. This final plan will be approved by the affected agencies 45 days prior to the start of vegetation management and construction-related activities.
- Tri-State will coordinate with the USFS on required expansion of some of the existing gates on USFS administered lands to facilitate access for construction vehicles and for future maintenance activities. The existing gates and arrangement the USFS has installed for motorcycle and other OHV users will be left intact, and any damages to this infrastructure repaired immediately.

- Tri-State will work with the affected agency on required trail closures and re-routes, including signage and flagging designating temporary re-routes. These changes will also be updated on public outreach materials outlined in more detail below.
- Tri-State will work with the BLM, USFS, and CPW to create kiosks, trail signs, and public outreach materials per each agencies standards and requirements to notify the public of the location of construction activities and any trail closures or warnings that be temporarily required in certain areas. This plan will be updated prior to issuance of the NTP from each agency.
- Tri-State and its contractors/inspectors will coordinate weekly if necessary with the BLM and USFS recreation planners to ensure the agencies are aware of construction and vegetation management activities and to ensure compliance with this plan.
- It is not feasible for Tri-State to construct this transmission line entirely outside of hunting season given the length of the line, project schedule, and other seasonal constraints for other environmental factors such as GuSG and other avian species. In order to minimize impacts to hunters from construction vehicles and operations, Tri-State will work with CPW to provide outreach to hunters in the affected units. Tri-State will also keep CPW apprised of the work schedule so their staff will be able to respond to hunters' comments and concerns. Public outreach may be in the form of letters, emails, websites updates, and potentially through outreach at state, county, and local meetings held in proximity to the project area.
- Tri-State will work with BLM and USFS to update the project website to educate visitors where construction activities are likely to occur in any given week.
- Tri-State will use flaggers and place large orange construction signs in areas where active work is occurring in locations where trails cross access for construction and vegetation management activities. Signs and language will be prepared in coordination with agencies' recreation specialists to comply with agency standards.
- Tri-State and its contractors will be required to maintain the authorized speed limits during construction activities.
- Closures to State and Local Public roads will be scheduled to coincide with times of low traffic volumes to reduce impacts to the public.

Tri-State has also committed to the following Environmental Protection Measures (EPMs) for recreation, transportation, and land use as they apply to traffic- and transportation-related concerns.

Table R- 2. Traffic and Transportation-related EPMs

Topic - No.	Applicant Committed EPMs And Design Features For Construction (C), Operation, And Maintenance (O&M)	Applicable to C and/or O&M*
Recreation		
R-1	Tri-State and its contractor(s) will be responsible for avoiding effects to the Power Line Trail and its associated facilities (signs, off-highway vehicle gates, fencing, cattle guards, etc.). If this trail and/or any other trail facilities on BLM and USFS administered lands are impacted during project construction and/or maintenance activities, Tri-State will rehabilitate/re-construct the trail and its corridor to USFS specifications and replace damaged trail facilities. Tri-State will also provide signs and coordinate any necessary trail closures with the BLM and/or USFS. If guy wires are required for specific structures in proximity to trails, the wires will be marked with reflective tape to reduce risk of collision.	C and O&M
R-2	Tri-State has coordinated with CPW to obtain priorities for restrictions in specific areas to reduce impacts to hunters. CPW has indicated their priority is to restrict construction from Naturita Ridge to Disappointment Valley from: 11/2-11/13 in 2016, 11/1-11/12 in 2017, and 10/31-11/11 in 2018. Tri-State will work with CPW, BLM, USFS, and private landowners on reducing effects to hunters and providing information/maps to CPW to provide to hunters within the affected game management units about construction schedules and activities.	C
Traffic		
T-1	Tri-State and its contractor(s) will make all necessary provisions for conformance with federal, state, and local traffic safety standards and will conduct construction and maintenance operations so as to offer the least possible obstruction and inconvenience to public traffic.	C and O&M
T-2	Prior to construction, Tri-State or its contractors will develop a construction traffic management plan in consultation with affected landowners. This includes working with San Miguel and Montrose counties as well as Colorado Department of Transportation (CDOT) to incorporate appropriate measures and obtain approval for construction of the transmission line across county roads and state highways as applicable. It also will include obtaining crossing permits as required by state, county, or local requirements and developing a plan for installation of warning signs where construction activities may cross a recreational trail.	C
Land Use		
LU-1	All activities associated with the construction, operation and maintenance of the transmission line will take place within the authorized limits of the transmission line ROW and access routes. Additional access routes or cross-country travel will not be allowed outside of the authorized routes prior to review and approval by the affected land management agency authorized officer/landowner.	C and O&M
LU-2	Tri-State will notify private landowners that will be affected during project construction and provide compensation if new easement agreements are required prior to construction.	C

Topic - No.	Applicant Committed EPMs And Design Features For Construction (C), Operation, And Maintenance (O&M)	Applicable to C and/or O&M*
LU-3	Tri-State will coordinate throughout the planning and construction phases of the project with other ROW grant/Special use permit holders/other lessees within the project area to ensure there are no conflicts or effects to existing land uses. It is Tri-State's and industry standard practice to design and build infrastructure to avoid possible safety and operational concerns from existing land uses (oil and gas, water and gas pipelines, grazing, etc.). Tri-State will work with affected oil and gas and other operators in the project area during project design, construction, and operations on a case-by-case basis. In general Tri-State will: • Contact all affected operators in the study area to explain the project and • Work with operators to identify areas that may require special design considerations on a case-by-case basis. This could include conducting field visits with operators, identifying pipelines that may require cathodic protection (due to proximity to the transmission line), or specific design considerations if they are located under or near access roads; or identifying areas where subsidence may be a concern. As part of these discussions, best management practices and standard operating procedures will be identified on a case-by-case basis, as well as measures that will be implemented to minimize effects to operators during construction. Tri-State will continue to work with operators throughout construction and operation of the project.	C
LU-4	The contractor will maintain all fences, brace panels, gates, and cattle guards during the construction period. Any fence, brace panel, or gate damaged during construction will be repaired immediately by the contractor to appropriate landowner or agency standards as determined by the authorized officer. Tri-State would maintain gates on Tri-State's administrative routes only.	C and O&M
LU-5	The contractor will eliminate, at the earliest opportunity, all construction ruts that are detrimental to agricultural operations and/or hazardous to movement of vehicles and equipment. Such ruts will be leveled, filled and graded, or otherwise eliminated in an approved manner. Damage to ditches, tile drains, culverts, terraces, local roads, and other similar land use features will be corrected as necessary by the contractor. The land and facilities will be restored as nearly as practicable to their original condition.	C
LU-6	Structure foundation holes will not be left open overnight and will be covered. Covers will be secured in place and will be strong enough to prevent livestock, wildlife, or the public from falling through and into a hole.	C
LU-7	Tri-State will provide as-built drawings to federal agencies when construction is completed.	C and O&M

Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project

Plan of Development

Montrose, Ouray, San Miguel, and Dolores Counties, Colorado

Appendix S

Noxious Weed Plan

Appendix S

Draft Noxious Weed Plan

The objective of this Draft Noxious Weed Plan is to detail practices designed to address potential impacts from construction of the Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project (Project). Tri-State Generation and Transmission Association, Inc. (Tri-State) has developed this plan as part of the Plan of Development (POD) that accompanies its application to the Bureau of Land Management (BLM) for a Right of Way (ROW) grant. If the ROW grant is approved, the final POD and all appendices will be attached to the Decision Record. This plan provides guidance to construction and field personnel on measures identified by Tri-State, BLM, and US Forest Service (USFS) to minimize effects during construction activities associated with the Project. It will be the responsibility of Tri-State and its project contractors, working with designated environmental inspectors, to comply with measures identified in this plan. In addition to adhering to the Environmental Protection Measures (EPMs) outlined in the table below, Tri-State prepared this Noxious Weed Plan for use during construction, operation, and maintenance on the right-of-way and temporary work areas.

Monitoring for noxious and invasive species is currently conducted on the existing 115-kV line by agency staff under a management agreement covering all Tri State transmission lines on San Juan National Forest (SJNF) and Grand Mesa Uncompahgre Gunnison National Forest (GMUG NF) lands (Attachments S-1 and S-2). Appropriate mitigation and treatment is completed by USFS Rangeland Management Program staff on an annual basis. Records of all monitoring and treatment activities are maintained by USFS staff. Tri-State is currently working with the BLM to establish a similar method for monitoring and treating weeds. Tri-State will enter into a similar arrangement with the BLM for monitoring and treating noxious weeds located within the authorized transmission line ROW including access roads. Because Tri-State is obtaining BLM authorization to use public roads, Tri-State is committed to treating weeds on these affected public roads and will share in the cost to treat noxious weeds commensurate with use on these affected public roads the details of which will be provided in the Tri-State/BLM Weed Agreement. Tri-State will work with BLM to incorporate any specific agency requirements in its Invasive Plant Management or regional programs. If a Memorandum of Understanding (MOU) with BLM is not developed for noxious and invasive species inventory and treatment, Tri-State will work with BLM to ensure that all noxious weed information is entered into the National Invasive Species Information Management System database per BLM request. Tri-State will treat noxious weeds prior to construction using maps created and reviewed by the appropriate land management agency/entity that outlines noxious weed populations on the ROW. Tri-State may also collaborate with county weed programs or contract with a third party-certified applicator to control weeds on private and state lands.

The timetable for development of the final, detailed Noxious Weed Management Plan is as follows:

Table S-1: Timetable for Development of Final, Detailed Noxious Weed Management Plan

Timetable	Deliverable/Task Draft plan outlining a general approach to noxious weed management (complete).
By Preliminary Final EA (internal review step)	
By March 1 2017 for pre-construction treatment.	Pesticide Use Proposal (PUP) package provided to BLM as required; see NW-4 in Table S-2

Timetable	Deliverable/Task Draft plan outlining a general approach to noxious weed management (complete).
90 days prior to Notice to Proceed	BLM provides Noxious Weed MOU (based on model with USFS) to Tri-State for processing
45 days prior to Notice to Proceed	Final detailed Plan provided to BLM, including the MOUs with USFS and BLM for noxious weed management

The ROW and access roads were surveyed in 2013 for noxious weeds listed by the State of Colorado in the "Rules Pertaining to the Administration and Enforcement of the Colorado Noxious Weed Act" (Colorado Noxious Weed Act 2003). Noxious weed occurrence was also mapped during field visits conducted in 2015 for the alignment. In addition, BLM and USFS provided extensive, up-to-date weed-mapping data available for their respective lands. Locations and species of noxious weed areas, avoidance measures, methods for reducing potential transportation of viable seeds, and eradication procedures will be included in the final POD. The appropriate land management agency will be consulted for planning specific weed control measures on all noxious weed infestations within the limits of the ROW prior to treatment. Pesticide Use Proposals (PUPs) will be prepared as part of the noxious weed agreements with BLM in areas where treatment is proposed, including Safety Data Sheets sheets for each herbicide. Because of existing agreements in place with USFS, Tri-State will reimburse USFS for the required weed control activities on USFS lands.

All required plans, proposals and agreements with BLM and USFS will outline and specify that the use of herbicides will comply with federal and state laws, guidance, and manuals (including the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS); BLM 2007) governing their proper use, storage, and disposal, and any limitations imposed by the relevant land management agency.

Only certified weed-free straw will be used. The Contractor will retain documentation verifying that straw used for mulch, straw bale sediment barriers, or straw wattles has been certified weed free by the Colorado Department of Agriculture. The following table summarizes EPMs for Noxious Weed Management and notes whether they apply to construction (C) or construction and operations and maintenance (C and O&M).

Table S-2. Noxious Weed EPMs

Topic - No.	Applicant Committed EPMs And Design Features For Construction (C), Operation, And Maintenance (O&M)	Applicable
Noxious Weeds		
NW-1	Noxious weed management is required throughout the life of the transmission line easements, special use permits, and ROW Grant. Tri-State shall be responsible for weed control within the limits of the right-of-way. Tri-State is responsible for consultation with the authorized officer and/or local authorities for acceptable weed control methods (within limits imposed in the grant stipulations) including pesticides/herbicides approved for use on BLM land. A noxious weed MOU is already in place with the USFS for the transmission line. If noxious weed agreements are not in place by the initiation of ROW clearing in spring of 2017. Tri-State will supplement USFS weed treatment efforts as needed prior to construction. Tri-State will pre-treat noxious weeds on BLM and private lands (where permitted) in the spring of 2017. Noxious weed management will continue throughout the life of the transmission line via agreements with the USFS and BLM.	C and O&M
NW-2	Tri-State will continue to participate and voluntarily fund noxious weed management activities on Tri-State ROWs under the existing Collection Agreement between Tri-State and the USFS for the Grand Mesa Uncompahgre Gunnison (GMUG) NF and San Juan National Forest (SJNF) (this agreement covers 18 miles of the existing transmission ROW). Additional detail will be provided in the Final POD (Appendix S, Noxious Weed Management Plan). The existing agreement with between Tri-State and the USFS is also in accordance with USFS direction for invasive species management (including Forest Service Manual 2900 invasive species management; Forest and/or regional invasive species strategy). The same approach to noxious weed management is proposed on BLM administered lands and a draft agreement is currently being drafted. The POD will be updated with this finalized BLM Uncompahgre Field Office and Tres Rios agreement. Tri-State will participate and fund noxious weed management activities on Tri-State ROWs under a Collection Agreement between Tri-State and the BLM GMUG and Tres Rios. Additional detail will be provided in the Final POD (Appendix S, Noxious Weed Management Plan). An approved weed treatment plan shall be reviewed and approved by the BLM prior to the issuance of the Notice to Proceed.	C and O&M
NW-3	The reclamation and noxious weed management plan will be approved by the appropriate agency prior to the issuance of a ROW grant. The noxious weed management plan for areas not covered under pending agreements with the BLM and existing agreements with the USFS will be developed in accordance with appropriate land management agencies' standards, consistent with applicable regulations and agency permitting stipulations for the control of noxious weeds and invasive species (Executive Order 3112).	C and O&M

Topic - No.	Applicant Committed EPMs And Design Features For Construction (C), Operation, And Maintenance (O&M)	Applicable to C and/or O&M*
NW-4	On-site weed control for pre-construction activities that may occur prior to implementation of a noxious weed agreement with the BLM and on private lands will be conducted through herbicide use and a weed control plan and/or agreement approved by the BLM, CPW, and affected landowner (on private lands). The BLM requires a Pesticide Use Proposal package, and will approve proposed herbicides, treatments and time of treatment. Applicators are also legally required to supply the BLM with a written herbicide application record within 24 hours of applying herbicides on BLM-managed lands. The pesticide use proposal should be submitted to the agencies by March 1, annually. Application records will be submitted weekly and will include both spatial and tabular element (using forms provided by the agencies).	C
NW-5	All heavy equipment, including all-terrain vehicles (ATV) and lowboys, utilized during construction will be washed prior to departure from the equipment storage facility. This method promotes containment of weed seeds on the work site; all seed mixes and mulch used for reclamation activities will be certified weed-free. Tri-State will consider providing a portable/mobile vehicle wash station on-site where appropriate. Tri-State will require that all vehicles be washed prior to entering the project area; when travelling from an area infested with invasives to an area that has no known invasives; and when travelling from an area infested with spotted knapweed to any other parts of the project area.	C and O&M
NW-6	Pre-construction treatment of weeds in staging or temporary use areas will be conducted.	C
NW-7	Noxious weed treatments conducted outside of agreements with BLM and USFS will require avoidance and/or minimization measure to protect documented populations of rare plant species that are included in the project's constraints atlas (POD Appendix G).	C and O&M
NW-8	Noxious weed treatment conducted outside of Federal lands shall comply with Land Use Code 5-1002-E.IX.	C and O&M

Tri-State construction and maintenance crews will use the weed spread prevention techniques outlined in this POD, such as washing trucks before they enter the work area or transporting them to another area where weed seeds can be dispersed.

In addition to this, Tri-State crews may work with the county weed control divisions to treat weed infestations off federal lands. All herbicide applicators will be licensed by the State of Colorado.

This plan is designed to be flexible, so pages can be added as the weed situation changes, and adaptive management is needed to keep pace with the problem. Table S-3 lists weeds noted during surveys conducted for the Environmental Assessment (EA) followed by copies of the weed collection agreements with the San Juan and GMUG Forests (Attachments S-1 and S-2 and Table S-3).

Table S-3. Acres of Noxious Weeds Present in the Project Area

Noxious Weed	Colorado Noxious Weed Act List	Proposed Action
Bull thistle	B	7

Noxious Weed	Colorado Noxious Weed Act List	Proposed Action
Canada thistle	B	25
Canada thistle/Musk thistle	B	71
Canada thistle/Musk thistle/Russian knapweed	B	1
Diffuse knapweed	B	4
Houndstongue	B	15
Musk thistle/Russian knapweed	B	<1
Oxeye daisy	B	<1
Russian knapweed	B	65
Saltcedar	B	1
Spotted knapweed	B	74
Whitetop (hoary cress)	B	<1
Whitetop (hoary cress)/ Russian knapweed	B	<1
Common burdock	C	1
Common mullein	C	7
Total		315

References

State of Colorado. (2003). *State of Colorado Noxious Weed Act.*

Bureau of Land Management, 2007. Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS). Available: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html

Attachments

S-1 Weed Collection Agreement between the Tri-State Generation & Transmission Association, Inc. and the USDA, Forest Service- San Juan National Forest (January 2012).

S-2 Weed Collection Agreement between the Tri-State Generation & Transmission Association, Inc. and the USDA, Forest Service- Grand Mesa, Uncompahgre and Gunnison National Forest (July 2012).

Attachment S-1: Tri-State and San Juan National Forest Weed Collection Agreement

USDA, Forest Service

OMB 0596-0217
FS-1500-11

FS Agreement No. 12-CO-11021300-006
Cooperator Agreement No.

COLLECTION AGREEMENT
Between The
TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.
And The
USDA, FOREST SERVICE
SAN JUAN NATIONAL FOREST

This COLLECTION AGREEMENT is hereby entered into by and between the Tri-State Generation and Transmission Association, Inc., hereinafter referred to as "Tri-State", and the USDA, Forest Service, San Juan National Forest, hereinafter referred to as the "U.S. Forest Service," under the provisions of the Granger-Thye Act of April 24, 1950.

Background: This agreement continues work from an prior agreement to inventory, treat, and monitor Colorado Class A&B noxious weeds, as defined in the "Colorado Noxious Weed Act [§§ 35-5.5-101-119 C.R.S. (2003)]", along 33.5 miles of Tri-State Rights-of-Way (ROW) located on the San Juan National Forest.

Title: Tri-State Noxious Weed Management

I. PURPOSE: The purpose of this agreement, and incorporated Financial Plan, is to document the voluntary contribution of funds from Tri-State to the U.S. Forest Service to manage noxious weeds on Tri-State ROW within the San Juan National Forest. The focus of this agreement is to improve watershed conditions by managing noxious weed infestations within the Tri-State ROW on the San Juan National Forest. This agreement will facilitate coordinated invasive species treatment within and adjacent to the Tri-State ROW.

II. THE TRI-STATE SHALL:

A. LEGAL AUTHORITY. Tri-State shall have the legal authority to enter into this agreement, and the institutional, managerial, and financial capability to ensure proper planning, management, and completion of the project, which includes funds sufficient to pay the nonfederal share of project costs, when applicable.

B. Perform in accordance with the Financial Plan.

C. Upon presentation of a Bill for Collection, deposit with the U.S. Forest Service the amount agreed to in the Financial Plan.

D. Meet prior to April 1 of each year of this Agreement with Tri-State to coordinate annual activities within the treatment area. Meetings can be conducted in-person or via phone.

Page 1 of 5

Project work will be described in an Annual Operating Plan for the current treatment year and incorporated by reference into this agreement.

E. A Calendar Year 2012 Annual Operating Plan, Exhibit A, is incorporated into this document.

F. Annual unobligated funds may be carried over into the term of the next modification period.

III. THE U.S. FOREST SERVICE SHALL:

A. ADVANCE BILLING. The U.S. Forest Service shall bill Tri-State prior to commencement of work for deposits sufficient to cover the estimated costs (including overhead) for the specific payment period. Overhead shall not be assessed.

Billing Method: Single lump sum advance bill.

Billings shall be sent to:

Bill Depue
Tri-State Generation & Transmission Association, Inc.
Durango Field Facility
11236 CR 213
Durango, CO 81301

B. Perform in accordance with the attached Financial Plan.

C. A Calendar Year 2012 Annual Operating Plan, Exhibit A, is incorporated into this document.

D. Meet prior to April 1 of each year of this Agreement with Tri-State to coordinate annual activities within the treatment area. Meetings can be conducted in-person or via phone. Project work will be described in an Annual Operating Plan for the current treatment year and incorporated by reference into this agreement.

E. Cooperate in obtaining access to or across Forest Service-administered lands to treat properties infested with noxious weeds.

F. Advise Tri-State of any new noxious weed infestations on Forest Service-administered lands within Tri-State's ROW's.

G. Be responsible for preparation and approval of appropriate NEPA documentation, pesticide use proposals and/or biological control agent releases, along with any other appropriate clearances regarding integrated weed management on Forest Service-administered lands.

H. Provide an annual report of accomplishments for the project.

IV. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND BETWEEN THE PARTIES THAT:

A. PRINCIPAL CONTACTS. Individuals listed below are authorized to act in their respective areas for matters related to this agreement.

Principal Cooperator Contacts:

Cooperator Program Contact	Cooperator Administrative Contact
Name: Bill DePue Durango Field Facility Address: 11236 CR 213 City, State, Zip: Durango, CO 81301 Telephone: 970-247-4950 FAX: 970-247-4961 Email: bdepue@tristategt.org	Name: Bill DePue Durango Field Facility Address: 11236 CR 213 City, State, Zip: Durango, CO 81301 Telephone: 970-247-4950 FAX: 970-247-4961 Email: bdepue@tristategt.org

Principal U.S. Forest Service Contacts:

U.S. Forest Service Program Manager Contact	U.S. Forest Service Administrative Contact
Name: Mark Tucker Range Management Specialist Address: San Juan National Forest City, State, Zip: Durango, CO 81301 Telephone: (970) 385-1369 FAX: (9700) 375-2331 Email: mtucker@fs.fed.us	Name: Beth Redmond Grants and Agreements Specialist Address: 15 Burnett Court City, State, Zip: Durango, CO 81301 Telephone: 970-385-1259 FAX: 970-385-1243 Email: bredmond@fs.fed.us

B. LIABILITY. The United States shall not be liable to Tri-State for any costs, damages, claims, liabilities, and judgments that arise in connection with the performance of work by the U.S. Forest Service or its contractors under this collection agreement, including but not limited to fire suppression costs and damage to any property owned by Tri-State or any third party.

C. INDEMNIFICATION. Tri-State shall indemnify, defend, and hold harmless the United States for any costs, damages, claims, liabilities, and judgments in favor of any third party that arise in connection with the performance of work by the U.S. Forest Service or its contractors under this collection agreement.

D. REFUNDS. Funds collected in advance by the U.S. Forest Service, which are not spent or obligated for the project(s) approved under this agreement, may be refunded to Tri-State, authorized for use for a new agreement by Tri-State, or waived by Tri-State. A DUNS number and registration in the Central Contractor Registry (CCR) by Tri-State

may be necessary to process a refund. Due to processing costs, any balance less than $25 shall not be refunded to Tri-State.

E. FREEDOM OF INFORMATION ACT (FOIA). Public access to agreement records must not be limited, except when such records must be kept confidential and would have been exempted from disclosure pursuant to Freedom of Information regulations (5 U.S.C. 552).

F. PARTICIPATION IN SIMILAR ACTIVITIES. This agreement in no way restricts the U.S. Forest Service or Tri-State from participating in similar activities with other public or private agencies, organizations, and individuals.

G. ENDORSEMENT. Any of Tri-State's contributions made under this agreement do not by direct reference or implication convey U.S. Forest Service endorsement of Tri-State's products or activities.

H. NOTICES. Any communication affecting the operations covered by this agreement by the U.S. Forest Service or Tri-State will be sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:

To the U.S. Forest Service Program Manager, at the address specified in the agreement.

To Tri-State, at Tri-State's address shown in the agreement or such other address designated within the agreement.

Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

I. TERMINATION FOR COLLECTION AGREEMENTS. Either party, in writing, may terminate this agreement in whole, or in part, at any time before the date of expiration. The U.S. Forest Service shall not incur any new obligations for the terminated portion of this agreement after the effective date of termination and shall cancel as many obligations as possible. Full credit must be allowed for U.S. Forest Service expenses and all non-cancelable obligations properly incurred up to the effective date of termination. Excess funds must be refunded in accordance with the REFUND provision of the agreement.

J. DEBARMENT AND SUSPENSION. Tri-State shall immediately inform the U.S. Forest Service if they or any of their principals are presently excluded, debarred, or suspended from entering into covered transactions with the Federal Government according to the terms of 2 CFR Part 180. Additionally, should Tri-State or any of their principals receive a transmittal letter or other official Federal notice of debarment or suspension, then they shall notify the U.S. Forest Service without undue delay. This applies whether the exclusion, debarment, or suspension is voluntary or involuntary.

USDA, Forest Service | OMB 0596-0217 FS-1500-11

K. MODIFICATIONS. Modifications within the scope of this agreement must be made by mutual consent of the parties, by the issuance of a written modification signed and dated by all properly authorized, signatory officials, prior to any changes being performed. Requests for modification should be made, in writing, at least 30 days prior to implementation of the requested change.

L. COMMENCEMENT/EXPIRATION DATE. This agreement is executed as of the date of the last signature, and has an expiration date of 12/31/2016. The expiration date is the final date for completion of all work activities under this agreement.

M. AUTHORIZED REPRESENTATIVES. By signature below, each party certifies that the individuals listed in this document as representatives of the individual parties are authorized to act in their respective areas for matters related to this agreement. In witness whereof, the parties hereto have executed this agreement as of the last date written below.

FOR JOEL K. BLADOW — 12-21-11

JOEL K. BLADOW, — Date
Senior Vice President, Transmission
Tri-State Generation and Transmission Association, Inc.

1/9/2012

MARK W. STILES, Forest Supervisor — Date
U.S. Forest Service, San Juan National Forest

The authority and format of this agreement have been reviewed and approved for signature.

Beth Redmond — 12/09/2011

BETH REDMOND — Date
U.S. Forest Service Grants & Agreements Specialist

Burden Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

Page 5 of 5

U.S. Forest Service

OMB 0596-0217
FS-1500-18

Forest Service Agreement # 12-CO-11021300-006 Cooperator Agreement #

Collection Agreement Financial Plan

Cooperator and FS Contributions

COST ELEMENTS and related data				Cooperator Contribution	FS Non-Cash Contribution	
Line Item Cost Subtotals				Subtotal	Subtotal	Combined Subtotals
PERSONNEL						
Resource Specialists (List all personnel):		# of Days	$/Day			
Project admin./Prepare annual monitoring report (based on Mark Tucker daily rate).		10.00	$391.00	$1,955.00	$1,955.00	$3,910.00
Ranger District Project Coord. - 5 days		5.00	$350.80		$1,754.00	$1,754.00
Dolores Weed Crew (GS-5 Temp.)		10.00	$132.00	$1,320.00		$1,320.00
Columbine Range Techncian (treatment and monitoring)		10.00	$200.00	$2,000.00		$2,000.00
Pagosa Range Technician (weed treatment)		10.00	$252.00	$2,520.00		$2,520.00
GIS Support (based on Mark Roper daily rate)		3.00	$295.00	$885.00		$885.00
					$0.00	$0.00
Subtotal, Personnel:		**48.00**		**$8,680.00**	**$3,709.00**	**$12,389.00**
TRAVEL						
Explanation of trips: From Where/To Where/For Whom	**Vehicle Mileage Cost or Airfare Cost**	**# of Trips**	**PerDiem and Lodging**			
				$0.00		$0.00
				$0.00		$0.00
					$0.00	$0.00
Subtotal, Travel:	**$0.00**	**0**	**$0.00**	**$0.00**	**$0.00**	**$0.00**
EQUIPMENT						
Name and Type of Equipment:		**Unit Cost**	**Quantity**			
Equipment Maintenance, for 3 ATV's		$300	3	$900.00		$900.00
				$0.00		$0.00
					$0.00	$0.00
Subtotal, Equipment:		**$300.00**	**3**	**$900.00**	**$0.00**	**$900.00**
SUPPLIES						
Name and Type of Supplies:		**Unit Cost**	**Quantity**			
Herbicide (30 gallons x $100/gallon = $3000; $100		$100	30	$3,000.00		$3,000.00
average cost per gallon, of several types of herbicide				$0.00		$0.00
that could be used; FS to determine types needed).					$0.00	$0.00
Subtotal, Supplies:		**$100.00**	**30**	**$3,000.00**	**$0.00**	**$3,000.00**

U.S. Forest Service

OMB 0596-0217
FS-1500-18

CONTRACTUAL				
Describe Contracts that will most likely result from this project:				
				$0.00
				$0.00
				$0.00
Subtotal, Contractual:			**$0.00**	**$0.00**	**$0.00**
OTHER				
Describe Other Costs of the Project:				
				$0.00
				$0.00
FS Noncash Contribution, overhead of 7.4% x $3,709 = $274.47				$274.47	$274.47
Subtotal, Other:			**$0.00**	**$274.47**	**$274.47**
TOTAL DIRECT CHARGES			**$12,580.00**	**$3,983.47**	**$16,563.47**
OVERHEAD ASSESSMENT (if applicable, see FSH 1909.13)	**Insert Rate Here:**	0.0%	**$0.00**		
Total Party Costs			**$12,580.00**	**$3,983.47**	**$16,563.47**
COST ELEMENTS SUBJECT TO NATIONAL PASS-THROUGH RATES			**Cooperator Contribution**		
TOTAL CHARGES					**$0.00**
OVERHEAD ASSESSMENT (if applicable, see FSH 1909.13)	**Insert Rate Here:**				**$0.00**
Total Pass-Through Costs					**$0.00**
TOTAL PROJECT COSTS					**$16,563.47**

Burden Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

EXHIBIT A

TRI-STATE NOXIOUS WEED MANAGEMENT

12-CO-11021300-006

CY2012 ANNUAL OPERATING PLAN

SAN JUAN NF

The Forest Service shall:

1. On the Dolores Ranger District: Continue to treat and inventory Colorado Class A&B noxious weeds along 15 miles of R.O.W. on the Glade and Cherry Creek areas located in Dolores, La Plata, and Montezuma Counties. Minimum management objectives should be to contain spotted knapweed and to set at least one photo point documenting success/failure of treatment. Monitoring results will be documented in the annual monitoring report.

2. On the Columbine Ranger District: Continue to treat and inventory Colorado Class A&B noxious weeds along 27 miles of R.O.W. from Cascade Creek to Red Mountain Pass in La Plata and San Juan Counties. Minimum management objectives should be to contain yellow toadflax, Canada and musk thistle, and houndstongue and to set at least one monitoring photo point documenting success/failure of treatment. Monitoring results will be documented the annual monitoring report.

3. On the Pagosa Ranger District: Continue to treat and inventory Colorado Class A&B noxious weeds along 11 miles of R.O.W. from Martinez Creek westerly to the Pagosa RD boundary in the Piedra Area in Archuleta County. Minimum management objectives should be to contain scotch, musk and Canada thistle, and houndstongue infestations. In CY2012, a decision will need to be made on the most efficient way to manage cheatgrass or downy brome infestations. At least one monitoring photo point will be established to document success/failure of treatment. Monitoring results will be documented the annual monitoring report.

4. Accomplish inventory, treatment and monitoring on National Forest System Lands only.

5. Enter work into the Forest Service geodatabase and submit an annual monitoring report to Tri-State.

Attachment S-2: Weed Collection Agreement between Tri-State & GMUG NF

USDA, Forest Service

OMB 0596-0217
FS-1500-11

FS Agreement No. 12 -CO-11020400-015
Cooperator Agreement No. TS-12-0136

COLLECTION AGREEMENT
Between The
TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.
And The
USDA, FOREST SERVICE
GRAND MESA, UNCOMPAHGRE AND GUNNISON NATIONAL FORESTS

This COLLECTION AGREEMENT is hereby entered into by and between the Tri-State Generation and Transmission Association, Inc., hereinafter referred to as "Tri-State", and the USDA, Forest Service, Grand Mesa, Uncompahgre, and Gunnison National Forests, hereinafter referred to as the "U.S. Forest Service," under the provisions of the Granger-Thye Act of April 24, 1950.

Background: This agreement continues work from a prior agreement to inventory, treat, and monitor Colorado Class A&B noxious weeds, as defined in the "Colorado Noxious Weed Act [§§ 35-5.5-101-119 C.R.S. (2003)]", along 33.5 miles of Tri-State Right-of-Way (ROW) located on the Grand Mesa, Uncompahgre, and Gunnison (GMUG) National Forests.

Title: Tri-State Noxious Weed Management

I. PURPOSE: The purpose of this agreement, and incorporated Financial Plan, is to document the voluntary contribution of funds from Tri-State to the U.S. Forest Service to manage noxious weeds on Tri-State ROW within the GMUG National Forest. The focus of this agreement is to improve watershed conditions by managing noxious weed infestations within and adjacent to the Tri-State ROW on the GMUG National Forest. This agreement will facilitate coordinated invasive species inventory, treatment, and monitoring within and adjacent to the Tri-State ROW.

II. THE TRI-STATE SHALL:

A. LEGAL AUTHORITY. Tri-State shall have the legal authority to enter into this agreement, and the institutional, managerial, and financial capability to ensure proper planning, management, and completion of the project, which includes funds sufficient to pay the nonfederal share of project costs, when applicable.

B. Perform in accordance with the Financial Plan.

C. Upon presentation of a Bill for Collection, deposit with the U.S. Forest Service the amount agreed to in the Financial Plan.

Page 1 of 6

D. Meet prior to April 1 of each year of this Agreement with Tri-State to coordinate annual activities within the treatment area. Meetings can be conducted in-person or via phone. Project work will be described in an Annual Operating Plan for the current treatment year and incorporated by reference into this agreement.

E. A Calendar Year 2012 Annual Operating Plan, Exhibit A, is incorporated into this document.

F. Annual unobligated funds may be carried over into the term of the next modification period.

III. THE U.S. FOREST SERVICE SHALL:

A. ADVANCE BILLING. The U.S. Forest Service shall bill Tri-State prior to commencement of work for deposits sufficient to cover the estimated costs (including overhead) for the specific payment period. Overhead shall not be assessed.

Billing Method: Single lump sum advance bill.

Billings shall be sent to:

Bill Depue
Tri-State Generation & Transmission Association, Inc.
Durango Field Facility
11236 CR 213
Durango, CO 81301

B. Perform in accordance with the attached Financial Plan.

C. A Calendar Year 2012 Annual Operating Plan, Exhibit A, is incorporated into this document.

D. Meet prior to April 1 of each year of this Agreement with Tri-State to coordinate annual activities within the treatment area. Meetings can be conducted in-person or via phone. Project work will be described in an Annual Operating Plan for the current treatment year and incorporated by reference into this agreement.

E. Cooperate in obtaining access to or across Forest Service-administered lands to treat properties infested with noxious weeds.

F. Advise Tri-State of any new noxious weed infestations on Forest Service-administered lands within Tri-State's ROW's.

G. Be responsible for preparation and approval of appropriate NEPA documentation, pesticide use proposals and/or biological control agent releases, along with any other

appropriate clearances regarding integrated weed management on Forest Service-administered lands.

H. Provide an annual report of accomplishments for the project.

IV. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND BETWEEN THE PARTIES THAT:

A. PRINCIPAL CONTACTS. Individuals listed below are authorized to act in their respective areas for matters related to this agreement.

Principal Cooperator Contacts:

Cooperator Program Contact	Cooperator Administrative Contact
Name: Bill DePue Durango Field Facility Address: 11236 CR 213 City, State, Zip: Durango, CO 81301 Telephone: 970-247-4950 FAX: 970-247-4961 Email: bdepue@tristategt.org	Name: Bill DePue Durango Field Facility Address: 11236 CR 213 City, State, Zip: Durango, CO 81301 Telephone: 970-247-4950 FAX: 970-247-4961 Email: bdepue@tristategt.org

Principal U.S. Forest Service Contacts:

U.S. Forest Service Program Manager Contact	U.S. Forest Service Administrative Contact
Name: Kelley Liston Address: 2505 S. Townsend City, State, Zip: Montrose, CO 81401 Telephone: 970.240.5408 FAX: 970.240.5367 Email: kliston@fs.fed.us	Name: Merna Fehlmann Grants and Agreements Specialist Address: 2250 Hwy 50 City, State, Zip: Delta, CO 81416 Telephone: 970.874.6606 FAX: 970.874.6698 Email: mfehlmann@fs.fed.us

B. LIABILITY. The United States shall not be liable to Tri-State for any costs, damages, claims, liabilities, and judgments that arise in connection with the performance of work by the U.S. Forest Service or its contractors under this collection agreement, including but not limited to fire suppression costs and damage to any property owned by Tri-State or any third party.

C. INDEMNIFICATION. Tri-State shall indemnify, defend, and hold harmless the United States for any costs, damages, claims, liabilities, and judgments in favor of any third party that arise in connection with the performance of work by the U.S. Forest Service or its contractors under this collection agreement.

D. REFUNDS. Funds collected in advance by the U.S. Forest Service, which are not spent or obligated for the project(s) approved under this agreement, may be refunded to Tri-State, authorized for use for a new agreement by Tri-State, or waived by Tri-State. A DUNS number and registration in the Central Contractor Registry (CCR) by Tri-State may be necessary to process a refund. Due to processing costs, any balance less than $25 shall not be refunded to Tri-State.

E. FREEDOM OF INFORMATION ACT (FOIA). Public access to agreement records must not be limited, except when such records must be kept confidential and would have been exempted from disclosure pursuant to Freedom of Information regulations (5 U.S.C. 552).

F. PARTICIPATION IN SIMILAR ACTIVITIES. This agreement in no way restricts the U.S. Forest Service or Tri-State from participating in similar activities with other public or private agencies, organizations, and individuals.

G. ENDORSEMENT. Any of Tri-State's contributions made under this agreement do not by direct reference or implication convey U.S. Forest Service endorsement of Tri-State's products or activities.

H. NOTICES. Any communication affecting the operations covered by this agreement by the U.S. Forest Service or Tri-State will be sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:

To the U.S. Forest Service Program Manager, at the address specified in the agreement.

To Tri-State, at Tri-State's address shown in the agreement or such other address designated within the agreement.

Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

I. TERMINATION FOR COLLECTION AGREEMENTS. Either party, in writing, may terminate this agreement in whole, or in part, at any time before the date of expiration. The U.S. Forest Service shall not incur any new obligations for the terminated portion of this agreement after the effective date of termination and shall cancel as many obligations as possible. Full credit must be allowed for U.S. Forest Service expenses and all non-cancelable obligations properly incurred up to the effective date of termination. Excess funds must be refunded in accordance with the REFUND provision of the agreement.

J. DEBARMENT AND SUSPENSION. Tri-State shall immediately inform the U.S. Forest Service if they or any of their principals are presently excluded, debarred, or suspended from entering into covered transactions with the Federal Government according to the terms of 2 CFR Part 180. Additionally, should Tri-State or any of their principals receive

USDA, Forest Service	OMB 0596-0217 FS-1500-11

a transmittal letter or other official Federal notice of debarment or suspension, then they shall notify the U.S. Forest Service without undue delay. This applies whether the exclusion, debarment, or suspension is voluntary or involuntary.

K. MODIFICATIONS. Modifications within the scope of this agreement must be made by mutual consent of the parties, by the issuance of a written modification signed and dated by all properly authorized, signatory officials, prior to any changes being performed. Requests for modification should be made, in writing, at least 30 days prior to implementation of the requested change.

L. COMMENCEMENT/EXPIRATION DATE. This agreement is executed as of the date of the last signature, and has an expiration date of 12/31/2016. The expiration date is the final date for completion of all work activities under this agreement.

M. AUTHORIZED REPRESENTATIVES. By signature below, each party certifies that the individuals listed in this document as representatives of the individual parties are authorized to act in their respective areas for matters related to this agreement. In witness whereof, the parties hereto have executed this agreement as of the last date written below.

7/10/2012

JOEL K. BLADOW, Date
Senior Vice President, Transmission
Tri-State Generation and Transmission Association, Inc.

7/17/12

Sherry Hazelhurst Acting Forest Supervisor Date
U.S. Forest Service,
Grand Mesa, Uncompahgre, and Gunnison

The authority and format of this agreement have been reviewed and approved for signature.

Merna Fehlmann 7/16/2012

Merna Fehlmann U.S. Forest Service Grants & Date
Agreements Specialist

Burden Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

Page 5 of 6

USDA, Forest Service	OMB 0596-0217 FS-1500-11

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

Page 6 of 6

U.S. Forest Service

OMB 0596-0217
FS-1500-18

Forest Service Agreement # 12-CO-11020400-015 Cooperator Agreement #

Collection Agreement Financial Plan

Cooperator and FS Contributions

COST ELEMENTS						
PERSONNEL						
Resource Specialists (List all personnel)		# of Days	$/Day			
Project admin./Prepare annual monitoring report; annual operating and financial plans, and field monitoring (based on Kelley Liston daily rate).		3	$327.00	$981.00	$654.00	$1,635.00
Norwood/Ouray weed crews (GS-5)		42	$135.00	$5,670.00		$5,670.00
GIS Support (based on Carol Howe daily rate)		3	$376.00	$1,128.00		$1,128.00
						$0.00
Subtotal, Personnel:		48		$7,779.00	$654.00	$8,433.00
TRAVEL						
Explanation of trips: From Where/To Where/For Whom	Vehicle Mileage Cost or Airfare Cost	# of Trips	PerDiem and Lodging			
				$0.00		$0.00
				$0.00		$0.00
					$0.00	$0.00
Subtotal, Travel:	$0.00	0	$0.00	$0.00	$0.00	$0.00
EQUIPMENT						
Name and Type of Equipment:		Unit Cost	Quantity			
Equipment Maintenance and fuel for 4 ATV's, 3 UTV's		$85	7	$595.00	$500.00	$1,095.00
vehicle FOR 4115		$290	2	$580.00		$580.00
vehicle mileage 4115		$0	1,000	$470.00		$470.00
Subtotal, Equipment:		$375.47	1,009	$1,645.00	$500.00	$2,145.00
SUPPLIES						
Name and Type of Supplies:		Unit Cost	Quantity			
Herbicide		$1,000	1	$1,000.00	$300.00	$1,300.00
				$0.00		$0.00
					$0.00	$0.00
Subtotal, Supplies:		$1,000.00	1	$1,000.00	$300.00	$1,300.00

U.S. Forest Service

OMB 0596-0217
FS-1500-18

CONTRACTUAL					
Describe Contracts that will most likely result from this project:					
Gunnison Weed contract			$1,000.00	$500.00	$1,500.00
					$0.00
					$0.00
Subtotal, Contractual:			$1,000.00	$500.00	$1,500.00
OTHER					
Describe Other Costs of the Project:					
					$0.00
					$0.00
				$0.00	$0.00
Subtotal, Other:			$0.00	$0.00	$0.00
TOTAL DIRECT CHARGES			$11,424.00	$1,954.00	$13,378.00
OVERHEAD ASSESSMENT (if applicable, see FSH 1909.13)	Insert Rate Here:	7.4%	$845.38		
Total Party Costs			$12,269.38	$1,954.00	$14,223.38
COST ELEMENTS SUBJECT TO NATIONAL PASS-THROUGH RATES					
TOTAL CHARGES					$0.00
OVERHEAD ASSESSMENT (if applicable, see FSH 1909.13)	Insert Rate Here:				$0.00
Total Pass-Through Costs					$0.00
TOTAL PROJECT COSTS					$14,223.38

Burden Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

EXHIBIT A
TRI-STATE NOXIOUS WEED MANAGEMENT
CY2012 ANNUAL OPERATING PLAN
GRAND MESA, UNCOMPAHGRE AND GUNNISON
NATIONAL FORESTS

The Forest Service shall:

A. On the Ouray Ranger District: Continue to treat and inventory Colorado Class A&B noxious weeds along approximately 6.5 miles of right-of-way on the Uncompahgre Plateau from the National Forest boundary south of Old Highway 90 to the area between the Raspberry Electronic Site and Kelly Creek. This would include the adjacent harvest units completed for fuels mitigation/hazard tree removal. Our management objectives are:
   - Eradicate spotted knapweed in the ROW, and contain it so that it does not expand beyond the adjacent harvest units.
   - Establish 1 photo point behind Silesca Ranger Station in the ROW and at least 1 photo point in the harvest units to document success/failure of treatment. Monitoring results will be documented in the annual monitoring report.
   - Contain the thistle complex (musk, Canada, bull thistle) and houndstongue within the ROW and adjacent harvest units.
   - If new invasive species are identified, treat immediately with appropriate herbicide and/or other methods.

B. On the Norwood Ranger District: Continue to treat and inventory Colorado Class A&B noxious weeds along 10 miles of right-of-way from the National Forest boundary near Dry Park to the area south of Kelly Creek. This would include the adjacent harvest units completed for fuels mitigation/hazard tree removal. Initiate new inventory in the Telluride region. Our management objectives are:
   - Contain spotted knapweed, Canada and musk thistle within the ROW and adjacent harvest units.
   - Establish at least one monitoring photo point documenting success/failure of treatment. Monitoring results will be documented the annual monitoring report.
   - If new invasive species are identified, treat immediately with appropriate herbicide and/or other methods.
   - Initiate invasives inventory in the Telluride region on approximately 19 miles of right-of-way. Treat high-priority invasive species as funding and staffing allow. This excludes the newly constructed line from Nucla to Telluride where it crosses NFS lands.

C. On the Gunnison Ranger District: Continue to treat and inventory Colorado Class A&B noxious weeds along approximately 2 miles of right-of-way from the National Forest boundary near the Gunnison/Saguache County line. This area has been treated in the past with NFS funds. Our management objectives are:

- Contain targeted weed populations within the ROW .
- Establish at least one monitoring photo point documenting success/failure of treatment. Monitoring results will be documented the annual monitoring report.
- If new invasive species are identified, treat immediately with appropriate herbicide and/or other methods.

D. Accomplish inventory, treatment and monitoring on National Forest System lands only.

E. Enter work accomplishments into the Forest Service database(s) and submit an annual monitoring report to Tri-State.

BLM Noxious Weed Agreement with Tri-State G&T

This agreement will be inserted into POD once the agreement is in place.

Tri-State Montrose-Nucla-Cahone Transmission Line Improvement Project

Plan of Development

Montrose, Ouray, San Miguel, and Dolores Counties, Colorado

Appendix T

Operations, Maintenance, and Vegetation Management Plan

Appendix T

Operations, Maintenance, and Vegetation Management Plan

Tri-State Generation and Transmission Association, Inc. (Tri-State) has developed this operations and maintenance plan as part of the Plan of Development (POD) that accompanies its application to the Bureau of Land Management (BLM) for a Right of Way (ROW) grant and to the US Forest Service (USFS) for a Special Use Authorization. If the ROW grant is approved, the final POD and all appendices will be attached to the Decision Record. This plan provides guidance to field personnel, environmental staff, and maintenance crews on measures identified by Tri-State, BLM, and USFS to minimize environmental and land use effects that may occur as part of the operation and maintenance of the transmission line. It will be the responsibility of Tri-State to comply with measures identified in this plan.

This plan focuses on the implementation of Best Management Practices (BMPs), Applicant Committed Design Features, State and BLM Stipulations, USFS Standards, and Guidelines designed to reduce visual impacts of the Project, as applicable. These measures are collectively referred to as Environmental Protection Measures (EPMs). Appendix X contains all EPMs, which are classified as relevant to Construction and/or Operations and Maintenance.

Operation and Maintenance of the Transmission Line

The following outlines activities required to maintain and operate a 230-kV transmission line. Tri-State is requesting that ongoing routine and emergency maintenance activities within the approved access and transmission ROWs are authorized in the Special Use Permit, Renewed ROW Grant (BLM), and easements obtained for the project. Maintenance activities fall into three categories: minor routine, heavy routine, and emergency. The routine maintenance activities have been further broken into two additional categories: minor and heavy. Vegetation management is also discussed in this appendix. Each of these categories is discussed in greater detail below.

The timetable for development of the detailed plan is as follows:

Table T-1. Timetable for Final Operations, Maintenance, and Vegetation Management Plan

Timetable	Task/Deliverable
Complete (see Appendix W)	Compile map of environmentally sensitive areas (note that some areas are not shown because their disclosure in public documents is prohibited; complete maps will be available to the Construction Monitor)
Complete (see Appendix X)	EPMs

Tri-State is required to operate and maintain transmission and substation facilities, in conformance with all EPMs. See Appendix X, which lists the EPMs that pertain to operations and maintenance.

Types of Line Maintenance Activities

Routine Minor Maintenance Activities

Annual Inspections

To ensure the safety and reliability of the transmission line, Tri-State will continue to conduct annual on-the-ground and aerial visual inspections of the new 230-kV transmission line, including the conductors, insulators, supporting structures, hardware, shield wires, ground wires, guy wires, and anchors. Annual aerial or ground inspections will be conducted to identify encroaching vegetation in the transmission ROW. On-the-ground inspections involve the use of 4-wheel drive pickup trucks and All-Terrain Vehicles (ATVs). In general, pickup trucks are utilized on existing roads, and ATVs are utilized for down-line access. Aerial inspections are conducted from a helicopter. Routine annual inspections will occur during dry weather conditions. Routine ground inspections will also be scheduled in accordance with timing restrictions imposed by BLM and USFS and as outlined in the EPM table (see Appendix X). In addition, the line is flown once a year by helicopter.

Pole Testing

Tri-State and most utilities have a pole testing program that occurs every 5 to 20 years to assess the condition of structures and document damage from weather, wildlife, rot, etc. This work includes hand excavating around the wood pole, completing a detailed inspection of the wood pole at the ground line (to determine extent of wood rot) and re-treating that portion of the wood pole if necessary. Core samples from the wood pole may also be taken, and poles may be treated with an approved chemical preservative. Access to structures is typically done via authorized access roads using four-wheel drive trucks or four-wheel drive ATVs. Impacts are limited to the base of the pole and will occur entirely within the permitted ROW. Very limited ground disturbance is involved, and the soils are replaced after the testing activities are complete.

Minor Routine Equipment Repairs

Annual inspections may identify weakening transmission line components that need to be replaced. Minor maintenance repairs include insulator replacement, conductor repair, single or minimal pole replacement, cross-arm replacement, guy wire repair/tightening, hardware tightening, anchor replacement within authorized limits of the ROW, inactive nest removal, and installing/maintaining bird protection devices.

If maintenance or replacement of the insulators, conductors, hardware, or shield wires are needed, large bucket and boom trucks will be used to access the transmission line using authorized access. When structures and crossarms need to be replaced or conductors repaired, additional equipment beyond a bucket truck may be required. Figure T-1 shows a typical bucket truck.

Figure T-1: Bucket Truck Shown with Outriggers used for Stabilization

Height requirements for all structures are subject to the clearances outlined in the current version of the National Electric Safety Code (NESC). Any future changes to NESC's clearance requirements for the conductors may result in a need to increase the height of some structures. The USFS, BLM, and/or private landowners will be notified if any modifications to structure height—to meet NESC clearance—were required. The size of future work areas at structure sites could be a maximum of 100 feet by 100 feet within the ROW (depending on slope) and may require some maintenance including grading of existing pad sites constructed for the transmission line construction to support bucket and/or boom trucks if structure replacements are required in the future. Work areas for structure replacement will be entirely within the 150-foot ROW permitted for the transmission line.

It is assumed minor routine repairs as described above will require agency notification, but will not require agency approval or further environmental review if all stipulations and EPMs outlined in the ROW Grant and final Operations and Maintenance Plan in the POD are followed. Agency notification and approval/review will be required if minor routine maintenance will result in impacts outside of the authorized 150-foot existing transmission ROW, outside authorized access road ROWs, or will occur in documented sensitive biological or cultural resource areas. It is understood that any work conducted outside of the authorized transmission and access road ROWs may be subject to additional environmental and cultural resource clearances. All regularly scheduled maintenance activities will be completed in compliance with maintenance related EPMs, listed in Chapter 5 of the POD.

Road Maintenance

Tri-State will periodically remove vegetation from access ROWs and conduct minor grading within the approved access road prism to allow for the safe passage of maintenance equipment. This work will comply with committed EPMs including seasonal restrictions to avoid and minimize impacts to sensitive resources. If Tri-State is required to do road maintenance on authorized access roads, the appropriate

agency will be notified but no formal or additional authorization will be required if the improvements will occur entirely in compliance with the POD and ROW Grant stipulations. Tri-State will ensure proper drainage is maintained on administrative only access roads through the life of the ROW. Public roads will be maintained commensurate with use.

Major Corrective Routine Maintenance Activities Requiring Agency Approval Prior to Initiation

Major corrective routine maintenance activities will include multiple structure replacements or re-location of structures outside of the authorized transmission ROW, re-conductoring of the line, voltage upgrades that will result in increased ROW requirements, and any corrective maintenance or road improvement/re-location activity that will require disturbance outside of the authorized access and transmission ROW. This maintenance category will also include installation of new culverts or armored crossings for access.

Major corrective routine maintenance activities may require the uses of multiple pieces of equipment and crews beyond the standard bucket truck, hot-line truck (Bronto) and pick-up trucks used for minor routine maintenance activities.

Major corrective maintenance activities will also comply with EPMs outlined in Table 4 of the POD.

While these activities shall be authorized under the authorizations for the project, Tri-State will be required to notify and acquire formal authorization to proceed prior to conducting any major/non-emergency routine maintenance activities on federal and state lands as well as in occupied habitat for the Gunnison sage-grouse.

Emergency Response, Maintenance Activities, and Notification Procedures

Emergency outages may be caused by lightning strikes, high winds, heavy snow and ice, vandalism, or equipment failure. The type of emergency, location, weather, or season will define the equipment and timeframe required to restore service or address a public safety concern. If the line is significantly damaged, the repairs could take from one day to several days, depending on the severity of the damage, location, and weather conditions. The duration of the interruption will depend on the source of the fault and will vary from a couple of seconds to up to a few days.

In an emergency, Tri-State will notify the agencies/landowner as soon as possible once it is determined that access to the transmission line ROW on federal or other public and private land is required. The first priority is to address the outage to ensure public safety. Any details about the type and schedule of activities required to remedy the outage or transmission line damage will be provided to agencies as soon as possible.

The final POD will identify acceptable access routes for emergency access at all times of the year. Tri-State will use the access routes permitted in the POD for emergency repairs. However, Tri-State must respond to an emergency as quickly and efficiently as possible. In certain situations, access may be required outside of the permitted access ROW; these routes will be temporary in nature and will be restored and decommissioned after the emergency is addressed. Depending on access route conditions, a bulldozer may be needed to pull a bucket truck onto the ROW. Emergency access in the winter may require using a track hoe, unlike normal scheduled maintenance. Tri-State will meet on site with agency staff after the emergency in order to determine the rehabilitation required and the rehabilitation schedule

of any new ground disturbance. Examples of required rehabilitation measures used in the past include removing ruts, recontouring, mulching and reseeding disturbed ground.

Protection equipment within the substations will monitor the operating condition of the electrical system and will rapidly de-energize the line or substation equipment if a fault or other problem is detected. The nature of the problem will be relayed to Tri-State's Control Center via the utility's communication system, Optical Ground Wire (OPGW; also called "fiber optic"). The system operator will diagnose the problem and restore service using remote operation of switches and circuit breakers if possible. Montrose and Durango maintenance personnel will be dispatched to the site, if necessary. Tri-State has procedures in place to address the potential for accidents and personal injury during the construction and operation phase of the project. This specific information can be found in Appendix J, Emergency Preparedness Plan.

Timing restrictions outlined in the EPM table and the EA will not apply in cases of emergencies, as Tri-State's first priority is to restore electrical service and ensure public safety.

Vegetation Management for Transmission Rights-of-Way

The primary cause of electrical outages stems from trees or portions of trees located within or adjacent to the ROW, that grow, blow or fall into or on overhead electric power lines. In addition, vegetation management is crucial for accessing electrical facilities and reducing wildfire impacts to and from power lines. While some of these outages cannot be prevented (due to storms, heavy winds, etc.), a good percentage can, and these outages are mitigated by managing the vegetation before it becomes a problem. Arcing can occur if the physical separation between trees and power lines is not properly maintained. Arcing distances vary depending on voltage and ambient conditions, but any branch in close proximity to a conductor can spark a fire. Utilities and regulators generally agree that keeping overhead conductors clear of trees and vegetation is critical to both electric service reliability and fire prevention. Preventing outages and fires related to tree and power line conflicts are in the interest of public safety and are mandated by federal law.

Since the time when the line was constructed, new legislation, administrative actions, and Memorandums of Understanding (MOUs) have driven changes in the way federal land managers and utility companies manage transmission line ROWs. Most recently, transmission lines are being recognized and treated as an essential part of the nation's "critical infrastructure." Recent legislation and other actions designating energy infrastructure as critical infrastructure or otherwise requiring management and maintenance of such infrastructure include the following:

- **National Fire Plan**

Adopted in August of 2000, the National Fire Plan shifts the focus of fire protection to Wildland Urban Interface and emphasized five key items:

1. Firefighting;
2. Rehabilitation of burned areas;
3. Hazardous fuels reduction;
4. Community assistance; and
5. Accountability for fire management programs.

- **Executive Order 13212 (Signed May 2001)**

"Actions to Expedite Energy-Related Projects." Executive Order 13212 designates the power grid as being essential to national security and seeks to improve and expedite cooperation among federal agencies to ensure the supply and availability of energy for the country.

- **Healthy Forests Initiative (Signed August 22, 2002)**

The Healthy Forests Initiative provides for the use of "Stewardship Contracting," which gave agencies authority to trade goods for services, expedites administrative procedures for hazardous fuels reduction and ecosystem restoration of federal lands, and provides for the use of Categorical Exclusions for fuel treatment projects:

1. Up to 1,000 acres by mechanical methods and
2. Up to 4,500 acres by prescribed fire

- **Healthy Forest Restoration Act of 2003 P.L. 108-148**

The Healthy Forest Restoration Act defines utility ROW corridors as Wildland Urban Interface, provides as much as a 1.5-mile buffer zone adjacent to ROW, provides for streamlining the National Environmental Policy Act (NEPA) by encouraging community collaboration prior to document preparation, and focuses on reduction of hazardous fuels and removal of biomass.

- **Energy Policy Act of 2005 P.L. 109-58 (Signed August 8, 2005)**

The Energy Policy Act requires federal agencies to expedite approvals that are necessary for owners or operators of electrical transmission lines to comply with applicable reliability standards, and directs North American Energy Reliability Council (NERC) and Federal Energy Regulatory Commission (FERC) to develop and enforce electrical transmission reliability standards. The standards became effective February 7, 2007, and stipulate that failure to meet standards may result in a $1 million dollar per day penalty.

- **MOU between Edison Electric Institute and Federal Agencies (USFS, BLM, National Park Service (NPS), U. S. Fish and Wildlife Service (USFWS) and U.S. Environmental Protection Agency (EPA)) Confirmed May 25, 2006**

This MOU provides a framework to develop Integrated Vegetation Management (IVM) practices for construction and maintenance of utility corridors and encourages agencies to expedite projects or review of permits to ensure security and reliability of utility transmission lines.

The MNC Project is subject to NERC reliability standards because it falls into the following category:

> "Transmission lines ("applicable lines") operated at 200-kV or higher, and transmission lines operated below 200-kV designated by the Planning Coordinator as being subject to this standard including but not limited to those that cross lands owned by federal, state, provincial, public, private, or tribal entities."

In response to changing federal legislation and industry standards, Tri-State has developed a Transmission Vegetation Management Program (TVMP) to ensure the vegetation treatment of its transmission ROWs is consistent with the NERC Vegetation Management Standard FAC-003-1 and FAC-003-2. A copy of the TVMP is provided below in Attachment T-1. The objective of the TVMP is to ensure the safe and reliable

operation of Tri-State's transmission system in an environmentally sensitive, cost-effective manner while also protecting the forest from fire. Failure to comply with NERC-mandated vegetation management will result in FERC fines.

NERC is a self-regulatory organization (non-government organization) that has statutory responsibility to regulate bulk power system users, owners, and operators through the adoption and enforcement of FERC standards for fair, ethical, and efficient practices. NERC is responsible for creating and revising Vegetation Management Standards for transmission lines that are operated at 230-kV or higher, and transmission lines below 200-kV designated by the Reliability Coordinator as being subject to this standard, including but not limited to those that cross federal lands owned by federal, state, provincial, public, private, or tribal entities.

The reliability objective of NERC's Vegetation Management Standard is to "prevent vegetation-related outages which could lead to cascading by effective vegetation maintenance while recognizing that certain outages such as those due to vandalism, human errors, and acts of nature are not preventable." Cascading events are defined by NERC as the uncontrolled successive loss of system elements triggered by an incident at any location. Cascading results in widespread electric service disruption that cannot be restrained from sequentially spreading beyond an area predetermined by study. Experience has shown that serious outages and operational issues have resulted from interference between overgrown vegetation and transmission lines (NERC 2008). To maintain electric reliability, it is critical that NERC's vegetation management standards are applied to applicable lines on federal, state, private, and public lands and easements (NERC 2008). It should be noted that NERC is currently revising the FAC-003-1 standard. Tri-State may need to adapt its vegetation management standards in the future to ensure compliance with these federal regulations and guidance. If the Tri State vegetation management standards were changed, the USFS will be notified prior to implementation of the new standards.

It is Tri-State's policy to proactively mitigate vegetation hazards and threats to power system safety and reliability to the extent reasonable and practical within three main areas of concern:

- **Vegetation and fuels on the ROW**
- **Vegetation and fuels adjacent to the ROW**
- **Prevention of wildfire on and off the ROW**

Tri-State's long-term TVMP objective includes creating sustainable ROWs. This means the removal and management of trees and other incompatible (tall growing) vegetation that could pose a hazard to the safe construction and/or long-term operation of the power line to meet the NERC guidelines for vegetation management.

The new Montrose-Nucla-Cahone 230-kV Transmission Line will be regulated under NERC standards for reliability, which includes vegetation management. Violations of these standards can result in fines up to $1 million dollars per day in the event of a vegetation-induced outage.

Vegetation Management of ROW

Vegetation management is a critical component of transmission maintenance and is a federal requirement for lines operated at 200-kV or above. Tri-State standards for safe operation of overhead a 230-kV

transmission lines include a minimum vegetation clearance standard of 15 feet. Periodic treatment will include cutting danger trees, already within the minimum clearance, and those trees and other vegetation likely to approach the clearance standard within 10 years, considering growth and mortality. Table T-1 outlines the minimum clearances between conductors and trees within transmission ROWs. Tri-State's Transmission Vegetation Management Program has been included with this appendix to provide more detail on the program and required clearances (Attachment T-2).

In various areas within Tri-State's Transmission System, the method by which Tri-State removes trees from the ROW can be governed by contracts, ROW easements, or Special Use Authorizations (SUAs), especially on government lands. However, the necessary treatment is governed by NERC/FERC standards and Tri-State's assessment of the potential for vegetation-induced outages. The transmission line has to operate under NERC/FERC operating standards for vegetation management. These guidelines can be revised over time, and the Tri State vegetation management standards must be adaptive to these changes. If the Tri State vegetation management standards were changed, USFS, BLM, and private landowners will be notified prior to implementation of the new standard.

The frequency of tree trimming and removal is determined by line location, species/communities, condition, growth rate, and height. Fuel loading and fire regimes may also play a role in determining the level of vegetation management required to protect both the transmission line and surrounding lands. Various types of trees have different growth rates that also affect the frequency of the tree trimming and cutting cycle. Insect and disease outbreak within the ROW area may also affect vegetation treatment frequency and the number of trees to be removed.

Desired conditions will vary and can be specific for portions of the ROW or unique sections of the ROW. In general, it is Tri-State's practice to modify the optimum desired condition to reasonably accommodate other important resource or management issues and to work with USFS and BLM to establish mutually acceptable practices while complying with NERC. However, the safe and reliable operation of the power transmission system is the primary objective; all other resource and management issues will be addressed after the emergency has been resolved.

As part of pre-construction activities, Tri-State will create desired conditions on the ROW, and will remove dangerous trees adjacent to the transmission ROW (where needed). The goal of pre-construction vegetation management is to establish compatible vegetation communities that will require minimal maintenance for the first 10 years of the transmission line operation. This process entails removing vegetation that could grow, blow, or fall into structures or the conductors in the next ten years. This generally involves removing all tall growing tree species over 5 feet in height and leaving smaller re-generation grasses and forbs. Tri-State's maintenance group will be responsible for maintaining this desired condition (compatible vegetation for transmission line operation) within the ROW. The line will be inspected on an annual basis to identify trees that could affect system reliability and result in a federal violation. Tri-State will provide the USFS and/or BLM a summary of the results of the annual inspection to discuss upcoming maintenance needs and address compensation for merchantable timber removed from National Forest lands if required.

Vegetation management activities will be an approved maintenance activity within the transmission ROW, and the removal of danger trees off the ROW will be permitted as part of the final ROW Grant/Special Use Permit/easement agreements. Tri-State will notify the affected agency of any planned large-scale vegetation management activity (meant to address fuel loading concerns) or large-scale

removal of regeneration within the transmission ROW and will hold a meeting with the appropriate agency representatives prior to the work occurring. On lands administered by the USFS, the district realty agent will be notified if trees of merchantable value are to be removed from or adjacent to the ROW.

If requested, each year in early spring or summer, USFS, BLM, and other public as well as private landowners will be notified of the areas that have been identified for treatment and the approximate number of trees per product class in each area. On lands administered by the USFS, tree removal will be consistent with each district's specific requirements for the removal of merchantable timber, which is outlined in detail in the body of this POD.

If during an annual inspection, danger trees–a tree or group of trees within or adjacent to the ROW–are discovered that may present an imminent threat to the transmission line, they will be removed immediately. Danger trees are considered an emergency and will likely be removed without prior approval or notification of the agencies. Planned vegetation management activities or cooperative projects, such as fuel reduction projects, will be coordinated with the agencies as discussed above. Table T-2 shows the expected frequency of routine vegetative management by action and land cover type. It is expected that minimal vegetation management work will be required for the first 10 years the line is in operation because vegetation will have been treated prior to transmission line construction.

The maintenance crews will then perform vegetation management activities in dry conditions in the summer or early fall unless there is an imminent threat to the line. Vegetation management activities will comply with the conditions of the ROW Grant, the SUP, and the final POD.

Table T-2. Vegetation Management Frequency for the MNC Transmission Line ROW

Land Cover	Expected Vegetation Management Actions	Typical Frequency
Agricultural or Grassland	None likely to be necessary due to adequate clearance/density.	None - Low
Sagebrush	Occasional thinning if fuel loads are excessive within the ROW.	None - Low
Meadow	Scattered danger trees may have to be trimmed/ removed.	Low - Moderate
Oak Scrub	Occasional thinning if fuel loads are excessive within the ROW.	Moderate
Forest	Remove danger trees that are within 15 feet of conductor. Thin vegetation if fuel load is excessive within the ROW.	Low – Moderate*

*Aspen stands will require more frequent treatment intervals relative to other forest communities within the project area.

Disposal of trees and other woody vegetation removed during vegetation management activities will be in compliance with USFS standards, including those with specific limits for mastication and chipping depths. These same standards will apply to lands administered by BLM. Tri-State will reduce fuel loading

on state, federal, and private lands through whole tree removal or mastication as appropriate and in coordination with the agencies' designated representatives.

Tree clearing will not occur during migratory bird breeding season as much as practicable for annual maintenance. If tree clearing will occur during the avian breeding season for construction and future maintenance activities (early spring through summer), Tri-State will send a qualified biologist into the field ahead of vegetation management activities to ensure compliance with the Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act, and to provide the results to the agencies.

Tri-State will be responsible for vegetation management within the ROW, guided by FERC/NERC standards. In areas adjacent to the ROW, Tri-State will cooperate with landowners and land management agencies to mitigate risks from hazardous fuels accumulation within the ROW, noxious weeds, and wildfire events as specified in the TVMP.

Noxious Weeds

For the life of the transmission line and access routes, noxious weed management within the ROW will be completed by USFS under an existing management agreement covering all Tri-State transmission lines on USFS-administered lands. A similar agreement will be created with BLM's Uncompaghre and Tres Rios Field Offices, and Tri-State will hire a third party contractor to treat weeds that propagated as the result of transmission line construction and long-term maintenance activities on State and private lands. Noxious weed management will be avoided in areas where rare plant species occur. Further details on noxious weed management are included the POD, Appendix P: Reclamation Plan and Appendix S: Noxious Weed Plan.

References

North American Elextric Reliability Corporation. (2008). FAC Reliability Standard for Transmission Vegetation Management FAC-003-2 and FAC-003-3.

Attachments

T-1 American National Standards Institute, Inc. A300, Part 7 (2006): Tree, Shrub and other Woody Plant Maintenance-Standard Practices (Integrated Vegetation Management- a. Electric Utility Rights-Of-Way)

T-2 Tri-State Generation & Transmission Association, Inc.: Transmission Vegetation Management Program (Feb 2015).

Attachment T-1. Tree, Shrub, and Other Woody Plant Maintenance

American National Standard

ANSI A300 (Part 7)-2006 IVM

ANSI A300 (Part 7)-2006 IVM

for Tree Care Operations —
Tree, Shrub, and Other Woody Plant Maintenance — Standard Practices (Integrated Vegetation Management a. Electric Utility Rights-of-way)

Approved American National Standard
ANSI

ANSI®
A300 (Part 7)-2006

American National Standard
for Tree Care Operations –

Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices *(Integrated Vegetation Management a. Electric Utility Rights-of-way)*

Secretariat
Tree Care Industry Association, Inc.

Approved February 21, 2006
American National Standards Institute, Inc.
Headquarters:
1819 L Street, NW
Sixth Floor
Washington, DC 20036
New York Office:
25 West 43rd Street
Fourth Floor
New York, NY 10036

American National Standard

Approval of an American National Standard requires review by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by the standards developer.

Consensus is established when, in the judgement of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

The use of American National Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he or she has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.

The American National Standards Institute does not develop standards and will in no circumstances give an interpretation of any American National Standard. Moreover, no person shall have the right or authority to issue an interpretation of an American National Standard in the name of the American National Standards Institute. Requests for interpretations should be addressed to the secretariat or sponsor whose name appears on the title page of this standard.

CAUTION NOTICE: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken periodically to reaffirm, revise, or withdraw this standard. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

Published by

Tree Care Industry Association, Inc., 3 Perimeter Road Unit 1, Manchester, NH 03103
Phone: (800) 733-2622 or (603) 314-5380 Fax: (603) 314-5386
E-mail: tcia@treecareindustry.org Web: www.treecareindustry.org

Copyright © 2006 by the Tree Care Industry Association
All rights reserved.

No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without prior written permission of the publisher.

Printed in the United States of America

Contents

		Page
Foreword		ii
1	ANSI A300 standards scope, purpose, application, and implementation	57
70	Part 7 – Integrated Vegetation Management (IVM) standards	57
71	Normative references	57
72	Definitions	58
73	IVM a. Electric Utility Rights-of-way practices	59

Annex

A	Wire Zone – Border Zone Concept	61
B	Integrated Vegetation Management Flow Chart	63
C	Applicable ANSI A300 interpretations	65

Foreword (This foreword is not part of American National Standard A300 Part 7-2006)

An industry-consensus standard must have the input of the industry that it is intended to affect. The Accredited Standards Committee A300 was approved June 28, 1991. The committee includes representatives from the residential and commercial tree care industry, the utility, municipal, and federal sectors, the landscape and nursery industries, and other interested organizations. Representatives from varied geographic areas with broad knowledge and technical expertise contributed.

The A300 standards are placed in proper context if one reads the Scope, Purpose, and Application. This document presents performance standards for the care and maintenance of trees, shrubs, and other woody plants. It is intended as a guide in the drafting of maintenance specifications for federal, state, municipal, and private authorities including property owners, property managers, and utilities.

The A300 standards stipulate that specifications for tree work should be written and administered by a professional possessing the technical competence to provide for, or supervise, the management of woody landscape plants. Users of this standard must first interpret its wording, then apply their knowledge of growth habits of certain plant species in a given environment. In this manner, the users ultimately develop their own specifications for plant maintenance.

ANSI A300 Part 7 – *Integrated Vegetation Management a. Electric Utility Rights-of-way*, should be used in conjunction with the rest of the A300 standard when writing specifications for tree care operations.

Suggestions for improvement of this standard should be forwarded to: A300 Secretary, c/o Tree Care Industry Association, 3 Perimeter Road – Unit 1, Manchester, NH 03103, USA or e-mail: tcia@treecareindustry.org

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee on Tree, Shrub, and Other Woody Plant Maintenance Operations – Standard Practices, A300. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the A300 committee had the following members:

Tim Johnson, Chair
(Artistic Arborist, Inc.)
Bob Rouse, Secretary
(Tree Care Industry Association, Inc.)

Organizations Represented	*Name of Representative*
American Nursery and Landscape Association	*Warren Quinn*
	Craig J. Regelbrugge (Alt.)
American Society of Consulting Arborists	*Tom Mugridge*
	Donald Zimar (Alt.)
American Society of Landscape Architects	*Ron Leighton*
Asplundh Tree Expert Company	*Geoff Kempter*
	Peter Fengler (Alt.)
Bartlett Tree Expert Company	*Peter Becker*
	Dr. Thomas Smiley (Alt.)
Davey Tree Expert Company	*Joseph Tommasi*

	Dick Jones (Alt.)
International Society of Arboriculture	*Bruce Hagen*
	Sharon Lilly (Alt.)
National Park Service	*Robert DeFeo*
	Dr. James Sherald (Alt.)
Professional Landcare Network	*Preston Leyshon*
	Tanya Tolpegin (Alt.)
Professional Grounds Management Society	*Tom Shaner*
Society of Municipal Arborists	*Andrew Hillman*
	Tom Russo (Alt.)
Tree Care Industry Association	*Dane Buell*
	James McGuire (Alt.)
U.S. Forest Service	*Ed Macie*
	Keith Cline (Alt.)
Utility Arborist Association	*Matthew Simons*
	Jeffrey Smith (Alt.)

Additional organizations and individuals:

American Forests (Observer)
Beth Palys (Observer)
Peter Gerstenberger (Observer)
Mike Galvin (Observer)
Myron Laible (Observer)
Richard Rathjens (Observer)
Richard Roux (NFPA-780 Liaison)

iii

American National Standard for Tree Care Operations –

Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices *(Integrated Vegetation Management a. Electric Utility Rights-of-way)*

Clause 1 excerpted from ANSI A300 (Part 1) – 2001 Pruning

1 ANSI A300 standards

1.1 Scope

ANSI A300 standards present performance standards for the care and maintenance of trees, shrubs, and other woody plants.

1.2 Purpose

ANSI A300 standards are intended as guides for federal, state, municipal, and private authorities including property owners, property managers, and utilities in the drafting of their maintenance specifications.

1.3 Application

ANSI A300 standards shall apply to any person or entity engaged in the business, trade, or performance of repairing, maintaining, or preserving trees, shrubs, or other woody plants.

70 Part 7 – Integrated Vegetation Management (IVM) standards

70.1 Purpose

The purpose of this document is to provide standards for developing specifications to implement an integrated approach to management of vegetation.

70.2 Reasons for Integrated Vegetation Management (IVM)

The reason for Integrated Vegetation Management is to promote sustainable plant communities that are compatible with the intended use of the site, and discourage incompatible plants that may pose concerns, including safety, security, access, fire hazard, electric service reliability, emergency restoration, visibility, line-of-sight requirements, regulatory compliance, environmental, or other specific concerns.

70.3 Implementation

70.3.1 Specifications for integrated vegetation management should be written and administered by a vegetation manager.

70.3.2 IVM specifications shall be adhered to.

70.4 Safety

70.4.1 IVM shall be implemented by a qualified vegetation manager familiar with the practices and hazards of vegetation management and the equipment used in such operations.

70.4.2 This standard shall not take precedence over applicable industry safe work practices.

70.4.3 Operations shall comply with applicable Federal and State Occupational Safety and Health standards, ANSI Z133.1, FIFRA, Federal EPA, as well as state and local regulations.

71 Normative references

ANSI A300 *for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices*

ANSI Z133.1 *Arboricultural Operations – Pruning, Repairing, Maintaining, and Removing Trees and Cutting Brush – Safety Requirements*

29 CFR 1910, *General Industry*

29 CFR 1910.268, *Telecommunications*

29 CFR 1910.269, *Electric Power Generation & Distribution*

[1]*Available from U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210.*

29 CFR 1910.331-335, *Electrical Safety*

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

72 Definitions

72.1 action threshold: The maximum acceptable levels of plant density and height that initiates implementation of a control method.

72.2 biological control methods: Control of vegetation using plants, animals, insects, or pathogens.

72.3 chemical control methods: Control of vegetation through the use of herbicides, growth regulators, or other pesticides.

72.4 cultural control methods: Control of vegetation through the establishment of compatible stable plant communities or the use of crops, pastures, mulching, or other managed landscapes.

72.5 danger tree: A tree on or off the right-of-way that could contact electric supply lines.

72.6 electric supply lines: Conductors used to transmit electric energy and their necessary supporting and containing structures.

72.7 electric utility right-of-way: A corridor of land over which electric lines are located. The utility may own the land in fee, own an easement, or have certain franchise, prescription, or license rights to construct and maintain lines.

72.8 hazard tree: A structurally unsound tree that could strike a target when it fails. As used in this clause the target of concern is electrical supply lines.

72.9 integrated vegetation management (IVM): A system of managing plant communities in which compatible and incompatible vegetation is identified, action thresholds are considered, control methods are evaluated, and selected control(s) are implemented to achieve a specific objective. Choice of control methods is based on effectiveness, environmental impact, site characteristics, safety, security and economics.

72.10 maintenance cycle: Planned length of time between vegetation maintenance activities.

72.11 manual control method: Control of vegetation using hand-operated tools.

72.12 mechanical control methods: Control of vegetation using equipment-mounted saws, mowers, or other devices.

72.13 non-selective management: Methods used to control vegetation within a prescribed area without regard to retaining compatible vegetation.

72.14 right-of-way reclamation: Reestablishing IVM on a right-of-way that is not currently managed to the full extent of its easement or ownership rights and intended purpose. Conditions on a right-of-way in need of reclaiming include tall, dense amounts of undesirable vegetation, and electric supply lines that are inaccessible. Reclamation usually involves initial non-selective methods of mowing or hand-cutting, or broadcast application of herbicides.

72.15 selective management: Methods used to target specific vegetation within a prescribed area while retaining compatible vegetation.

72.16 shall: As used in this standard denotes a mandatory requirement.

72.17 should: As used in this standard denotes an advisory recommendation.

72.18 specifications: A document stating a detailed, measurable plan or proposal for provision of a product or service.

72.19 standards, ANSI A300: Performance parameters established by industry consensus as a rule for the measure of quantity, weight, extent, value, or quality.

72.20 vegetation, compatible: Vegetation that is desirable and/or suitable to the intended use of the site.

72.21 vegetation, incompatible: Vegetation that is undesirable, presents a safety hazard, or is unsuitable to the intended use of the site.

72.22 vegetation manager: An individual engaged in the profession of vegetation management who, through appropriate experience, education, and

[1] *Available from U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210.*

related training, possesses the competence to provide for or supervise an integrated vegetation management program.

73 IVM a. Electric Utility Rights-of-way practices

73.1 IVM objectives

73.1.1 The vegetation manager (VM) shall define the objectives based on the intended purpose and use of the site.

73.1.2 The vegetation manager shall define action thresholds.

73.2 Site evaluations

73.2.1 The management area shall be inspected to evaluate existing conditions to determine if action thresholds have been met and what type of control method is necessary to meet the objectives.

73.2.2 Pre-control evaluations should include right-of-way use, type of electric supply line, general conditions, ownership, intended uses of the site, adjacent land use, existing vegetation, topography, soils, fire risk, sensitive or protected areas, water resources, sensitive or protected species, and regulations.

73.2.3 Vegetation that is compatible or incompatible with the objectives shall be identified.

73.2.4 Post-control evaluations should monitor efficacy and appropriateness of methods used, general site conditions, other impacts of treatments, and recommendations for future actions.

73.2.5 The results of site evaluations should be documented.

73.3 Management control method selection

73.3.1 Vegetation manager shall choose from available management control methods and implement appropriate methods.

73.3.2 Control methods selection should be based on pre-control evaluations, expected growth rates, electric supply line priority, economics, regulations, and specified objectives.

73.3.3 Efficacy of IVM control methods should be considered when scheduling implementation.

73.3.4 Control methods should promote compatible vegetation.

73.4 Communication

73.4.1 Communication with property owners, customers, and regulators regarding IVM activities should be proactive and shall be in compliance with federal, state, and local regulations.

74 IVM implementation

74.1 All laws, rules and regulations regarding public and worker safety shall be followed.

74.2 Specifications developed for IVM shall be adhered to.

74.3 Maintenance cycles should be based on existing vegetation, expected growth rates, and action thresholds.

74.4 Cultural control method

74.4.1 Over time and with successful implementation, cultural control methods should be preferred.

74.4.2 Cultural control methods should be considered for use once incompatible vegetation has been controlled.

74.5 Biological control method

This method should be considered for use once incompatible vegetation has been controlled.

74.6 Initial clearing of rights-of-way

74.6.1 When planning, designing, and constructing new rights-of-way, consideration should be given to future vegetation management needs.

74.6.2 When rights-of-way are being initially established, written easements should be secured defining rights to implement whatever IVM treatments are necessary to meet objectives.

74.7 Quality assurance

74.7.1 An IVM program should include a quality assurance program to ensure best practices are followed, objectives of IVM are met, and that all specifications are adhered to.

74.7.2 The results of IVM treatments and of the quality assurance program shall be clearly documented.

75 IVM applications

75.1 Tools and equipment

75.1.1 IVM equipment used to implement the program shall be in proper working condition.

75.1.2 Equipment shall be used according to manufacturers' instructions.

75.2 Chemical control application

75.2.1 Materials

75.2.1.1 Materials shall be used in accordance with federal, state, and local regulations.

75.2.1.2 Materials shall be applied according to manufacturers' labels.

75.2.1.3 Consideration should be given to utilizing products that minimize the risk to humans and the environment.

75.2.1.4 Consideration should be given to minimizing the amount of materials utilized over time to minimize the risk to humans and the environment.

75.2.1.5 Materials and methods should be selected to reduce the chance of developing resistance when the threat exists.

75.3 Selective management

75.3.1 The vegetation manager should employ selective management of vegetation whenever there is sufficient compatible vegetation actively growing on the right-of-way.

75.3.2 Where rights-of-way cross surface water resources, selective management should be utilized to create a buffer, retaining as much compatible vegetation as possible.

75.3.3 When incompatible vegetation with the potential for re-sprouting is manually-cleared, herbicide should be applied to the remaining stump.

75.4 Non-selective management

75.4.1 Right-of-way reclamation utilizing non-selective methods should be implemented as an initial step toward developing selective management on the site.

75.5 Mechanical methods

75.5.1 When performing right-of-way reclamation, mechanical clearing methods should be considered.

75.5.2 Where rights-of-way cross surface water resources, selective management should be utilized to create a buffer, retaining as much compatible vegetation as possible.

75.6 Tree pruning and tree removal

75.6.1 Tree pruning shall comply with ANSI A300 Part 1, section 5.9 – *Utility Pruning* standard.

75.6.2 Danger trees should be monitored, pruned, or removed as appropriate.

75.6.3 Trees identified as hazard trees should be pruned or removed as appropriate.

Annex A: Wire Zone – Border Zone Concept

The wire zone – border zone concept is a proven method that ensures the reliability of electric supply lines while promoting stable plant communities and wildlife habitat. Annex A provides supplemental information about this method.

A-1 Annex A Glossary

A-1.1 Border zone: An area on an electric utility right-of-way outside the wire zone, extending to the outer edge of the established right-of-way. Applies to electric utility rights-of-way only.

A-1.2 Wire zone: An area on an electric utility right-of-way directly beneath and between the energized conductors farthest out on the pole/tower. This area is the most likely to contain vegetation that could potentially grow into contact with the energized conductors. This area is also typically used as access to the poles, towers, and conductors for repair, inspection, and maintenance. Applies to electric utility rights-of-way only.

A-2 On electric utility rights-of-way, selective management may be implemented in the border zone whenever there is sufficient compatible vegetation.

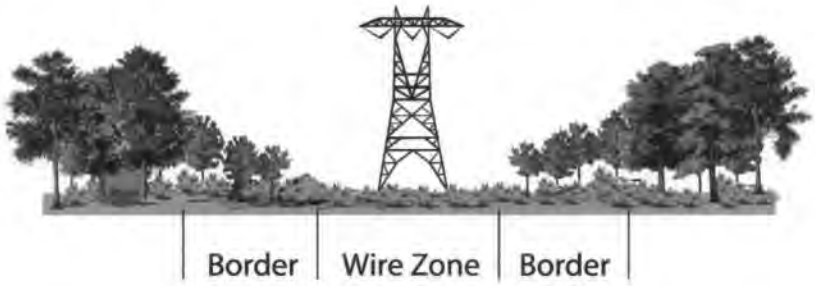


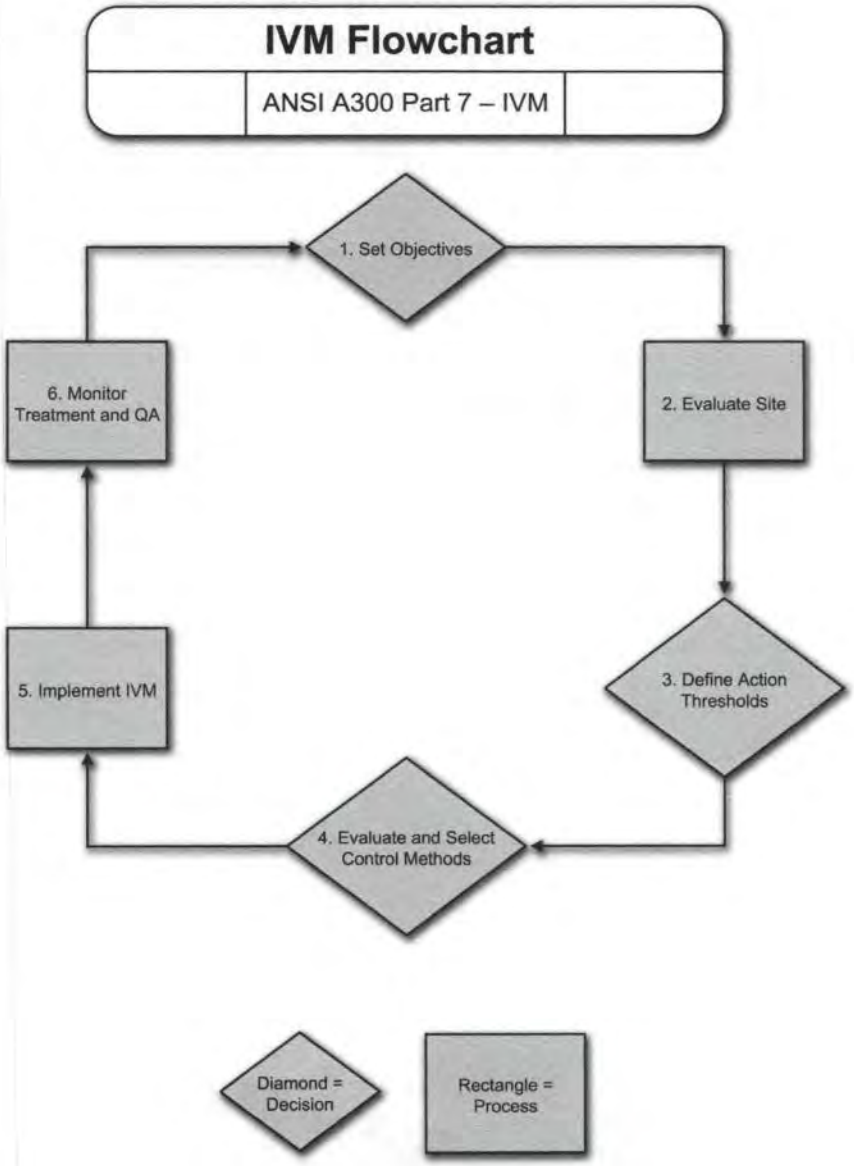
Figure 1: Wire Zone – Border Zone

A-3 On electric utility rights-of-way, non-selective management may take place in the wire zone of a right-of-way.

A-4 On rights-of-way that contain minimal or no compatible vegetation, or are very dense or not maintained, right-of-way reclamation by non-selective methods may be implemented in the border and wire zone.

Annex B: Integrated Vegetation Management Flow Chart

The following flow chart illustrates the IVM process as represented in the A300 Part 7 standard. Each element is explained in this standard.



Annex C: Applicable ANSI A300 interpretations

The following interpretations apply to the ANSI A300 Part 7 IVM standard.

A-1 Interpretation of "should" and "shall."

"An advisory recommendation" is the common definition of "should" used in the standards development community and the common definition of "should" used in ANSI standards. An advisory notice is not a mandatory requirement. Advisory recommendations may not be followed when defensible reasons for non-compliance exist.

This document is not controlled once printed.

TVMP GLOSSARY OF TERMS

Action Thresholds:

Areas of consideration using the findings from inspections in order to prioritize vegetation management schedules to ensure MVCDs, as defined by FAC-003-3, are never breached.

Altitude Correction Factor:

A multiplier, applied to specify distances, that adjusts those distances to account for the change in relative air density (RAD) from the RAD used to determine the specified distance. Altitude correction factors apply to both minimum worker approach distances and to minimum vegetation clearance distances.

Annual:

A frequency completed within a 365 day period.

ANSI A300, Part 7:

Tree, Shrub and Other Woody Plant Maintenance — Standard Practices for Integrated Vegetation Management and Electric Utility Rights of Way. American Nation Standards Institute parameters established and recognized as industry best practice specifically describing comprehensive vegetation management methods and pruning maintenance. The Integrated Vegetation Management offers a systematic approach to planning and implementing a vegetation management program.

Border zone:

An area that extends from the edge of the wire zone to the edge of the ROW.

Calendar Year:

A frequency completed the following year between January 1 and December 31. As an example, testing completed anytime in 2009 that has a maintenance frequency of a calendar year is required to be tested again anytime between January 1, 2010 through December 31, 2010.

Danger tree:

A tree adjacent to, and outside of, the ROW that is tall enough to have the potential to fall into the line facilities within 1 year of the last performed maintenance. As identified in NERC Standard FAC-003-3, a danger tree is a tree with the potential to fall near the line. These trees would not require notification to the control center unless they pose an immediate fall-in threat.

Danger tree zone:

An area that is adjacent to, and outside of, the ROW.

Member(s):

Any one, or group, of the 44 cooperative member-owners of Tri-State. Each is a consumer-owned, non-profit rural utility serving residences, farms, ranches, small towns, businesses and industries located in Colorado, Nebraska, Wyoming and New Mexico.

Minimum Vegetation Distance (MVCD):

As defined in the NERC Glossary of Terms and specified in FAC-003-3 Table 2. The calculated minimum distance stated in feet (meters) to prevent flash-over between conductors and vegetation, for various altitudes and operating voltages.

This document is not controlled once printed.

Mitigation action plan:

A specific method and degree of transmission vegetation management work used to address mitigation areas.

Mitigation area:

A location on the ROW, or in the danger tree zone, where TSGT is restricted from attaining clearances specified for Clearance 1 or Clearance 2.

Mitigation List:

A list of mitigation areas and associated information gathered during inspections, including, but not limited to, the mitigation action plan.

Mitigation measures:

The implementation of a mitigation action plan in order to achieve sufficient clearances for the protection of the transmission facilities for locations identified in the ROW where TSGT is restricted from attaining the MVCD.

Right(s)-of-Way (ROW):

As defined in the NERC Glossary of Terms: The corridor of land under a transmission line(s) needed to operate the line(s). The width of the corridor is established by engineering or construction standards as documented in either construction documents, pre-2007 vegetation maintenance records, or by the blowout standard in effect when the line was built. The ROW width in no case exceeds the applicable Transmission Owner's or applicable Generator Owner's legal rights but may be less based on the aforementioned criteria.

SOP #11:

TSGT's Standard Operating Procedure for Reports to The System Operator. Defines the specific information required to be submitted for all transmission circuit interruptions, including specific vegetation related outage information.

TVMP:

Transmission Vegetation Management Program as required by NERC Standard FAC-003-1, and as updated for FAC-003-3 requirements.

TSGT Document Management System:

Documentum

TSGT Training System:

Learning Management System (LMS)

TSGT Transmission Line Database:

GIS system utilizing GPS handheld units. As of July 1, 2014, this system is transferring to Cascade.

TSGT Work Management System:

Asset Suites

This document is not controlled once printed.

Vegetation:

All plant material, growing or not, living or dead.

Vegetation Inspection:

As per the NERC Glossary of Terms. The systematic examination of vegetation conditions on a Right-of-Way and those vegetation conditions under the applicable Transmission Owner's or applicable Generator Owner's control that are likely to pose a hazard to the line(s) prior to the next planned maintenance or inspection. This may be combined with a general line inspection.

Wire zone:

An area that includes all the ground beneath electrical supply lines extending 20 feet to the outside of the outermost conductor or to the edge of the ROW, whichever is lesser.

Attachment T-2. Transmission Vegetation Management Program.

TRI-STATE GENERATION & TRANSMISSION ASSOCIATION, INC.

TRANSMISSION VEGETATION MANAGEMENT PROGRAM

System Integrity and Reliability through a Dedicated Maintenance Team

TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.

TRANSMISSION VEGETATION MANAGEMENT PROGRAM

Management Review and Approval:

Job Title / Name	Signature	Date
Transmission Maintenance Manager Eastern Region Jaime Leal		1/23/14
Transmission Maintenance Manager Western Region Mac Fellin	Mac Fellin	1/20/14
Transmission Maintenance Manager Southern Region Mike Montaño	Michael B Montaño	1/21/14

Senior Management Review and Approval:

Job Title / Name	Signature	Date
Senior Manager Transmission Maintenance Robert Rojas	Robert Rojas	1/31/14

This document is not controlled once printed.

TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC.
TRANSMISSION VEGETATION MANAGEMENT PROGRAM

Introduction

Tri-State Generation and Transmission Association, Inc., (hereinafter referred to as "Tri-State" or "TSGT") headquartered in Westminster, Colorado, is a consumer-owned, nonprofit, cooperative that supplies wholesale electricity to 44 member rural utilities. These distribution systems, in turn, serve residences, farms, ranches, small towns, businesses and industries. Tri-State has organized Transmission Maintenance into three geographic areas. Transmission East includes Northeast Colorado, Wyoming and Nebraska. Transmission West includes West and Southeast Colorado. Transmission South includes New Mexico.

Tri-State shall comply with all applicable NERC and Regional Entity Reliability Standard Requirements mandated by FERC, pursuant to section 215 of the Federal Power Act (FPA), 2005.

Disclaimer

These maintenance standards furnished by Tri-State are for internal use only and for informational purposes and the convenience of the Tri-State Cooperative Membership (hereinafter referred to as "Member"). These policies are subject to change from time to time. Any use of this information by the Member, its officers, directors, employees, servants, agents, and successors will be at the Member's risk and without liability or legal exposure to TSGT, its officers, directors, employees, servants, agents, successors and assigns, and Member shall indemnify and hold harmless TSGT, its officers, directors, employees, servants, agents, successors and assigns from all claims, causes of action, damages, losses and expenses including attorneys' fees arising out of or resulting there from which may arise respecting the use of the attached documents by the Member, its officers, directors, employees, servants, agents, successors and assigns.

This document is not controlled once printed.

Table of Contents

1.0 Overview 3
1.1 Objective 3
1.2 Applicable Lines 3
2.0 Vegetation Maintenance 4
2.1 Maintenance Overview 4
2.2 Maintenance Strategy 5
2.3 Vegetation Clearances 6
2.3.1 Vegetation Management Clearances 6
2.3.2 Minimum Vegetation Clearance Distance (MVCD) 7
2.3.3 Potentially Threatening Vegetation Conditions 7
2.4 Maintenance Intervals 7
2.4.1 Vegetation Inspection 7
2.4.2 Vegetation Management 8
2.5 Annual Work Plan 9
2.5.1 Action Thresholds 9
2.5.2 Work Schedule and Verifications 9
2.6 New Construction Vegetation Clearing 9
3.0 Management Constraint Mitigation 10
3.1 Mitigation Areas 10
3.2 Corrective Action 10
3.2.1 Vegetation Management Constraint 10
3.2.2 Potential Risk Constraint 10
4.0 Compliance Reporting 11
5.0 Documentation 11
5.1 File Format and Structure 11
5.2 Data Retention 11
6.0 Transitional Equipment 12
6.1 IROL and Major Transfer Paths 12
6.2 Discovered Equipment 12
6.3 Acquired and Transferred Equipment 12
6.4 Expectations at Time of Acquisition or Transfer 12
6.5 Regulatory Reporting and Mitigation 12
7.0 Maintenance By and For Other Entities 13
7.1 Contractual Agreements 13
7.2 Regulatory Reporting and Mitigation 13
8.0 Compliance Map 14
8.1 FAC-003-3 Supporting Evidence 14
9.0 Revisions 15
9.1 Review Cycles and Responsibilities 15
9.2 Revision History 15

This document is not controlled once printed.

1.0 Overview

1.1 Objective

The objective of the TSGT Transmission Vegetation Management Program (TVMP) is to maintain a reliable electric transmission system by using a defense-in-depth strategy to manage vegetation located on transmission rights of way (ROW) and minimize encroachments from vegetation located adjacent to the ROW, thus preventing the risk of those vegetation-related outages that could lead to cascading. This vegetation management strategy incorporates the following principles:

- Ensure the safe and reliable operation of TSGT transmission system
- Achieve cost efficiency
- Minimize adverse environmental impacts
- Comply with all laws and regulations
- Maintain a harmonious relationship with landowners and the public.

TSGT's TVMP is consistent with the most current version of the North American Electric Reliability Corporation (NERC) Vegetation Management Standard FAC-003. It is TSGT's policy to proactively mitigate vegetation hazards and threats to power system safety and reliability to the extent reasonable and practical within the following main areas of concern:

- Vegetation within the legal control of TSGT: on the Right-of-Way (ROW) and adjacent to the ROW
- Prevention of wildfire on the ROW and adjacent to the ROW with cooperation from landowners and/or land management agencies.

1.2 Applicable Lines

While TSGT strives to maintain all of its line facilities to the same standard, the vegetation management for the following line facilities is specifically governed by this TVMP. The *TSGT FAC-003 Applicable Lines*, located on TSGT's internal intranet Transmission Maintenance page in the TVMP Related Information section, reflects the lines governed by this TVMP.

- Lines identified as elements of a Major Transfer Path, regardless of voltage, as designated by the Western Electricity Coordinating Council (WECC) or Midwest Reliability Organization (MRO);
  - WECC major transfer path elements owned by TSGT are included and designated in the listing.
  - TSGT owned lines have not been designated as MRO critical path elements.
- Lines identified as elements of an Interconnection Reliability Operating Limit (IROL), regardless of voltage, as designated by WECC, MRO or TSGT Transmission Planning;
  - TSGT owned lines have not been identified as IROL elements by WECC, MRO or TSGT.
- All other lines rated at 200kV and above.
  - TSGT owned lines within the WECC region are included and designated in the listing.
  - TSGT does not own applicable lines within the MRO region.

This document is not controlled once printed.

2.0 Vegetation Maintenance

The following practices and procedures are based on TSGT's intimate knowledge and experience of vegetation native to the TSGT service territory. As part of the TSGT training, TSGT line field personnel are provided reference documents ANSI A300 Part 7 (Integrated Vegetation Management a. Electric Utility Rights of-way) as well as the companion publications Part 1 (Best Management Practices - Integrated Vegetation Management and Utility Pruning of Trees).

2.1 Maintenance Overview

It is the philosophy and practice of TSGT's Transmission Maintenance department to manage vegetation on TSGT transmission line ROWs towards a desired condition. The desired condition utilizes the Bramble and Byrnes Wire Zone-Border Zone approach as depicted in Figure 1. In general, the optimum desired condition is one of stable, low growth plant communities, free from noxious or invasive plants, and without an accumulation of large amounts of vegetative debris from vegetation management activities in the wire zone. Low growth plant communities preclude the risks associated with taller vegetation. These communities will typically be comprised of herbaceous plants and low growing shrubs which ideally are native to the local area. Border zone areas will normally be managed for trees that ascend in height with increasing distance from the transmission line. Where trees and other taller vegetation are required on the ROW to meet other environmental objectives, the desired condition shall be to maintain the tree heights to provide the clearances between the vegetation and conductors in accordance with Table 3 and never less than the Minimum Vegetation Clearance Distance (MVCD) in Table 4.

Figure 1: Bramble and Byrnes Wire Zone-Border Zone

Large accumulations of vegetation debris from intensive or repetitive vegetation treatments may require mitigation to reduce risks from wildfire and enhance the fire survivability of the transmission facility. Therefore, a desired condition should also incorporate appropriate fuel management considerations to mitigate wildfire intensity and duration, as well as reduce the potential for fire starts. Consideration is given to removing or mulching large accumulations of biomass on the ROWs rather than leaving material to become a fuel source. Adequate access to each structure and along the ROW is also essential to provide for efficient, cost effective vegetation treatment activities.

In areas adjacent to the ROW, TSGT will cooperate with landowners and land management agencies to collaboratively mitigate risks from hazardous vegetation and wildfire events.

TSGT's transmission system and associated ROWs are made up of many different age classes, land ownership easement and permit requirements, ecological conditions, and other management issues. Consequently, desired conditions will vary and can be specific for each ROW or unique section of ROW. In general, it is TSGT's practice to modify the optimum desired condition to reasonably accommodate other important resource or management issues. However, the safe and reliable operation of the power transmission system will be the primary objective and all other resource and management issues are considered secondary.

Achieving the desired condition on a ROW is a process that may take several iterations over an extended period of time. However, once defined, the desired condition serves as the guide for future vegetation management actions. All subsequent vegetation treatment activities should consistently move toward achieving the desired condition. Once achieved, the desired condition will be proactively maintained by periodic re-treatments.

2.2 Maintenance Strategy

TSGT's TVMP is a comprehensive and integrated vegetation management program utilizing the full extent of TSGT's easements and other legal rights allowed and a variety of management methods. Vegetation management does not occur on a rigid time cycle basis. Rather, the maintenance schedule is driven by the condition of the vegetation found during inspections and the management tool to be applied to trim or remove the vegetation. The vegetation is managed with sufficient frequency to keep the vegetation beyond expected conductor movement and MVCD clearances, Table 4, at all times. Annual inspections of the ROW allow time for fast growth and danger trees to be caught and added into the annual work plan.

TSGT takes into account the inter-relationships between vegetation growth rates, vegetation control methods, and inspection frequency. The level of anticipated tree growth and average mature height, for trees within the TSGT service territory, is indicated in Table 1. TSGT has adopted 1.5 years, maximum, as the inspection and management intervals. Expected conductor movement, MVCD and interval average growth are considered in the clearances left after maintenance in Table 3 to allow for conductor movement and vegetation growth between intervals without encroachment into the MVCD. An additional buffer is included to allow for changes in growth pattern.

An annual work plan is created and closely followed throughout the year to ensure unexpected changes created by weather, work schedules, or land management disputes can be monitored and responded to without allowing encroachment into the MVCD. During the annual inspection cycle, fast growing trees and danger trees are identified and added to the work plan.

Table 1: Tree growth and average mature height

Tree	Average Growth Rate Feet/Year	Induced Growth Rate Feet/Year	Average Mature Height Feet
Ash	1.00	3.0	65
Aspen	1.25	3.0	45
Birch	1.00	2.0	55
Boxelder	1.50	3.0	40
Catalpa	0.80	2.0	45
Cedar	0.70	1.0	45
Cottonwood (Rio Grande)	2.75	5.0	80
Elm (American)	1.50	3.0	80
Elm (Chinese)	2.00	3.5	60
Juniper (Utah)	0.25	0.5	25
Locust (Honey)	0.90	1.5	50
Maple (Norway)	0.60	1.5	45
Maple (Red)	1.00	1.5	45
Maple (Silver)	1.75	4.0	70
Oak (Pin)	0.70	1.5	50
Oak (Scrub)	0.80	1.5	45
Oak (White)	0.70	1.5	65
Pine (White & Red)	1.00	1.0	70
Pine (Piñon)	0.5	1.0	50
Pine (Ponderosa)	1.25	2.0	230
Poplar (Carolina)	2.75	5.0	80
Poplar (Lombardy)	2.50	4.0	65
Poplar (White)	1.25	3.0	50
Spruce (Norway)	1.00	1.0	60
Willow (Black)	2.00	5.0	50

This document is not controlled once printed.

2.3 Vegetation Clearances

2.3.1 Vegetation Management Clearances

The clearance distances to be achieved at the time of transmission vegetation management work are based upon local conditions, conductor movement, anticipated growth and the expected time frame in which TSGT plans to return for future vegetation management work. These clearances assume that transmission lines and their conductors are operating within their Rating. TSGT has developed a table of vegetation management clearances (Table 3) that establishes the minimum clearance distances to be achieved at the time of vegetation management for the various line voltages and altitudes that TSGT maintains. When trees growing either directly under or adjacent to the line approach the minimum vegetation clearances requiring maintenance specified in Table 2, they are trimmed back to meet the minimum clearance after removal indicated in Table 3. If possible, trees will be cut completely down and removed from the ROW. The landowner is consulted on whether or not to completely cut down or just trim the encroaching tree. In various areas within TSGT's Transmission System the ability to cut down or trim is governed by contracts, ROW easements, or special use permits, especially on government lands.

Table 2: Vegetation Clearance Requiring Management

Line Voltage (kV)	**Minimum Clearance** (feet between conductor and tree)							
	3000' factor (1.00)	4000' factor (1.02)	5000' factor (1.05)	6000' factor (1.08)	7000' factor (1.11)	8000' factor (1.14)	9000' factor (1.17)	10000' factor (1.20)
34.5	8.50	8.67	8.93	9.18	9.44	9.69	9.95	10.20
69	10.00	10.20	10.50	10.80	11.10	11.40	11.70	12.00
115	10.67	10.88	11.20	11.52	11.84	12.16	12.48	12.80
138	11.33	11.56	11.90	12.24	12.58	12.92	13.26	13.60
230	13.00	13.26	13.65	14.04	14.43	14.82	15.21	15.60
345	15.33	15.64	16.10	16.56	17.02	17.48	17.94	18.40

Distances incorporate IEEE 516-2003 Table 1 and OSHA 29 CFR 1910.269 Table R-10 altitude correction factors.

Table 3: Clearance After Management

Line Voltage (kV)	**Minimum Clearance** (feet between conductor and tree)							
	3000' factor (1.00)	4000' factor (1.02)	5000' factor (1.05)	6000' factor (1.08)	7000' factor (1.11)	8000' factor (1.14)	9000' factor (1.17)	10000' factor (1.20)
34.5	13.50	13.77	14.18	14.58	14.99	15.39	15.80	15.80
69	15.00	15.30	15.75	16.20	16.65	17.10	17.55	17.55
115	15.67	15.98	16.45	16.92	17.39	17.86	18.33	18.33
138	16.33	16.66	17.15	17.64	18.13	18.62	19.11	19.11
230	18.00	18.36	18.90	19.44	19.98	20.52	21.06	21.06
345	20.33	20.74	21.35	21.96	22.57	23.18	23.79	23.79

Distances allow for conductor movement, MVCD and no less than average vegetation growth for maintenance intervals.

2.3.2 Minimum Vegetation Clearance Distance (MVCD)

The MVCD is a calculated minimum distance to prevent flash-over between conductors and vegetation that is derived from the Gallet Equations. This is a method of calculating a flash over distance that has been used in the design of high voltage transmission lines. Keeping vegetation away from high voltage conductors by this distance will prevent voltage flash-over to the vegetation and transmission outages. Table 4 shows the MVCD for the voltages and altitudes of TSGT applicable transmission lines. If distances between the vegetation and conductor are approaching the MVCD, TSGT will follow the process identified in section 2.3.3 for addressing potentially threatening vegetation conditions.

Table 4: FAC-003-3 Table 2 Minimum Vegetation Clearance Distances (MVCD)

(AC) Nominal System Voltage (KV)	(AC) Maximum System Voltage (kV)	MVCD (feet) 3001 - 4000	MVCD (feet) 4001 - 5000	MVCD (feet) 5001 – 6000	MVCD (feet) 6001 - 7000	MVCD (feet) 7001 - 8000	MVCD (feet) 8001 - 9000	MVCD (feet) 9001 - 10000
345	362	3.67	3.82	3.97	4.12	4.27	4.43	4.58
230	242	3.49	3.63	3.78	3.92	4.07	4.22	4.37
138	145	2.03	2.12	2.21	2.3	2.4	2.49	2.59
115	121	1.68	1.75	1.83	1.91	1.99	2.07	2.16
69	72	0.99	1.03	1.08	1.13	1.18	1.23	1.28

2.3.3 Potentially Threatening Vegetation Conditions

When potentially threatening vegetation conditions are confirmed, notification to TSGT System Operations shall be made without any intentional delay. This confirmation could be in the form of TSGT field personnel who personally identify such a threat in the field. Confirmation could also be made by TSGT field personnel evaluating a situation reported by a landowner or contractor. Examples of acceptable unintentional delays may include communication system problems (for example, cellular service or two-way radio disabled), crews located in remote field locations with no communication access, and delays due to severe weather.

Vegetation-related conditions that warrant immediate communication to TSGT System Operations include vegetation that is near or encroaching into the MVCD (a grow-in issue) or vegetation that could fall into the transmission conductor (a fall-in issue).

The TSGT process to ensure the proper communication between field personnel and TSGT System Operations is contained within TSGT's SOP #11, Reports to the System Operator, maintained and documented by the TSGT System Operations department. The system operator and the field personnel will agree on the appropriate action until, or as, the vegetation threat is relieved. Appropriate actions may include a temporary reduction in the line loading, switching the line out of service, or other preparatory actions in recognition of the increased risk of outage on that circuit.

2.4 Maintenance Intervals

2.4.1 Vegetation Inspection

TSGT shall inspect 100% of the applicable transmission line miles defined in section 1.2. TSGT will, at a minimum, patrol each transmission line facility either by air (helicopter) or by ground at least once per calendar year and with no more than 18 calendar months between inspections on the same ROW. Routine ground patrols are conducted by TSGT transmission line maintenance personnel who are responsible for the oversight and maintenance of the transmission facilities in their respective areas. Routine aerial (helicopter) patrols are conducted under contract by firms that specialize in this type of work. In both cases, any encroachments, including vegetation, are documented and forwarded to the appropriate line supervisor or line foreman for assessment and resolution.

When TSGT is prevented from performing a Vegetation Inspection due to a natural disaster, unexpected weather conditions or system emergencies, TSGT will complete the Vegetation Inspection within the expected calendar year or 18 months, whichever is less, plus the time extension that is equivalent to the duration of the time TSGT was prevented from performing the Vegetation Inspection. Regional line superintendents shall be responsible for approving when an extension to the annual patrol is required. The line superintendents will follow-up with the crew supervisor/foreman to ensure the inspection gets completed within the extension. The schedule changes shall be noted in the annual work plan.

TSGT also considers local conditions that may require additional patrols during the year, such as immediate water supply, local annual rainfall, irrigation, native plant species, and other factors that may alter the normal vegetation growing patterns within each corridor. Constraint mitigation measures, as outlined in section 3.0, and limited ROW width may also alter the frequency of inspections. In addition, aerial or ground inspections may be conducted after an interruption occurrence.

All TSGT transmission line maintenance personnel shall document that they have performed the vegetation inspections identified above. This information shall be retained in the TSGT Transmission Line Database and/or hard copy reports electronically filed in the TSGT Document Management System, as per section 5.0.

2.4.2 Vegetation Management

TSGT completes 100% of its annual vegetation work plan for the applicable lines to ensure no vegetation encroachments occur within the MVCD. TSGT generally executes and completes vegetation management work orders within one year, or sooner depending on the action threshold(s) outlined in section 2.5.1. Potentially threatening vegetation conditions are managed within 24 hours of notification, if it can safely be achieved.

Modifications to the work plan in response to changing conditions or to findings from vegetation inspections may be made (provided they do not allow encroachment of vegetation into the MVCD) and shall be documented in the annual work plan. Acceptable reasons for modification to the annual work plan may include, but are not limited to:

- Crew or contractor availability and mutual assistance agreements
- Identified unanticipated high priority work
- Rescheduling work between growing seasons
- Change in expected growth or decay rate and other environmental factors
- Weather conditions and ROW accessibility
- Delays in obtaining the required permits or permission from landowners and management agencies
- Land ownership changes and changes in land use by the landowner
- Construction changes within or adjacent to the ROW that might affect the execution of the work
- Circumstances that are beyond TSGT's control

2.5 Annual Work Plan

2.5.1 Action Thresholds

Annual transmission vegetation management work plans are developed by TSGT. Utilizing data gathered from line inspections, vegetation management work on specific transmission line ROWs are identified, prioritized and scheduled based on the following action thresholds criteria:

- Confirmation of a potentially threatening vegetation condition (section 2.3.3)
- Criticality of the line, based on Major Transfer Path, IROL or other TSGT criteria, section 1.2
- Proximity to MVCD (Table 4)
- Level of anticipated growth based on tree growth and average mature height (Table 1)
  - Vegetation type, amount, and height
  - Local growing conditions such as water availability (rainfall or irrigation)
- Proximity to minimum vegetation clearances requiring maintenance (Table 2)

2.5.2 Work Schedule and Verifications

The line supervisor or line foreman that receives the reports generated during the routine ground or aerial Vegetation Inspections described above will assess the information contained in the reports and prepare corrective maintenance work orders, or work order tasks within the TSGT Work Management System. The vegetation management methods used, such as manual clearing, or mechanical clearing, or other actions, will be described in the TSGT Vegetation Management Work Plan. The required corrective vegetation management work that needs to be completed will then be scheduled. These plans and work schedules shall take into account the time required to obtain permissions or permits from landowners, land management agencies, or regulatory authorities. It is TSGT's practice to complete required vegetation management work and close the respective corrective maintenance work orders, or work order tasks within the same calendar year that the encroachment was reported. These work orders will remain in effect until the vegetation encroachment is removed. Foremen and superintendents periodically monitor open work orders to confirm they are closed in a timely manner. The same procedure is followed whether TSGT line crews or contractors complete the vegetation management. This process is illustrated in the *TSGT Vegetation Management Scheduling and Quality Inspections Process* flow chart located on TSGT's internal intranet Transmission Maintenance page in the TVMP Related Information section.

Documentation that TSGT has implemented an annual Vegetation Management Work Plan is retained in the TSGT Work Management System and/or the TSGT Document Management System as per section 5.0. All TSGT transmission line maintenance personnel shall document corrective action taken to remain in compliance with the vegetation management clearance distances identified in Table 2, Table 3, and Table 4. This information shall be retained in TSGT's Work Management System and Transmission Line Database.

2.6 New Construction Vegetation Clearing

TSGT secures transmission line and associated access road ROW by obtaining easements/permits from property owners or land management agencies prior to the construction of new transmission lines. It is TSGT's goal to obtain with these easements/permits the rights necessary to cut down, trim and/or otherwise control all woody stem vegetation necessary for the safe reliable construction, operation and maintenance of the transmission line. Initial ROW clearing work is accomplished by contract vegetation management crews either immediately before or during the construction of any new transmission line. The work accomplished by this initial clearing will establish the desired vegetation profile to be maintained by future vegetation maintenance. New construction vegetation clearing will follow the procedures and guidelines outlined in this TVMP.

This document is not controlled once printed.

3.0 Management Constraint Mitigation

3.1 Mitigation Areas

TSGT has developed corrective actions to achieve sufficient clearances for the protection of the transmission facilities when TSGT identifies locations on the ROW where TSGT is constrained from attaining the clearances in section 2.3. Constraints to performing vegetation maintenance work as planned include, but are not limited to: legal injunctions filed by property owners; the discovery of easement stipulations which limit TSGT's rights; federal, state or local rules and regulations; easements; land owner challenges; and previous TSGT written agreements, as well as special circumstance areas. Locations where vegetation cannot be managed as planned are identified as mitigation areas. These areas shall be included in the mitigation list and be defined by span location, reason for mitigation and mitigation action plan. Mitigation action plans are created specifically for each mitigation area to address unique conditions of the vegetation and its environment. The mitigation list is included as part of the annual plan. The process to address mitigation areas is illustrated in the *TSGT Landowner Refusal Process* located on TSGT's internal intranet Transmission Maintenance page in the TVMP Related Information section.

3.2 Corrective Action

TSGT defines a corrective action as the implementation of a mitigation action plan in order to achieve sufficient clearances for the protection of the transmission facilities. The specific actions taken as corrective actions will be documented and tracked for the mitigation area. Reports on vegetation management and mitigation are continuously available to management for monitoring purposes.

3.2.1 Vegetation Management Constraint

When TSGT identifies locations where performing planned vegetation maintenance work is constrained, but the transmission line is not at potential risk and the work event can be rescheduled, or re-planned using an alternate work methodology or interval, TSGT line crew will coordinate with TSGT Land Rights and take at least one of the following actions to ensure the reliability of the system:

- Work with landowners to purchase trees that are in TSGT ROW. This purchase is done with the understanding that TSGT will completely remove the trees and the landowner will never plant trees in the ROW.
- Work with landowners to allow pruning to a minimum of one and a half year average re-growth.
- Coordinate with local law enforcement agencies.
- Modify the inspection and/or maintenance intervals until mitigation is resolved.

3.2.2 Potential Risk Constraint

When TSGT identifies locations where performing planned vegetation maintenance work is constrained, which potentially leaves the transmission line at risk, TSGT line crew will follow the vegetation management constraint corrective actions indicated in section 3.2.1 and coordinate with TSGT System Operations, as per section 2.3.3, to take at least one of the following additional actions to ensure the reliability of the system:

- Limit the loading on the transmission line
- Take the line out of service

4.0 Compliance Reporting

TSGT will submit a quarterly report to WECC identifying all Sustained Outages of applicable lines, operated within their Rating and all Rated Electrical Operating Conditions, as determined by TSGT, to have been caused by vegetation. Reports will include, as a minimum, the following:

- name of the circuit(s), the date, time and duration of the outage; the voltage of the circuit;
- a description of the cause of the outage; the category associated with the Sustained Outage;
- other pertinent comments; and any countermeasures taken by TSGT.

A Sustained Outage is to be categorized, as per NERC, as one of the following:

- Category 1A - Grow-ins: Sustained Outages caused by vegetation growing into applicable lines, that are identified as an element of an IROL or Major WECC Transfer Path, by vegetation inside and/or outside of the ROW;
- Category 1B - Grow-ins: Sustained Outages caused by vegetation growing into applicable lines, but are not identified as an element of an IROL or Major WECC Transfer Path, by vegetation inside and/or outside of the ROW;
- Category 2A - Fall-ins: Sustained Outages caused by vegetation falling into applicable lines that are identified as an element of an IROL or Major WECC Transfer Path, from within the ROW;
- Category 2B - Fall-ins: Sustained Outages caused by vegetation falling into applicable lines, but are not identified as an element of an IROL or Major WECC Transfer Path, from within the ROW;
- Category 3 - Fall-ins: Sustained Outages caused by vegetation falling into applicable lines from outside the ROW;
- Category 4A - Blowing together: Sustained Outages caused by vegetation and applicable lines that are identified as an element of an IROL or Major WECC Transfer Path, blowing together from within the ROW.
- Category 4B - Blowing together: Sustained Outages caused by vegetation and applicable lines, but are not identified as an element of an IROL or Major WECC Transfer Path, blowing together from within the ROW.

5.0 Documentation

5.1 File Format and Structure

All test results not stored within the TSGT Line Database will be saved into the TSGT Document Management System using the appropriate filename structure and location. Maintenance documents may be saved in word, excel, **pdf** or other scanning formats. Ensure inspection and vegetation management dates are correct, all appropriate boxes are checked, all required fields are completed and Comments are included, if needed, within the TSGT Line Database prior to closing the maintenance work order.

5.2 Data Retention

Documentation required by FAC-003 will be retained as follows, or as otherwise dictated by current standards:

- 3 months for voice recordings
- 12 months for system operation logs
- 3 years for all other documentation required by FAC-003-3

This document is not controlled once printed.

6.0 Transitional Equipment

6.1 IROL and Major Transfer Paths

A line operated below 200kV that is newly designated as either an element of an IROL, or an element of a Major Transfer Path will be inspected and have vegetation concerns address by the later of: 1) twelve (12) months after the date it is initially designated as being an element of an IROL or an element of a Major Transfer Path, or 2) January 1 of the planning year when the line is forecast to become an element of an IROL or an element of a Major WECC Transfer Path.

6.2 Discovered Equipment

When line facilities previously unknown to TSGT, or newly identified as regulated, are identified, they are placed into the maintenance schedule and patrolled within six months of discovery.

6.3 Acquired and Transferred Equipment

All transfers of ownership or maintenance responsibilities are governed by approved TSGT legal contracts or agreements. Transfer of ownership and maintenance responsibilities for TSGT member cooperative facilities are coordinated through the TSGT Low Side Transition Team. All acquired line facilities rated at 200kV or above, or are designated elements of an existing IROL or existing Major Transfer Path regardless of voltage, will be inspected and have vegetation concerns addressed within twelve (12) months of the close date of the acquisition agreement.

6.4 Expectations at Time of Acquisition or Transfer

1. Facility has been in service.
2. Facility has been maintained to a different standard than that of TSGT.
3. Maintenance activities will be up to date and to the transferring entities standards.

6.5 Regulatory Reporting and Mitigation

In the event that maintenance records do not provide the needed information, at a minimum last maintenance date and supporting documentation, or it is found that the transferring entity's maintenance activities are not current, TSGT will incorporate the transmission line facility into the existing TSGT Transmission Maintenance priorities and:

1. Schedule and complete vegetation inspection and, as needed, management not to exceed twelve (12) months.
2. File a mitigation plan with the appropriate regulatory agency within six months of transfer, if it is determined that the facility cannot be inspected and managed within twelve (12) months.
3. TSGT shall not assume liability for regulatory fines for the newly acquired facility unless it does not meet the requirements within this section. TSGT's liability for regulatory maintenance requirements will be from time of ownership forward.

This document is not controlled once printed.

7.0 Maintenance By and For Other Entities

7.1 Contractual Agreements

All jointly-owned and shared maintenance responsibilities are governed by approved TSGT legal contracts or agreements. Most established agreements hold that the maintenance entity will maintain the contractual equipment to their own maintenance standards. Transmission lines may be separated by line segment based on ownership and maintenance responsibilities within a transmission line facility.

7.2 Regulatory Reporting and Mitigation

When not specified by legal contracts or agreements, due to contract origination dates prior to 2007 regulatory requirements, TSGT Transmission Maintenance will meet regulatory requirements by observing and expecting the following.

1. The maintaining entity will report all maintenance activities for regulated facilities to the appropriate owner.
2. The maintaining entity will supply maintenance information to the owning entity, as required by contract. Maintenance entities for TSGT owned facilities that are not obligated by contract to share the required regulatory information and do not respond to TSGT requests for information are expected to report the information directly to the appropriate regulatory agency.
3. The maintaining entity will file all regulatory mitigation reports, as needed, to the appropriate regulatory agency. The maintaining entity will notify the owning entity immediately upon identifying the need and prior to filing the mitigation report.

This document is not controlled once printed.

8.0 Compliance Map

8.1 FAC-003-3 Supporting Evidence

R1. Major Transfer Path and IROL elements

- Section 1.2 of the *TVMP* defines the TSGT applicable lines.
- The *TSGT FAC-003 Applicable Lines* reflects the lines, including WECC major transfer paths, governed by this TVMP.
- The *TSGT Annual Work Plan* provides inspection and management schedules and completion.
- Quarterly vegetation outage reports provide outage listing, even when no outages occur.

R2. All other applicable lines

- Section 1.2 of the *TVMP* defines the TSGT applicable lines.
- The *TSGT FAC-003 Applicable Lines* reflects the lines governed by this TVMP.
- The *TSGT Annual Work Plan* provides inspection and management schedules and completion.
- Quarterly vegetation outage reports provide outage listing, even when no outages occur.

R3. Documented maintenance strategy
3.1 Movement of applicable line conductors under Rating and all Rated Electrical Operating Conditions;
3.2 Inter-relationships between vegetation growth rates, control methods, and inspection frequency

- Section 2.2 of the *TVMP* summarizes the TSGT vegetation maintenance strategy.
- Section 2, all sections, of the *TVMP* details the strategy.

R4. Control center notification

- Section 2.3.3 of the *TVMP* summarizes the TSGT procedure for notification to the control center for potentially threatening vegetation conditions.

R5. Constraint mitigation

- Section 3.0 of the *TVMP* summarizes the TSGT mitigation action where vegetation management is constrained.
- Section 3.2.1 and 3.2.2 of the *TVMP* provide corrective actions for potentially threatening vegetation conditions.
- The *TSGT Landowner Refusal Process* provides a flowchart for this process.

R6. 100% Vegetation Inspections

- Section 2.4.1 of the *TVMP* defines the vegetation inspection intervals and expected completion.
- The *TSGT Annual Work Plan* records the inspections scheduled and completed.

R7. 100% vegetation management

- Section 2.4.2 of the *TVMP* defines the vegetation management intervals and expected completion.
- The *TSGT Annual Work Plan* records the vegetation work scheduled and completed.

9.0 Revisions

9.1 Review Cycles and Responsibilities

It shall be the responsibility of all Transmission field personnel to adhere to the practices as outlined in this TVMP. It shall be the responsibility of the regional line maintenance superintendents, to review and approve the program to ensure maintenance, system reliability, personnel safety and regulatory needs are met in a timely manner. Approved revisions will be posted to the departmental intranet page immediately following agreement and submittal by the three regional superintendents with their managers' approvals. Regional and senior managers shall review and approve the program every calendar year. Revisions of the TVMP will be maintained for a minimum of five calendar years, or as otherwise required by state or federal regulations.

9.2 Revision History

Rev No.	Section	Revision Description	Effective Date
--		Base document in section V of Line Standards manual	05/31/07
--	VIII	Added Acquired Equipment	07/19/08
--		Added Revision Request Form	09/16/08
2.0		Replaced Responsibility and Authority with Document Control section. Moved Revision Request Form to this section	04/30/09
	V	Revised Vegetation Management Program	
	Intro, I, VIII	Added statements to support regulatory requirements	
2.1	V	Reorganized section, added IEEE table 5, to better support regulatory audits.	07/23/09
2.2	C	Changed Document Control Retention Period from 3 years to 5 years to match TVMP section and FAC-003-1 requirements.	02/04/10
	B, D	Changed management review description and authorities to follow Joel Bladow's Delegation of Authority for Maintenance Standards. Removed specific names.	
2.3	IV.A	Added six month extension	03/11/11
	IV.B,C,D	Added clarifying statements.	
	VI, VIII	Rewrote Mitigation and Annual Plan	
	IX, IX.G	Removed specific software references and added reference to SO #3	
		Changed Document Control section and moved Revision Request Form to external Related Information	
3.0		Extracted section V (TVMP) and associated information from the Line Standards manual into this separate document	06/06/11
	All	Added clarifying statements in response to Forum Peer Review	
3.1	8.0	Removed Standing Order #3 reference.	02/15/12
	10, 11	Rewrote to unify sections within all TM standards.	
4.0	all	Reorganize and strengthen information to align with FAC-003-3.	07/01/14