Vegetation Management

AUDITING ACTIVITY

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1 PURPOSE

This document describes the scope and process for auditing three core activities of Vegetation Management: Pre-Inspection, Pole Clearing, and Tree Pruning and Removal.

2 APPLICABILITY

This document is intended for use by:

- Vegetation Management Contractors and Vegetation Management internal staff.
- Internal or external groups that need to understand the Auditing activity for accountability and compliance purposes.

3 REGULATORY AND OTHER REQUIREMENTS

Table 1: Regulatory and Other Requirements

Code, Regulation, or Requirement	Description
GO 95, Rule 35	General Order (GO) 95, Rule 35, requires an 18-inch radial clearance always be maintained between vegetation and high-voltage conductors (750 volts to 22,500 volts). Clearance requirements increase for conductors carrying transmission voltages (69,000 volts and greater).
NCCP/HCP	This plan, developed in collaboration with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife, covers 2,245,800 acres of the service area and was designed to avoid, minimize, and mitigate impacts to 110 Covered Species and their habitats while allowing San Diego Gas & Electric (SDG&E) to install, maintain, operate, and repair its existing gas and electric system and undertake anticipated expansion of that system.
NERC FAC-003-5	In addition to meeting state requirements, utilities must meet federal reliability standards for clearances between vegetation and transmission lines. These standards for the nation's bulk-power system are set by the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC). The Transmission Vegetation Management Reliability Standard, FAC-003-5, establishes a minimum vegetation clearance distance (MVCD) that must be maintained at all times between trees and certain transmission voltage conductors. Federally required clearances vary depending on voltage and in some cases are less stringent than state standards.
PRC§4292	This law is administered by the California Department of Forestry and Fire Protection (CAL FIRE). It requires a minimum clearance of 10 feet around the base of the pole cleared of all flammable vegetation down to bare soil. Limbs within the 10-foot radius are removed up to 8 feet above ground. All dead branches below the cross arms and within the 10-foot radius must be removed. This rule is applicable within the State Responsibility Area (SRA).

Code, Regulation, or Requirement	Description
PRC§4293	This law is administered by CAL FIRE. It requires a 4-foot radial clearance always be maintained for conductors between 2,400 volts and 72,000 volts. The clearance requirements increase as the voltage increases. Public Resources Code (PRC)§4293 applies year-round in San Diego County areas designated as SRAs, where CAL FIRE is the primary fire suppression agency.
CPUC Rulemaking 18-10-007).	Implements the provision of Senate Bill (SB) 901 that requires electrical corporations under the California Public Utilities Commission's (CPUC's) jurisdiction to submit annual Wildfire Mitigation Plans (WMP).
ESP113.1	This document describes the procedures used for coordination of fire suppression and SDG&E operations during wildland fires that have SDG&E facilities or equipment within or adjacent to an active fire boundary.

4 AUDITING ACTIVITY SUMMARY

Quality assurance audits of vegetation management activities are performed to measure work quality, contractual adherence, compliance with regulations and standards, and data accuracy in the Vegetation Management System (VMS). A third-party contractor is utilized to perform the quality assurance audits of vegetation management activities.

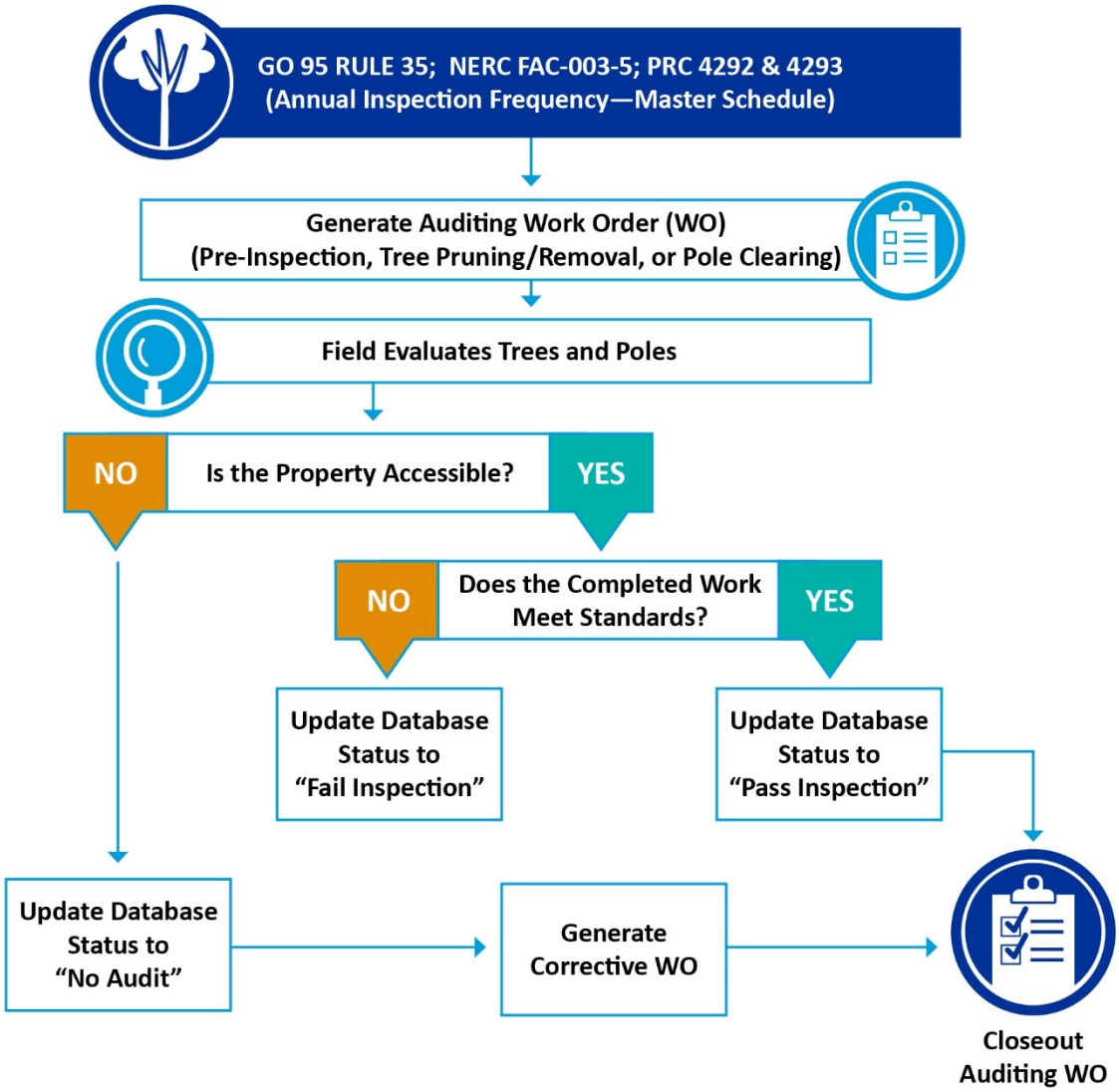
Refer to Table 2 for a summary of Audits performed for Vegetation Management activities.

Table 2: Summary of Audit Activity

Activity	Activity Component	Audited?
Pre-Inspection Activity	Detailed Inspection	Yes
Pre-Inspection Activity	Off-Cycle Patrol	No
Pre-Inspection Activity	Pole Clearing Pre-inspection	No
Tree Pruning and Removal Activity	Tree Pruning	Yes
Tree Pruning and Removal Activity	Off-Cycle HFTD Pruning/Removal	Yes
Tree Pruning and Removal Activity	Enhanced Clearance	Yes
Tree Pruning and Removal Activity	Re-prune Work Orders	Yes
Pole Clearing Activity	Herbicide Application	Yes

Activity	Activity Component	Audited?
Pole Clearing Activity	Mechanical Pole Clearing	Yes
Pole Clearing Activity	Re-clear Pole Clearing	Yes
Pole Clearing Activity	Re-brush Work Orders	Yes
Fuels Management	N/A	No

Figure 1: Auditing Activity Process Flow



5 AUDITING ACTIVITY

5.1 Activity Readiness

5.1.1 Requirements

Auditor Qualifications

The Audit Contractor is responsible for hiring competent, professional individuals and providing the necessary training to comply with the applicable rules and regulations specific to vegetation management. The Audit Contractor is also expected to provide the required level of resource staffing at all times to successfully perform its function and to maintain established work schedules critical to operations.

Auditors include individuals who have a degree and/or experience in a field related to vegetation management, natural resources, environmental science, or biology. Auditors are mostly comprised of International Society of Arboriculture (ISA) Certified Arborists or those in the process of becoming certified. Most auditors have prior experience as a Pre-Inspector or Tree Pruner and are trained and versed in utility vegetation management regulations, procedures, and field auditing.

Auditors are required to be fully prepared to perform every aspect of their job duties. This includes completing all required initial training for safety, electrical awareness, species identification, hazard tree assessment, applicable regulations, workflow processes, and hardware and software proficiency. Auditors must retain all required safety and fire personal protective equipment (PPE), maintain it in proper working order, and be properly trained on its deployment and use. Auditors must be trained on and have hard copies or electronic copies of all work-related documents, regulatory requirements, and training and reference materials.

The Audit Contractor is required to develop and train employees on details of activity processes, procedures, and workflows that are in addition to what is covered in this manual.

Prior to beginning Audit activities, personnel must complete the following internal contractor training:

- Fire prevention and awareness training, including proper use of fire extinguishing equipment
- Proper use of fire PPE
- SDG&E Operations and Maintenance (O&M) Wildland Fire Prevention Plan (ESP 113.1)

Required Equipment

Auditors are required to carry the following items:

- PPE including hard hat, safety glasses, and safety vest
- Shovel (round head)
- Pulaski tool
- 5-gallon, water back-pack-pump
- One serviceable “2A10BC” fire extinguisher, minimum UL rated

- Diameter at Breast Height (DBH) measuring tape
- Employee ID badge

Required Documentation

All field personnel must retain copies (electronic or hard copy) of the following documents:

- Vegetation Management Audit Activity
- O&M Wildland Fire Prevention Plan (ESP 113.1)
- Natural Community Conservation Plan (NCCP) or subsequent Habitat Conservation Plan (HCP) Amendment
- Powerline Fire Prevention Field Guide
- PowerWorkz Pre-Inspection User Guide

5.1.2 Vegetation Management Areas

The service territory is divided into 133 Vegetation Management Areas (VMAs) that are delineated variably by city boundaries, SDG&E Districts, roads, geographical characteristics, etcetera. In addition, boundaries were drawn to contain a relatively comparable number of inventory trees within each VMA. The service territory is further delineated by jurisdictional and fire designation areas including the State Responsibility Areas (SRAs), Local Responsibility Areas (LRAs), and the High Fire Threat District (HFTD). These designations determine which vegetation clearance rules and regulations apply. Each VMA has a unique three-digit identification number. The VMAs where PRC§4293 (See Table 1 for regulatory requirements) applies are identified with a second digit number of 5 or greater (ex: VMA 453; 463). One exception to this rule is VMA 552 which is located within the LRA. In VMAs where the second digit of the VMA number is 4 or less (ex: VMA 210; 220), the minimum conductor clearances of GO 95, Rule 35 apply.

VMAs are used to create the Master Schedule that includes the core activities of Pre-Inspection, Tree Pruning and Removal, Audit, and Pole Clearing. Tree pruning for each VMA is performed annually according to the Master Schedule.

For Tree Pruning and Removal audits, hardcopy VMA maps are provided to the Auditor to track progress and document completion in each VMA. Hardcopy maps are returned to SDG&E as part of the certification process once Audits in a VMA are complete. Auditors are responsible to patrol every span of overhead transmission, primary, and stand-alone secondary conductors, including any new line segments, within their assigned VMA section.

5.1.3 State Responsibility Area

The SRAs are recognized by the Board of Forestry and Fire Protection as areas where CAL FIRE is the primary emergency response agency responsible for fire suppression and prevention. Pole clearing is required within the SRA to comply with PRC§4292 for poles that carry specific, attached, “non-exempt” equipment (e.g., fuse, switch, lightning arrestor, hot line clamp, split bolt connector). Eighty VMAs are in the SRA (VMS defines the service territory GIS SRA layer).

5.1.4 Local Responsibility Area

LRAs are land areas where CAL FIRE, the U.S. Forest Service, or the Bureau of Land Management is not the primary fire protection agency. These are land areas that are "within the exterior boundaries of any city."[1]. Pole clearing is performed in the LRA based on criterion developed by Vegetation Management (see Pole Clearing Pre-Inspectors/Auditors Procedures). In areas of the LRA which can support a significant wildland fire, poles with non-exempt hardware are recorded in the Vegetation Management System (VMS) and cleared to the same specifications as a non-exempt SRA pole.

There are 53 VMAs located within the LRA boundary.

5.1.5 High Fire Threat District

The HFTD outlines areas of the state designated by the CPUC as having increased risk from utility-related wildfires.[2] The HFTD is separated into Tier 2 and Tier 3, where the risk of wildfire is considered elevated and extreme respectively. Fire risk factors include the presence of utility infrastructure, vegetation type and density, weather conditions, and fire history. Approximately two-thirds of the service territory is within the HFTD (see Appendix A). Approximately one-half of the total population of inventory trees are located within the HFTD. Of the 133 total VMAs, 106 are located partially or entirely within the HFTD.

5.1.6 Wildfire Operating Guides

5.1.6.1 ESP.113.1

The Fire Potential Index (FPI) was developed to communicate the wildfire potential on any given day to promote safe and reliable operations. The 7-day FPI forecast, which is produced daily, classifies the fire potential based on weather and fuels conditions, and historical fire occurrences.

The FPI is represented in the following scale:

Figure 2: FPI Rating Scale

Normal	Elevated	Extreme
≤ 11	12 to 14	≥ 15

Operating Conditions (e.g., Normal condition, Elevated condition, Extreme or RFW) and associated fire mitigations are designated for work activities as outlined in the Electric Standard Practice (ESP) document: SDG&E Operations and Maintenance Wildland Fire Prevention Plan (ESP 113.1). As the fire potential increases in severity, activities that present an increased risk of ignition have additional mitigation requirements. Where risk cannot be mitigated, work activity might cease.

[1] Power Line Field Prevention Guide 2021, Section 4127(b), page 28

[2] see the CPUC's Fire-Threat Maps and Fire-Safety Rulemaking; https://www.cpuc.ca.gov/industries-and-topics/wildfires/fire-threat-maps-and-fire-safety-rulemaking

All internal Company and Contracted personnel are required to be trained on SDG&E's fire prevention procedures annually. Audit Contractors are also required to develop and perform their own company fire prevention and safety training. In addition, fire prevention measures are discussed at pre-job briefings (tailboards, tailgates). These practices are implemented in all areas of the service territory where at-risk activities are performed.

5.1.6.2 Cleveland National Forest Operations & Maintenance Fire Plan

In addition to complying with the ESP 113.1 protocols, Vegetation Management contractors must comply with all fire prevention protocols contained within the Cleveland National Forest (CNF) O&M Fire Plan when operating on U.S. Forest Service lands. The Plan describes the fire equipment requirements to work within specific Project Activity Levels (PALs) and when work is prohibited. PAL level severity ranges from A, the lowest, to Ev, the highest level.

5.2 Access and Notification Protocols

5.2.1 Public Agency Lands

State and federal agencies such as the Bureau of Indian Affairs, State Parks, U.S. Forest Service, Bureau of Land Management, and U.S. Fish and Wildlife Service require specific access and notification protocols for performing work on these properties that may be guided by specific easement rights, use-permits, Memorandums of Understanding (MOUs), or other agreements. These agency properties require specific environmental and/or cultural review prior to performing work. Agency lands are identified in the geographic information system (GIS) mapping layer in the electronic field application (Epoch), and within inventory tree and pole clearance records.

5.2.2 Military Bases

Military base facilities are identified via a GIS mapping layer in Epoch and within the inventory tree and pole clearance records under property ownership. Access to military facilities is restricted and requires advance notification and identification to gain entry. The respective SDG&E Land Management Department representative has the most current protocol for accessing specific military base installations.

5.2.3 Environmental Procedures

Procedures developed between SDG&E and state and federal wildlife agencies serve to ensure vegetation management activities follow applicable rules and regulations. SDG&E's Subregional NCCP and subsequent HCP Amendment were developed to avoid or minimize adverse impacts to sensitive and protected flora and fauna species and for the protection of cultural resources. The NCCP follows a comprehensive habitat approach to species protection while allowing the utility to perform maintenance and construction activities to meet safety, compliance, and reliability responsibilities. All internal and contracted personnel are required to understand and follow the requirements and operational protocols outlined in the NCCP and HCP Amendment.

Environmentally Sensitive Areas (ESAs) are naturally occurring areas within the service territory that contain or provide habitat for sensitive, threatened, or endangered species or encompass protected

cultural resources that are state and/or federally protected. As they pertain to Vegetation Management activities, ESAs are predominantly located within and/or adjacent to major riparian areas where nesting avian (bird) species inhabit. Annual Pre-Inspection and Tree Pruning and Removal activities are scheduled to occur outside traditional bird breeding season (generally February 15-September 1) in areas classified ESA.

5.2.4 Customer Engagement

Customer engagement and understanding of utility vegetation management is crucial to the success of the program. Auditors must follow property notes within the inventory tree and/or pole brushing records prior to entering a property and to update the restriction notes as needed to reflect current access/notification protocols and requirements. Auditors should always place their personal safety first and leave a property if safety is a concern. Safety incidents should be communicated immediately to the SDG&E Area Forester resolution.

5.3 Vegetation Management System

The VMS, PowerWorkz, is used to track and record inventory assets (trees and poles) and manage all work activities via work orders. The field (mobile) application of PowerWorkz, Epoch, is the mapping interface used to navigate and to perform data entry to record completed work. Epoch includes multiple GIS layers, electric infrastructure, land ownership, and parcel information, and houses the electronic records and activity history for all tree and pole assets.

Auditors enter information into PowerWorkz using a mobile data terminal (MDT). The information is tracked at the asset (individual tree or pole) level within the inventory tree or pole clearance record.

5.3.1 Inventory Tree Records

An inventory tree record is created in Epoch for each new tree that meets the inventory tree definition. An inventory tree is defined as one that could encroach within the required minimum clearance distance by growth or tree failure within 3 years of the inspection date for distribution and transmission lines. The inventory tree record includes all attributes unique to a tree including species, growth rate, height, diameter, location, customer information, and activity history. Inventory tree records may be deleted from the database if the inventory tree is physically removed or if it no longer meets inventory tree criteria.

A tree unit represents the number of trees or the volume of brush material documented in an inventory tree record. Trees are quantified as individual units and brush is measured into units of specified volume (square feet). A tree is defined as vegetation with a DBH of 3 inches or greater. Brush is defined as vegetation with a DBH of less than 3 inches.

The condition code indicates the status of an inventory tree based on the most recent activity update. During the audit, the Auditor determines if the inventory tree record is accurate and complete.

5.3.2 Pole Clearance Records

A pole clearance record is created within the work management system (Epoch) for each non-exempt pole or structure. The pole clearance record includes all attributes unique to the pole including location, customer information, and activity history. New pole clearance records are created for poles or structures when non-exempt hardware is identified. Poles are deleted from the database if the pole is no longer equipped with subject hardware, the bird's nest is no longer present, or the pole has been removed from the field.

The condition code indicates the status of a subject pole based on the most recent activity update. During the audit, the Auditor determines if the pole clearance record is accurate and complete.

5.3.3 Work Orders

Electronic work orders are used to schedule, create, assign, and complete work for all Vegetation Management activities. A scheduling work order (SWO) is created in PowerWorkz for each annual activity within a VMA. The SWO is the assignment of the work activity to the Contractor and includes all related activity assets in the VMA. Dispatch work orders (DWO) are created within a SWO for individual work assignments and are assigned to field workers. The multiple DWOs comprise all the assets within the SWO.

When a worker has completed the update for all assets within a DWO, the DWO is completed electronically in VMS. Once all DWOs within the parent SWO are completed, the SWO is also completed electronically.

5.4 Audit Process

5.4.1 Audit Coverage and Timing

A randomized, representative sample of completed vegetation management work is used for the purposes of auditing. Table 3 shows is a summary of sample size for each activity:

Table 3: Audit Sample Sizes for Vegetation Management Activities

Activity	Activity Component	Audited?	Timing	Minimum Audit Coverage
Pre-Inspection Activity	Detailed Inspection	Yes	First month following completion of Pre-Inspection	15%
Pre-Inspection Activity	Off-Cycle Patrol	No	N/A	N/A
Tree Pruning and Removal Activity	Tree Pruning	Yes	First month following completion of Tree Pruning	15%
Tree Pruning and Removal Activity	Off-Cycle HFTD Pruning/Removal	Yes	First month following completion of Tree Pruning	100%

Activity	Activity Component	Audited?	Timing	Minimum Audit Coverage
Tree Pruning Activity	Re-Prune Corrective Work Orders	Yes	Three weeks after the issue is corrected. Contractors have two weeks following completion of the initial audit to correct the issue.	100%
Pole Clearing Activity	Herbicide Application	Yes	First month following completion of Pole Clearing	15%
Pole Clearing Activity	Mechanical Pole Clearing	Yes	First month following completion of Pole Clearing	15%
Pole Clearing Activity	Re-clear Pole Clearing	Yes	First month following completion of Pole Clearing	15%
Pole Clearing Activity	Corrective Work Orders	Yes	Three weeks after the issue is corrected. Contractors have two weeks following completion of the initial audit to correct the issue.	100%
Fuels Management	N/A	No	N/A	N/A

When sampling, the total activity population is stratified by contractor and crew to include each contractor and each crew in the audit. If the work crew did a small amount of work (e.g. 10 or less activities), the random sample may miss selecting those records, in which case they are manually added to the sample for testing.

5.4.2 Audit Scope

5.4.2.1 Pre-Inspection Tree Audits

The purpose of a pre-inspection tree audit is to verify the efficacy of the Pre-Inspection Activity and includes the following scope:

- Data Quality: Review the inventory tree record for accuracy and completeness (e.g. species, customer information, etc.)
- Validate compliance with the following:
    - Is tree status incorrect? (e.g. listed as clear but requires prune)
    - Is tree status correct, but is non-compliant? (e.g. needs a memo prune)
    - Is tree a non-inventory tree memo (e.g. tree missing from inventory and requires memo prune)?

5.4.2.2 Pole Clearing Pre-Inspection Pole Audits

The purpose of a pole clearing pre-inspection pole audit is to verify the efficacy of the Pole Clearing Pre-Inspection Activity and includes the following scope:

- Data Quality: Review the pole clearance record for accuracy and completeness (e.g. status, equipment, etc.)
- Validate compliance with the following:
    - Is all equipment properly identified? (e.g. fuse, lightening arrestor, switch, split bolt, hot line clamp)
    - Is pole status correct?
    - Has a non-inventory pole been identified? (e.g. adding a pole and assigning as environment hold)

5.4.2.3 Tree Prune Audits

The purpose of a tree prune audit is to verify the efficacy of the Tree Pruning and Removal Activity and includes the following scope:

- Data Quality: Review the inventory tree record for clearance accuracy and completeness (pass or fail)
- Validate compliance with the following:
    - Is it a documentation fail?
    - Is the quality of the prune acceptable? Are there site issues such as failure to remove debris? Did pruning fail to meet the American National Standards Institute (ANSI) A300 standard?
    - Is it a compliance fail?
        - The tree has not been pruned or removed to achieve and/or maintain compliance? (includes clearance, enhanced clearance, and reactive memo or unit group)
        - Will the VMA remain in compliance until the next scheduled Pre-Inspection?

5.4.2.4 Pole Clearing Audits

The purpose of a pole clearing audit is to verify the efficacy of the Pole Clearing Activity and includes the following scope:

- Validating compliance with the following:
    - Has the pole been cleared to maintain compliance with PRC§4292 standards?
    - Is the quality of the clearing acceptable? Are there issues on the site such as debris not removed?
    - Will the pole remain in compliance until the next scheduled pole clearing? (Contractor not responsible fail or Contractor responsible fail?)

5.4.3 Audit Findings and Follow-up Actions

Audit findings are tracked in the VMS, are specific to the inventory tree and pole clearing records and are available for reporting. Findings and observations are shared with contractors and reviewed for status, trends, and follow-up action. For samples that fail an audit, a corrective work order (CWO) is generated and issued back to the contractor for corrective action for no additional cost.

6 REFERENCE DOCUMENTS

Document Type	Document Name
External	ANSI A300 Tree Care Standards
External	California Power Line Fire Prevention Field Guide
Internal	ESP113.1
External	Fire-Threat Maps and Fire-Safety Rulemaking
Internal	PowerWorkz Pre-Inspection User Guide
Internal	Pre-Inspection Activity (in development)
External	State Responsibility Area Viewer
External	Subregional Natural Community Conservation Plan (NCCP)
Internal	Tree Trimming Activity (in development)
Internal	Vegetation Management Master Schedule
Internal	Wildfire Mitigation - 5 Audit Procedures.pdf - All Documents (sharepoint.com)
Internal	2023-2025 WMP
Internal	WMP DGF Compliance Documentation: Vegetation Management

7 ROLES AND RESPONSIBILITIES

Roles and Responsibilities for used in this document can be found on the Vegetation Management SharePoint site.

8 DEFINITIONS AND ACRONYMS

8.1 Definitions

Definitions for terms used in this document can be found on the Vegetation Management SharePoint site.

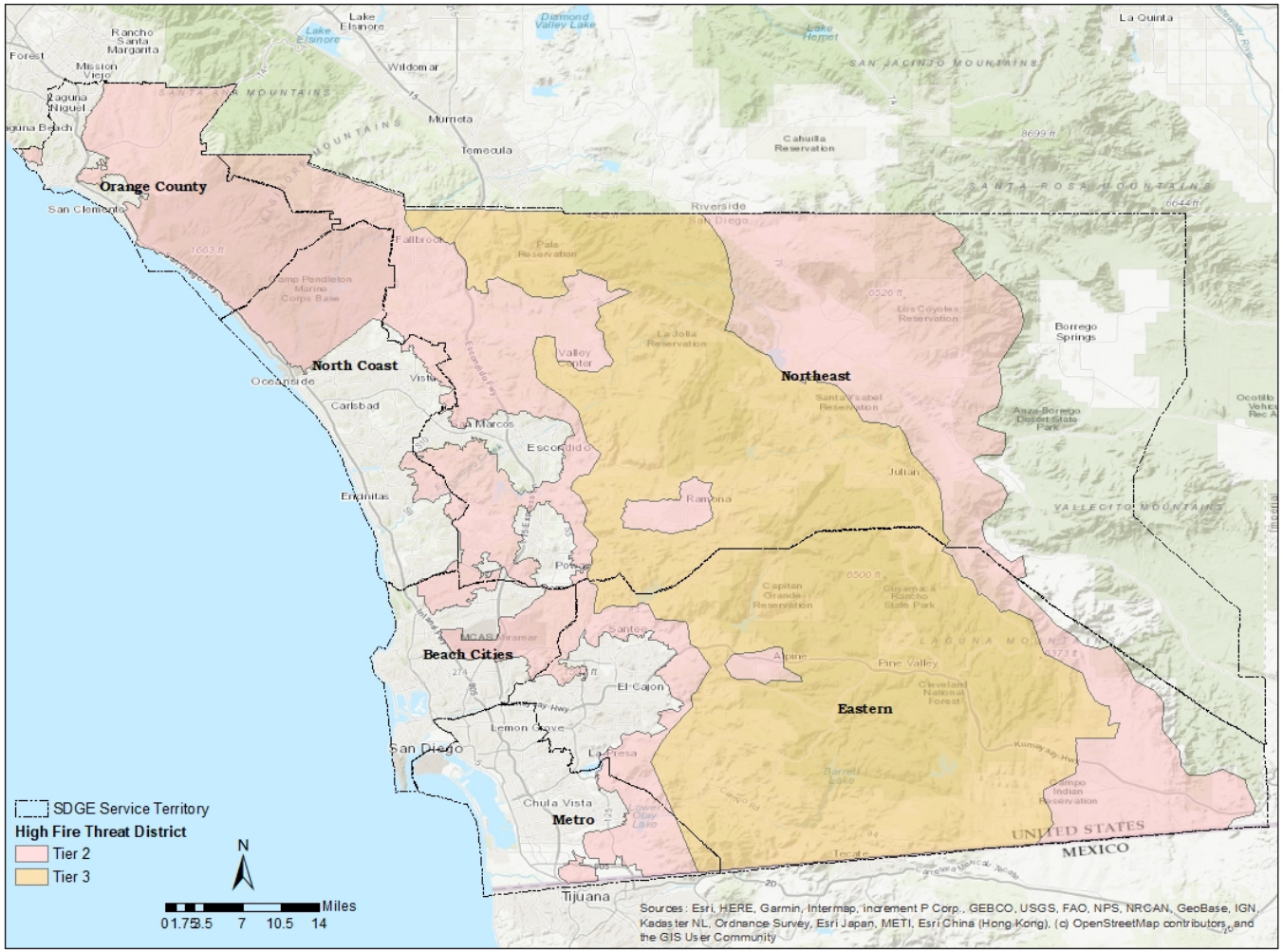
8.2 Acronyms

Abbreviation	Name
ANSI	American National Standards Institute
CAL FIRE	California Department of Forestry and Fire Protection
CNF	Cleveland National Forest

Abbreviation	Name
CPUC	California Public Utilities Commission
CWO	corrective work order
DBH	Diameter at Breast Height
DWO	dispatch work order
ESA	Environmentally Sensitive Area
ESP	Electric Standard Practice
FERC	Federal Energy Regulatory Commission
FPI	Fire Potential Index
GIS	geographic information system
GO	General Order
HCP	Habitat Conservation Plan
HFTD	Hire Fire Threat District
ISA	International Society of Arboriculture
LRA	Local Responsibility Areas
NERC	North American Electric Reliability Corporation
MDT	mobile data terminal
MOU	Memorandum of Understanding
MVCD	minimum vegetation clearance distance
NCCP	Natural Community Conservation Plan
O&M	Operations and Maintenance
PAL	Project Activity Level
PPE	personal protective equipment
PRC	Public Resources Code
SB	Senate Bill
SDG&E	San Diego Gas & Electric
SRA	State Responsibility Area

Abbreviation	Name
SWO	scheduling work order
VMA	Vegetation Management Areas
VMS	Vegetation Management System
WMP	Wildfire Mitigation Plan

9 REVISION HISTORY AND APPROVALS

Rev. Number	Description	By	Approved By	Date
1	Document creation	Jimmie Webb, Leigh Ratcliffe, Lana Radchenko	Jimmie Webb	11/01/2024
2				
3				

Appendix A: High Fire Threat District Map