



To: The Public, Local and State Agencies, and Stakeholders for San Diego Gas and Electric's 2021 Wildfire Mitigation Plan Independent Evaluator Annual Report on Compliance

July 15, 2022

Enclosed is the Final 2021 Wildfire Mitigation Plan (WMP) Independent Evaluator Annual Report on Compliance detailing the independent evaluator's assessment of San Diego Gas and Electric (SDGE) compliance with its 2021 WMP. This report was prepared by SDGE's contracted independent evaluator and issued to the Office of Energy Infrastructure Safety (Energy Safety) on July 1, 2022, to fulfill the requirements of Public Utilities Code Section 8386.3(c)(2)(B)(i).

The content of this report is the work product of the respective independent evaluator. The findings and conclusions in this report do not represent the views or opinions of the Office of Energy Infrastructure Safety (Energy Safety) or any of its employees. Pursuant to Public Utilities Code Section 8386.3(c)(2)(B)(ii) the independent evaluator's findings are not binding on Energy Safety. Neither Energy Safety nor the State of California, nor any officer, employee, or any of its contractors or subcontractors makes any warranty, express or implied, or assumes any legal liability whatsoever for the contents of these documents.

On July 15, 2022, a public version of this 2021 WMP Independent Evaluator Annual Report on Compliance is published for public review and comment. Please be advised, information designated by SDGE as confidential has been redacted from the published report. Comments must be submitted no later than August 15, 2022.¹ Comments must be submitted to Energy Safety's e-filing system in the 2022 Independent Evaluator docket (#2022-IE).²

Sincerely,

Melissa Semcer
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Office of Energy Infrastructure Safety

¹ Dates falling on a Saturday, Sunday, or a holiday as defined in Government Code Section 6700 have been adjusted to the next business day in accordance with Government Code Section 6707.

² Submit comments to the 2022-IE docket via the Energy Safety e-filing system here: <https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2022-IE> (accessed June 28, 2022)

June 30, 2022



FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition/Clarification
4LEAF	4LEAF, Inc.
AAR	After-Action Review
AerialZeus	AerialZeus, LLC
AFN	Access and Functional Needs
API	Application Programming Interface
ARC	Annual Report on Compliance
CERP	Company Emergency Response Plan
CFR	Contract Fire Resources
CIR	Color-Infra-Red
CMI	Customer Minutes Interrupted
CNF	Cleveland National Forest
CMP	Corrective Maintenance Program
CPUC	California Public Utilities Commission
DIAR	Drone Investigation Assessment and Repair
DSM	Digital Surface Model
EAMP	Enterprise Asset Management Platform
FBP	Fixed Backup Power
FPI	Fire Potential Index
FSCA	Fire Science and Climate Adaptation
GAAS	Generally Accepted Auditing Standards
GAGAS	Generally Accepted Government Auditing Standards
GIS	Geographic Information System
GL	General Ledger
GO	California General Order
HFTD	High Fire Threat District
IE	Independent Evaluator
IEEE	Institute of Electrical and Electronics Engineers

¹ Italicized text under section headers indicated written guidance from the Energy Safety template sent to all IEs pre reports.

IMP	Ignition Management Program
IWRMC	International Wildfire Risk Mitigation Consortium
LiDAR	Light Detection and Ranging
MAVF	Multi-Attribute Value Framework
MBL	Medical Baseline
MM & Co	MM & Company, LLP
NIR	Near-Infra-Red
O&M	Operations & Maintenance
OEIS	Office of Energy Infrastructure Safety
Office of Energy Infrastructure Safety	Energy Safety
OFER	Operations, Field, and Emergency Readiness
OH	Overhead
PPE	Personal Protective Equipment
PSPS	Public Safety Power Shutoff
PTZ	Pan-Tilt-Zoom
RF	Radio Frequency
RGB	Red-Green-Blue
QA/QC	Quality Assurance/Quality Control
QDR	Quarterly Data Report
QIU	Quarterly Initiative Update
RSE	Risk-Spend-Efficiency
RFW	Red Flag Warnings
RTU	Remote Terminal Units
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SAWTI	Santa Ana Wildfire Threat Index
SCADA	Supervisory Control & Data Acquisition
SDG&E	San Diego Gas & Electric
SDSC	San Diego Supercomputer Center

¹ Italicized text under section headers indicated written guidance from the Energy Safety template send to all IEs in pre reports.

SME	Subject-Matter Expert(s)
SMER	Santa Margarita Ecological Reserve
UCSD	University of California, San Diego
USFS	U.S. Forest Service
VMA	Vegetation Management Area
VMS	Vegetation Management System
WiNGS	Wildfire Next Generation Systems
WMP	Wildfire Mitigation Plan
W-O	Work Order(s)
WRRM	Wildfire Risk Reduction Model

1. EXECUTIVE SUMMARY

The Executive Summary should contain key takeaways from the Independent Evaluator's evaluation, including key findings from the Independent Evaluator's audit of Wildfire Mitigation Plan (WMP) activity completion, verification of funding, and verification of QA/QC programs.¹

Climate change's sobering new reality presents us with the challenge to co-exist with wildfires in a systematic, proactive, and scientific way. As California continues to experience increased frequency, duration, and intensity of Wildfires, it is imperative to find practical and tangible solutions that protect lives.

Working with the California Office of Energy Infrastructure Safety ("Energy Safety") the team of 4LEAF Inc, AerialZeus LLC and MM+Co CPA served as an Independent Evaluator (IE) for San Diego Gas and Electric (SDG&E) for the 2021 Wildfire Mitigation program (WMP) program year. Wildfire Mitigation represents the activities, initiatives and funding by which SDG&E undertook to reduce the wildfire risk caused by power line infrastructure and its environment. The planned work encompasses ten WMP Initiative categories, from situational awareness, grid hardening and vegetation management and infrastructure improvements, all undertaken against a

¹ Italicized text under section headers indicated written guidance from the Energy Safety template sent to all IEs pre reports.

backdrop of heightened awareness of the growing climate risk and contributing environmental factors throughout the entirety of SDG&E's service territory. Throughout this evaluation effort, the IE relied on information provided in the 2021 WMP Update, and data provided by SDG&E to base its findings and verification of the extent to which SDG&E carried out the commitments represented by its 2021 WMP. The complexity in describing and summarizing spatial and temporal data is not trivial. To make generalizations concerning performance patterns, and to estimate the probability of outcomes for an event at a given location, unbiased geographic data samples were selected. However, to infer conclusions for a larger set of geographic data, via extrapolation, caution must be exercised.

Throughout this effort, the IE drew on SDG&E data to develop samples which would represent the work performed in terms of geographic distribution across SDG&E's 4,100 square miles, with particular attention to the areas of greatest wildfire risk in the High Fire Threat District (HFTD) Tiers 2 and 3. The IE team provided Energy Safety with weekly updates, via an online dashboard, on the status of previously approved field inspections for each WMP initiative. Moreover, the IE requested weekly approval from Energy Safety on the geographical location and the sample size of future field inspections for Large & Small Field-Verifiable initiatives.

In anticipation of one issue that has proven challenging in this evaluation, the IE proactively sought advice from Energy Safety regarding access to SDG&E's backcountry lands and other support for accessibility issues, but these requests were not supported. As a direct result, the data, trends, and themes presented here are heavily skewed, since 42% of all field inspections were inaccessible to the IE. SDG&E's Northeast territory, primarily Tier 3, mostly rural, constituted 90.4% of all Large Field Verifiable inspections.

The challenges of knowing where (location), what (work performed) and how (QA/QC) using an unbiased sample, plus the limiting time frame to collect data, analyze it and produce insights for a larger population, is work in progress for all stakeholders. In view of these and other challenges identified during this still-new WMP third-party evaluation process, the IE cautions against generalizations made on the basis of the extrapolated outcomes here presented.

The Independent Evaluator (IE) process is useful to closely examine the current wildfire mitigation activities of the power utilities, to gain valuable insights and to help improve their approach to wildfire safety while limiting risks to the public. The IE's report is written to assist public understanding of these actions, in hopes of supporting a more informed collaboration among the multiple stakeholders, all of whom share the common objective of a safer, more climate-resilient electricity system for the sake and well-being of all Californians.

Without a doubt, beyond California, the world is experiencing a ‘global wildfire crisis.’ Just in the United States, fire seasons are three or more months longer than in previous decades.

The IE understands that the nature of Wildfire Mitigation is complex and non-exclusive to Power Utilities. Mitigation requires a collective effort from all Californians. Therefore, the collaboration among IEs, Power Utilities, and OEIS is essential.

Transparency matters. Achieving a more symbiotic relationship among all stakeholders will take time. Nonetheless, Californians should not have it any other way. In an effort to achieve better clarity on Power Utilities’ spending, OEIS implemented for the first time in 2022 a financial assessment of WMP 2021 spending based on generally accepted auditing standards (GAAS) and generally accepted government auditing standards (GAGAS) guidelines.

Despite the initial hurdles in obtaining financial information from SDG&E, progress was achieved in finding new ways to disclose sensitive information that is necessary to validate WMP commitments.

The inescapable relationship between nature, including land & weather, and human behavior have enabled mega-fires. In response, humans must find adaptive ways to safely coexist with wildfires in an ever-changing environment. The IE process is one element of the Energy Safety mission to develop and oversee a process that minimizes the risk of utility-caused wildfires. Only by successfully discharging this mission can OEIS help ensure that Californians remain safe in the face of an increasingly complex energy future.

1.1 WMP Activity Completion

The IE team reviewed the WMP activities with specific quantifiable or qualitative performance goals and/or targets as indicated in the WMP for compliance. As specified by the OEIS, SDG&E divided the relevant WMP initiatives into the following four assessment categories:

Table 1: WMP Assessment Categories

Assessment Category	Energy Safety Definition	# of SDG&E Initiatives
Large Field Verifiable	Large volume (≥ 100 units) + quantifiable goal/target + field verifiable WMP activities	12
Large Field Non-Verifiable	Large volume (≥ 100 units) + quantifiable goal/target + non-field verifiable WMP activities	16
Small	Small volume (< 100 units) + quantifiable goal/target WMP activities	9
Qualitative	Qualitative goal/target WMP activities	75

For each initiative, the IE team assessed WMP compliance in a handful of areas, such as work completion, work quality, and adherence to applicable protocols and procedures. For field verifiable WMP initiative activities (in both the large- and small-volume categories), the IE team completed site visits in order to verify compliance with the aforementioned areas. For all WMP initiative activities, the IE team reviewed SDG&E WMP reports, SDG&E responses to IE data requests, SDG&E Work Order data, and SDG&E remote sensing data.

2. INTRODUCTION

The Introduction should contain upfront context and a high-level summary of the work performed by the Independent Evaluator.

Electrical infrastructure and equipment pose ongoing risks of wildfire ignition due to the presence of electrical currents and proximity to combustible surfaces. SDG&E's 2021 WMP contains the electrical corporation's detailed plans to reduce the risk of its electrical equipment potentially igniting a wildfire. The central elements of the WMP address activities in system hardening, vegetation management, new inspection programs, and "situational awareness" (weather stations, high definitions cameras, wind data, computer modeling, etc.).

Electrical corporations are also required to demonstrate, through evaluation of a wildfire mitigation measure's "risk-spend efficiency," that California electric ratepayers' funds are only being spent on mitigation measures that are effective in reducing utility-caused wildfire risk. SDG&E's 2021 WMP was submitted to the OEIS and consists of programs and activities that fall under three main categories:

- **Operations and Engineering** – Actions to build, maintain and operate the SDG&E electric system in a manner to realize high levels of fire safety;
- **Situational Awareness and Weather Technology** – Actions that focus on improving SDG&E’s ability to monitor and understand the environment in which fires ignite and spread; and
- **Customer Outreach and Education** – Actions that continue and/or build on SDG&E’s communication and collaboration with regional stakeholders and customers.

The IE team used two main sources of data for the compliance inspection of the SDG&E 2021 WMP:

- Data provided by SDG&E; and
- Data collected and information produced by IEs.

The activities presented in this documentation, either as planned and/or performed by SDG&E, are subdivided into four categories based on the amount of performed work and the nature of the verification activities required to confirm the extent and quality of the work carried out.

The four categories are:

- Large volume (≥ 100 units) + quantifiable goal/target + field verifiable WMP activities
- Large volume (≥ 100 units) + quantifiable goal/target + non-field verifiable WMP activities
- Small volume (< 100 units) + quantifiable goal/target WMP activities
- Qualitative goal/target WMP activities

Each of these categories are discussed separately in the sections that follow. A list of the specific WMP activities in each category is included at the start of each section.

As a final note, operating assumptions made by the IE team in performance of this work include:

- Wildfire mitigation is an extremely high priority to the State of California, the Energy Safety staff, the Power Utilities and their staff, and all Californians;
- Evaluation activities will conform to the Scope of Work contracted between the Energy Safety staff and the IE team;
- The activities were conducted from May 4, 2022, through June 10, 2022, with a focus on SDG&E’s 2021 WMP activity completion;

2.1 Methodology

In the IE team’s 2020 WMP IE work plan, the IE demonstrated that aerial intelligence enables a level of assurance, verification, and efficiency that well exceeds traditional inspection methods. This year, the IE team used aerial intelligence to supplement the maps and location lists provided

to the field crews. As in 2021, aerial intelligence has enabled the IE team to expand the reach of verification activities significantly. Aerial imagery from the following sources enabled the IE team to complement and broaden verification activities via:

- SDG&E drone imagery – SDG&E procured over 200,000 drone images. By overlaying initiative populations and geolocations determined via Work Order (W-O) analysis, the IE significantly expanded the volume of initiatives/locations that can be verified.
- Depending on the coverage of poles and lines by SDG&E drone imagery, and the available resolution, it has proven possible to expand verification of multiple categories of initiatives, e.g., overhead hardening activities, weather stations and fuel management.
- In 2020, the IE team used satellite Sentinel imagery to characterize areas of SDG&E right-of-way in terms of vegetation characteristics and stress levels. This type of analysis assists in the prioritization of vegetation management activities and was used again in aerial assessment for fuels management.
- Poles with certain equipment such as fuses, switches, arrestors, and certain connectors are required to have a firebreak of ten feet or more in each direction, referred to as “pole brushing.” This utility initiative, i.e., 35,500 annual target quantity by SDG&E in 2021, was verified in part via aerial means. As such, aerial data enables verification of a significantly greater percentage of the 35,102 reported actions taken.

A Note on Numbering This report makes use of several numbering systems which the reader would be excused for finding confusing. The Table of Contents shows that the Chapters that describe WMP actions are located in Chapter 3, so all verification sections start with a 3-series numeral. Within these chapters, the WMP Initiative Categories are clustered under a “5-series” heading, e.g., 5.3.3 Vegetation Management. This series reflects the categories into which Initiatives were assigned in SDG&E’s original three-year WMP covering 2020-2022. For the sake of consistency with that original WMP, those category headings have been retained. The Initiatives themselves, however, were renumbered in SDG&E’s 2021 WMP Update, into a “7-series” numbering pattern. Because SDG&E’s 2021 reporting on WMP Initiatives utilized both 5-series numbers for Initiative Categories and 7-series Initiative numbers, the IE has chosen consistency with the 2021 reporting and retained both.

3. INDEPENDENT EVALUATOR REVIEW OF COMPLIANCE

The Independent Evaluator Review of Compliance section is for the Independent Evaluator to provide an overview of its process for review and assessment of the electrical corporation’s compliance with its WMP.

In the sections below, provide a review of the electrical corporation's WMP activity completion, verification of funding and verification of QA/QC programs.

As part of this scope of work, the IE team reviewed SDG&E's WMP activities for completion, verified WMP funding, and reviewed QA/QC programs applicable to the WMP. The review was based on SDG&E answers to verification requests, review of available documents, reports, and site visits to various assets.

Defining "Verified" – The task of the Independent Evaluator (IE) is to verify that SDG&E completed the WMP mitigation work it committed to perform in its 2021 WMP Update. Under the IE's Scope of Work from Energy Safety, the IE is also charged to verify that SDG&E has spent the WMP funding it planned to spend, and that has followed its own QA/QC protocols in the performance of this work. These verifications are all described in this report.

To preface further discussion of "verification," the IE has added the following definitions to guide the reader's understanding of the IE's role and this report. In the sections that follow, the IE has used the following terms to mean:

- "Verified" – Through its analysis, field work, documentation review or other forms of assessment, the IE has determined that SDG&E met the targets set in its 2021 WMP, whether these targets were quantitative or qualitative in nature.
- "Not Verified" – The IE has completed the analysis work described and determined that SDG&E did not meet its WMP targets.
- "No Determination" – Some WMP initiatives were assigned no targets or budget in SDG&E's 2021 WMP. In these instances, the IE undertook no analysis and can make no determination.
- "Unable to Verify" – The IE took action to verify the initiative yet, for reasons described in the section, was unable to reach a clear determination. Rather than assign a potentially misleading label, therefore, the IE has applied a more neutral determination.

3.1 WMP Activity Completion

The WMP Activity Completion section should detail the Independent Evaluator's review and verification of compliance for all WMP activities that have specific quantifiable or qualitative performance goals/targets set forth in the electrical corporation's 2021 WMP.

In-scope WMP activities have been broken out into four categories:

1. *Large volume (≥100 units) + quantifiable goal/target + field verifiable WMP activities*
2. *Large volume (≥100 units) + quantifiable goal/target + non-field verifiable WMP activities*

3. *Small volume (<100 units) + quantifiable goal/target WMP activities*
4. *Qualitative goal/target WMP activities*

The Office of Energy Infrastructure Safety (Energy Safety) expects Independent Evaluators to assess compliance via multiple dimensions, including work completion, work quality, and adherence to applicable protocols and procedures. For Field Verifiable WMP activities, the Independent Evaluator must verify work quality in addition to completion of initiative installation and adherence to applicable protocols and procedures. For all other WMP activities, the Independent Evaluator must verify initiative installation and adherence to applicable protocols and procedures.

3.1.1 Sampling Methodology and Discussion

In this section, the Independent Evaluator should describe its sampling methodology, the samples that were chosen, and areas of focus. The Independent Evaluator may include the samples that were chosen in the Appendix instead of this section.

The Independent Evaluator should also include a discussion of how results of the sampled assessment are indicative of the electrical corporation's broader implementation of WMP initiatives, to give the Energy Safety an understanding of the process the Independent Evaluator used to estimate full completion.

The 2021 ARC follows closely Energy Safety guidance on the verification of the 112 initiatives in SDG&E's 2021 WMP. The IE took the approach that, if the Energy Safety-required WMP template required specific initiatives to be undertaken, then it was the job of the IE to verify that indeed, those actions had been taken. As a result of this interpretation of the IE's mandate, the verification approach started at the ground level, looking at each initiative individually, in order to develop an overall evaluation of SDG&E's WMP actions, successes and challenges.

In contrast, the approach implicit in the above directions for this section suggests that the IE would draw a single sample across the entire portfolio of initiatives, in order to determine the level of compliance by the Company. Rather, in the view of this IE team, one sample across 112 initiatives would not be sufficient to understand the approach, progress, challenges, and level of compliance sought in this IE engagement.

The IE's Sampling Plan, discussed with Energy Safety in early weekly meetings, described this initiative-by-initiative approach. In that plan, the IE explained the development of sample sizes for each initiative, based on the nature of the initiative and its verification classification

(discussed in 3.1 above), the size of the underlying population, the nature and quality of the verification data available, as well as the resources required to secure that data and the time remaining in the verification period to do so. A Summary of the IE’s Sampling Plan is provided in Table 2 below:

Table 2: Summary of IE WMP Sampling Plan Large Field Verifiable

Large Field-Verifiable Item/ Initiative	Units	SDG&E 2021 Target	SDG&E 2021 Actual	Minimum Sample	Actual Sample Size
Wireless Fault Indicators (7.3.2.3)	Wireless fault indicators	500	544	29	35
Covered conductor installation - Distribution OH Hardening - Covered Conductor (7.3.3.3)	Poles	560	580	33	33
Expulsion fuse replacement (7.3.3.7)	Expulsion fuses	3970	3976	33	202
Hotline Clamps (7.3.3.10)	Hotline clamps	2250	2743	33	41
Undergrounding of electric lines and/or equipment (7.3.3.16)	Poles	560	580	33	2
Distribution overhead system hardening (7.3.3.17.1)	Poles	2238	2247	33	48
Cleveland National Forest distribution and transmission system hardening (7.3.3.17.3) - Distribution Overhead	Poles	152	154	33	Aerial verification, 10 in sample
Lightning arrester removal and replacement (7.3.3.18.2)	Lightning arrestors	924	1789	33	34
Detailed inspections of vegetation around distribution electric lines and equipment (7.3.5.2)	Trees inspected	455000	502132	33	527
Fuels management and reduction of “slash” from vegetation	poles cleared	500	463	29	38

management activities (7.3.5.5)					
Other discretionary vegetation inspection (7.3.5.9)	trees trimmed/ removed	17000	12578	33	53
Vegetation management to achieve clearances around electric lines and equipment (7.3.5.20)	poles brushed	35500	35102	33	112

Table 3: Summary of IE WMP Sampling Plan Small Field Verifiable

Small Field Verifiable Utility Initiative Name	Units	SDG&E 2021 Target	SDG&E 2021 Actual	Min sample size	Actual Sample Size
Advanced weather monitoring and weather stations (7.3.2.1)	Weather stations (upgrades)	25	46	23	27 by aerial means
Fire science and climate adaptation department (7.3.2.4.1)	Cameras	17	17	9	17 by aerial means
Capacitor maintenance and replacement program - SCADA Capacitors (7.3.3.1)	SCADA capacitors	32	35	16	16
PSPS sectionalizing enhancements (7.3.3.8.1)	Sectionalizing devices	10	13	9	10
Microgrids (7.3.3.8.2)	Microgrids	2	0	NA	NA
Installation of system automation equipment - Advanced Protection (7.3.3.9)	Circuits	8	4	4	39

Transmission overhead system hardening (7.3.3.17.2) (Overhead Transmission Hardening)	Poles	74	74	23	Aerial;
Transmission overhead system hardening (7.3.3.17.2) (Overhead Transmission - Distribution Underbuilt)	Poles	60	76	23	Aerial;
Distribution Communications Reliability Improvements (7.3.3.18.1)	Base stations	10	10	9	10 by aerial means

In accordance with the initiative-by-initiative approach described in the Sampling Plan and summarized above, the IE based its verification efforts on data obtained in multiple ways. These included the following:

- Data Requests – The IE requested data through a total of 20 DRs. A summary of these requests and the materials provided in response is included in Appendix 1.
- Field inspections, for which data populations were required. The issues that arose in obtaining those populations are addressed further below in this section.
- Aerial intelligence – Used to verify initiatives in each of the Large, Small and Non-Field-Verifiable chapters. The imagery and samples utilized in these reviews are discussed in the appropriate sections.
- Inspection reports. Used primarily in the verification of the Large Volume Quantifiable/Not Field Verifiable initiatives discussed in (Chapter 3.1.3)
- Verification questions and documentation. Used primarily in verification of the Qualitative initiatives, discussed in (Chapter 3.1.5) the IE asked direct questions of SDG&E via the Data Request process.

The sampling methodology as defined in this section applied primarily to the Field-Verifiable initiatives (both Large and Small) and the actions required to develop the samples from which

field inspections were derived. This methodology—and the challenges encountered by the IE in its execution—is discussed later in this section.

For both the Large and Small Field-Verifiable initiatives, the IE based its sampling methodology on two basic data sets – the initial request, and data subsequently requested. The initial data set is represented by four GIS data bases provided by SDG&E. These data sets contained four data bases, one for each Quarter—Q1, Q2, Q3, and Q4. Subsequent data sets were periodically requested by the IE in a formalized Data Request-process.

The first sampling was based on the initial data sets. The objective of the IE’s sampling was to, first, determine the populations of completed actions falling under each initiative. The second step was to provide representative samples for SDG&E’s territory, with emphasis on the areas with the most work orders originated in 2021. The IE’s intent was to obtain clear information on what work was fully completed, and in what scope, during 2021, to enable the IE to further define the size of the populations of each initiative, their attributes and respective locations, from which to identify appropriate samples for field inspections.

Data inconsistencies - In reviewing the GIS data sets, the IE observed significant inconsistency on data structure between quarters. When asked about this level of inconsistency, SDG&E responded that discrepancies were due to newly minted instructions from Energy Safety. The most drastic change in data format was between the first quarter of 2021 (Q1) and the rest of the year, in all three remaining quarters. Legacy issues from the 2020 WMP cycle were the obvious culprit.

Generally speaking, Q1 data was more descriptive of the nature of the work performed. Subsequent quarters, Q2, Q3, and Q4 had more information on the number of initiatives, while in Q1 the WMP initiative had to be determined by the description of the work order itself. The IE did not disrupt the order of the information provided, unless that meant exclusion of data fields which were empty or adding data fields which were important for field inspections.

Due to these inconsistencies in data labeling, the task of creating a unified data base from which to draw samples for the field-verifiable initiatives was not possible without incorporating unnecessary data from one initiative into another.

As a result, samples for field inspections were created by initiative number (WMP section). For vegetation management initiatives, samples were segmented in quarters in order to avoid combining different data sets.

The IE also noticed considerable inconsistency and lack of clarity in how SDG&E's GIS data was organized. This had a detrimental effect on the ability of the IE to operate effectively. Inconsistency was observed both in the order of the data fields and in naming the data. Pole IDs, probably the most important attribute, was missing in Q1, and was not clearly stated in other quarters. This inconsistency was a key factor in delaying field inspections.

An important fact, one which made Pole IDs of such importance to field inspectors, was the level of inaccuracy of GPS positioning, a significant trend noticed while developing samples for field inspectors. There was no certainty that an SDG&E-provided GPS point—one which should lead a field inspector to the point of the performed work --will be accurate. As long as the asset was close to the road or to any other easily recognizable landmark, the accuracy was satisfactory. But when the assets were away from the road, or in a forest, for example, the provided GPS position was sometimes over 100 yards away from the actual asset.

Inaccurate GIS data – Continuing the theme of data challenges, the IE also found that points would fall between two or more poles; without reliable Pole IDs, it was impossible to know which pole to inspect. This data was partially solved by requesting that SDG&E provide all poles in given locations and then assign poles to the work on the proximity basis. The better solution was found when the cleaned data was supplied by SDG&E, but this was not readily available for the IE and did not occur until well into the verification period, which meant that less time remained available for field inspections. The permanent solution to these issues of data imprecision is to increase accuracy of the GPS data and assign any field work to the point through Pole IDs.

Once this data was provided, the Pole ID was used by the IE to assign a unique identifier to each sample. The formula for that identifier was “Quarter number - Initiative number - Pole ID,” or in the samples defined prior requesting the Poles ID “Quarter Number-Initiative Number-Object ID” In both of these cases this was the solution for providing unique identifier throughout all initiatives and quarters This unique identifier tells what pole has been worked on, what work was done on that pole, and when the work was performed. This unique identifier was assigned only to selected samples.

Case Study: Cleveland National Forest – The IE relies on the high precision of GPS locations to pinpoint infrastructure, and Pole IDs when developing samples to use in field verifying infrastructure. The GPS location data, here displayed, was provided by SDG&E.

During the sampling process and initial verification of locations and Poles IDs, the IE detected a high discrepancy between the two data sets provided by SDG&E. The mismatch between the

reported locations of the work performed and. the actual GPS position of the poles on which the work was performed was substantial.

Image 1 shows the level of mismatch between these two sets of points, both provided by SDG&E and both supposedly pointing to the same activity locations. This level of inaccuracy could, first , impact the efficiency of the inspection, as the inspector spends time hunting for a pole that is not located where expected. A second significant concern lies in the cand personal safety of inspectors conducting such fieldwork, especially in backwoods locations where understandable fears of due to trespassing can run high.

Therefore, the IE decided to use aerial intelligence, via high-resolution aerial imagery, as the most efficient and safe means to collect the desired information on SDG&E's efforts in Cleveland National Forest.

Image 1: Level of mismatch between reported work locations (red) and actual poles (purple)



Preparing Field Samples: Maps and Locations List – In order to develop workable samples and provide these to field inspectors, the IE needed to know with absolute certainty what work – on what WMP initiative – had been completed. Throughout the quarters of 2021, tasks in SDG&E's work order system were tagged as "Completed," "In Progress," and "Planned," which was all well understood. The issue rose when the IE realized there were many locations that were tagged as "Completed" in several quarters. There were multiple examples of duplicated entries. Due to the inconsistency of the data IE could not tell if the work was completed in Q1 since there is no

attribute that would require such information. In the data submitted in Q3 and Q4, under the initiative 7.3.5.2. Detailed Vegetation Inspection in the same point (lat:33.27746201, long: -116.8745041) was reported in Q3 and Q4. Both marked as completed. Along the same conductor line SDG&E reported 3 points of inspection. All three are out any vegetation. These inspection points are marked as completed in Q3 and Q4. Location of points are (lat: 33.277973175, long – 116.87518317, lat 33.2778816, -116.8752593, lat 33.2779159, -116.8751373). These points do not point towards any vegetation, yet they maintain the same position from Q1 to Q4 as points of vegetation management. Please see image below.

Image 2: 3 Duplicated vegetation inspection points without vegetation



Another example is initiative 7.3.5.20. located at lat. 33.27472686, long.-117.08299255, which is marked as completed both in Q2 and Q3.

When asked about the issue SDG&E did not provide satisfactory answer.

A strict interpretation of this tagging would have meant that SDG&E did the same task over and over again throughout the year on the same poles. This was clearly an issue of data organization. These issues led to the IE's multiple requests for new data that would clearly state what initiatives were Completed in 2021.

The actual totals of work performed, totals which constitute the initiative populations the IE sought in order to develop samples for field inspections, were on many occasions different in multiple data sets. This led to the IE's subsequent requests for data supplied by SDG&E. The conversation with SDG&E—and with their GIS team which supplied the data—was on a high level but enabled the IE to stress the time implications on the IE's work imposed by this process. Each subsequent request for data via the formal Data Request process required the IE to identify the errors (while concurrently trying to create samples), then to request the data be repaired, then to receive the data, and then to create samples again. On some occasions, samples were created more than 4 times due to the non-coherence of such data. Other examples of data challenges encountered by the IE:

- On some occasions SDG&E provided links for external review of the data. For one initiative all the links were obsolete. The IE subsequently provided new links in the report.
- In another case, it was not clear what kind of work was performed under what initiative, which is critical for field inspectors.

There were many obstacles in providing the samples to the field inspectors. Most of the issues were related to the way into which SDG&E's data is organized. All the data are focused on the work performed. The organization of data would be easier to follow if it was Asset Oriented instead of Work Order oriented. In that way, it would be easier to follow all the work that is done by pole, especially if there are multiple initiatives done on the same pole. The IE has no insight into SDG&E's internal data organization, only into the data provided to Energy Safety and to the IE. In order to support more efficient data sampling, the IE is of the opinion that data submitted to the IE doesn't need to be in the same shape as it is for Energy Safety, if there is more clear data available, unless there is a need to review the data organization as well.

The IE found SDG&E's GIS team to be highly cooperative regarding ad-hoc meetings and fulfilling data requests. However, the newly implemented Data Request (DR) process and its three-day response wait period are limiting for fast responses. Moreover, the IE encourages SDGE&E to address the challenges described above with data accuracy, both in GPS precision and data clarity.

Assessment of WMP Initiatives on Tribal Lands – On May 25, 2022, the IE requested via the Data Request (DR) process, DR#19, reports on the locations of new installations, inspection reports, and even Memoranda of Understanding (MOUs), between SDG&E and the local Native American Tribes. SDG&E coordinates all efforts with the Tribes regarding funding and fuel management in areas next to SDG&E’s right-of-way (ROW). MOUs establish funding for a more robust and reliable power grid.

Regarding Subject Matter Experts – “Subject Matter Experts (SMEs) are a resource that the IE team has both welcomed and sought to use sparingly”. So began IE’s memo to SDG&E laying out the plan to utilize SMEs during this IE period. IE’s work plan included two weeks for SME interviews, from May 16-27. Timing issues forced revision of this plan to increase reliance on verification documents followed up by SME interviews where required. IE described the approach to SDG&E via May 17 memo “IE Request for Contact with WMP Subject Matter Experts”. The IE sought verification documents via survey; SDG&E declined permission for the survey, replying instead on May 24 that all SME questions must be submitted via the formal Data Request process. DR16, 17 and 18, with 71 SME questions and verification requests, were dated May 24, 25 and 26. While the majority of responses were received within the time limits of the formal process, as of June 5, the IE was still requesting SDG&E fill in incomplete replies.

3.1.2 Large Volume Quantifiable Goal/Target – Field Verifiable

Large Quantity Field Verifiable Initiatives represent 12 of the 112 WMP categories. To verify both the completion and the quality of these actions within the time constraints of this engagement requires a thoughtfully designed and efficiently executed field inspection effort. The IE team conducted a five-week field inspection effort with the following features:

- The IE used SDG&E’s Work Order management system to identify the population of all field-based actions completed in the 2021 verification year.
- Within the verification period, Work Orders were sorted by initiative number/type to establish the pool of 2021 WMP initiatives, activities and actions completed in each WMP category.
- If the total number of initiative Work Orders in any category (after removal of duplicates, categorization errors, and other data cleaning) is markedly different from the total actions reported by SDG&E, the company was asked to reconcile the disparity.
- Location coordinates for these actions enabled the IE to identify specific locations where inspection teams would be able to visually inspect the completion and quality of multiple WMP Initiatives in efficient trips and similar locations.
- The IE prioritized verification locations in Tiers 3 and 2 of the HFTD.

- Native American lands were inspected separately, following receipt of boundary coordinates from SDG&E.

SDG&E’s Work Order Geographic Information System (GIS) data was pulled into ESRI Survey 123—a GIS mapping software—in order to avoid cross-platform transfer errors. Additionally, the IE has developed a mobile app tailored specifically to this engagement, which was utilized by the inspection teams. The application connects to the initiative and locational specifics of each Work Order; the app ensures that inspectors know exactly the nature of the WMP initiative activity they are there to inspect and verify. The application also uses a menu-driven system of choices to enable inspectors to capture the results of their inspections directly in the application with real-time access to key stakeholders such as Energy Safety. For example, while inspecting the repair and replacement of fuses and hotline clamps, the mobile application enables the inspecting team to indicate whether the measures are verified as “complete,” “meets standards,” or “shows discrepancy.”

The IE inspection teams targeted locations across the SDG&E HFTD Tiers 2 and 3, and geographically dispersed across the service territory. The IE’s app allowed online dashboard capability for real-time access for both inspectors and IE teams to review field collection data.

Table 4: Summary of Large Field Verifiable Initiatives

Large Field Verifiable Initiatives				
WMP Category ²	Initiative	SDG&E 2021 Target	SDG&E 2021 Actual	IE Verified
5.3.2 Situational Awareness and Forecasting	7.3.2.3 – Fault indicators for detecting faults on electric lines and equipment - Wireless Fault Indicators	500 wireless fault installations	544 wireless fault installations	Unable to Verify
	7.3.3.3 – Covered Conductor Installation	448 poles	461 poles	Unable to Verify

² For an explanation to these numbering sequences, please see "A Note on Numbering" on page 9.

5.3.3 Grid Design and System Hardening	7.3.3.7 – Expulsion Fuse Replacement	3,970 expulsion fuses	3,976 expulsion fuses	Unable to Verify
	7.3.3.10 – Maintenance, repair, and replacement of connectors, including hotline clamps - Hotline Clamps	2,250 clamps	2,743 clamps	Unable to Verify
	7.3.3.16 – Undergrounding of electric lines and/or equipment (poles removed)	560 poles	580 poles	Unable to Verify
	7.3.3.17.1 – Distribution overhead system hardening	2238 poles	2247 poles	Unable to Verify
	7.3.3.17.3 – Cleveland National Forest distribution and transmission system hardening	152 poles	154 poles	Unable to Verify
	7.3.3.18.2 – Lightning arrester removal and replacement	1789 lightning arrestors	924 lightning arrestors	Not Verified
5.3.5 Vegetation Management & Inspections	7.3.5.2 – Detailed inspections of vegetation around distribution electric lines and equipment	455,000 detailed inspections	502,132 detailed inspections	Unable to Verify

	7.3.5.5 – Fuels management and reduction of “slash” from vegetation management activities	500 poles	463 poles	Not Verified
	7.3.5.9 – Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations	17,000 trees trimmed or removed	12,578 trees trimmed or removed	Not Verified
	7.3.5.20 – Vegetation management to achieve clearances around electric lines and equipment (“pole brushing”)	35,500 poles	35,102 poles	Not Verified

3.1.2.1 Review of Initiatives

This section should include the Independent Evaluator’s findings and assessment of utility compliance with activities that fall into the Large Volume Quantifiable Goal/Target – Field Verifiable category. Independent Evaluators shall conduct field verification to confirm installation, work quality, and adherence to applicable utility protocols and standards for such work.

Include the electrical corporation’s list of initiatives that fall into the Large Volume Quantifiable Goal/Target – Field Verifiable category, including respective goals/targets for each, in the Appendix or within the body of this subsection.

Per the Energy Safety 2021-2022 Scope of Work for the verification of WMP performance must document installation numbers and completeness and also installation quality. The IE

team requested (per Data Request #12) SDG&E installation and quality protocols for each initiative activity. To ensure both installation quantity and quality, the IE team is well-staffed with several senior electrical inspectors leading the field inspection teams. These individuals are well-acquainted with the installation standards and have the experience to determine by visual inspection whether the component in question was installed correctly.

In addition, the IE inspector support application captures the most important failure conditions applicable to each initiative category. Between the guidance in the application and the technical coaching in the field, the installation quality of hardware initiatives for both large and small was verified.

The IE clarified that these are the minimum sample sizes in order to ensure that sample results can be extrapolated across each population as a whole. In the tables below, initiatives that were initially given in miles were inspected in terms of points or poles.

5.3.2 - Situational Awareness and Forecasting

7.3.2.3 – Fault Indicators for Detecting Faults on Electric Lines and Equipment - Wireless Fault Indicators

Fault indicators are devices proven to assist in pinpointing the location of system faults or failures. During periods of high fire risk, SDG&E takes protective measures to forestall or limit the action of automated devices (such as automatic reclosers) that might have a chance of triggering an ignition. While reducing wildfire risk is worth the reliability impacts of these mitigation measures, the use of wireless fault indicators can help address any circuit imbalances that arise as a result.³

At the start of 2021, SDG&E planned to finish their installations of wireless fault indicators in the HFTD Tier 2, and begin installations in the wildland urban interface, for a total target of 500 installations. By years-end, SDG&E reported completing 544 installations.⁴

³ 2021 WMP Update page 180-181.

⁴ SDG&E QIU Q4-2021, Initiative 7.3.2.3.

The IE's challenges in drawing a sample from SDG&E's work order data have been described in Chapter 3.1.1 Sampling Methodology. From the total population of 544 wireless fault indicators installed in 2021, the IE intended a minimum sample of 29, per Sampling Plan summarized in Table 1.

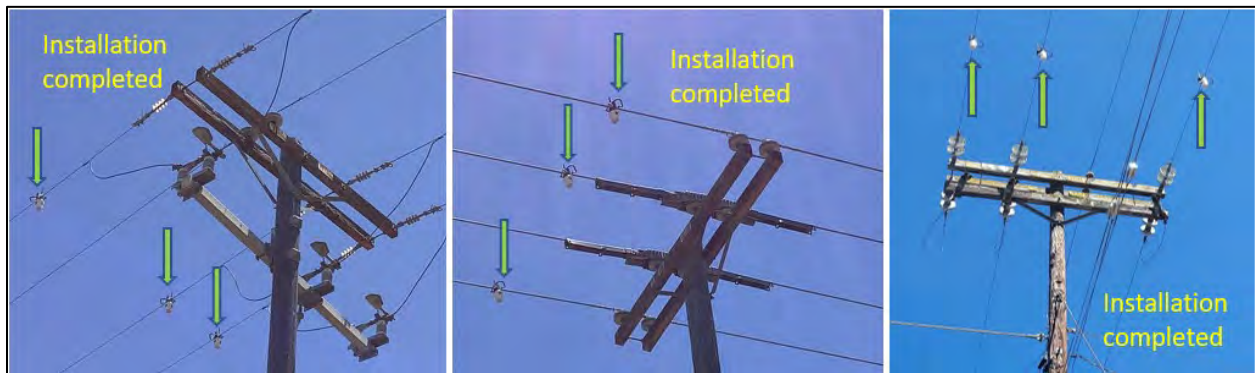
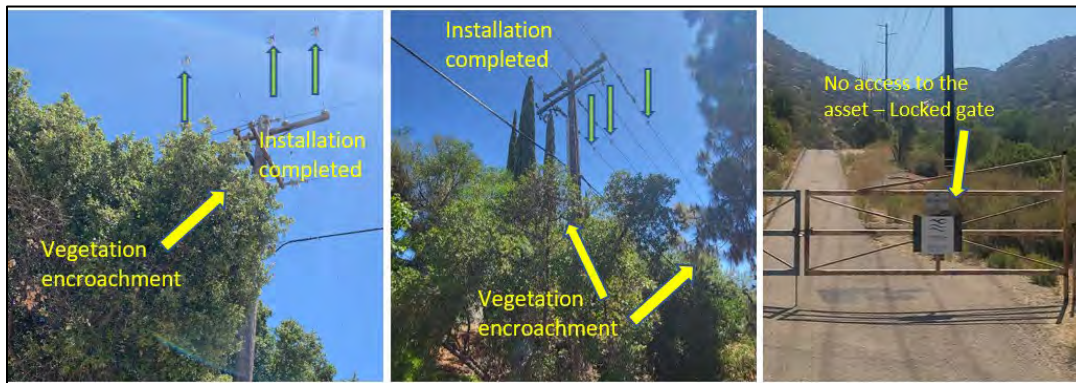
The final sample totaled 352 completed inspections. Of these, 2524 of these were accessible to field inspectors while 109 were located on private property. Sample locations focused on HFTD Tiers 2 and 3, covering SDG&E's service territory in the Eastern, Beach Cities, Metro, North Coast and Northeast districts. The main findings from these inspections are summarized in Table 3 below.

Table 5: Findings for Initiative 7.3.2.3 Wireless Fault Indicators.

Findings	Total Inspections	%
No Fault indicators issues	19	54
No Fault indicators issues/Other Issues	6	17
Asset inaccessible/Inspection not performed	10	29
Total	35	100

Inspector comments on the installation of Fault Indicators included the following:

- No Fault indicator issues/Other Issues
 - Vegetation encroaching the infrastructure. Vegetation is within 10-feet of the clearance radius around the pole.
 - Poles show signs of physical degradation at two sample locations. Poles were installed in 2005 and 1989
- Unable to access and inspect the asset
 - The assets could not be inspected because it was behind a locked gate

Image 3: Fault Indicators installed correctly*Image 4: Wireless fault Indicators installation findings*

The IE was successful at securing a statistically valid sample of 35 for this initiative, which enables the findings of these inspections to be extrapolated across the population of 544 wireless fault indicators installed in 2021. Installations could be verified in 100% of the accessible installations, although 15% of the sample showed vegetation encroachment around the poles. 33% of the sample was inaccessible, however, behind gates similar to those shown.

The sizable inaccessible fraction, 33%, places the balance of the sample at risk. 33% of the total of 544 wireless fault indicators equates to 179 indicators in which neither the completeness nor quality of the installation can be verified. To extract this fraction decreases the extrapolated verifiable total to 365 wireless fault indicators, significantly below SDG&E's 2021 target of 500. Based on the inspection results and analysis summarized above, the IE is not able to verify that SDG&E met its objective for this initiative.

7.3.3. Grid Design & System Hardening

7.3.3.3. - Covered Conductor Installation

Covered conductors mitigate the risk of aging infrastructure, especially when that infrastructure is now understood to be facing higher winds than its design conditions. These higher winds can lead to the possibility of foreign material blowing into line contacts, which can spark ignitions. SDG&E has prioritized deployment of covered conductors in the HFTD based on the premise that covered conductors offer the same benefits as bare conductor hardening (used the most historically and in non-HFTD) at preventing equipment failures. However, covered conductors are also known to mitigate PSPS events as well, as these provide a higher measure of safety in higher winds, thus reducing the need for PSPS.⁵

In 2021, SDG&E planned to install covered conductors in the HFTD. In 2021, SDG&E planned to install covered conductors in 20 miles of circuits. When converted to poles rather than miles of circuits, this target was restated as 448 poles with covered conductor installations. Per SDG&E's final 2021 QIU Q4⁶ and the conversion from miles to poles provided by SDG&E in Data Request 10,⁷ SDG&E has completed 461 poles of covered conductor installations at the end of 2021 Q4. The IE intended to draw a minimum sample of 33 poles with covered conductors, as shown in Table 1, Summary of Sampling Plan in Chapter 3.1.1. The IE's challenges in drawing a sample from SDG&E's work order data have also been described in Chapter 3.1.1 Sampling Methodology. From the total population of 461 poles, the IE sampled 33 in total. 24 of these were accessible to field inspectors while 9 were located on private property. Sample locations focused on HFTD Tiers 2 and 3, covering SDG&E's service territory in the Eastern and Northeast districts. The main findings from these inspections are summarized in Table 6 below.

Table 6: Covered Conductors Findings.

Findings	Total Inspections	%
No covered conductor issues were observed	19	58
No covered conductors observed/Other issues	3	9

⁵ 2021 WMP Update page 191.

⁶ SDG&E QIU Q4-2021, Initiative 7.3.3.3

⁷ Appendix 5 - DR10-7.3.3.3-Miles to poles - find

No covered conductors installed	2	6
Asset inaccessible/Inspection not performed	9	27
Total	33	100.0

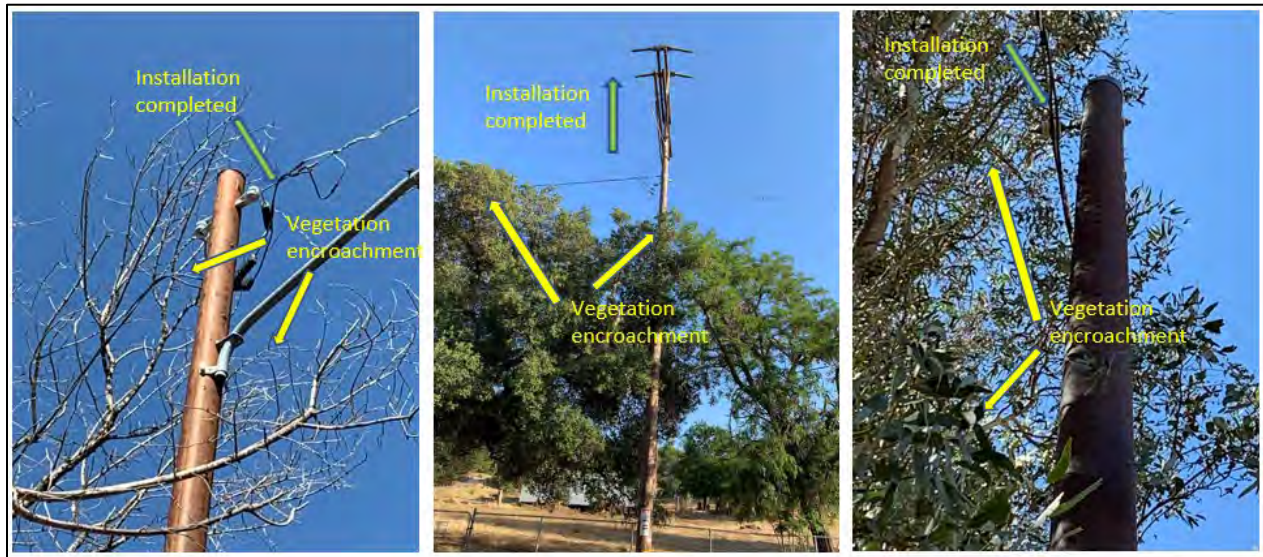
The issues identified by field inspections include:

- No cover conductor/Other issues
 - Vegetation encroaching the infrastructure. Vegetation is within 10-feet of the clearance radius around the pole.
- Covered conductor issues installed
 - Facility P216313: covered conductors coming from southeast and going from this pole to the northeast are installed, but the conductors running southwest towards facility P109359 are not covered.
 - No covered conductors installed a given location, facility P109359
- Unable to access and inspect the asset
 - Locked gate

Image 5: Covered conductors installed



Image 6: Covered conductor issues observed.



The sample is statistically applicable to the full population and provides useful feedback to SDG&E. In 55% of these installations, covered conductors were observed with no issues. In 12% of these inspections, however, issues were observed—in 9% of the inspections, no conductor was observed. In 3%, the covered conductor was not observed, and other issues were observed. Thus, 12% of the sample showed quality issues, while an additional 27% of the sample could not be accessed for inspection.

SDG&E set its target for 2021 covered conduction installations in 2021 at 448 and exceeded that target by reaching 461. Inspections showed that 39% of the time, or 173 conductors of the 448 completed, the covered conductors installed, statistically extrapolated, might either demonstrate quality issues or be inaccessible for verification. Based on the discussions and analysis above, the IE is unable to verify that SDG&E met its target for this initiative.

7.3.3.7 – Expulsion Fuse Replacement

Any electrical system can experience events that may lead to a fault, which can in turn spark an ignition. When faults occur, fuses within the system are designed to open, isolate the fault, and thereby protect the remainder of the system. Older fuses opened “by creating a significant expulsion within the fuse”, energy which would be vented into the atmosphere potentially

causing an ignition. SDG&E has researched and tested CAL FIRE-approved fuses and committed to replacing 100% of expulsion fuses in the HFTD by 2022.⁸

SDG&E planned to replace 11,000 fuses throughout the entire HFTD over several years, starting with Tier 3 and moving into Tier 2. The specific 2021 target is 3,970 fuses, primarily in Tier 2. By year-end 2021, SDG&E reported completion of 3,976 expulsion fuse replacements.⁹

The IE's efforts to draw a sample from SDG&E's work order data has been described in Chapter 3.1.1 Sampling Methodology. Per Table 1, Summary of Sampling Plan, the IE planned to draw a minimum sample of 33 expulsion fuse replacement locations.

Once the sample was developed, the IE team completed 244 field inspections. After some data sorting, a total of 201 inspections were available for analysis. Table 6 further details the outcome of the IE's inspections.

Table 7: Findings for initiative 7.3.3.7 - Expulsion Fuse Replacement.

Findings	Total Inspections	%
No fuses issue observed	127	60.2
No fuses Issues/Other Issues observed	30	14.9
Fuses issues observed	3	1.5
Asset inaccessible/Inspection not performed	39	19.4
Not able to locate the asset	8	4.0
Total	201	100

⁸ 2021 WMP Update page 196.

⁹ SDG&E QIU Q4-2021, Initiative 7.3.3.7.

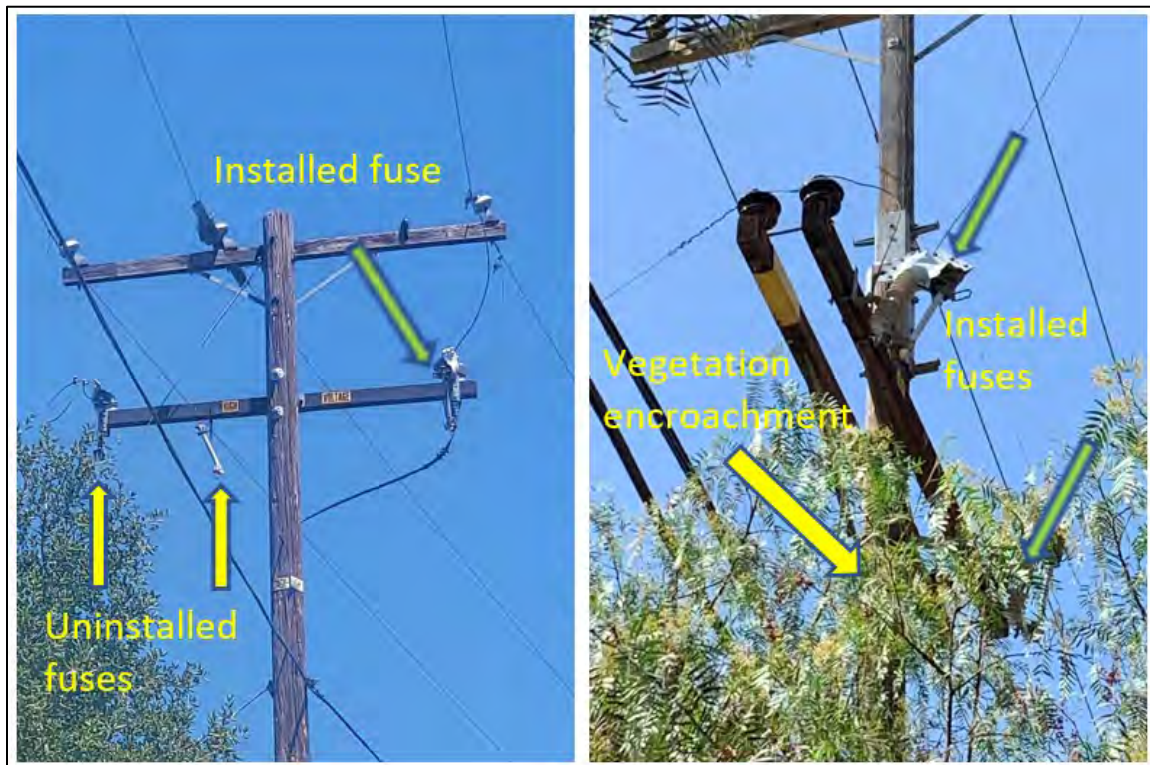
From this statistically valid sample, the IE sees that 157 7 of the 201 inspections in the final sample (78%) showed no issues with the installation of the fuse itself. Only three fuses in the sample were observed to have issues with the fuse, while another 15% of the inspected sites showed issues unrelated to the fuse. A larger fraction (47 fuses; 23%) were either on private property and inaccessible, or the inspector was unable to locate the asset entirely. Sample comments from the field inspectors included:

- Fuses issues observed:
 - In two sample locations fuses were not installed
 - In one sample locations fuses show signs of physical degradation
- No fuses issue observed/Other issues observed
 - In one sample location the base of the pole was eroding
 - Vegetation encroachment was observed in several sample locations. Vegetation is within 10-feet of the clearance radius around the pole.
 - In two sample locations the poles integrity show signs of physical degradation
 - Lightning arrestors show signs of physical degradation in one sample location
- Asset could not be located
 - Multiple sample locations with the same coordinates
 - No poles in place for the given coordinates on three sample locations
- Unable to access and inspect the asset
 - The assets were behind a locked gate

Image 8: No issues observed.



Image 9: Fuse-related issues.



SDG&E met their installation target for replacement expulsion fuses, exceeding the target of 3,970 fuses by installing 3,976. The 3% fraction of the sample that showed quality issues has the effect of discounting the achieved total by 5% or 119 fuses.

This results in an extrapolated adjusted total of 3,857 expulsion fuses replaced in 2021. The adjusted total of 3,857 falls short of SDG&E's 2021 target of 3,970 by 113 fuses.

Based on their 2021 target and actual performance, the verification actions discussed above, and the findings reported, the IE is not able to verify that SDG&E met its objective for this initiative.

7.3.3.10 – Maintenance, Repair, and Replacement of Connectors, Including Hotline Clamps - Hotline Clamps

SDG&E's research into "wire down outages," when a wire comes into contact with the ground or another foreign object, identified hotline clamps as a contributing factor to these events. By removing these hotline clamps and replacing them with compression connections, SDG&E

expects to eliminate this contributor to weak connections and the associated wire-down events.¹⁰

At the start of 2021, SDG&E planned to replace 2,250 clamps. By doing so, they expected to complete the entire replacement program by 2024. By year-end, SDG&E reported completion of 2,743 clamp replacements.¹¹

The IE's efforts to draw a sample from SDG&E's work order data has been described in Chapter 3.1.1 Sampling Methodology. Per Table 1, Summary of Sampling Plan, the IE intended to draw a minimum sample of 33 hotline clamps. Following preparation of the sample, the IE sent locations lists and maps to field inspectors to verify installation of replacement hotline clamps. The full list of sample locations for inspections contained 55 samples.

The IE completed 41 field inspections. At 35 of those sample sites, the assets were located and inspected. In four locations, the assets were on private property, and inaccessible for inspection, while in two more locations inspections could not be completed because inspectors could not locate the asset due to an incorrect ID. The samples were distributed across the Northeast, Eastern, North Coast, and in the Beach Cities districts of SDG&E's service area and inspectors covered HFTD Tier 2 and 3. The main findings from these inspections are shown in Table 8 below.

Table 8: Findings for initiative 7.3.3.10 - Hotline Clamps.

Findings	Total	%
No Hotline Clamp issues	33	80
No Hotline Clamp issues/Other issues	2	5
Asset inaccessible/Inspection not performed	4	10
Asset was unable to locate	2	5
Total	41	100

¹⁰ 2021 WMP Update page 205.

¹¹ SDG&E QIU Q4-2021, Initiative 7.3.3.10.

The issues identified by field inspections include:

- No Hotline Clamp issues/Other issues
 - Vegetation encroachment observed in two locations. Vegetation is within 10-feet of the clearance radius around the pole.
- Asset was unable to locate
 - The poles were unable to locate at two sample locations
- Unable to access and inspect the asset
 - The assets were behind locked gates at four sample locations

Findings reported by the inspectors fell into the two primary categories above. “No significant findings” means that the inspector was able to observe the hotline clamp in place and saw no quality issues in that installation. Inspector comments on hotline clamp inspections referred primarily to vegetation encroachment, as shown in the second set of images below.

Image 10: Hotline clamps with no observations.

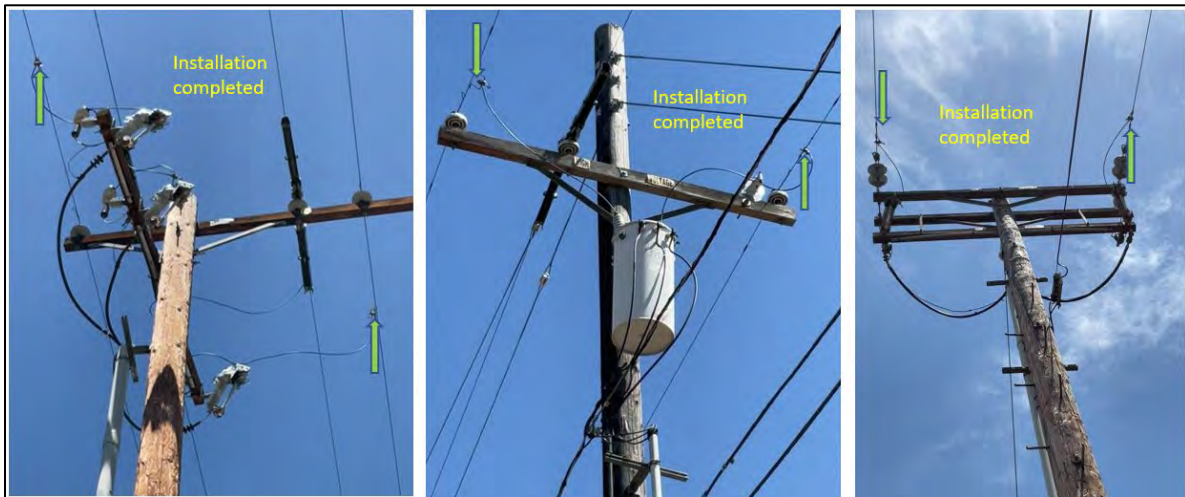


Image 11: Hotline clamps findings



SDG&E met their 2021 installation target for hotline clamps, exceeding the target of 2,250 clamps by installing 2,743 hotline clamps for the year. In addition to the 15% of the sample that was inaccessible, the IE found 5% of the total sample to have quality issues. Together, this 20% represents 548 clamps where the IE cannot verify either the installation or its quality. The adjusted 2021 total for hotline clamps is therefore 2,195; short of SDG&E's 2021 target by 55 clamps.

Based on their 2021 target and actual performance, the verification actions discussed above, and the findings reported, the IE is not able to verify that SDG&E met its objective for this initiative.

7.3.3.16 - Undergrounding of Electric Lines and/or Equipment (Poles Removed)

SDG&E is responsible for almost 3,500 miles of overhead distribution lines located in the HFTD. Of these, SDG&E has already hardened 25%, or 850 miles. The remaining lines are known to be both aging and designed for different standards than are required today. Better weather monitoring, for example, has shown the need to ensure that lines in the HFTD are able to withstand wind speeds of 85-111 mph during Santa Ana wind events.

Undergrounding of lines, notwithstanding that “it is the most expensive major hardening alternative on a per mile basis,”¹² yields wildfire mitigation benefits by both placing underground those lines most at risk during high wind events and reducing the need for PSPS and associated customer impacts in those high-risk areas. SDG&E uses its WiNGS model to prioritize circuits for undergrounding where risks are high and PSPS benefits can accrue.¹³

At the start of 2021, SDG&E planned to complete 25 miles of underground electric system.¹⁴ The converted target for 2021 is to remove and replace 560 poles with undergrounding of electric lines and equipment.¹⁵ By the end of 2021, SDG&E reported completing 25.92 miles of undergrounding, now converted to 580 poles with undergrounding of electric lines and equipment. The IE intended to sample 29 poles to verify SDG&E’s 2021 activity, as described in Table 1, Summary of Sampling Plan. The actual sample provided and inspected is described further below.

The IE took multiple steps to verify SDG&E’s completion of their 2021 objective, restated to 560 poles where lines and equipment had been placed underground and the poles removed. In follow up to DR10¹⁶ converting the completed miles to poles, the IE requested locations for the transition point for underground projects.¹⁷ Please see the email in response, below:

From S. Gahagan, SDG&E to L. Robles, AerialZeus, Friday, May 20, 2022, at 7:35PM. Responding to DR12.7:

- *“Please provide the location coordinates for the transition points from above ground to below ground for the Undergrounding Initiative.”*
- *Response: “Please see pole numbers and coordinates below for underground projects with transition points. Out of the 8 projects SDG&E completed last year, only 2 projects have cable poles. The others are undergrounded directly from the substation and no cable pole*

¹² 2021 WMP Update page 215

¹³ Ibid.

¹⁴ Note: Both metrics and verification category were changed during the course of the IE’s review. This activity is now reported in terms of poles.

¹⁵ Appendix 5 - DR10-7.3.3.17-Miles to poles.

¹⁶ Appendix 5 - DR10-7.3.3.17-Miles to poles.

¹⁷ DR12.7-7.3.3.16-UG sample locations.

is needed. C1030 Phase 2A and 2B are continuations of C1030 Phase 1 and use the same transition point.”

Table 9: Findings for 7.3.3.16.

Year	Circuit Number	General Information	Transition Points
2021	C1030	Phase 1 (Skyline Ranch)	P294745 - 33.202087, - 116.971361
2021	C1030	Phase 2A (Paradise Mtn.)	NA
2021	C1030	Phase 2B (Hell Hole Canyon)	NA
2021	C1030	DUG Ph.1 Valley Center	NA
2021	C1030	DUG Phase 2 N Wohlford Rd.	NA
2021	C221	DUG PH.2 (Dudley's)	NA
2021	C448	DUG (Buckman Spring Rd)	NA
2021	C79	DUG - Oak Grove Drive	P294891 - 32.865449, - 116.633457

For the purpose of inspecting the undergrounding projects under this initiative, SDG&E provided coordinates and asset IDs for two transition points: P294891 and P294745. The outcomes for these inspections are below:

- In transition point P294891, no significant findings were observed. This location was physically verified.

Image 12: No significant findings on transition pole P294891.



- At transition point P294745, there was no evidence of undergrounding. All installations are overhead and the pole at this location was replaced in 2020.

Image 13: No undergrounding installation observed at P294745.



There is no question that trying to find “poles” when the initiative in question is to place distribution circuits underground and remove the poles, has been challenging. The IE intended to inspect a minimum of 29 poles to verify this activity; as described, eight locations were provided and only one of these could be verified. With no ability to inspect 50% of the two locations provided, the IE is unable to verify that SDG&E met their objectives for this initiative.

7.3.3.17.1 – Distribution Overhead System Hardening

Over 3,500 miles of overhead distribution lines are operated and maintained by SDG&E in the HFTD. As of 2021, about 25% or 850 miles of these lines have been hardened. System hardening is a term that encompasses several actions aimed at improving the ability of the electric system to resist severe weather and decrease wildfire risks. Common examples of ‘hardening’ include replacing old poles with steel or composite poles. Other actions may include fire-mitigating devices such as covered conductors and wireless fault detectors.

This initiative focuses on areas of SDG&E’s aging and deteriorating infrastructure to ensure that replacement equipment improves the ability of distribution overhead circuits to withstand an average wind speed of 85 miles per hour and maximum wind speed of 111 miles per hour in the

HFTD. Hardening of distribution overhead systems would reduce the risk of equipment damage and fire ignitions due to high winds and out of date designs and equipment.¹⁸

At the beginning of 2021, SDG&E targeted completion of 100 miles (2,238 poles)¹⁹ of distribution system hardening. By the end of the year, SDG&E reported that 100.4 miles (2,247 poles) of the overhead distribution system had been hardened.²⁰

As discussed previously, per the request of Energy Safety, all WMP items previously reported in “miles” were converted to “poles,” to increase the total population from which the sample could be drawn.²¹ The IE’s efforts to draw a sample from SDG&E’s work order data has been described in Chapter 3.1.1. Sampling Methodology.

From the total population of 2,247 poles, the IE sought a statistically valid sample consisting of a minimum of 33 poles. The locations provided enabled the IE to develop a sample of 49 locations. Of these 49 locations, 34 were available to locate and inspect; 13 were not available to inspect because the assets were in private property. In one location the asset was not found and in another single location the sample had the wrong ID. The main findings from the 34 inspections in this final sample are:

Table 9: Findings for initiative 7.3.3.17.1 - Distribution OH Hardening.

Findings	Total Inspections	%
No overhead system hardening issues	31	65
No overhead issues on the system hardening/other issues	1	2
Overhead issues observed	1	2
Asset inaccessible/inspection not performed	13	27
Unable to locate	2	4

¹⁸ 2021 WMP Update page 217.

¹⁹ See Appendix 5 - DR10-7.3.3.17-miles to poles.

²⁰ SDG&E QIU Q4-2021, Initiative 7.3.3.17.1.

²¹ Appendix 5 - DR10-7.3.3.17-miles to poles.

Total	48	100.0
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Overhead hardening issues on which inspectors commented:

- Overhead issues observed
- In one sample location, covered conductor is connected to a non-covered conductor, replacement of uncovered conductor is recommended
- No issues on the overhead system hardening
 - Vegetation encroachment at one location. Vegetation is within 10-feet of the clearance radius around the pole.
- Inaccessible/Inspection not performed
 - Assets behind locked gates
- Unable to locate
 - The poles were not at the given coordinates in one sample location
 - The asset Id could not be found at the given coordinates

Image 14: Overhead hardening verification with no issues reported.

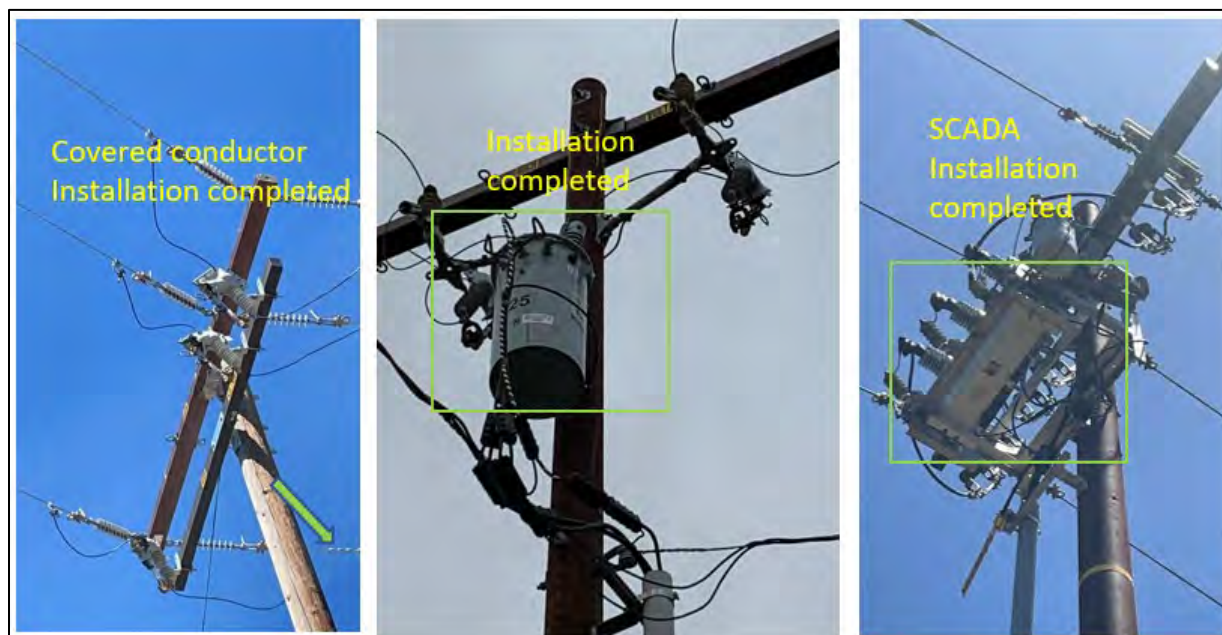


Image 15: Overhead hardening verification with observations.



The final verification sample size of 34 is statistically valid for the final population of 2,247 poles. The fraction of the sample size with quality issues constitutes 32%, that is 11 out of 34. By extrapolating this percentage to the general population, 728 out of 2,247 poles are anticipated to have the similar quality issues, as described above. This results in an adjusted total of 1,519 poles of overhead hardening activities successfully completed in 2021.

Based on their 2021 target and actual performance, the verification actions discussed above, and the findings reported, the IE cannot verify that SDG&E met its objective for this initiative.

7.3.3.17.3 – Cleveland National Forest Distribution and Transmission System Hardening

Unlike the previous hardening initiatives which track distribution and transmission efforts separately, overhead system hardening projects in the Cleveland National Forest (CNF) combine both. In the 2021 WMP Update,²² SDG&E reported their plan to complete CNF construction and hardening work in the first quarter of 2021. SDG&E confirmed that OH grid hardening typically

²² 2021 WMP Update page 227.

means pole replacement (wood to steel) and reconductoring and reported 80 locations for overhead (OH) distribution grid hardening in CNF.

In the WMP SDG&E estimated approximately 7.5 miles of the distribution network remained to be fire hardened in CNF. During WMP compilation, the CNF network was under active construction and was scheduled to be finished in Q1 2021. The IE notes that the metric for this activity was changed from miles to poles.²³ According to data provided by SDG&E, the converted target for 2021 is to fire harden 152 poles transmission and distribution. By the end of 2021, SDG&E reported completing 154 poles of fire hardening in CNF.²⁴

SDG&E provided data on 80 poles in CNF, from which the IE selected 19 samples to be used for verification.

The IE initially intended to develop a sample of locations for field inspections, as developed for other grid hardening initiatives. Following the challenges described in Chapter 3.1.1. Sampling Methodology and *Case Study: Cleveland National Forest*, IE sought to verify CNF hardening activity through the use of aerial imagery. Several types of aerial analysis were completed, as described below.²⁵ The IE requested and received grid hardening data in the form of a GIS database initially provided, and an excel spreadsheet which was additionally requested. Other highlights of the methodology employed:

- Images used for inspection were taken between March and April 2022. Aerial images consisted of natural color RGB and color-infra-red images (CIR, explained below).
- Inspection focused on identification of reported WMP work and detection of new poles.
- The first task was connecting the points provided by SDG&E with the location of poles in the aerial maps.

Note on Image Types – Natural color RGB images are very similar to everyday digital images and relies on information visible by naked eye. Color infra-red, or CIR, images represent false color images where the combination of channels (colors) is different from what the human eye is used to. In this case, the Red color is changed by the Near-Infra-Red (NIR) part of the light spectrum. The NIR spectrum is strongly emitted by healthy plants, while dry vegetation and artificial

²³ Appendix 5 - DR10-7.3.3.17-miles to poles.

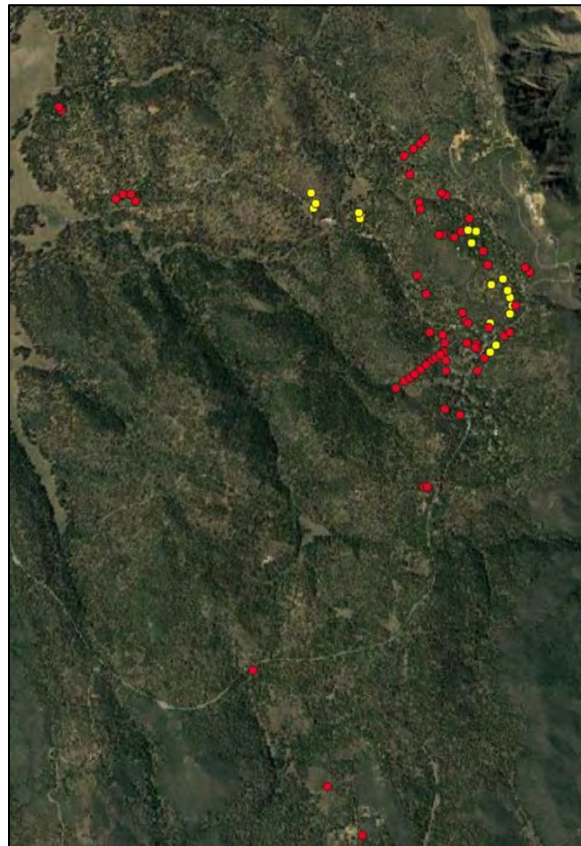
²⁴ SDG&E QIU Q4-2021 Initiative 7.3.3.17.3.

²⁵ Please see Appendix 3 for 7.3.3.17.3 - CNF hardening aerial analysis for this complete analysis.

surfaces have low emission in this part of the spectrum. By replacing the Red color with NIR, the resulting images show healthy vegetation as an intense red color. While RGB images were useful for general navigation and feature recognition, Color Infrared (CIR) helped detect poles and power lines.

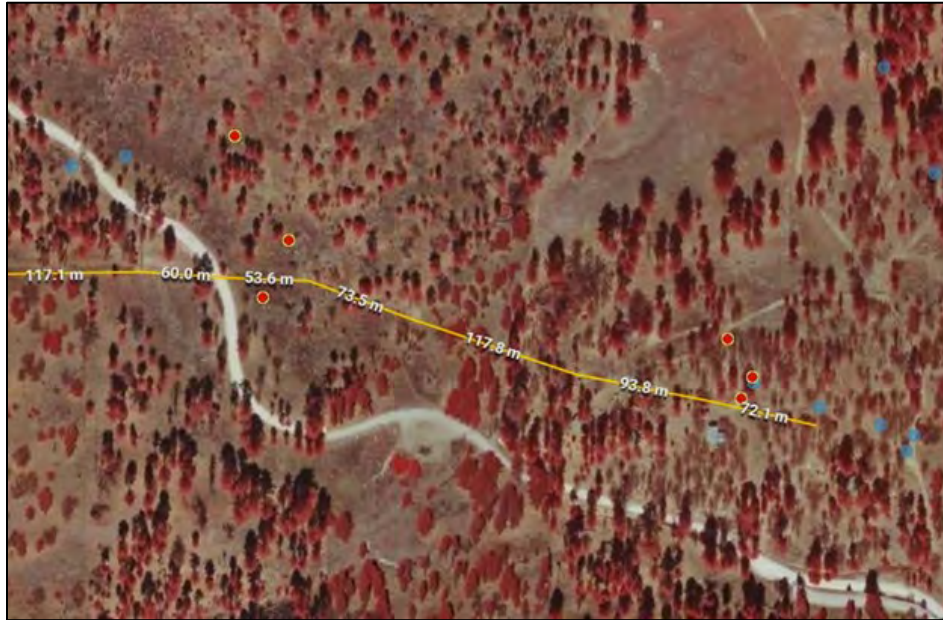
The image below represents the distribution of work locations reported by SDG&E, from which the samples were drawn.

Image 16: Locations of work reported by SDG&E (red) and locations of samples (yellow)



Discussion of Pole Locations – In some areas where reported work took place, it was found that points lie in areas no poles could be found. Often, the connection between poles and points could not be established, as distances between power lines and points were sometimes over 100 meters (Image 11).

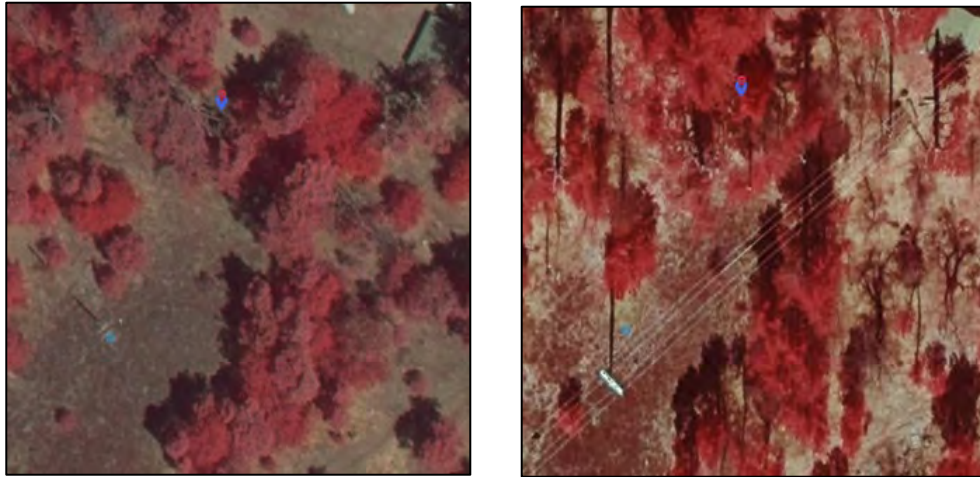
Image 17: Powerline locations, pole locations and locations of grid hardening work.



In Image 17, the yellow line shows the new powerline between the locations of poles visible on images. The yellow-rimmed red points indicate poles where work has been reported as performed by SDG&E while the blue points represent poles without grid hardening work. Yellow-rimmed red points should represent locations of a poles, but IE could not verify the existence of a poles on those locations. Pole locations that do not intersect with the yellow line of the powerline itself suggest the inaccuracy of the GPS pole locations which denied IE the possibility to tie the observed poles with reported new poles.

Verification via Image Pairs – To verify hardening work performed in the CNF, the location, placement, and potential absence of poles was compared with older images. Image sets 2 - 21 show these comparisons of pole locations by comparing “then” with “now.” These images were analyzed in CIR format to highlight vegetation. See Image 18 below as an example of this comparison.

Image 18: Pole 40150 – 2018 (L) vs 2022(R)



Introduction to Vegetation Indices – In the 2020 ARC,²⁶ the IE used satellite multispectral images to assess the state of vegetation as an indicator of wildfire risk and fuel availability. For the current ARC, the IE reapplied vegetation indices, this time in CNF. This analysis was based on multispectral 10m resolution satellite (Sentinel 2) images and high-resolution 20cm - 7.5cm multispectral images.

The IE used satellite images to produce vegetation indices maps (NDVI and NDRE).²⁷ The IE chose indices that utilize light bands invisible to the human eye but very sensitive to the physiological activity of plants. Application of these indices can help assess the state of vegetation during certain parts of the year. High-resolution aerial images (from manned aircraft) help delineate vegetation locations and assist in inspecting vegetation-powerline/pole interaction. Image precision is sufficient to detect the exact location of poles and powerlines, pole-mounted equipment, measurement of distances and heights, detection, and assessment of structure of poles (straight or crooked), inspections of fire breaks, vegetation encroachment, etc.

Application of Vegetation Indices to CNF – The IE created both NDVI and NDRE vegetation indices for CNF because NDVI detects plant activity early in the year but has drawbacks once tree

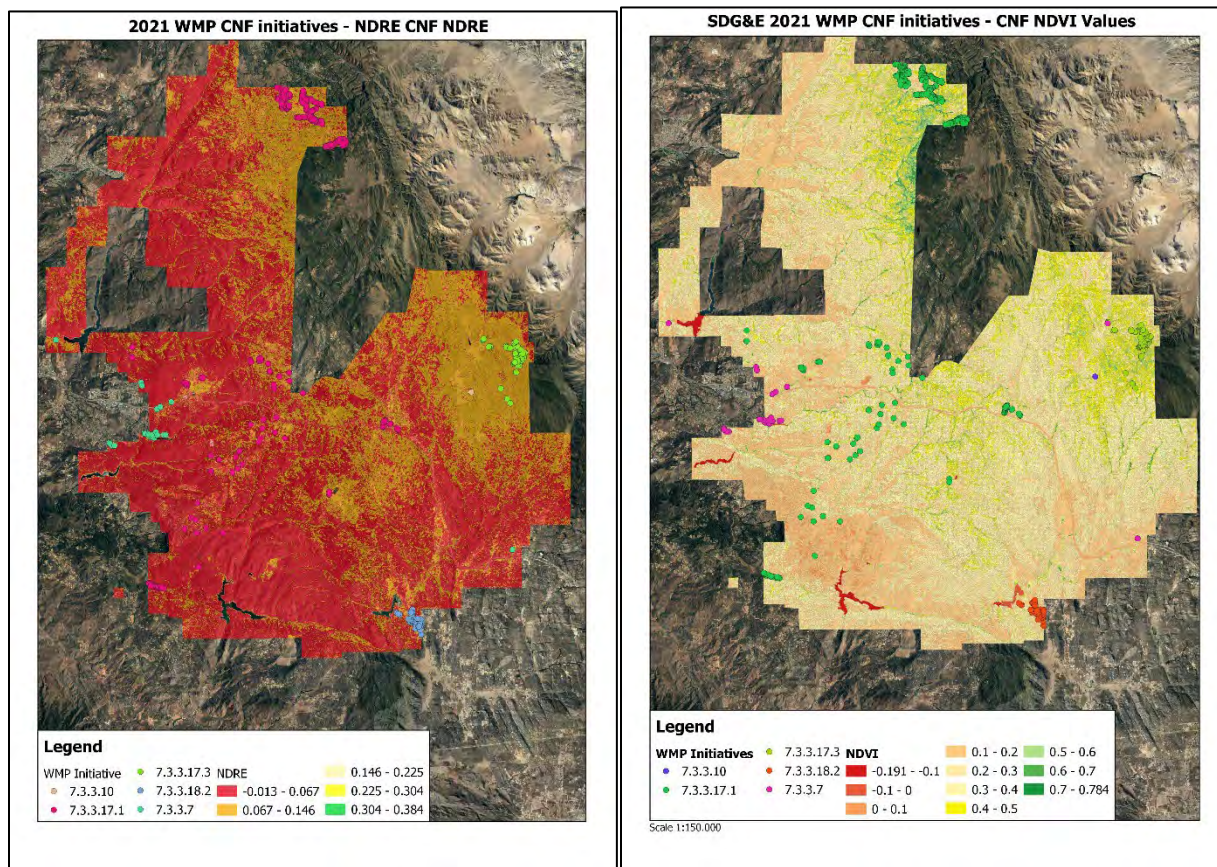
²⁶ <https://energysafety.ca.gov/>

²⁷ Normalized Difference Vegetation Index (NDVI) and Normalized Difference Red Edge Index (NDREI). Vegetation indices are mathematical formulas that combine reflectance values from 2 or more spectral bands to express vegetation status as quantitatively measurable, and comparable, values.

canopies are fully formed. The IE therefore applied the NDRE index as well, gaining the ability to penetrate deeper and provide more accurate information on plant health status.

Both NDVI and NDRE maps (below) were created from the same satellite images from August 17, 2021. Comparing the two maps highlights the differences between the two indices: NDVI shows the presence of healthy and active plants, while NDRE reflects lower plant health. Due to the 10m resolution of the imagery, however, and the limited high vegetation in CNF, the presence of low vegetation and bare land affects the results. For this reason, the IE used high resolution Color Infra-Red images as well. This combination helped detect considerable dead wood left in the forest, including tree trunks and branches visible for the entire period when images were compared over a 4-year timeline.

Image 19: CNF Maps.



WMP Initiatives in CNF - In addition to vegetation characteristics, these maps also show the distribution of five 2021 WMP initiatives in CNF. These include:

- 7.3.3.7 - Expulsion fuse replacement - 25

- 7.3.3.10 - Hotline clamps - 1 location
- 7.3.3.17.1 - Distribution OH hardening - 411
- 7.3.3.17.3 - CNF - Distribution and Transmission hardening - 80
- 7.3.3.18.2 - Lightning arrestors - 43

These two examples of aerial analysis yielded the following four findings of significance. Additional insight from the aerial analysis is provided in Appendix 3 7.3.3.17.3-CNF OH hardening imagery analysis:

- The SDG&E GIS data provided had large degrees of inaccuracy.
- Analysis of image pairs²⁸ confirms the existence of new, larger poles in the area of Cleveland National Forest. Through comparison of images from 2018 and 2022 of 10 locations, all 10 had new poles installed.
- Aerial imagery enables the detection of WMP equipment and locations, summarizing in one place the full suite of grid hardening activities applied in this geography.
- Multispectral satellite imagery can add more insight into risk areas, based on vegetation status assessment, in addition to the definition of HFTD areas

Finally, despite cataloging all WMP initiatives in CNF, we are unable to verify them for quality purposes. Per Table 1, Summary of Sampling Plan, the IE had intended a sample of 29 inspection points. In the process of data clarification SDG&E claimed work performed on 154 locations of distribution and transmission poles. They provided just 80 for overhead distribution lines, without transmission lines. Out of 80 points 19 points were selected as a sample. 12 points have been observed that have changed poles, out of which 10 points have been clearly defined through image pairs comparison. IE also detected 2 more poles which are newly constructed but could not tie them with pole ID due to the low location precision of data provided by SDG&E. So out of 19 samples, IE could locate 14 new poles constructed with 10 definitely verified. Only 10 verified locations were insufficient to enable statistical application to the full population, nonetheless, the IE is able to verify that grid hardening activities were undertaken at 100% of the poles for which locations were provided.

On the basis of the description of this initiative, the targets and outcomes provided, and the analyses described above, the IE is unable able to verify that SDG&E met their target for this initiative.

²⁸ In Appendix 3 - 7.3.3.17.3-CNF OH hardening imagery analysis

7.3.3.18.2 – Lightning Arrestor Removal and Replacement

Various things can cause surges on an electrical line; the most common include faults, switching surges, and lightning. To prevent damage to the line and distribution assets like transformers from an over-voltage or surge, utilities may use lightning arrestors. These devices activate when they sense an overvoltage situation and pass excess current to the ground. If the arrestor gets overloaded, however, due to a surge too large or long-lived, the arrestor may fail, potentially causing an ignition. As reported in the 2021 WMP Update “SDG&E had four lightning arrestor-caused ignitions in 2020.”²⁹ For this reason, SDG&E planned to replace arrestors at HFTD locations with a new CAL FIRE-approved lightning arrestor. The new device works in a similar manner to the older ones yet has an external device that prevents the arrestor from overloading.

This effort was new for SDG&E in 2021, with a set target to remove and replace 1,789 new lightning arrestors. By the end of the year, SDG&E reported that 924 lightning arrestors were removed and replaced.³⁰

The IE’s efforts to draw a sample from SDG&E’s work order data has been described in Chapter 3.1.1 Sampling Methodology. Per Table 1, Summary of Sampling Plan, the IE intended to draw a statistically valid sample of 33 locations for field inspections

From the total population of 924 lightning arrestors removed and replaced in 2021, the IE sampled a total of 35 locations. 29 of these were accessible for field inspections while six were located on private property and therefore inaccessible. Sample locations covered HFTD Tiers 2 and 3, locations in SDG&E’s Northeast, Eastern, North Coast, and Orange County districts and all quarters of 2021. The main findings from these inspections are:

Table 10: Findings for initiative 7.3.3.18.2 - Lightning Arrestors.

Findings	Total Inspections	%
No Lightning arrestors issues were observed	24	70.6
No Lightning arrestors issues/Other issues	5	14.7
Asset inaccessible/Inspection not performed	5	14.7

²⁹ 2021 WMP Update page 229.

³⁰ SDG&E QIU Q4-2021, Initiative 7.3.3.18.2

Total	34	100.0
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Comments from the field inspectors mentioned the following:

- No Lightning arrestor issues/Other issues
 - Vegetation encroaching the infrastructure in four locations. Vegetation is within 10-feet of the clearance radius around the pole.

Asset inaccessible/Inspection not performed

Asset located behind locked gates

Image 20: No significant findings observed.

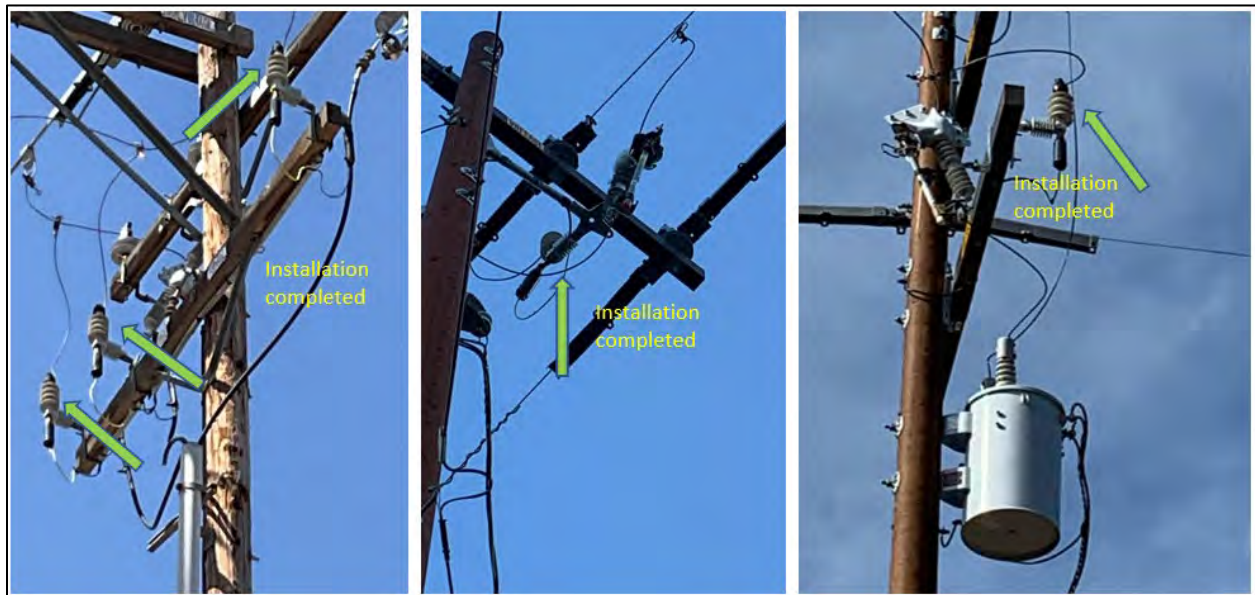


Image 21: Issues on lightning arrestor inspections.



SDG&E set the target to remove and replace 1789 new lightning arrestors in 2021. By year-end, however, the effort had fallen short of its target by 865 (48%) coming in at 924 lightning arrestors replaced for the year.

The IE's sample suggests that 70% of the 924 lightning arrestors installed under this effort are of acceptable or better quality. 30% of the time, however, the installation is inaccessible.

Based on their 2021 target and actual performance, the verification actions discussed above including the sizable inaccessible percentage and the findings reported, the IE determines that SDG&E did not meet its objective for this initiative.

7.3.5 - Vegetation Management & Inspections

7.3.5.2 – Detailed Inspections of Vegetation Around Distribution Electric Lines and Equipment

SDG&E's 2021 WMP Update highlights the priority placed by SDG&E on vegetation management as a core tool in its wildfire mitigation arsenal. SDG&E's focus on vegetation management includes annual routine and enhanced inspections, QA/QC efforts to ensure that trimming meets

standards, and a comprehensive inventory of hazard trees (these are described more fully in Chapter 3.1.3.1 Non-Field Verifiable, initiative 7.3.5.2).³¹

As described in SDG&E's QA/QC Plan:

“SDG&E utilizes a third-party contractor to perform quality assurance audits of vegetation management activities to measure work quality, contractual adherence, compliance, and to determine the effectiveness of each component of the program. These audits include a statistical analysis of a representative sample of all completed work. Audits are ongoing throughout the year. SDG&E continues its routine QA/QC program by performing random sampling audits on a sample population of all completed VM activities including pre-inspection, tree trimming, and pole brushing. Audit consists of a 15% sample of each completed activity.”

Vegetation Management additionally audits 100% of all completed hazard-tree trimming in the HFTD and 100% of all completed tree removals in the HFTD to ensure full compliance with the scope of work. SDG&E expanded its audit program by integrating “level 2” hazard tree assessments during the post-trim audit. These assessments are performed by the Certified Arborists performing the audit.

Safety, regulatory requirements, and service reliability dictate the vegetation management methodology of spend and resource allocation. SDG&E works with the audit contractor to determine the scope, frequency, and the number of resources needed to complete all audit activities. During the post-trim audit, the Certified Arborist also performs an inspection of all power lines within the VMA for any trees that will not remain compliant with applicable regulatory requirements for the duration of the annual cycle. Results are reviewed to determine if any additional work is required.”

In 2021, SDG&E set a target to complete 455,000 detailed inspections of vegetation around distribution electric lines and equipment. As of year-end, SDG&E completed 502,132 inspections of vegetation around distribution electric lines and equipment.³²

Following the sampling approach summarized in Table 1, Summary of Sampling Plan, the IE expected to develop a strategically valid sample with a minimum of 33 field locations to verify

³¹ 2021 WMP Update pages 263-264, 267-269.

³² SDG&E QIU Q4-2021, Initiative 7.3.5.2.

this initiative. The IE team performed a total of 1059 field inspections for this vegetation management initiative 7.3.5.2, to assess SDG&E's process and effort to mitigate potential ignitions. In addition, the IE team considered geostatistical methods as a requirement established by the Energy Safety for the selection of inspection locations. The sampling selection was drawn from GIS layers provided by SDG&E.

At the direction of Energy Safety, all field inspections were conducted in the HFTD Tier 3, or Tier 2 as required the territories inspected covered the northeast and eastern SDG&E services districts and were distributed across the four quarters of 2021 according to the dates of work order completion.³³

Field inspectors considered standards from the California Powerline Fire Prevention Field Guide (2021), the Public Resource Code (PRC) 4292 and GO (General Order) 95, Rule 35 to address quality control during the field inspections. Then, the IE considered the following terminology:

1. **Meets quality standards:** This category defines cleared vegetation around the poles no less than 10-foot radius in each direction from the outer circumference of a pole or tower and 8 feet above the ground. Likewise, considers over 4 feet of vegetation clearance for primary, secondary lines or telecommunication lines. *These requirements apply to all overhead electrical supply and communication facilities that are covered by GO95.*
2. **Does not meet the standards: Defined as vegetation encroaching the powerline infrastructure's minimum standards, that is, less than 10-foot radius in each direction from the outer circumference of a pole or tower and 8 feet above the ground; and less than 4 feet of vegetation clearance for primary, secondary lines or telecommunication lines.** This category³⁴

The IE's review of outcomes showed that 25.6% (271) of sampling locations comply with the minimum standards to mitigate the risk of potential ignitions in the HFTD-3. Conversely, 24.6% (261) did not meet minimum standards. Field inspectors relayed the following comments on tree sampling locations:

- Vegetation encroachment observed
 - In multiple locations vegetation surpasses 10-foot radius in each direction from the outer circumference of a pole or tower and 8 feet above the ground.

³³ Please see the Appendix IV for maps of the final inspection locations

³⁴ California Powerline Fire Prevention Field Guide (2021), the Public Resource Code (PRC) 4292 and GO (General Order) 95, Rule 35.

- In multiple locations vegetation is encroaching communication wires mainly.
- In one location trees are pulling communication the wires down
- o In one location a dead tree is laying across a feeder line
- o In one location the pole shows signs of physical deterioration
- o In one location cleared branches were on the ground below lines adding to fuel source
- Asset inaccessible/Inspection not performed
 - o - Assets were behind lock gates
- Unable to locate the asset
 - o Asset were unable to locate by the given coordinates

Image 22: Findings for initiative 7.3.5.2 - Detailed inspections of Vegetation.

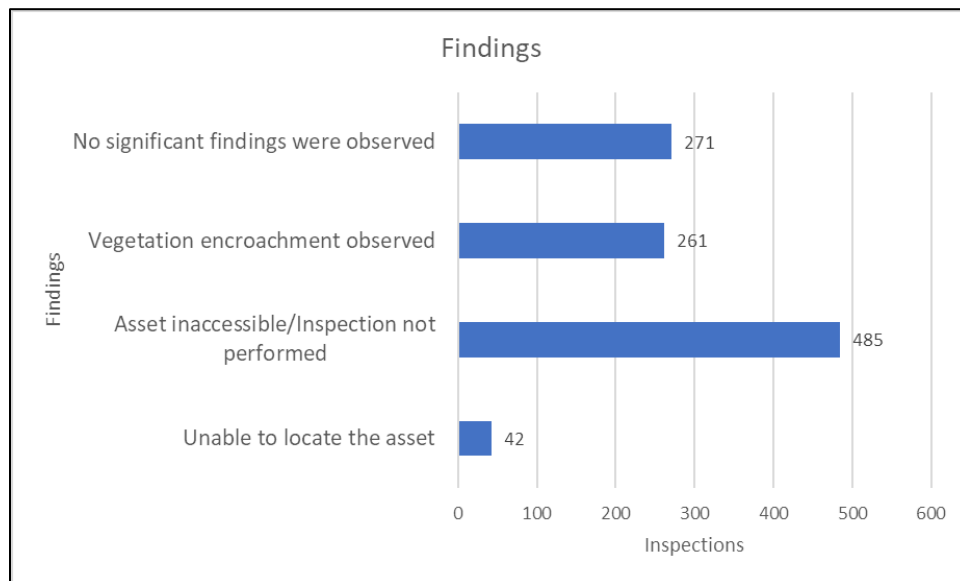


Table 11: Quality assessment for field inspections.

Finding Descriptions	Does not meet the standards	Meet the standards	Standards not Apply	Total	%
No significant findings were observed	-	271		271	45.8
Vegetation encroachment observed	261		-	256	26.6

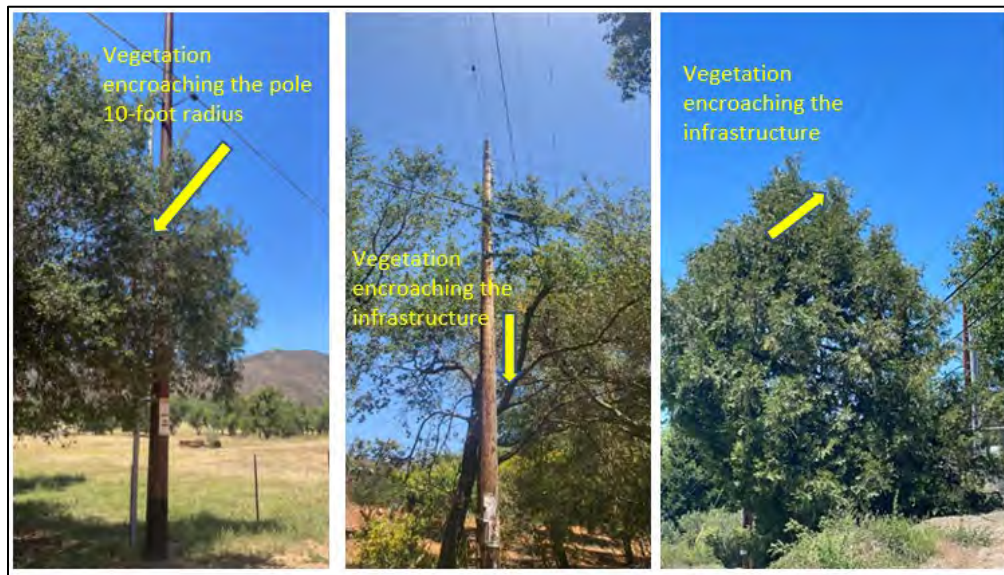
Asset inaccessible/Inspection not performed	-	-	485	-	4.0
Unable to locate the asset	-	-	42	-	24.6
Total	261	271	260	527	100

As previously outlined, 45.8% of the sampling sites meet safety quality standards that mitigate the risk of potential ignitions. However, in 256 sample sites, vegetation was observed within of the clearance radius critical infrastructure, and in some instances, vegetation was making actual contact with the power line itself.

Image 23: Exceptional vegetation clearance quality.



Image 24: Vegetation encroachment visible in field inspections.



The IE’s analysis documented that 13% of the sample demonstrated unacceptable vegetation management and thereby failed to meet the required standards for this initiative. Applying that percentage to SDG&E’s reported performance of 502,132 detailed inspections around distribution lines suggests that 65,277 of the inspections in that total also did not meet the standards. Discounting the reported total by the unacceptable fraction leaves SDG&E with 436,855 detailed inspections that met the required standards. This total falls short of the 455,000 2021 target. Despite all internal audits on subcontractor’s quality of vegetation management work, the IE finds substandard subcontractor’s performance, including trimming crews, arborists, and even auditors.

On the basis of this discussion, inspections, and analysis, the IE is unable to verify that SDG&E met its target for this initiative.

7.3.5.5 – Fuels Management and Reduction of “Slash” From Vegetation Management Activities

SDG&E has worked to manage vegetation clearance under overhead electrical lines to mitigate the potential ignition of wildfires associated with vegetation management. The fuels management and reduction of “slash” from vegetation management activities is built around a three-fold program expanded in 2019 and split into three areas: fuels treatment (increased clearances around poles), vegetation abatement (clearing within transmission rights-of-way), and fuels reduction grants (SDG&E funding for community-based organizations that work to reduce fire risks in project areas). The three programs are all aimed at identifying and eliminating

wildland fuel buildup near electrical infrastructure and supporting firefighters and improving their safety in the event of ignition.³⁵

In 2021, SDG&E planned to clear 500 poles from fuels, brush and slash under a fuels management program. Specifically, this meant completing expanded thinning of vegetation within a 50-foot radius on 500 poles.

By the end of the year, SDG&E reported completion of pole brushing at 463 poles and reducing “slash” from vegetation management activities.³⁶ In addition, the 2021 WMP Compliance Report reported that work on thinning had not begun until Q3.³⁷

The IE intended, per the Summary of Sampling Plan in Table 1, to draw a strategically valid sample with a minimum of 29 inspection locations to verify this initiative. The IE requested and received GIS data for purposes of verifying work locations and developing the locations list from which this sample would be drawn. After reviewing this data, the IE found that:

- Q1 – Fuel management has 335 entries marked as completed between October 1st 2020 and December 11th 2020. Therefore, those are not part of the work performed in 2021.
- Q2 – has no entries regarding WMP initiative 7.3.5.5.
- Q3 – has no entries regarding WMP initiative 7.3.5.5.
- Q4 – has 203 entries with status “Complete.”³⁸

The IE failed to find the 463 locations reported for 7.3.5.5. in the data provided by SDG&E. For more of the challenges represented by the use of this data for the purposes of verifying this initiative, please see “*Case Study: Cleveland National Forest*” in Chapter 3.1.1 Sampling Methodology.

For the reasons described in that Case Study, the IE chose to utilize aerial imagery for this verification. Locations were inspected by reviewing high resolution aerial images (from manned aircraft) which had been taken between January - April 2022, and by drone images provided by SDG&E as a part of their drone inspection program (please see WMP section 7.3.4.9.2 below).

³⁵ 2021 WMP Update page 270.

³⁶ SDG&E QIU Q4-2021, Initiative 7.3.5.5.

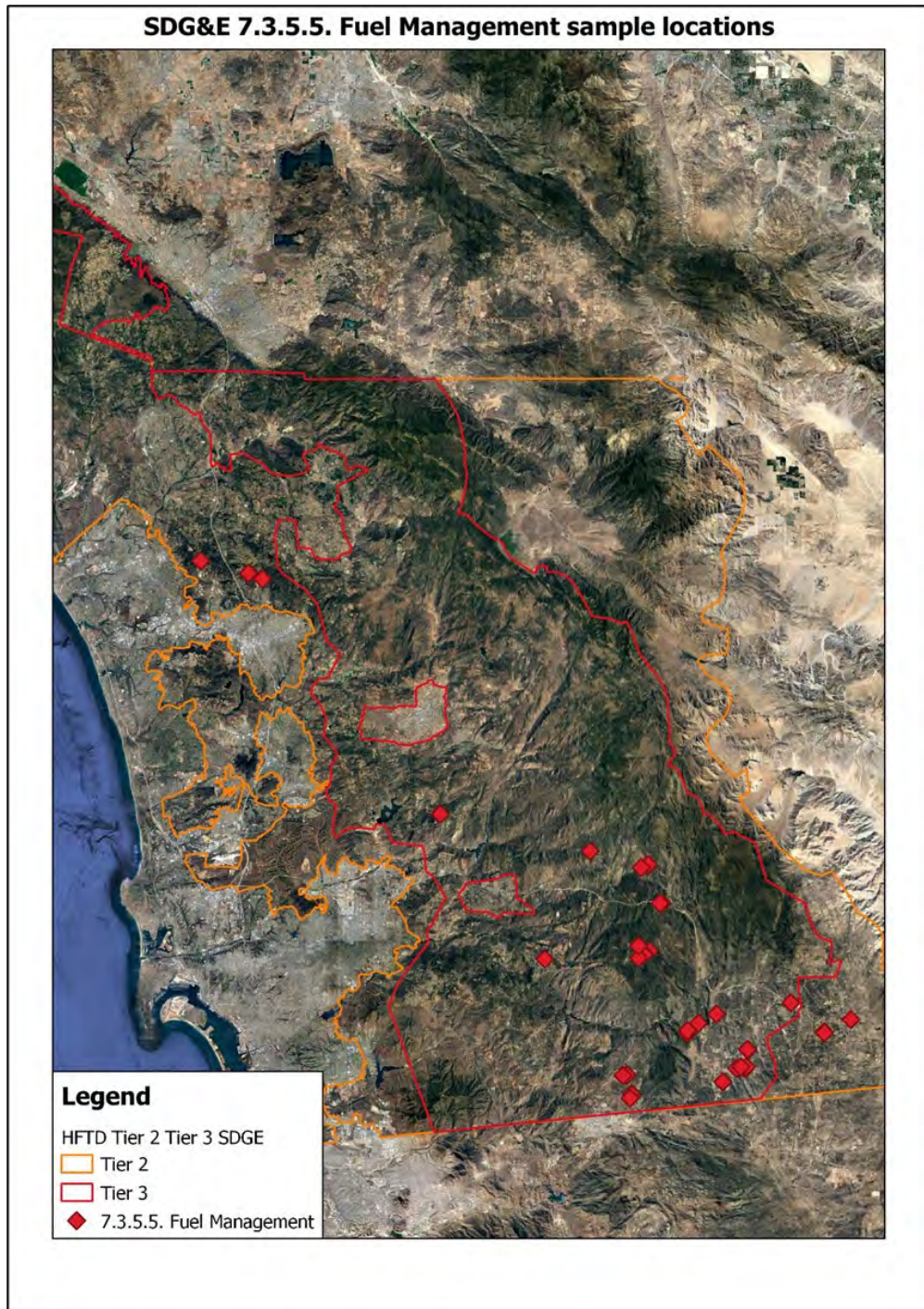
³⁷ Ibid.

³⁸ The Q4 report also shows entries for “Planned” and “In progress.” The IE did not include incomplete work.

Sampled locations were based in the areas with most intensive work reported and are shown in Image 19 below. Images were taken in RGB and CIR modes. RGB (Red-Green-Blue) is a natural color mode which captures images as seen with naked eye. CIR (Color-Infra-Red) is a type of image in which the Red component in RGB is switched with the Near Infra-Red (NIR) portion of the light spectrum. Light of NIR intensity, reflected from plants, is very sensitive to the health status of the plants. Healthy and physiologically active plants tend to have high reflectance in NIR, while plants in poor health and dry plants, and artificial surfaces have very low reflectance.

When switched with Red in CIR, the levels of NIR reflectance are directly proportional to the intensity of the Red color. The more intensive the red color in the image, the higher the reflectance of NIR and the greater the confidence that healthy vegetation is present. Poor plant health, in combination with low humidity, high wind, and high temperature can easily increase the availability of potential fire fuel. Therefore, the use of CIR assists in determining the presence of vegetation around the poles and the identification of fuels and slash vegetation around the critical infrastructure.

Image 25: Aerial assessment of fuels management.³⁹



³⁹ Please see Appendix 10 - 7.3.5.5-Aerial assessment of fuels management for the images on which this assessment is based. This assessment also includes a table of locations for the poles in question.

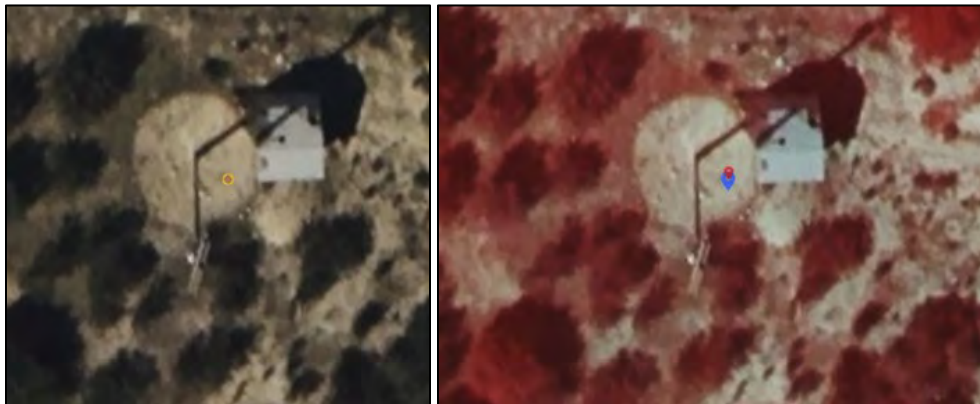
Images 1-31 are presented as pairs of inspected images, one using RGB and the other CIR. This comparison enables a higher degree of confidence in observations of vegetation and fuels management.

The images below show two such pairings. Please see similar paired images for pole locations 1-31 in Appendix 10 for 7.3.5.5 - Aerial assessment of fuels management.

Image 26: RGB and CIR Example 1.



Image 27: RGB and CIR Example 2.



Findings from this Analysis:

- The IE sought a sample of 29 locations and was able to achieve 34 sample locations (out of 38 sampled location) that through the locations, image pairs and drone images assessed in the Analysis Report prepared for this initiative.
- 31 of the 34 image pairs inspected show clean clearance around the poles. In most cases, this reflects 30 - 40-foot clearance around the poles.

- 4 images caught the IE's attention due to the following possible issues (please refer to 7.3.5.5 - Aerial assessment of fuel management):
 - Image 1. showed a canopy of trees very close to the pole.
 - Image 12. showed potential low vegetation growth in the base of the pole.
 - Image 21. showed dead trunks and branches of trees no further than 12-15 feet from the pole.
 - Image 30. showed canopies surrounding the pole in close proximity.
- Additional issues were noticed on images 32 - 35 in the Analysis Report. On these images, a high level of inaccuracy of GPS positioning of poles was noticed.

A noticeable trend shows in this assessment. As long as poles are located near roads, the GPS accuracy is sufficient for pole detection. But, as soon as the pole location moves away from the road and recognizable landmarks, the accuracy drops dramatically. Another noticeable trend is that many of the poles had been surrounded by low vegetation and the high vegetation provides much more challenge for maintaining the clearance which was not adequately met.

Despite the satisfactory quality of the majority of the locations shown in the aerial assessment, 4 locations (13%) showed sufficient vegetation presence to raise concern. While this sample size is sufficient (34 vs. 30) to be statistically valid, the IE notes that a 12% fraction of SDG&E's pole clearance target might put at risk missing that target in another year. Attention to the issue of pole clearance and fuels management quality might be prudent.

Image 28: Base of pole P612045



In addition to inspection of sampled poles, IE observed a pole which was not in a sample pool that raised a concern. The pole P612045, is located between poles P115804 and P115803. These two poles have been subject to vegetation and fuel management, while the P612045 wasn't. Pole P612045 has a substantial amount of vegetation around it, both live and dry (please see image below). but that pole was not even subjected to vegetation inspection, even though the closest vegetation inspection point was 14 meters from it. For a complete description of this analysis, please see the Analysis Report prepared for this initiative.

SDG&E acknowledges that their 2021 target of 500 poles cleared was not met. Regardless of the quality findings, therefore, the IE verifies that that SDG&E did not meet its installation target for this initiative.

7.3.5.9 – Other Discretionary Inspection of Vegetation Around Distribution Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations

Additional inspections are part of SDG&E's efforts to inspect vegetation around distribution lines. Since vegetation are living organisms and subject to growth near electrical infrastructure, such growth can cause contact between distribution electric lines and vegetation, risking ignitions and wildfires. SDG&E's solution to mitigating the risk posed by vegetation around distribution lines is to conduct discretionary inspections—beyond the mandated inspection determined by the current rules and regulations—to trim vegetation that might require such out-of-cycle attention.⁴⁰

At the beginning of 2021, SDG&E set a target of 17,000 trees trimmed or removed. The actual outcome by the end of 2021 was reported as 12,578 trees trimmed or removed.⁴¹

Per the Sampling Plan summarized in Table 1, Chapter 3.1.1, the IE planned a statistically valid sample with a minimum of 33 field inspections to verify this initiative. The IE utilized geostatistical methods for selecting the sample of locations. The sampling selection was also based on GIS layers provided by SDG&E. From the total population of 12,578 trees trimmed or removed, the IE sampled 53 locations. Of these 53 locations, only 8 of these could be assessed. The larger fraction of 44 locations (83% of the sample) were inaccessible to the inspectors. Barriers to access

⁴⁰ 2021 WMP Update, page 276.

⁴¹ SDG&E QIU Q4-2021, Initiative 7.3.5.9.

included: 43 points in private property and 1 location that could not be located at all due to an incorrect ID.

The main findings from the eight completed inspections are still instructive, if not statistically valid. In 88% (7) of the sample, locations were accessed, and inspections completed without major issues. One inspection refers to vegetation encroachment. In terms of the quality assessment, 22% showed an acceptable quality and the remaining inspection sites were all categorized as “Exceptional.”

Image 29: Findings for initiative 7.3.5.9 - Discretionary Field Inspections of Distribution Equipment.

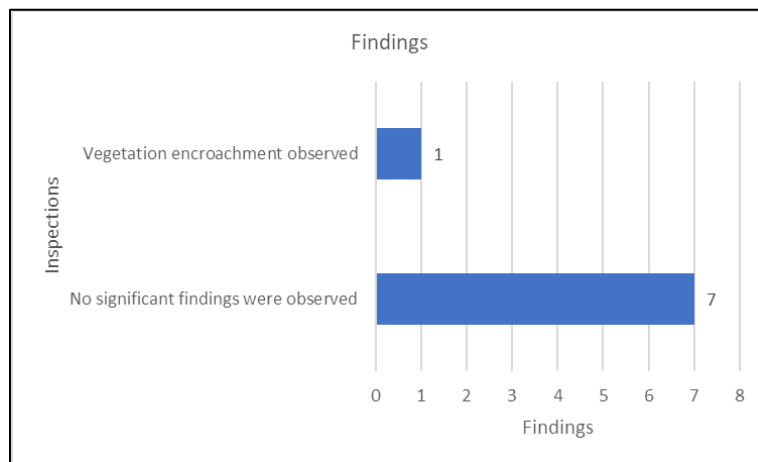


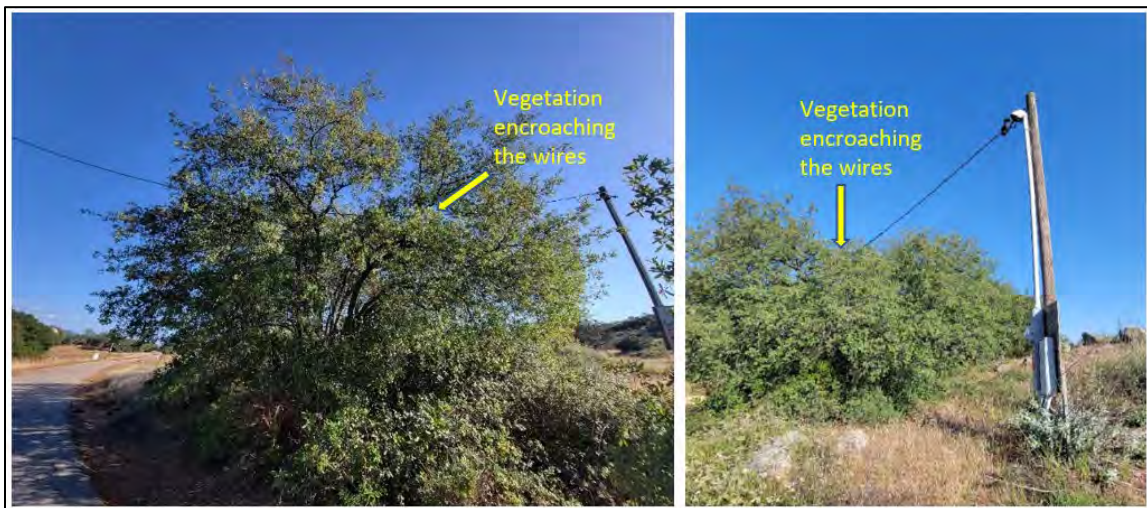
Table 12: Findings for Initiative 7.3.5.9 Discretionary Field Inspections.

Finding descriptions	Does not meet the standards	Meet the standards	Total	%
No significant issues were observed		7	7	13
Vegetation encroachment observed	1		1	1.8
Inaccessible for inspection – private property			44	83
Total	1	7	53	

Image 30: Exceptional vegetation clearance quality.



Image 31: Vegetation encroachment observed.



The IE’s analysis revealed that discretionary inspections frequently occur on private property, falling “beyond inspections mandated by rules and regulations.” While the resulting sample is too small to be statistically valid, the information gleaned suggested that the majority of discretionary inspections meet high standards of quality. However, based on SDG&E’s reported outcomes, which were shy of their target by over 400 trees, the IE verifies that that SDG&E did not their objective for this initiative.

7.3.5.20 – Vegetation Management to Achieve Clearances Around Electric Lines and Equipment (“Pole Brushing”)

Maintaining proper vegetation management around electrical infrastructure is a critical practice for all electric utilities. Core vegetation management practices include achieving and maintaining minimum 10 foot (radius) of cleared space between electrical infrastructure and encroaching vegetation. Equally important is clearing vegetation up to a height of 8 feet from ground level within the State Responsibility Area.⁴² Pole brushing remains an integral part of SDG&E’s strategy, to ensure clearing of vegetation to reach these minimum clearances around electric lines and equipment, in order to prevent any potential ignitions from triggering wildfires.⁴³

SDG&E’s target at the beginning of 2021 was to perform pole brushing at 35,500 poles. By the end of 2021, SDG&E reported completion of pole brushing at 35,102 poles.⁴⁴

The IE planned a statistically valid sample with a minimum of 33 inspections to verify this activity.

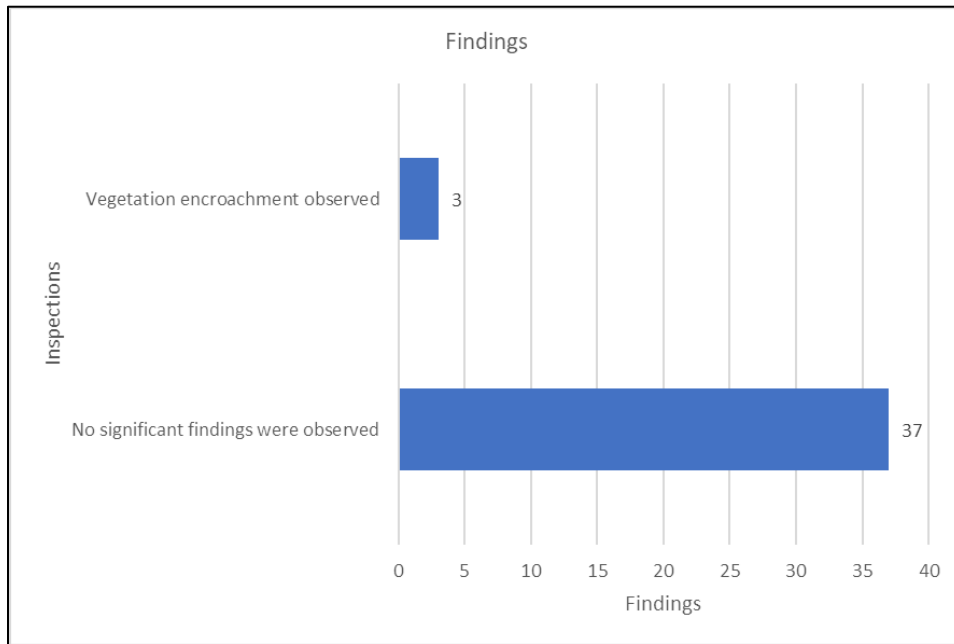
From the total population of 35,102 trees trimmed or removed, the IE’s field inspection team sampled 112. However, a major fraction of the inspections (72; 83%) showed that the asset locations were on private property and therefore inaccessible.

⁴² Definition of State Responsibility Area at CAL FIRE portal,
<https://www.arcgis.com/home/item.html?id=5ac1dae3cb2544629a845d9a19e83991>

⁴³ 2021 WMP Update page 286.

⁴⁴ SDG&E QIU Q4-2021, Initiative 7.3.5.20.

Image 32: Findings for Initiative 7.3.5.20 Pole Brushing.



In 33% of the sample locations, pole brushing was completed without issues according to the clearance protocols. The IE defines this as no vegetation growing at the base of the pole nor any vegetation encroachment discovered on the asset within a 10-foot radius from the pole and 8 feet above the ground.

However, it was observed that 3% of inspected brushed poles was completed but had vegetation encroaching 8 feet above the ground.

Table 13: Findings for initiative 7.3.5.20 - Pole Brushing

Findings	Pole brush completed/No the issue observed	Pole brush completed	Total	%
No significant issues were observed		37	37	33
Vegetation encroachment observed	3		3	3
Inaccessible for Inspection – private property			72	64

Total	3	37	112	100%
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Image 32: Pole brushing completed without observations.



Image 33: Vegetation encroaching on the pole.



The IE’s analysis showed high quality standards for pole brushing, such that, in the majority of cases where inspectors were able to reach the pole and complete the inspection, vegetation had been fully cleared around the pole. In a small subset, however as described above, the IE’s inspectors observed that encroachment was visible.

Despite the finding on quality, the IE found that SDG&E's reported quantitative target was not met, falling short by just under 400 trees. Therefore, based on SDG&E's reported target, outcomes and field analysis, the IE can verify that SDG&E did not meet their objective for this initiative.

3.1.2.2 Trends and Themes

Include any trends or recurring themes that the Independent Evaluator found while assessing utility compliance to Large Volume Quantifiable Goal/Target – Field Verifiable initiatives.

The IE team identified several trends and themes across the assessment of the WMP "Large-Volume Quantifiable Goal/Target – Field Verifiable" initiatives:

- The inaccessibility of private property was a significant factor in the IE team's ability to conduct verifying inspections. Verification of multiple initiatives was not possible on this basis.
- Aerial inspection methods are not impeded by the ownership status of the sites to be inspected, making it more efficient to achieve statistically valid samples.
- Grid Hardening is not clearly defined across all initiatives that affect.
- In general, Q1 database was presenting the work done in a descriptive manner while others Quarterly reports were more direct with providing the number of initiatives, although there was mismatch of nomenclature of fields between the reports Q2-Q3.
- Wood to steel poles replacement is a common element in OH hardening.

The restrictions facing independent, non-SDG&E inspectors are apparent in multiple initiatives that fall into the category of Large, done over 100 times, and field verifiable. Based on 2021 experience, the IE anticipated that site access would be a barrier to inspections, as it was in that year. Prior to the start of field inspections, the IE requested Energy Safety permission for SDG&E personnel to accompany IE inspection teams, for the purposes of verifying IE identity to property owners and/or in other ways addressing access issues. Energy Safety declined this permission.

The IE also requested from SDG&E identifying placards similar to those in use by other SDG&E vegetation management vendors who work on and near privately-owned property. These were not available. In approaching private property owners for access to inspect the SDG&E assets in question, the IE inspectors could only represent themselves as independent third parties - a posture not persuasive to multiple landowners.

Other trends with considerable import were identified in the incongruities of meaning found in SDG&E's data structure. The difficulties encountered in trying to sort these out affected the whole sampling methodology and procedure, and consequently consumed valuable time that should have been used for sampling. The data structure failed to clearly define and provide basic information on SDG&E's assets and infrastructure included in initiatives and identifying the work done. Some initiatives had broadly defined work which can mean several different initiatives. The need for clarity in data definitions is a critical priority ahead of future efforts of this kind.

An important part of sampling lies in providing accurate locations of infrastructure. At some points in this effort, GPS locations provided by SDG&E showed a level of accuracy of over 100 meters. When the level of accuracy was down to the meter level, the GPS location information (Lat/Long) was wrong. GPS coordinates showed associated assets that were often placed far away from the actual pole location, or between two or more neighboring poles.

To sum the most important emerging trends from the sampling efforts that preceded Large initiative verification were:

- That the attribute "Pole ID," even though this is crucial information for field inspections, is nowhere clearly marked
- There is a high level of inconsistency in the data structure;
- There is no clear and well-defined naming nomenclature for the work performed, whether assigned to a WMP initiative or not;
- No clear indications exactly what work was done (e.g., whether a new installation, replacement, upgrade, removal, repositioning)
- Level of GPS positioning of infrastructure has tendency to be very inaccurate, especially when the asset is located further away from the main roads and streets

Regarding the inspection of initiative 7.3.5.5 fuel management, the trend noticed was that the clearest locations were those with low and scarce vegetation. The higher the amount of vegetation, the more difficult it was to detect the appropriate clearance; in some cases, there was possible encroachment of the pole. The trend suggested here indicates that the quality of work may be reduced when the quantity of work is higher and there is more work to be done.

3.1.3 Large Volume Quantifiable Goal/Target – Not Field Verifiable

"Large-Volume Quantifiable Goal/Target – Not Field Verifiable" initiative activities are those initiatives with more than 100 quantifiable assets included in the goal or target that could not be verified for completion in the field. Initiative activities considered "Non-Field-Verifiable" requires

verification by other means. Verification for Large Volume activities that cannot be verified in the field had the following steps:

- In lieu of SME interviews, the IE developed specific questions for each Initiative category. Through the Data Request process, SDG&E SMEs were requested to clarify as necessary and send verification documents to accompany their responses.⁴⁵
- Verification of the initiative was based on IE review of these documents to confirm the activity and/or identify any issues or questions to be addressed further.

Table 14: Summary of Non-Field Verifiable Initiatives.

Large Volume Quantifiable Non-Field Verifiable Initiatives				
WMP Category⁴⁶	Initiatives	Planned	Reported	IE Verified
5.3.3 Grid Design and System Hardening	7.3.3.11.1 – Resiliency Grant Programs	2,000 battery units	2,310 battery units	Unable to Verify
	7.3.3.11.2 – Standby Power Programs	413 generators	335 generators	Unable to Verify
	7.3.3.11.3 – Resiliency Assistance Programs	1250 coupons	735 coupons	Unable to Verify
5.3.4 Asset Management & Inspections	7.3.4.1 – Detailed inspections of distribution electric lines and equipment	22,269 detailed inspections	22,354 detailed inspections	Not Verified
	7.3.4.2 – Detailed inspections of transmission	1,943 detailed inspections	1,975 detailed inspections	Verified

⁴⁵ SME questions are available in DR16-18. SDG&E responses include both narrative responses and verification documents. Verification documents may be found in Appendix 7-9; verification documents are labeled to correspond to the Data Request (DR) in which they were received and the initiative they support.

⁴⁶ Please see the Note on Numbering on page 11.

	electric lines and equipment			
	7.3.4.4 – Infrared inspections of distribution electric lines and equipment	18,000 infrared inspections	17,068 infrared inspections	Not Verified
	7.3.4.5 – Infrared inspections of transmission electric lines and equipment	6,166 infrared inspections	6,239 infrared inspections	Verified
	7.3.4.6 – Intrusive pole inspections	9,796 wood pole intrusive inspections	8,721 intrusive wood pole inspections	Not Verified
	7.3.4.9.1 – HFTD Tier 3 inspections	10,815 HFTD Tier 3 inspections	11,535 HFTD Tier 3 inspections	Verified
	7.3.4.9.2 – Drone assessments of distribution infrastructure	22,000 total assessments of distribution poles	21,420 drone inspections of distribution infrastructure	Unable to Verify
	7.3.4.9.4 – Drone Assessments of transmission Infrastructure	22,000 total assessments of distribution poles	1,140 drone inspections of transmission infrastructure	Unable to Verify
	7.3.4.9.5 – Aerial 69kV Tier 3 Inspections	1,654 aerial 69kV Tier 3 Visual inspections	1,652 aerial 69kV Tier 3 Visual inspections	No Determination
	7.3.4.10 – Patrol inspections of distribution electric lines and equipment	86,000 patrol inspections	86,490 patrol inspections	Verified
	7.3.4.11 – Patrol inspections of transmission electric lines and equipment	6,324 patrols inspections	6,423 patrol inspections	Verified

	7.3.4.14 – Substation inspections	330 visual substation inspections	405 substation inspections	Verified
5.3.5 - Vegetation Management	7.3.5.2 – Detailed Inspections of vegetation around distribution Infrastructure - Inventory Tree Inspections	455,000 tree inspections	502,132 tree inspections	No Determination

3.1.3.1 Review of Initiatives

This section should include the Independent Evaluator’s findings and assessment of utility compliance with activities that fall into the Large Volume Quantifiable Goal/Target – Not Field Verifiable category. Independent Evaluators shall select a sample to seek additional documentation and conduct SME interviews, as needed, to verify that the activity was completed and executed in accordance with all applicable work procedures and protocols.

Include the electrical corporation’s list of initiatives that fall into the Large Volume Quantifiable Goal/Target – Not Field Verifiable category, including respective goals/targets for each, in the Appendix or within the body of this subsection.

5.3.3. - Grid Design and System Hardening

7.3.3.11.1 – Resiliency Grant Programs

SDG&E has three programs dedicated to “enhancing resilience among the most vulnerable customer segments in the SDG&E Territory.”⁴⁷ These programs provide back-up backup systems to customers under different conditions (see also 7.3.3.11.2 Stand by Power programs, below, and 7.3.3.11.3 Resiliency Assistance Programs, also in this section). The first and largest of the three is the Generator Grant Program (GGP), launched in 2019, and intended to assist any Medical Baseline (MBL) customers in HFTD Tier 3 who had previously experienced a PSPS outage. The program offers MBL customers “a portable battery unit w a solar charging capability, to achieve additional resiliency during PSPS events.”⁴⁸

⁴⁷ 2021 WMP Update page 208.

⁴⁸ Ibid.

SDG&E set its 2021 program target in view of 2020 PSPS frequency in the three largest communities in this region, Alpine, Ramona and Valley Center. For 2021, they anticipated providing battery units to 2,000 customers, expecting “to begin offering eligible customers invitations to participate by May 2021.” SDG&E reported providing 2,310 batteries to customers by the end of 2021 Q4.⁴⁹

The IE began by flagging a reporting inconsistency in this program, which provides battery backup units. Metrics for this program are given in ‘generators’ per year.⁵⁰

The IE tried several ways to verify this program.

In DR15, the IE requested locational information in order to visit a sample of these installations. SDG&E’s reply was as follows: “SDG&E cannot provide additional GPS coordinates and addresses for the generators provided as this would include customer personal information.”

Additional verification for 7.3.3.11 – Mitigation of impact on customers and other residents affected during PSPS events, was requested through DR17, in which the IE asked SDG&E the following:

1. Please provide one 2021 example from each of the following programs to verify its existence during the WMP year: Resiliency Grant Programs, Standby Power Programs, and Resiliency Assistance Programs.

SDG&E RESPONSE: “As submitted in SDG&E’s 2020-2022 Wildfire Mitigation Plan on February 11, 2022, SDG&E implemented initiatives to reduce the impacts of PSPS impacts on customers. In 2021, the Resiliency Grant Program provided over 2,300 portable battery-powered backup generators to customers enrolled in Medical Baseline (MBL) or have access and functional needs. Since the initial launch of the program in 2019, approximately 3,800 customers have participated in this program.”

“The Generator Assistance Program provided the opportunity for over 55,000 customers in Tiers 2 and 3 of the HFTD to download an instant rebate coupon to aid in the purchase of an off-the-shelf portable backup generator. Over 700 customers benefited from the coupons and ultimately

⁴⁹ SDG&E QIU Q4-2021, Initiative 7.3.3.11.1.

⁵⁰ Ibid.

made a purchase in 2021. Since the initial launch of the program in 2020, approximately 2,000 customers have participated.”

“The final component of SDG&E’s backup generator strategy focuses on permanent backup generation for customers who reside in areas most prone to PSPS events and least likely to benefit from other, more costly, grid-hardening initiatives. In 2021, SDG&E installed over 350 permanent propane-powered backup generators for customers in Tier 3 of the HFTD that seamlessly transition from grid power to generator power through an automatic transfer switch.”

“Additionally, each program prioritizes customers who reside in the High Fire Threat District and have historically experienced PSPS events based on actual outage data as a way of predicting those who are most likely to benefit from the mitigation the program provides.”

“Provided in Table 13 below is a summary of the number of customers who were impacted by a PSPS event in 2021, and who had already participated in one of the three programs referenced above.”

Table 15: Summary of Customers Impacted by PSPS in 2021.

Program Name	Customers Impacted by 2021 PSPS that Were Prior Program Participants
Resiliency Grant Program	415
Standby Power Program	5
Resiliency Assistance	201

In lieu of the specific examples requested of SDG&E, the IE turned to other sources. The WMP initiative 7.3.9.3 concerns support provided to customers during PSPS events and SDG&E efforts to mitigate those impacts. Documents and answers provided to verification requests for this initiative provided more specific information about the generators and backup power units provided by SDG&E.⁵¹ In particular, correspondence in this response identified specific actions completed in 2021 and projects nearly complete in 2022 that the IE infers received support in 2021.

SDG&E’s response to 7.3.3.11.1 reiterates previously reported information about this program. It does not answer the question specifically, so, in the absence of even one example (names/

⁵¹ Appendix 8 - DR17-7373 - Customer supports during PSPS.

addresses redacted as necessary) to verify that the program provided services in 2021 in that specific case, the IE can only verify that the program exists. While SDG&E reported exceeding its 2021 quantitative objective of 2,000 generators installed, the IE is not able to verify that SDG&E reached the targets it reported.

7.3.3.11.2 – Standby Power Programs

New in 2020, SDG&E reconstituted this program as Fixed Backup Power (FBP) Program. The program targets customers in the backcountry of the HTFD “who may not benefit from a near or long-term traditional hardening initiatives (sic).”⁵² Under this program and depending on customer needs, the customer may be offered a permanent propane backup generator or, for businesses and community organizations, “a critical facility generator on a temporary basis during an active PSPS... and clubhouse or central community building at mobile home parks may receive a solar panel and battery backup battery system.”⁵³

For 2021, SDG&E planned to build on its 2020 target, from 300 generator installations to 413— however, not all of these installations will be new in 2021: “SDG&E anticipates the 2021 program year to incorporate a portion of the remaining 2020 sites that will not complete construction by end of year 2020”⁵⁴ as well as the 300 planned for 2021. By the end of 2021, SDG&E reported providing 355 generator installations through the end of 2021 Q4.”

The IE tried several ways to verify this program, as reported in 7.3.3.11.1. The same steps and responses applied to all three grant programs.

In DR15, the IE requested locational information in order to visit a sample of these installations. SDG&E’s reply: “SDG&E cannot provide additional GPS coordinates and addresses for the generators provided as this would include customer personal information.”

To next attempt verification of 7.3.3.11.2, in DR17 the IE requested from SDG&E the following:

1. Please provide one 2021 example from each of the following programs to verify its existence during the WMP year: The Resiliency Grant Programs, Standby Power Programs and Resiliency Assistance Programs. (Please see SDG&E’s response on 7.3.3.11.1.)

⁵² 2021 WMP Update page 210.

⁵³ 2021 WMP Update page 210.

⁵⁴ SDG&E QIU Q4-2021, Initiative 7.3.3.11.2.

The WMP initiative 7.3.9.3 concerns support provided to customers during PSPS events and SDG&E efforts to mitigate those impacts. Answers provided to verification requests for this initiative provided more specific information about the generators and backup power units provided by SDG&E.⁵⁵ In particular, correspondence in this response identified specific actions completed in 2021 and projects nearly complete in 2022 that the IE infers received support in 2021.

SDG&E's response to 7.3.3.11.2 reiterates previously reported information. It does not answer the verification question in a manner that allows the IE to verify that any customer (names/addresses redacted as necessary) received a generator under this program in 2021. In addition, per its own reporting, SDG&E fell short in its installation targets for 7.3.3.11.2, missing the target of 413 installations by 58 projects. Based on the description, target and outcomes, and verification responses discussed above, the IE can verify that the program exists, however the IE cannot verify that SDG&E reached the installation targets it reported.

7.3.3.11.3 – Resiliency Assistance Programs

Under this initiative, SDG&E opened resiliency offerings to customers in both wider areas of the HFTD and outside the HFTD. Included under this initiative, the “Expanded Generator Grant Program” offers point of sale rebates for portable generators. These rebates cover a variety of “dual-fuel (gas-propane) portable generators that are available in “big box” stores.” Customers were invited to participate in the program, selected by SDG&E based on their HFTD locations, prior PSPS outage, and potential future grid hardening efforts in their areas. CARE⁵⁶ customers receive an enhanced discount, enabling purchase of qualifying generators at a 70-90% discount.⁵⁷

In 2021, SDG&E expected that 1,250 coupons for portable generators would be redeemed by CARE customers. By the end of 2021, SDG&E reported that 735 coupons for portable generators had been redeemed by CARE customers, a shortfall of 515 (41 %).

⁵⁵Appendix 8 - DR17-7373 - Customer supports during PSPS.

⁵⁶ “California Alternative Rates for Energy” a CPUC-mandated program under which income-qualified customers receive a 30-35% discount off their electricity bills. See CPUC.ca.gov for CARE/FERA program descriptions.

⁵⁷ 2021 WMP Update page 213.

As with the other grant programs, the IE tried several ways to verify this third in the suite of SDG&E's resiliency efforts. As described above in 7.3.3.11.1, the same steps were taken and the same responses from SDG&E were received.

First, in DR15, the IE requested locational information in order to visit a sample of these installations. SDG&E's reply: "SDG&E cannot provide additional GPS coordinates and addresses for the generators provided as this would include customer personal information."

Second, to verify 7.3.3.11.3, in DR17 the IE requested from SDG&E the following:

1. Please provide one 2021 example from each of the following programs to verify its existence during the WMP year: The Resiliency Grant Programs, Standby Power Programs and Resiliency Assistance Programs. (Please see SDG&E's response on 7.3.3.11.1.)

Third, the IE turned to other sources. WMP initiative 7.3.9.3 concerns support provided to customers during PSPS events and SDG&E efforts to mitigate those impacts. Answers provided to verification requests for this initiative provided more specific information about the generators and backup power units provided by SDG&E.⁵⁸ In particular, correspondence in this response identified specific actions completed in 2021 and projects nearly complete in 2022 that the IE infers received support in 2021.

SDG&E's response to 7.3.3.11.3 did not answer the verification question in a manner that would enable the IE to verify that any customer participation (names/ addresses redacted as necessary) occurred under this program. As a result, the IE can verify that the program exists, though the IE is not able to verify that SDG&E reached the installation targets it reported.

5.3.4. Asset Management & Inspections

7.3.4.1 – Detailed Inspections of Distribution Electric Lines and Equipment

The California Public Utilities Commission (CPUC) GO 165 requires SDG&E to perform a service territory-wide inspection of its electric distribution system, which is referred to as the Corrective Maintenance Program (CMP). This inspection program mitigates the risk of equipment failure by flagging equipment deterioration, triggering repair and/or replacement before failures happen,

⁵⁸ Appendix 8 - DR17-7373 - Customer supports during PSPS.

leading to electrical faults and possibly ignitions. In compliance with GO 165, SDG&E must patrol both the urban portions of its system and the geography in HFTD Tiers 2 and 3 every year.⁵⁹

SDG&E's reported target for 2021 continued the effort of previous years and a commitment to remain in compliance with GO 165. They also targeted an annual total of 22,269 inspections of distribution lines and assets under this initiative. By the end of the year, SDG&E reported completing 22,354 detailed inspections of distribution electric lines and equipment and the initiative was deemed "Complete."⁶⁰

To verify SDG&E's completion of this initiative, the IE requested a sample of 60 inspection reports covering Q1-4 in 2021. The IE received and utilized a sample of 99 reports.⁶¹ These reports include a description of the inspected distribution pole, pole ID, inspection date, and findings of the inspection. The IE's review of this sample shows the following:

Table 16: Findings for Initiative 7.3.4.1 - Detailed Inspections: Distribution

Sample Data for Initiative 7.3.4.1		
Result Recorded	Count in Sample	Percent of Sample
No Repairs Needed	66	66.6
Damaged Distribution Line	22	22.3
No Data	11	11.1

The IE's analysis of these reports suggests several findings of note:

- Annual inspections are working – Based on this sample, 88% of the time, detailed inspections are completed, providing useful information to fulfill the objectives of this initiative and GO 165. By far the majority of those inspections report no issues, no damage or need for additional action. 22% of the time, however, damage is reported. Inspection reports that trigger repairs ahead of schedule and ahead of failure are in fact the objective of this work.
- Incomplete inspections – 11% of the sample shows missing information that the IE interpreted as "no data." While in 88% of the cases the inspected pole/ asset is coded either "no repairs needed" or "damaged," in this fraction of the reports there are no such

⁵⁹ See 2021 WMP Update page 231.

⁶⁰ SDG&E QIU 04-2021, Initiative 7.3.4.1.

⁶¹ Appendix 6 - DR15-7.3.4.1 - Sample detailed inspection reports.

findings recorded. This suggests that either the reports were incomplete or that the inspections themselves were not completed.

In either case, the IE must find that 11.1% of the inspections sampled were incomplete. Extrapolating this percentage to the 2021 population of detailed inspections completed suggests that 11.1% or 2,483 of 2021 inspection reports return no data.

From the 2021 sample, the IE infers that 19,870 out of the 22,354 inspections completed did return useful information, which is the objective of these inspections. The IE also notes that the sample of 99 inspections represents a small percentage, albeit statistically significant, of the total 22,354 reported detailed inspections of distribution electric lines and equipment under this initiative.

Nonetheless, since the extrapolated total of completed inspections (19,870) is lower than the 2021 target (22,354), the IE verifies that SDG&E did not meet their target for this initiative.

7.3.4.2 – Detailed Inspections of Transmission Electric Lines and Equipment

The routine inspection program of transmission assets mitigates the risk of equipment failure by identifying equipment deterioration and initiating repair and/or replacement before any failure can occur. To complete these detailed inspections, SDG&E uses patrol crews of experienced, internal linemen (patrollers; Qualified Electrical Workers) who physically visit every structure.

During the inspection process, the inspector examines all components of the structure. Also, during this visit, patrollers assess both current condition and the need for near-term and future maintenance. As SDG&E notes in this section of the 2021 WMP, “the detailed inspections result in the largest number of GO 95 findings for corrections showing the benefit of this specific activity.”⁶²

As with detailed inspections of distribution facilities, SDG&E committed to remain in compliance with GO 95. At the beginning of 2021, SDG&E set a target of 1,943 detailed inspections of

⁶² 2021 WMP Update page 234.

transmission electric lines and equipment. By year end, SDG&E reported completing 1,975 detailed inspections of transmission electric lines and equipment.⁶³

To verify this measure, the IE requested a sample of 60 inspection reports covering Q1-4 in 2021. The IE received and utilized a sample of 98 reports.⁶⁴ The data provided includes description of facility, facility ID, and component of the facility, and condition of the facility. As with detailed inspections of distribution assets, inspections were conducted by experienced and Qualified Electrical Workers (patrollers) who physically visit and inspect these transmission assets. The IE’s analysis of these reports suggests several findings of note:

- “Detailed inspections” are thorough—the sampled reports verify that inspectors carefully examine the transmission facility and all its components, with findings categorized as Large Hardware, Small Hardware, Natural Causes, Core Defects, Superficial Defects, and Miscellaneous defects. The kinds of issues noted in each category are shown in Table 15 below.
- Every inspection is useful—100% of the inspection reports document a detailed inspection completed and documented in the inspection report. The IE’s analysis revealed that every SDG&E inspection report shows some kind of defect for every inspection point provided. Catching these defects early testifies to the usefulness of this initiative.

Table 17: Findings for Initiative 7.3.4.2 - Detailed Inspections: Transmission.

Sample Data for Initiative 7.3.4.2			
Defect Category	Examples	Count from Sample	Percent of Sample
Small Hardware	Anchor Rods, Bolts, Cold End Cotter Keys, Cold End Pins, Shoe Nuts & Bolts and Gate Key Lock	36	36.7
Large Hardware	Communication Cable, Steel pole, tower, Cross Arms, Guy Wires, Pole Butt & Top and Post & Ceramic Insulators	38	38.7
Superficial	Warning Signs, Structure numbers and Tieline ID Tags	21	21.5
Miscellaneous	Birds Nest, painting needed	3	3.1

⁶³ SDG&E QIU Q4-2021, Initiative 7.3.4.2.

⁶⁴ Appendix 6 - D15-7.3.4.2 - Sample detailed inspection reports-transmission NEEDED

While the IE caveats that the sample of 98 represents a small percentage of the 1,975 inspections reported, it is statistically valid enabling extrapolation to the entire population. For example, with 38% of the sample identifying Large Hardware defects, it may be expected that 750 (38% of the total 1,975) Large Hardware defects will have been identified through detailed transmission inspections in 2021.

On the basis of the completeness of the sampled inspection reports, the IE is able to verify that SDG&E met its target for this initiative.

7.3.4.4 – Infrared Inspections of Distribution Electric Lines and Equipment

The detailed inspections conducted and described under the previous two initiatives relied on the visual acuity of the inspectors. Infrared inspections, piloted in 2020, were utilized in 2021 to capture and address risk issues that are not visible to patrol inspectors. For example, connections that appear tight but are not actually secure can allow an electrical flow that causes premature failure in that connection. In this way, infrared inspections detect issues that would not have been discovered during routine visual inspections.⁶⁵

For 2021, SDG&E planned to build on its earlier pilot program with infrared inspections. They set a “target of 18,000 infrared inspections of distribution electric lines and equipment in 2021.” By the end of the year, the SDG&E QUI Q4-2021⁶⁶ reported a “total of 17,068 infrared inspections of distribution electric lines and equipment at the end of 2021 Q4.” This actual outcome falls short of SDG&E's target for this initiative by 932 poles.

Verification efforts began with a Data Request to secure a sample of inspection reports for 7.3.4.4. SDG&E provided a sample of 60 inspection reports from 2021 Q1-4.⁶⁷ The data provided includes pole ID, date of the inspection, and findings of the inspection.

The IE review of these reports showed that 100% of these reports found no situations of damage or potential failure. While it is important to note that the 60 inspections represent a small portion of the reported 17,068 completed infrared inspections of distribution electric lines and

⁶⁵ 2021 WMP Update page 236.

⁶⁶ SDG&E QIU Q4-2021, Initiative 7.3.4.4.

⁶⁷ Appendix 6 - DR15-7.3.4.4-Infrared inspection reports-distribution

equipment, the finding does enable the IE to verify that the reported inspections occurred. Because SDG&E failed to meet its objective of 18,000 infrared inspections, the IE must verify that SDG&E did not meet its target for this initiative.

7.3.4.5 – Infrared Inspections of Transmission Electric Lines and Equipment

Similar to 7.3.4.4, infrared inspections on transmission infrastructure helps inspectors identify potential failure conditions that would otherwise escape visual detection. According to the 2021 WMP Update, “Thermographers utilize infrared technology which looks at the radiation emitted by the connections to determine if there are potential issues with a connection prior to failure.”⁶⁸

In 2021, SDG&E planned to conduct additional “infrared patrols on all energized transmission lines in the HFTD,” for a total of “110 infrared patrols.” In total, these patrols were expected to result in “6,166 infrared inspections of transmission electric lines and equipment in 2021.” By the end of 2021, SDG&E reported exceeding that target by completing 6,239 infrared inspections of transmission electric lines and equipment as of the end of Q4.⁶⁹

Verification efforts began with a Data Request to secure a sample of inspection reports for 7.3.4.5. SDG&E provided a sample of 30 inspection reports from 2021 Q1-4.⁷⁰ The data provided includes facility ID, date of the inspection, and findings of the inspection.

The IE review of these reports showed that 100% of the sampled inspection reports recorded that no damage had been identified and no repairs were needed. Based on this sample, none of the transmission facilities inspected via aerial means showed any damage.

With the caveat that the sample is small relative to the total population of 6,239 infrared inspections of transmission assets in 2021, it does enable the IE to verify that SDG&E met its objective for this initiative.

⁶⁸ 2021 WMP Update page 238

⁶⁹ SDG&E QIU Q4-2021, Initiative 7.3.4.5

⁷⁰ Appendix 6 - DR15-7.3.4.5 - Infrared inspection reports-transmission

7.3.4.6 – Intrusive Pole Inspections

This initiative applies to wood poles, which SDG&E inspects every 10 years on average. An “intrusive inspection” consists of an excavation around the base of the pole followed by application of pastes or preservatives on the pole portion in routine contact with soil. By inspecting poles regularly in this manner, SDG&E reduces the risk of untimely pole failure due to deterioration or degradation. During an intrusive inspection, any rot or cavities in the pole are noted and an estimate made of the strength of the pole in its current condition using industry-wide standards. An intrusive inspection enables determination of the pole’s remaining longevity: either it passes the inspection, requires reinforcement with a steel truss for another 5-10 years of service, or it is marked for replacement in the near term.⁷¹

In 2020, SDG&E performed approximately 14,000 wood pole intrusive inspections in the HFTD. In 2021, the number of intrusive pole inspections will decline to 9,796. By year-end, SDG&E reported completion of 8,721 intrusive wood pole inspections.⁷²

To verify 7.3.4.6, the IE requested and received a sample of 60 inspection reports from Q1-4 in 2021.⁷³ These reports document the status of each pole including a description of the pole, pole ID, inspection date, and findings of the intrusive pole inspection.

The IE’s analysis of these sample reports showed that 58 of 60 inspections required no repairs, while 2 poles were recommended for restoration. Based on this sample, the IE extrapolated that 96% of the poles inspected in 2021 needed no repair, while 4% or roughly 348 needed reinforcements. While the IE notes again that the sample is small relative to the total population of 8,721 intrusive pole inspections, it does enable the IE to verify that the reported inspections took place. However, because SDG&E failed to meet its objective of 9,796 inspections under this initiative by a shortfall of 1,075 intrusive pole inspections, the IE can verify that SDG&E failed to meet its installation target for this objective.

7.3.4.9.1 – HFTD Tier 3 Inspections

SDG&E conducts inspections of its overhead electric distribution poles in high-risk areas, including specifically the Tier 3 regions of the HFTD. These inspections are scheduled ahead of

⁷¹ 2021 WMP Update, page 240.

⁷² SDG&E QIU Q4-2021, Initiative 7.3.4.6

⁷³ Appendix 6 - DR15-7.3.4.6 - Intrusive pole inspections sample reports.

the fire season and occur on a three-year cycle, which complements the usual five-year cycle required by CPUC General Order 165. Such “HFTD Tier 3 inspections” specifically target areas where additional inspections and maintenance will benefit fire safety by reducing the potential for any of SDG&E’s facilities to fail in a manner that causes an ignition.⁷⁴

For 2021, SDG&E planned to complete 10,815 HFTD Tier 3 inspections. By the end of 2021, SDG&E reported completion of 11,535 HFTD Tier 3 inspections through Q4.⁷⁵

To verify initiative 7.3.4.9.1, the IE requested a sample of inspection reports from all four quarters of 2021. A sample of 65 reports was provided.⁷⁶ Data provided in these reports includes pole locations, pole ID, and the findings of the inspection.

The IE’s analysis of sample reports for HFTD Tier 3 inspections showed that 57 of the 65 inspections called for no repairs. In 4 cases, roughly 6% of the sample, repairs were required. In an additional 4 cases, the report showed either an incomplete inspection or no responses at all.

This analysis suggests that 88% of the HFTD Tier 3 inspections showed no damage to poles or need for repairs. The 6% of inspections with incomplete or missing responses, however, creates a degree of uncertainty about SDG&E’s 2021 results. On the basis that 6% of 11,535 represents 703 poles with unknown inspection findings, the IE finds that SDG&E’s actual total completed HFTD Tier 3 inspections lands at 10,832, just over the original target of 10,815.

While the IE notes again that the sample of 65 is small relative to the total population of 11,535 completed HFTD Tier 3 inspections in 2021, it does enable the IE to verify that SDG&E met its objective for this initiative.

7.3.4.9.2 – Drone Assessments of Distribution Infrastructure

7.3.4.9.4 – Drone Assessments of Transmission Infrastructure

The use of aerial intelligence to ascertain SDG&E’s self-reporting of assets, including poles, transmission lines, weather stations, and electrical equipment is relatively novel in its application. SDG&E utilizes drone footage to note any inconsistencies in physical equipment on poles and for

⁷⁴ 2021 WMP Update page 245.

⁷⁵ SDG&E QIU Q4-2021, Initiative 7.3.4.9.1

⁷⁶ Appendix 6 - DR15-7.3.4.9.1 - HFTD Tier 3 inspection reports.

inventorying purposes. Images are also used in the assessment of vegetation management and identification of potential biofuel hot spots.⁷⁷

The methods for capture and data processing of aerial visuals are outlined in more detail in the Drone Investigation Assessment and Repair (DIAR).⁷⁸ SDG&E performs quality assurance reviews on all inspections completed as part of its DIAR Program. For instance, on distribution inspections, 100% of assessments are QA/QC'd by a Contract Supervisor and 100% of images are reviewed by machine learning models. SDG&E uses a combination of human-based (manual) and Artificial Intelligence (AI) inspections (automated) via SDG&E's 'CORE application,' and compares any discrepancies noted between both types of inspections.

Under these two initiatives, SDG&E had planned in 2021 to complete 22,000 assessments of distribution poles (7.3.4.9.2)⁷⁹ and to continue to develop enhancements to its use of Unmanned Aerial Vehicles (UAVs) to inspect transmission structures (7.3.4.9.4).⁸⁰ By the end of the year, according to the Q4 Quarterly Initiative Update (QIU), SDG&E's actual performance included 21,420 drone assessments of distribution infrastructure and 1,140 inspections of transmission infrastructure.

The IE requested 10% of SDG&E drone assessments as a sample for verification purposes. The IE will discuss the team's findings from this review before summarizing the IE's evaluation at the end of this section.

The IE requested access to 10% of all imagery collected aerially in Tier-3 of the HFTD and was granted access to 20,000 drone images. This included 1,000 poles since an average of 20 images are collected for each pole. All drone inspections took place in Tier 2. SDG&E confirmed that all images are from Tier 2 since Tier 3 drone inspections were done as a part of the 2020 WMP.

The IE team was able to use its own internal photogrammetric tools, and determined that in some cases, the overlapping of imagery was sufficient to perform automated vegetation clearance analysis. The quality of the images is sufficient to provide even small details on poles. However,

⁷⁷ 2021 WMP Update page 233

⁷⁸ Appendix DR 9 - 7.3.4.9.2-7.3.4.9.4-Drone Investigation Assessment and Repair (DIAR).

⁷⁹ SDG&E QIU Q4-2021, Initiative 7.3.4.9.2

⁸⁰ SDG&E QIU Q4-2021, Initiative 7.3.4.9.4

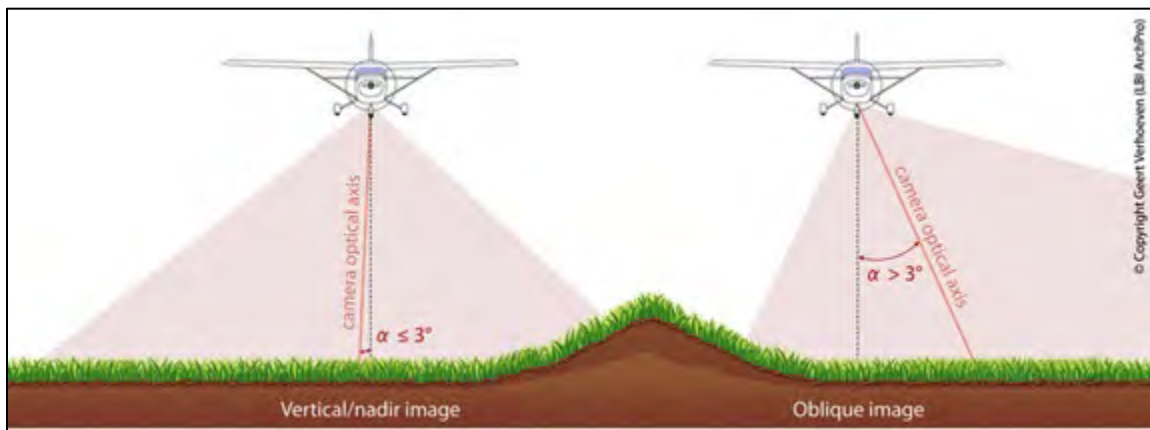
better flying patterns, plus a higher degree of overlap between images could provide better results that might improve automatic vegetation analysis and Artificial Intelligence capabilities.

A Note on Imagery – Aerial images are usually described in terms that identify the characteristics of their capture. One key term identifies the angle of capture; another describes the light bands that were used. “Nadir” or orthogonal imagery represents images taken at angles of 90 degrees toward the object of interest. For aerial images, ‘nadir’ refers to vertical imaging looking straight down. Ideally, the object of interest would be represented with top surfaces and boundary lines (image 34, left).

“Oblique” imagery represents images taken at an angle anywhere between 0 (horizontal) and 90 degrees (vertical). Usually, it means between 45° and 90° for low oblique for 3D information, and 0° to 45° for high oblique for information of object sides (façade), (image 34, right).

While Nadir imagery is ideal for 2D information (maps) and securing accurate measurements in a two-dimensional plane, oblique imagery provides insight in 3D spatial distribution of the objects. Combining Nadir and four oblique images (taken from the North, East, South, West) provides very good information on the dimensions and spatial distribution of the object of interest.

Image 34: Nadir versus Oblique imagery, (source: Verhoeven, Geert. (2017). Are We There Yet? A Review and Assessment of Archaeological Passive Airborne Optical Imaging Approaches in the Light of Landscape Archaeology. Geosciences. 7. 86. 10.3390/geosciences7030086.)

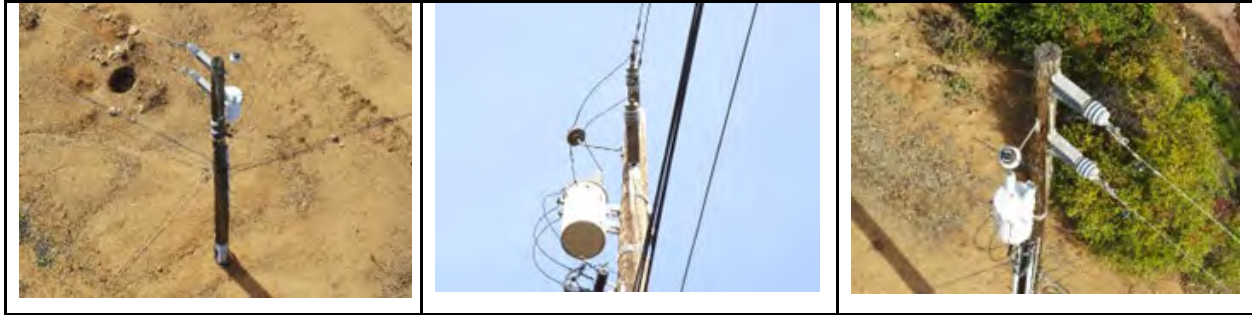


In this analysis, all images were taken in the oblique manner, which does provide a lot of information about the infrastructure and surrounding environment. However, even though all images are classified as Nadir (orthogonal, straight down) there are no Nadir images which would allow clear insights in horizontal distances.

Technical Verification – With the caveat that the images below in this report do not have nearly the clarity of the high-resolution UAV imagery collected, the following selection illustrates how clearly aerial imagery can enable inspection of a single pole from multiple heights and angles. These images were collected by SDG&E’s subcontractors.

Image 35: Aerial Pole Imagery.





Future Directions – The high-resolution imagery collected by SDG&E has multiple uses in addition to asset inspections and vegetation management QA/QC. To continue to develop its aerial intelligence capability, the IE offers the following to describe what’s possible.

SDG&E’s image library will continue to grow as long as this aerial imaging effort continues. The robustness and consequent usefulness of the tools described below is dependent upon the depth of imagery available. With sufficient imagery and following “orthorectification” (a process by which images are converted into data usable for mapping), the resulting models can enable the capture, storage, and reference of additional details useful for multiple purposes. Over time, SDG&E’s aerial imagery efforts may expand to utilize the tools described below.

The orthorectified models shown below were developed by the IE, based on the drone imagery provided in the sample. A caveat: these examples are based on the same pole as shown above. For that single pole, the IE used the 19 images provided in the SDG&E sample; to be clear, each of these samples would ordinarily utilize significantly more imagery than the IE had available. Nonetheless, the IE thinks an understanding of the advanced capabilities available to SDG&E are worth the tradeoffs of an incomplete demonstration.

Image 34: Digital Surface Model (DSM) The 19 available images enabled creation of the DSMs shown in Image 30 below. The red dot in the center is the pole itself, while the colored regions represent the changing elevations of topography around the pole. In this example, the flat areas around the pole are generally green; higher elevations are red while the indigo areas suggest a sudden drop in elevation. That drop represents the road hinted at in one of the earlier drone images; the DSMs will enable precise land topography and allow for measurements of key topographical elements, including poles and vegetation.

Once created, these models provide an efficient way to monitor landscape changes in topography that may threaten pole structural integrity.

Image 36: Digital Surface Model.

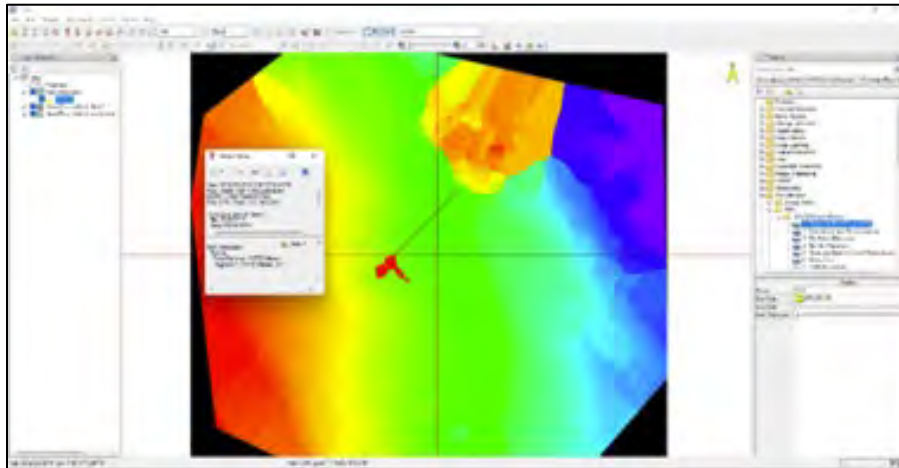


Image 35: 3D-Model Into 2D-Plane: A second tool to precisely evaluate, store and monitor over time the physical attributes associated with any of SDG&E's system assets is represented by the image below; again, the caveat: this example was created using the 19 SDG&E images of that same pole; however, images with 90% overlap are required for better modeling. For this specific case, a 3D model was projected into a 2D-plane, in order to measure the distance of 11.393m (37.38 feet) from the top of a nearby bush to critical hardware on the pole.

Image 37: 3D-Model Into 2D-Plane.



Once created, such a model enables both the precise measurement of the sizes, nature, distances, etc., between the asset and any of its surrounding features. It also enables any changes in these features to be monitored over time as updated data becomes available.

The applications of these models are many. From advance warning concerning any assets at risk due to topological changes (earthquakes/ settling; mudslides; subsidence) to routine flights that monitor vegetation clearances around any of these assets. By continuing to build its imagery

library, SDG&E is investing in an asset that can pay dividends in operational and safety efficiencies for years to come.

Directions to consider – To capitalize on the investments made so far, SDG&E might consider recasting the ‘drone’ expenditures from a cost–one to be lowered in the future–to an investment in prevention and efficiencies in years ahead, much as undergrounding is considered today. Specific suggestions:

- Continue the current work on developing algorithms for inspections of transmission infrastructure, and expanding this capability into both vegetation management and asset management more broadly;
- Identify the best data platforms for future use - to both capture the additional data needed to develop these models, determine the extent to which data from other sources (i.e., satellites, fixed-wing aircraft, etc.) can be incorporated to enable completion of these models more cost-efficiently, and to efficiently incorporate future data to ensure full use of these tools for long-term monitoring.
- To lower the per-pole cost of drone flights, bring the piloting capability in-house. SDG&E could train a QEW /lineman to fly the drone with automated flight patterns around the poles, so that one person can capture the needed imagery on a routine basis.

Financial Verification – Under these two initiatives, SDG&E completed a total of 22,860 inspections (21,420 under 7.3.4.9.2 and 1,440 under 7.3.4.9.4). These two inspection initiatives had a combined capital budget of \$13,595,000.00 and incurred actual spending of \$12,636,000. Additional Operations and Maintenance spending, budgeted at \$35,358,000, totaled \$33,108,000. Together, these two initiatives constituted 7.57% of SDG&E’s 2021 budget allocated to Large, Non-Field Verifiable Activities for 2021.

The IE is encouraged by the innovative approach SDG&E is undertaking in partnership with other private entities and academia in the realm of Artificial Intelligence and Machine Learning. Such pioneering approaches in the use of aerial intelligence from drones, manned aircraft (LiDAR) and satellites, will certainly enhance SDG&E’s capabilities to advance inspections, improve inventorying, and increase safety for field inspectors.

From review of the sample imagery, the IE can verify that the quality of the images is high. The IE also notes that these two initiatives spent slightly under their budget targets in 2021. The IE can verify SDG&E’s numerical inspection totals per their reported 2021 completions of 21,420 distribution inspections and 1,140 transmission inspections, a total of 22,560 inspections that

exceeds their 22,000 targets by 560 inspections. The IE is not otherwise able to independently verify that SDG&E met its numerical targets for these two initiatives.

7.3.4.9.5 – Aerial 69kV Tier 3 Inspections

Prior to the outset of each fire season, SDG&E conducts visual patrols on all transmission lines connecting parts of its system (tielines) to check for equipment or vegetation conditions that could cause concerns during periods of extreme heat, high winds, Santa Ana events or Red Flag Warnings. These patrols are conducted by helicopter particularly in inaccessible areas of the backcountry in HFTD Tier 3.

Tielines at 69kV have less ground clearance and spacing around them than do higher voltage lines. For this reason, visual inspection of 69kV lines in the backcountry of HFTD Tier 3 is prioritized for these flights. Flights of these areas are conducted by Qualified Electrical Workers to ensure that these priority lines are visually inspected –and any observed issues are prioritized for immediate attention—before the fire season begins.

SDG&E planned at the start of 2021 to complete 1654 additional transmission aerial 69kV Tier 3 Visual inspections. By the end of the year, SDG&E reported completion of 1652 HFTD Tier 3 69kV visual inspections.

SDG&E reported in their 2021 WMP Update (pages 221 and 255) that the inspections of transmission lines covered by initiative 7.3.4.9.5 “are driven by FERC-jurisdictional projects”. They also stated that the 2021 WMP covers only the “CPUC-jurisdictional elements related to this strategy”. They refer to Table 12 to identify what those CPUC-jurisdictional elements are. Regrettably, Table 12, page 457 of the 2021 WMP Update, lists no 7.3.4.9.5. Rather, an initiative under this same title is shown as initiative 7.3.4.10.2 instead. While Table 12 contains considerable information about 7.3.4.9.5/7.3.4.10.2, these details cover “year Initiated”, RSE and Primary Driver, CapEx and OpEx, but do not provide the IE with any means of differentiating the CPUC-jurisdictional versus the FERC-jurisdictional elements of this activity.

The IE made no determination regarding whether SDG&E met their objectives for this initiative.

7.3.4.10 – Patrol Inspections of Distribution Electric Lines and Equipment

Under CPUC General Order 165 (GO 165), all utilities must perform patrol inspections on their systems every year in urban areas and in Tiers 2 and 3 of the HFTD. SDG&E conducts patrols in

all areas every year. Following completion of the patrols and any follow-up actions, SDG&E also audits these inspections, selecting 1.5% of their territories to see whether necessary improvements have been implemented.⁸¹

SDG&E set a target to complete 86,000 patrol inspections in 2021. By the end of 2021, they reported completing 86,490 patrol inspections of distribution electric lines and equipment at the end of Q4.⁸²

The IE requested a sample of inspection reports for 7.3.4.10, drawn equally from 2021 quarters 1-4. SDG&E provided a sample of 94 inspections from Q1-4. The data provided includes description of facility, Facility ID, component of the facility, and condition of the facility, as shown in the chart below.

Table 18: Findings for Initiative 7.3.4.10 - Patrol Inspections: Distribution

Findings for Initiative 7.3.4.10			
Defect Category	Examples	Count in Sample	Percent of Sample
Small Hardware	Anchor Rods, Bolts, Anti-Climb Barrier, Cold End Cotter Keys, Cold End Pins, Hot End Cotter Keys, Hot End Pins, Shoe Nuts & Bolts, Preform, Shieldwire Attachment Point, Switches	27	28.7
Large Hardware	Bond Wires, Communication Cables, Wood Poles, Conductors, Steel pole, tower, Cross Arms, Damper, Footings, Ground Grid Taps & Bond Wire, Guy Wires, Pole Butt & Top, NCI & Ceramic Insulators, Jumper, Steel Tower Member and Stub Pole	59	62.7
Superficial	Aerial Marker Spheres and Tipline ID Tags	5	5.3
Miscellaneous	Area Around Structure (Veg Mgmt., water drain damage, Drill rig next to tower on access road)	3	3.2

⁸¹ 2021 WMP Update page 256.

⁸² SDG&E QIU Q4-2021, Initiative 7.3.4.10.

Based on the IE's analysis of these reports, the IE observed that each inspection report contains at least one reported defect. This means that the inspections are doing what they are intended to do - capture errors and defects before these cause problems. Table 16 above summarizes the categorization of the defects found in this sample: 28.7% are considered Small Hardware defects, 62.7% Large Hardware defects, 5.3% superficial defects and 4.3% Miscellaneous defects. None of the sample reports was incomplete or deficient in a manner that would require disqualification from the sample.

While the IE caveats this summary with the reminder that 94 inspections reports is a small number of the declared 86,490 inspections completed, it is a statistically valid sample. On the basis, therefore, of this SDG&E's 2021 target, their reported performance and the sampling described above, the IE is able to verify that SDG&E met their objective for this initiative.

7.3.4.11 – Patrol Inspections of Transmission Electric Lines and Equipment

Similar to the patrol inspections for distribution assets, SDG&E conducts visual patrols for transmission assets once a year throughout the HFTD. These inspections focus on the transmission tielines and look specifically at overhead structures, the span (horizontal distance between the structures) and the rights-of-way to check for vegetation encroachment. Examining the transmission lines and towers from the air has the added benefit of enabling better visual access than from below.⁸³

For 2021, SDG&E planned to continue its practice of conducting visual patrols on all transmission lines, which translates into 6,324 patrols. As of the end of Q4 2021, the Company reported completion of 6,423 patrol inspections of transmission assets.⁸⁴

The IE requested a sample of inspection reports for 7.3.4.11 and received a sample of 60 from 2021 Q1-4 to review.⁸⁵

⁸³ 2021 WMP Update page 258.

⁸⁴ SDG&E QIU Q4-2021, Initiative 7.3.4.11.

⁸⁵ Appendix 6 - DR15-7.3.4.11 - Transmission patrol inspection reports.

The data provided in these inspection reports includes description of pole, pole ID, inspection date, location. In 94% of the sample, however, the report did not include the “Condition Code” column. This is different from reports on distribution patrol inspections (7.3.4.10), which are extensively coded. In contrast, transmission inspections reports include an observation of the assets condition only when that asset was damaged. If everything was fine, the inspection report did not describe in any way the condition of the transmission asset inspected.

The absence of condition codes on transmission assets gave the IE pause regarding the completeness of these inspections, particularly in contrast to reports on distribution assets (7.3.4.10). In context, the IE accepted that transmission inspections less frequently find conditions in need of attention than do distribution patrols. The IE’s analysis suggested that 97% of the time, transmission inspections find no condition worthy of attention. Based on this sample, therefore, the IE expects that SDG&E’s 6,423 transmission patrol inspections translated into 212 reports of damage.

Again, with the reminder that 60 inspections reports are only a portion of the 6,423 transmission inspections completed, it is a statistically valid sample. On the basis, therefore, of this SDG&E’s 2021 target, their reported performance, the sampling review and discussion described above, the IE verifies that SDG&E met their objective for this initiative.

7.3.4.14 – Substation Inspections

Substations are inspected routinely in accordance with CPUC General Order 174. Under this directive, SDG&E performs a weekly security check and more detailed inspections monthly or bimonthly based on the operating voltage of the substation and the associated transmission lines. Priority 1 is assigned to substations that have four or more transmission lines greater than 69kV and an operating voltage over 200kV. Priority 2 encompasses all other substations. Substation inspections are conducted primarily for reliability purposes but have important wildfire mitigation benefits, especially in the HFTD and wildland urban interface, when inspections catch and mitigate any equipment condition which has the potential to trigger an ignition.⁸⁶

Because SDG&E has not built any new substations between 2020 and 2021, the number of substations to be inspected in 2021 will repeat the 2021 targets. For 2021, SDG&E anticipated a

⁸⁶ 2021 WMP Update pages 261-262.

total of 330 visual substation inspections. By year-end, they reported completing 405 substation inspections.⁸⁷

The IE requested a sample of inspection reports from initiative 7.3.4.14 and received a sample covering 56 inspections completed from Q1-4 in 2021.⁸⁸ The data provided includes SDG&E District, pole ID, HFTD Tier, and findings of the inspection in the form of damage codes, descriptions, and results of actions taken.

From the sample of 56 substations inspected, 42 (75%) required no action or repairs to be made, while 14 (25%) did require action. In many cases, the actions that were required took the form of warning signs to be replaced. In all cases, substation inspection reports showed codes that verified the condition of the asset upon inspection and following action. In this way, the IE can verify that the substation was indeed visually inspected.

While it is important to note that the 56 substation inspections reported is a modest sample of the 405 inspections completed, at roughly 14% these results are a valid snapshot into the total population of substation inspections conducted in 2021. On the basis of the above description, 2021 target, reported performance and verification results, the IE verifies that SDG&E met their target for this initiative.

7.3.5. Vegetation Management

Managing the growth of vegetation around electric lines, poles and other distribution assets is of primary importance for wildfire mitigation. In terms of annual activity, vegetation management is one of the largest components of SDG&E's Wildfire Mitigation Plan. To ensure that the risks of overgrown and flammable vegetation are mitigated to the maximum extent feasible, SDG&E takes an array of actions, many of which are described and verified in other sections of this Annual Report on Compliance (ARC), particularly in Chapter 3.1.2 - Large Volume Quantity Field Verifiable.

7.3.5.2 – Detailed Inspections of Vegetation Around Distribution Infrastructure - Inventory Tree Inspections

⁸⁷ SDG&E QIU Q4-2021, Initiative 7.3.4.14.

⁸⁸ Appendix 6 - DR15-7.3.4.14-Substation inspection reports.

The category of vegetation management includes an array of different activities, including the “Detailed inspections of vegetation around distribution infrastructure,” the focus of 7.3.5.2. In this case, the “detailed inspections” are those constituting the Tree Inventory, a database of 457,000 trees, each described in terms of its species, diameter and height, growth rate, and other characteristics. Tree inspectors, contractors qualified as ISA-Certified Arborists are well-equipped to assess the hazard potential of these trees, adding information to the tree inventory on a frequent if not daily basis. Hazard trees may be identified based on their proximity to lines, assets, rights-of-way and/or by species, as several fast-growing species (for example, eucalyptus and sycamore) are also known to shed bark from branches and trunk that may contact electrical assets during windy conditions.⁸⁹

In addition to the 455,000 tree inspections targeted under 7.3.5.2 and described in Chapter 3.1.2 Large Volume Quantity Field Verifiable, SDG&E also commits in its WMP to an annual inspection of each tree in its tree inventory database. “As stated in the 2021... the annual inspections include routine maintenance and hazard tree assessment to verify that trees will remain compliant for the duration of the cycle.”⁹⁰ If inspectors deem it necessary, they may order work to trim, prune, or remove a hazard tree immediately.

SDG&E’s primary target for 7.3.5.2 is the completion of 455,000 “trees inspected,” per the QIU, so verification of 7.3.5.2 will be provided in Chapter 3.1.2 Large Volume Quantity Field Verifiable. No 2021 target or actual performance of inventory tree Inspections of inventory trees was provided.⁹¹

Despite the absence of a target for tree inventories, the IE requested a sample of tree inspection reports. From the sample of 60 reports received,⁹² the IE offers the insights below in regard to initiative 7.3.5.2 - Tree Inventory.

The IE’s sample shows that Eucalyptus—fast-growing, bark-shedding trees—make up the single most prevalent species in SDG&E’s tree inventory. If this holds across the entire sample of

⁸⁹ 2021 WMP Update, pgs. 263, 267.

⁹⁰ 2021 WMP Update, pg. 268.

⁹¹ SDG&E QIU Q4-2021, initiative 7.3.5.2.

⁹² Appendix 6 - from SDG&E file DR15 - 7.3.5.2. -Tree inventory inspection reports.

457,000 inventoried trees, that is over 76,300 eucalyptus trees to be monitoring closely throughout the service territory.

Table 19: Tree Species.

Tree Species		
Type	Count	Percent
Avocado	4	6.7
Eucalyptus	10	16.7
Oak	8	13.3
Other	26	43.3

“Diameter at Breast Height” (DBH) is a common metric for tree sizes. It represents the diameter of the tree trunk measured at a height of 4.5ft from the ground. From this sample, it can be seen that roughly 65% of the trees in SDG&E’s tree inventory fall between 8-24” in diameter. The most prevalent category, those between 8-13” in diameter, represent over 106,000 trees in the inventory.

Table 20: Inventory Tree Size.

Diameter at Breast Height		
Tree Diameter	Count	Percent
0.0 to 2.9 in	2	3.3
3.0 to 7.9 in	10	16.7
8.0 to 12.9 in	14	23.3
13.0 to 17.9 in	13	21.6
18.0 to 23.9 in	12	20
24.0 to 35.9 in	7	11.7
36.0 to 41.9 in	1	1.7
42.0 to 47.9 in	1	1.7

To understand the function and scope of the tree inventory, it is useful to understand how close these trees are to the lines they are near. The IE’s sample shows that 10% of inventoried trees are within 6 feet of the areas to be cleared around the respective lines. These trees—45,700 of the total inventoried—require careful monitoring as they continue to grow in height.

Table 21: Line Clearance from Tree.

Line Clear from Tree		
Distance from Line	Count	Percent
0.0 to 2.0 ft	2	3.3

2.1 to 4.0 ft	2	3.3
4.1 to 5.9 ft	2	3.3
6.0 to 7.9 ft	8	13.3
8.0 to 9.9 ft	12	20
10.0 to 11.9 ft	16	26.7
12.0 to 14.9 ft	11	18.4
15.0 to 19.9 ft	3	5
20.0 to 30.0 ft	3	5
100.1 ft +	1	1.7

On the basis of the above description of the tree inventory component of 7.3.5.2 and the verification review summarized above, the IE is able to verify that the Tree Inventory exists and was utilized in 2021. In the absence of any specific 2021 targets for this component of 7.3.5.2, the IE makes no determination of whether SDG&E met its target for this initiative.

3.1.3.2 Trends and Themes

Include any trends or recurring themes that the Independent Evaluator found while assessing utility compliance to Large Volume Quantifiable Goal/Target – Not Field Verifiable initiatives.

Initiatives included under Large Volume Quantity Non-Field Verifiable have as their common denominator the fact that verification of these actions cannot be determined by field inspectors. The IE used instead the internal reports of these activities as made by SDG&E inspectors. Of the 16 initiatives in this category, six of these were verified by the IE. In three cases, the IE determined that the objective had not been met, while in five cases the IE was not able to verify whether SDG&E met the objective. In several cases, the inability to verify was due in significant part to the absence of verification documents that if provided, might have enabled a different outcome. Finally, the IE made no determination for two initiatives in this category.

The IE observes that multiple initiatives in this category demonstrate full realization of SDG&E's targets. This is notably true with regard to transmission initiatives. Specific examples include:

- In 7.3.4.2, transmission inspections, 100% of the inspection reports in our sample were complete and useful, meaning these caught issues that needed attention ahead of failure. This enabled SDGE to fulfill the objectives of that initiative and keep those assets in tip-top shape.
- In 7.3.4.5, infrared inspection of transmission assets, 100% of the inspections showed no damage or issues, no repairs needed. The IE interprets this finding to indicate that the

transmission assets were in good shape, any prior issues had been identified and repaired. Even any 'invisible' or potential issues that the inspectors in 7.3.4.2 might have missed, such issues were not reported in 7.3.4.5 either.

In 7.3.4.9.2 and 7.3.4.9.4, aerial assessments of both distribution and transmission assets, SDG&E missed the target for distribution inspections by performing too few. They set no quantitative target for aerial inspection of transmission assets, only a qualitative one - "to continue to develop enhancements to its use of UAVs to inspect transmission structures" (page 82). However, they did actually complete 1,140 aerial inspections of transmission assets, so exceeded this non-quantitative target.

3.1.4 Small (Less Than 100 times) Volume Quantifiable Goal/Target

3.1.4.1 Review of Initiatives

This section should include the Independent Evaluator's findings and assessment of utility compliance with activities that fall into the Small Volume Quantifiable Goal/Target category. Independent Evaluators shall perform data/documentation review and conduct SME interviews, as needed, to verify completion of these activities and adherence to all applicable work procedures and protocols.

Include the electrical corporation's list of initiatives that fall into the Small Volume Quantifiable Goal/Target category, including respective goals/targets for each, in the Appendix or within the body of this subsection.

"Small-Volume Quantifiable Goal/Target" activities are initiatives with less than 100 quantifiable assets included in the goal or target. Some initiative activities can be verified in the field while others are not field verifiable. Though the IE team attempted to review all initiative activity, the time and accessibility constraints of the review period only allowed a sample of assets to be assessed. Additionally, the IE reviewed various documents provided by SDG&E to help determine completeness.

Finally, the IE submitted clarification requests and conducted interviews with SDG&E SMEs to confirm understanding of the activities performed. The IE's findings and assessments of each of this category's initiative activities are provided in the following pages.

Table 22: Summary of the Small Volume Field Verifiable Initiatives.

Small Volume Field Verifiable Initiatives				
WMP Category ⁹³	Initiative	Planned	Reported	IE Verified
5.3.2 Situational Awareness and Forecasting	7.3.2.1 – Advanced weather monitoring and weather stations	25 weather stations	46 weather stations	Verified
	7.3.2.4.1 – Fire Science and climate adaptation department	17 cameras	17 cameras	Unable to Verify
5.3.3 Grid Design and System Hardening	7.3.3.1 – Capacitor maintenance and replacement program - SCADA Capacitors	32 capacitor maintenance and replacements	35 capacitor maintenance and replacements	Unable to Verify
	7.3.3.8.1 – PSPS Sectionalizing enhancements	10 sectionalizing device enhancements	13 sectionalizing device enhancements	Unable to Verify
	7.3.3.8.2 – Microgrids	2 microgrids installations	0 microgrids installations	Not Verified
	7.3.3.9 – Installation of system automation equipment - Advanced protection	8 circuits	4 circuits	Not Verified
	7.3.3.17.2 – Transmission overhead system hardening (Overhead Transmission)	74 poles	74 poles	No Determination
	7.3.3.17.2 – Transmission overhead system	60 poles	76 poles	No Determination

⁹³ Please see "A Note on Numbering" on page 11.

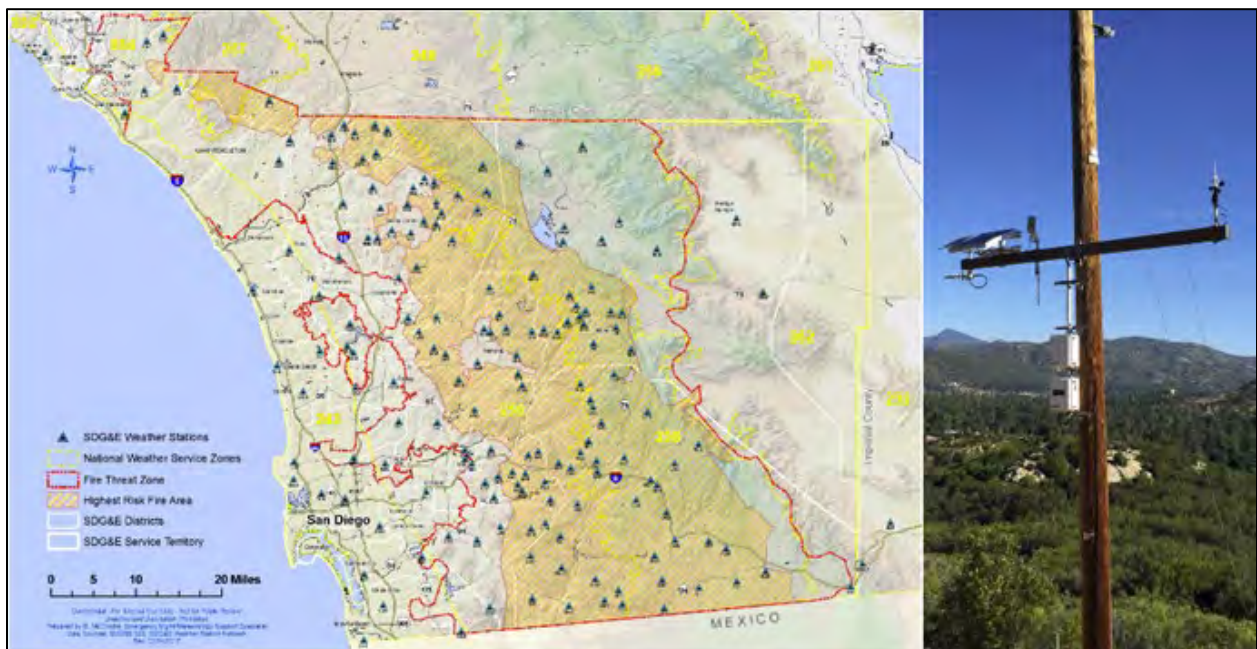
	hardening (Overhead Transmission - Distribution Underbuilt)			
	7.3.3.18.1 – Distribution Communications Reliability Improvements (Base Stations)	10 base stations	10 base stations	Unable to Verify

5.3.2 - Situational Awareness & Forecasting

7.3.2.1 – Advanced weather monitoring and weather stations

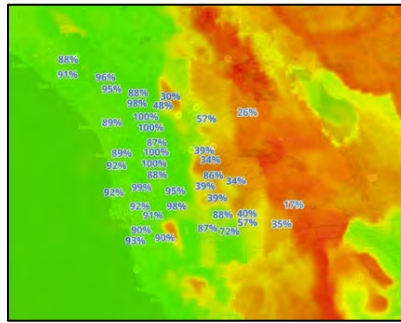
SDG&E’s network of weather stations count 195 individual stations mounted on poles (Image 38). According to SDG&E, their network produces approximately 200,000 pieces of weather data daily, and already has generated 700 million pieces of data.

Image 38: SDG&E network of weather stations and sample weather stations mounted on a pole.⁹⁴



⁹⁴ Image source: <https://www.SDG&Enews.com/article/additional-monitoring-stations-backcountry-provide-hyper-local-data-weatherfire-conditions>). This data is used to map the service area, create thematic maps (such as the Relative Humidity map shown on Image 2) and run simulation models.

Image 39: Relative humidity maps produced by SDG&E.⁹⁵



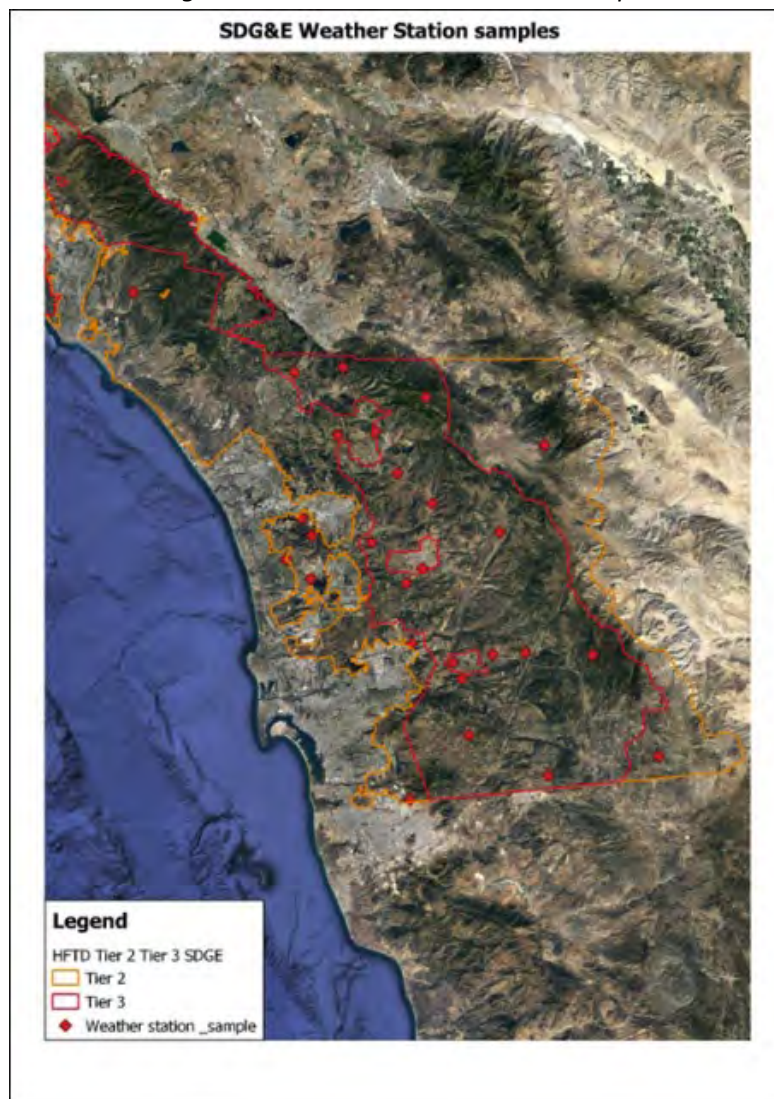
For 2021, SDG&E planned to continue an effort to rebuild their weather station network, replacing older units as these reached the ends of their expected useful lives. This translated into a 2021 target of 25 advance weather monitoring and weather stations. By the end of the year, SDG&E reported installing 46 weather stations. The IE intended a sample size with a minimum of 23 weather stations to verify this activity, per the Sampling Plan summarized in Chapter 3.1.1.

The IE requested and received information on the pool of 46 weather stations upgraded in 2021. 27 of these were chosen as a sample to review the physical locations and operational status of these units. Image 40 shows the sampled locations. The IE's analysis⁹⁶ examined data from the aerial images, excerpts of the images, and screenshots of streamed data from the weather stations. Alongside this primary data, secondary data included the information on poles/weather station surroundings.

⁹⁵ Relative humidity map source (source: <https://maps.SDG&Eweather.com/>).

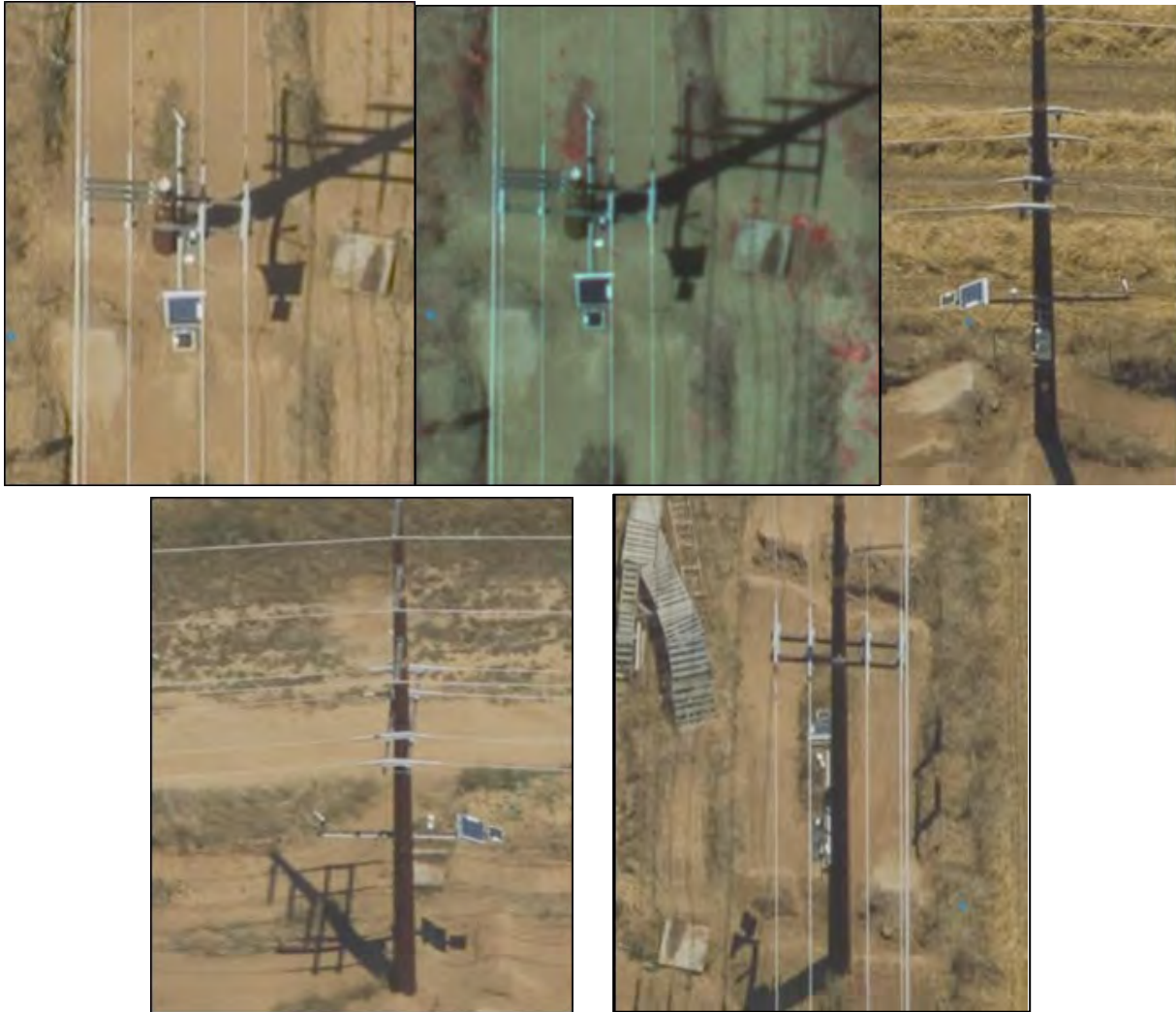
⁹⁶ The full report on each sampled station and corresponding images is included in Appendix 3 Aerial Analysis Reports: 7.3.2.1 - Review of weather stations.

Image 40: SDG&E Weather Stations Sample.



As discussed in detail in the analysis, this review was performed through inspection of high-resolution aerial images (See Image 35) and review of streamed data from sampled weather stations. Based on the data streamed from the weather station and the available images, we see that a weather station consists of a solar panel as a power source and equipment to measure wind speed and direction, air humidity, and temperature.

Images 41: Collection of high-resolution aerial images.



Highlights of this Analysis – The IE highlights the following three findings; additional insights are available in the IE analysis report completed in support of this initiative and available in Appendix 3 - 7.3.2.1 - Weather stations analysis report.

- All sampled weather stations are operational and providing live stream data. The analysis also includes comments on environments of poles on which are weather station mounted.
- The weather stations are in various environments. All checked stations are mounted between 5 and 6 meters above the ground. Some poles have adequate vegetation clearance, (for example Bell Canyon), while others (such as Highland Valley West) have high vegetation in the immediate vicinity of the pole and weather station. The IE expresses concern about the effect of close vegetation on the changing microclimate near

the weather station, that may influence the quality of the data and therefore subsequent decisions based upon it.

- The pole for weather station Rainbow Valley may need attention. Using aerial analysis tools, the IE compared the structure of that pole with a vertical line. It seems that the pole is crooked as it is pulled by wires. The IE suggests further inspection of this particular pole.

Based on observations, analysis and reported functionality of these weather stations, the IE can verify that SDG&E met their 2021 objective. However, the IE can also see room for improvement in the maintenance of the poles upon which these stations rely. These poles serve as power line infrastructure even while they also must fulfill the concurrent purpose as a weather station, ensuring both the functionality of the weather station and its data quality as well.

7.3.2.4.1 – Fire Science and Climate Adaptation Department

SDG&E established its Fire Science and Climate Adaptation (FSCA) department in 2018. The department’s mandate is to better understand the mechanisms of wildfire, the conditions under which it arises and the extent to which climate change-driven variables exacerbate these conditions in SDG&E’s service territory.

FSCA and its Fire Science Innovation Lab consolidate the tools and expertise of SMEs in meteorology, fire coordination and community resilience to ensure that SDG&E’s wildfire mitigation efforts are informed by next-generation fire science and wildfire mitigation practices. Both the Lab and FSCA department work closely with outside stakeholders and academia to pursue these objectives.

The FSCA department set a quantitative target in 2021, to install 17 cameras. As a qualitative target, the FSCA Department planned “...to continue establishing long-lasting partnerships with academia to create opportunities to advance fire science and climate science while doing our part to educate the next generation of utility wildfire subject matter expertise.” By the end of 2021, SDG&E reported that the FSCA department had met those targets, working in partnership with Scripps Institution of Oceanography, San Jose State University, and the San Diego Supercomputing Center.

Per Table 1, Summary of Sampling Plan, the IE planned a sample with a minimum of 9 cameras, a number statistically valid in view of the total population of 17 cameras installed in 2021. The IE sought to verify both installation and operation of this sample through a combination of aerial access to the camera platform and online checking of the data provided by the cameras. Under DR15, the IE requested GPS coordinates and addresses to verify the 2021 installations of cameras.

Initial data provided by SDG&E cited 7 locations with installed cameras. These locations, two shy of the minimum requested and required for statistical validity, are:

1. Mesa Grande
2. Red Mountain
3. Santiago Peak
4. Santa Margarita Ecological Reserve (SMER)
5. Sky Oaks
6. Volcan Mountain
7. White Star

The two types of cameras that can be found in these locations are Static and PTZ (Pan-Tilt-Zoom). Static cameras are fixed and usually observe in 4 directions, thus effectively having 4 cameras on a single location. PZT cameras are installed in pairs that observe in opposite directions (North-South, East-West).

Please see the images captured in this analysis in Appendix 3 - 7.3.2.4.1-Fire science and cameras. The IE highlights the following six findings from this analysis. Other insights and details are available in the report of analysis prepared to verify this initiative. The 6 findings are listed below:

- By reviewing available data, the IE found installed cameras on all reported locations. All locations reported in WMP 2021 had cameras installed and working.
- The cameras record and update images in 1- minute intervals. All images are available in near real-time.
- SDG&E has a strong relationship with academia in research and collaboration through the Fire Science and Climate adaptation department.
- The camera monitoring system is a product of cooperation with the High-Performance Wireless Research and Education network from UCSD. This platform is freely accessible to view current and past data captured by cameras.⁹⁷
- During the IE's inspection, cameras on Location Volcan Mountain had no feed to inspect.⁹⁸ On June 5, 2022, this was reported to SDG&E. On June 6, location Volcan Mountain had recorded images and current feed available.

⁹⁷ <http://hpwren.ucsd.edu/cameras/>

⁹⁸ See Images 6 and 7 in the analysis report.

- The number of 17 cameras installed in 2021 does not agree with the number in the spreadsheet provided by SDG&E in response to DR15. In this spreadsheet SDG&E numbered 35 cameras in 7 locations. All of those cameras had feed and recorded images, except 1 camera (SMER Access/Outlook Static North).

Through the analysis of all locations reported by SDG&E (7 locations), the IE was able to verify that all cameras at seven locations are in place and functioning. The IE is unable to, however, verify that SDG&E met its 2021 target to install 17 cameras, whether SDG&E reported installation of individual sensors instead of whole camera systems was not specified.

7.3.3 - Grid Design and System Hardening

7.3.3.1 - Capacitor Maintenance and Replacement Program - SCADA Capacitors

Capacitors are devices that store electrical energy; units currently in use in SDG&E's system are designed to "provide continuous voltage and power factor correction for the distribution system."⁹⁹ New capacitors equipped with SCADA features will add switching capacity, an internal monitoring capability, ability for remote isolation and additional situational awareness to SDG&E's system. Replacement of fixed capacitors with switchable SCADA¹⁰⁰ capacitors will reduce or eliminate a failure mode that has led to ignitions in the past.¹⁰¹

Under this initiative, SDG&E committed to a program of replacing non-SCADA capacitors with updated, controllable, and switchable SCADA-equipped devices. For 2021, SDG&E planned a target of 32 capacitor maintenance and replacements during the year. According to the Q4-2021 QIU, by the end of the year, SDG&E had completed 35 capacitor maintenance and replacements.¹⁰²

The IE's efforts to draw a sample from SDG&E's work order data has been described in Chapter 3.1.1 Sampling Methodology. Due to the small number of SCADA units repaired or replaced in

⁹⁹ 2021 WMP Update page 189.

¹⁰⁰ Supervisory Control and Data Acquisition (SCADA) is a control system that enables users to gather and analyze data on the unit's operation in order to better manage its operations.

¹⁰¹ 2021 WMP Update page 190.

¹⁰² SDG&E QIU Q4-2021, Initiative 7.3.3.1.

2021, the Sampling Plan in Table 1 shows the IE’s intention to inspect a minimum sample of 16 units. Following development of location lists and maps, the IE conducted 16 field inspections. These inspections covered HFTD Tiers 2 and 3 and were scattered across SDG&E service districts in the Northeast, East, and Metro districts. The main findings from these inspections are shown in the Table 23 below.

Table 23: Findings for initiative 7.3.3.1 - SCADA Capacitors

Findings	Total Inspections	%
No issues were observed	13	81
SCADA capacitor issues observed/Other issues	1	6
Asset inaccessible/Inspection not performed	2	13
Total	16	100

Inspector comments on the installation of SCADA capacitors included the following:

- SCADA capacitor issues observed
 - No SCADA capacitor installed in one of the sample locations provided.
- SCADA capacitor issues observed/Other issues
 - Vegetation encroachment observed around the asset in one sample location. Vegetation is within 10-feet of the clearance radius around the pole.
- Unable to access and inspect the asset
 - The assets were behind locked gates

Image 42: SCADA capacitor inspected with no issues.



Image 43: No SCADA capacitor installed on the pole.



SDG&E exceeded their 2021 installation target for SCADA capacitors. Given the small population of these units installed in 2021 (35), a statistically valid sample consists of 16 inspections, which the IE secured. Following analysis of the inspection results, however, it can be seen that only one installation (6% of the sample) found issues with the SCADA installation, in this case absence of the unit to be verified. Another 13% of the sample was not accessible so no inspection could be conducted. As a result, the IE found that 19% of the sample could not be verified.

Discounting the 2021 actual installation total of 35 by the 19% showing unacceptable quality leaves the final extrapolated total at 29 SCADA capacitors for the year. On the basis that SDG&E's 2021 target was 32 SCADA units repaired or replaced and the final verified total is 29, the IE is unable to verify that SDG&E met its objective for this initiative.

7.3.3.8.1 – PSPS Sectionalizing Enhancements

Public Safety Power Shutoffs (PSPS) are instances where SDG&E makes a preemptive decision to de-energize a portion of its system in order to avoid the greater risk of ignitions during extreme fire risk conditions. One way to reduce the impacts of PSPS service outages is to switch as many customers as possible to service from other circuits, including circuits that are underground. SDG&E utilizes sectionalizing equipment (switches, reclosers, remote sectionalizing devices) to increase the ways that high-risk circuits can be isolated and de-energized while minimizing customers impacted by the PSPS outage. Under this initiative, SDG&E will continue to identify strategic locations where installation of a switch or other sectionalizing device will allow high-risk portions of circuits to be isolated and de-energized during periods of high wind.¹⁰³

In 2021, SDG&E set an objective of installing 10 sectionalizing device enhancements. By year-end, they reported exceeding this target through installations of 13 such devices.¹⁰⁴The IE's Sampling Plan (see Table 1, Chapter 3.1.1), called for a minimum sample size of 9 inspections to enable statistically valid extrapolation of the results across the population of sectionalizing devices installed in 2021.

The IE's efforts to draw a sample from SDG&E's work order data has been described in Chapter 3.1.1 Sampling Methodology. The IE conducted 10 field inspections, meeting the sampling target set.

¹⁰³ 2021 WMP Update page 199.

¹⁰⁴ SDG&E QIU Q4-2021, Initiative 7.3.3.8.1.

These inspections covered HFTD Tiers 2 and 3 and were scattered across SDG&E service districts in the Northeast and East. The main findings from these inspections are shown in the Table 24 below.

Table 24: Findings for Initiative 7.3.3.8.1 - Sectionalizing Enhancements

Findings	Total Inspections	%
No installation issues observed	4	40
No installation issues observed/Other Issues observed	1	10
Installation quality issues observed	2	20
Asset inaccessible/Inspection not performed	3	30
Total	10	100

Inspector comments on the installation of sectionalizing devices included the following:

- No installation issues observed/Other issues observed
 - The device installation was good but minor vegetation encroachment was observed at the base of the pole.
- Installation issues observed
 - No sectionalizing device installed on the pole at two locations
- Unable to access and inspect the asset
 - Assets were behind locked gates at three inspection sites

Image 44: Sectionalizing Enhancements with no issues.

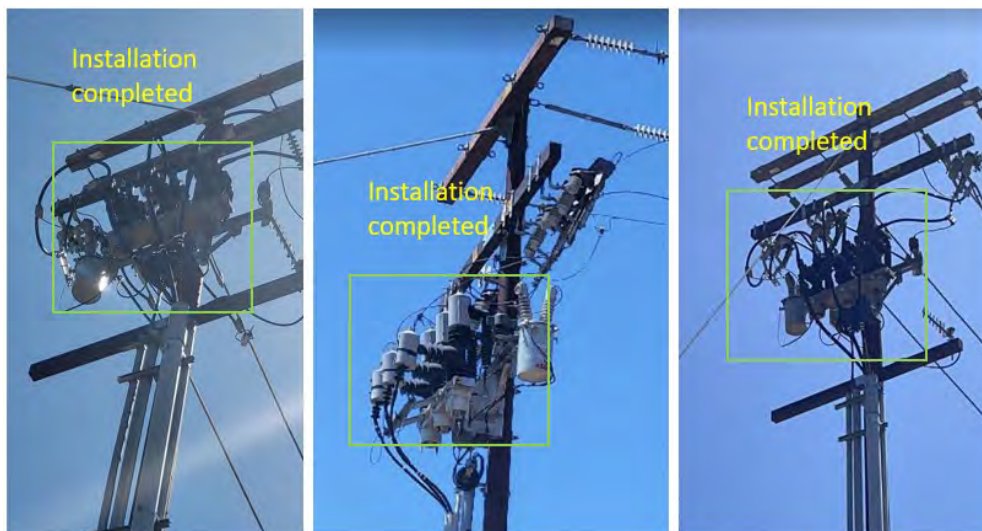


Image 45: Sectionalizing Enhancements with issues.



SDG&E exceeded their 2021 installation target for P5PS sectionalizing enhancements by installing 13 units rather than the ten planned. Based on the small population of units installed in 2021, a statistically valid sample consists of 9 inspections. The IE completed a total of 10 inspections.

Following analysis of the inspection results, however, it can be seen that 30% of the sample showed installation quality issues, including absence of the unit to be verified. Another 30% of the sample was not accessible so no inspection could be conducted.

Discounting the 2021 actual installation total (13) by 60%, the fraction showing unacceptable or unverifiable quality results in an adjusted total of 5 sectionalizing enhancements for the year. On the basis that SDG&E's 2021 target was 10 sectionalizing devices, and the final verified total is 5, the IE is unable to verify that SDG&E met its objective for this initiative.

7.3.3.8.2 – Microgrids

Microgrids are suites of local electricity generation, electricity storage and control devices that can supply the needs of customers and/or critical facilities during a P5PS event or whenever the closest circuit has been de-energized. SDG&E weighs the P5PS mitigation benefits of microgrids against the “feasibility of alternative solutions such as undergrounding distribution infrastructure.... In concert with determining if a traditional overhead hardening or undergrounding solution could mitigate both the wildfire and P5PS impact risks.”¹⁰⁵ Looking

¹⁰⁵ 2021 WMP Update page 201.

ahead to 2021, SDG&E identified two locations to evaluate for possible microgrids, describing the possible microgrid designs as including “either a single battery energy storage solution or a combination of solar plus battery energy storage to provide power continuity to customers during the PSPS events.”¹⁰⁶

At the start of 2021, SDG&E planned to install the two microgrids described in the 2021 WMP Update. By the end of the year, however, neither installation had gone forward. In one case, SDG&E reported that the microgrid was “being evaluated against scheduled grid hardening efforts.” In the other, the project was “descoped due to conflicting strategic undergrounding.”¹⁰⁷

Since SDG&E reported no projects completed under this initiative, the IE did not attempt any verification activity. It is clear that SDG&E did not meet its target. The IE cannot verify that this program exists.

7.3.3.9 – Installation of System Automation Equipment - Advanced Protection

SDG&E’s 3,500 miles of overhead distribution circuits in the HFTD contains a mix of older infrastructure designed for an earlier set of standards, and updated infrastructure designed to withstand the challenges of a demanding future with climate-driven increases in heat and wildfire frequency. “System automation equipment” describes a portfolio of advanced devices—including circuit breakers, remote terminal units (RTUs), microprocessor-enhanced relays to enable real-time automation control, auto-sectionalizing, line monitors and other technologies—to strengthen and upgrade SDG&E’s system. The objective of this initiative is to upgrade priority circuits to meet these higher standards of reliability, safety, and reduced wildfire risk.¹⁰⁸

SDG&E set the 2021 target to install automation equipment including switches, circuit breakers, and other advanced equipment in eight circuits. By the end of the 4th quarter of the year, SDG&E reported completion of four circuits.¹⁰⁹

¹⁰⁶ 2021 WMP Update.

¹⁰⁷ SDG&E QIU Q4-2021, Initiative 7.3.3.8.2.

¹⁰⁸ 2021 WMP Update page 202.

¹⁰⁹ SDG&E QIU Q4-2021, Initiative 7.3.3.9.

To verify completion of installations in the four circuits reported complete by SDG&E, the IE's Sampling Plan called for inspection of 100% of the sample, i.e., all four circuits. (See Table 1, Chapter 3.1.1) The IE's efforts to draw a sample from SDG&E's work order data has also been described in Chapter 3.1.1 Sampling Methodology. Following development of the location lists and maps, the IE conducted 39 field inspections. Of these, 20 assets were available for inspection while 19 were located on private property and inaccessible. Field inspections covered HFTD Tiers 2 and 3 and scattered across SDG&E service districts in the Northeast and East. The main findings from these inspections are shown in Table 22 below.

Table 25: Findings for initiative 7.3.3.9 - System Automation Equipment.

Findings	Total	%
No automation equipment observed	17	43.6
No automation equipment observed/Other issues	3	7.7
Asset inaccessible/Inspection not performed	19	48.7
Total	39	100

Inspector comments on the installation of system automation equipment included the following:

- No automation equipment observed
 - No automation equipment installed on 17 sample locations
- No automation equipment observed/Other issues
 - Vegetation was encroaching the asset at three locations. Vegetation is within 10-foot of the clearance radius around the pole.
- Asset inaccessible/Inspection not performed
 - The assets were behind locked gates in 19 sample locations

SDG&E set the target of eight circuits to receive advanced protection equipment in 2021. By the end of the year, having completed protection upgrades for four circuits, SDG&E met 50% of its installation objective for this initiative.

Insights from the IE's field inspections, despite the small number of accessible assets, suggest significant issues of installation quality. Of the 20 inspections completed, none of the inspectors observed system automation devices in place.

On the basis of this discussion, the verification activity described, and the fact that SDG&E acknowledged missing its target for 2021, the IE can verify that SDG&E did not meet its objective for this initiative.

Caveat concerning overinterpretation of results – The complexity in describing and summarizing spatial and temporal data is not trivial. To make generalizations concerning installation patterns, and to estimate the probability of outcomes for an event at a given location, unbiased geographic data samples were selected. However, to infer conclusions for a larger set of data, via extrapolation, caution must be exercised.

The IE provided Energy Safety with weekly updates, via an online dashboard, on the status of previously approved field inspections for each WMP initiative. Moreover, the IE requested weekly approval from Energy Safety on the geographical location and the sample size of weekly field inspections for Large & Small Field-Verifiable initiatives.

The challenges of knowing where (location), what (work performed) and how (QA/QC) using an unbiased sample, plus the limiting time frame to collect data, analyze it and produce insights for a larger population, is work in progress for all stakeholders.

Therefore, the IE cautions against any generalizations on the extrapolated outcomes presented here.

7.3.3.17.2 - Transmission Overhead System Hardening (Overhead Transmission)

7.3.3.17.2 - Transmission Overhead System Hardening (Overhead Transmission - Distribution Underbuilt)

Transmission overhead system hardening focuses on the 1,000 miles of SDG&E transmission lines that are located in the HFTD. Within that total, 800 miles of transmission already meet the construction and design standards required for today's more challenging world of high heat and winds. The remaining roughly 200 miles must still be hardened in order to meet those higher standards.

Overhead transmission lines are supported by poles and equipment that can be susceptible to stress and damage over time. Within the 200 miles of overhead transmission that still requires

hardening, many of the poles currently have a design strength well below that required to meet the average wind speed (85 mph) and maximum wind speed (111 mph) occurring in the HFTD. The objective of these two initiatives is to continue SDG&E's progress on hardening the remaining 200 miles by updating design and construction standards, replacing wood poles with steel, and updating and correcting the spaces between conductors.

Initiative 7.3.3.17.2 has a subset that concentrates on overhead transmission lines that are described as "Distribution Underbuilt." Distribution underbuilt lines are those where—to use rights of way efficiently, among other reasons—distribution voltage lines are placed on an existing transmission pole or tower, below the transmission voltage lines. Distribution underbuilt lines are supported by poles and equipment that can be susceptible to stress and damage over time.

The objective of these two initiatives is to continue hardening the remaining 200 miles of overhead transmission in the HFTD. In both cases, the emphasis is placed on rebuilding these lines as needed to ensure compliance with more demanding design standards. In 2021, both initiatives were considered "Small Volume Field Verifiable", with slightly different objectives:

- Overhead transmission (OH) lines – SDG&E's 2021 objective was to harden 6.7 miles of overhead transmission, a target converted to 74 poles via DR10. By the end of 2021, SDG&E had met its target, hardening 74 poles of overhead transmission.
- Distribution Underbuilt (DU) lines – In 2021, SDG&E set the target of updating and hardening 2.7 miles (60 poles) of aging distribution underbuilt infrastructure. By the end of the year SDG&E reported having hardened 3.4 miles (76 poles) of transmission on lines that were categorized as Distribution Underbuilt.

Per the IE's Sampling Plan (see Table 1, Chapter 3.1.1), the intended minimum sample size to verify each of these initiatives would have been 29 poles for a statistically valid sample, or 58 poles assuming zero overlap between the two samples.

Rather than verify these initiatives through field inspections, given the challenges of sample development described in Chapter 3.1.1, Sampling Methodology (see in particular the *Case Study: Cleveland National Forest*), the IE has verified this initiative through QC/QA documentation. Chapter 3.3 of this report, "Verification of QA/QC Programs", contains a complete description of the Electric System Hardening QA/QC program under which the activities of 7.3.3.17.2 have been carried out. For the purposes of this verification, however, the IE has chosen to examine the process by which OH and UB lines are brought into compliance with the more rigorous standards required in 2021 and forward.

OH Construction Standards and Post-Construction Inspection - Under DR 12, the IE requested and received a copy of SDG&E's "2022 Overhead Construction Standards". This 1,073-page document represents the accumulation of design and construction standards, practices and protocols governing all aspects of the OH system (including many of the 'grid hardening' components named in other WMP initiatives, namely expulsion fuses, sectionalizing fuses, capacitors, and others).


To ensure that all "hardening" actions exemplify the highest levels of quality achievable, SDG&E "Electric System Hardening QA/QC Program" employs multiple steps, summarized as:

- Design and construction in compliance with SDGE's Construction standards;
- The Electric System Hardening (ESH) QA/QC process begins with post-construction inspections with high-resolution photographs;
- The photography and inspections enable comparisons of "as-built" constructions back against SDG&E design and construction standards; any follow up and/or remedial actions identified are directed back to the construction and/or engineering departments;
- Concurrent with these post-construction checks, SDG&E also utilizes LiDAR flights, that yield considerable aerial data useful to generate measurements of the completed transmission tower or asset;
- Using the LiDAR data, SDG&E utilizes a "True Up" check of the as-built structure, using design tools such as "Power Line Systems – Computer Aided Drafting and Design (PLS-CADD)".

"As-Built" Analysis – The IE requested and received a sample of 51 ESH inspection reports documenting "as built" dimensions of new, stronger poles built in 2021. This As-Built analysis enables a detailed examination of all elements of the pole's characteristics, including loading details, wire weights and tensions, insulators, guy wires and cables as needed. In short, the As-Built report of new construction enables SDG&E to be very clear regarding the characteristics and capabilities of that new pole. The following images document the steps in the ESH hardening process as these apply to OH and UB transmission lines per 7.3.3.17.2.

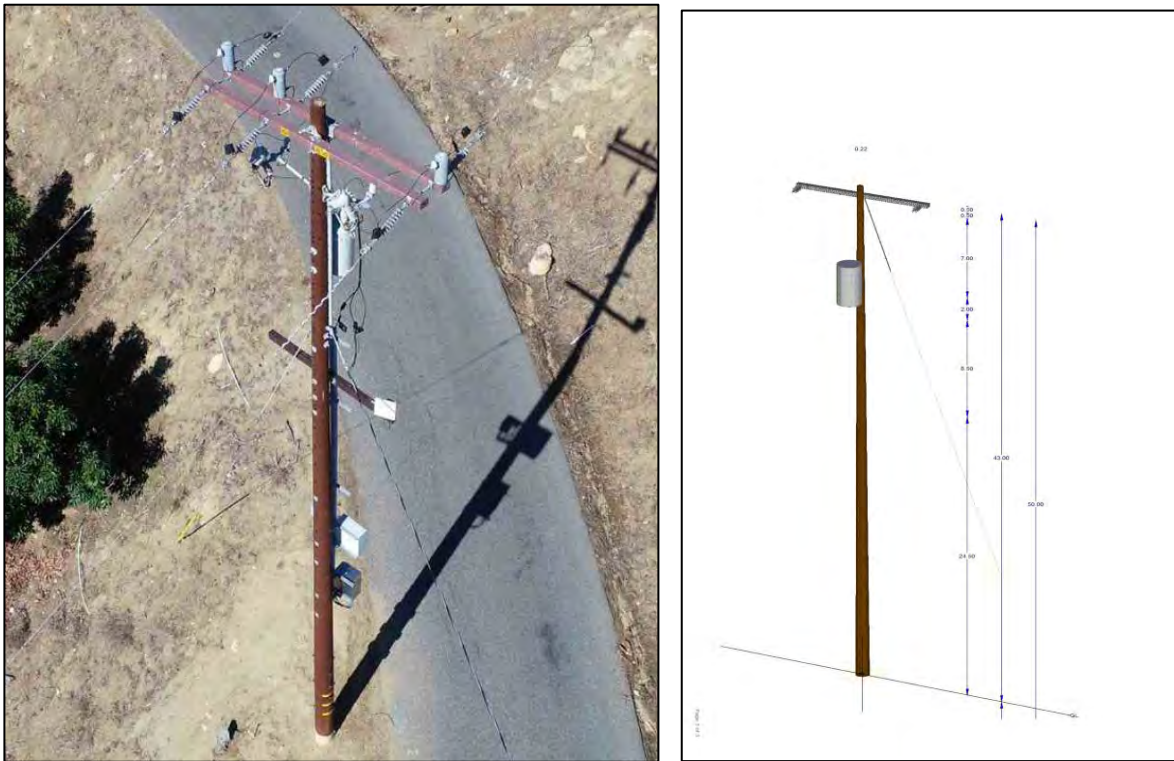
The following image shows a representative sample of the reports submitted by SDG&E on a new pole installation to withstand winds of 85 mph as a part of their efforts for grid hardening. As shown in Image 46, SDG&E relies heavily on the use of PLS-CADD to document new construction, and to perform pole structural analysis and Finite Element (FE) modeling, through the use of subcontractors, such as HDR, NV5 and Lazen Power Engineering.

Image 46: PLS-CADD Report.

 Structure P517665 Circuit C237-F Job # 458999-060		Field Collection Date 6/19/2021 Build Status As-Built (New Construction)											
Requestor Craig Kreinest ckreinest@sdge.com Engineer HDR, Inc. Shane Pankratz shane.pankratz@hdrinc.com		Usage Summary Max Usage 25% Clearances OK? Yes Pole Usage 25% Known Local Wind Light 85 MPH Grade A at Replacement Insulator Usage 5% Known Local Wind Light 85 MPH Grade A at Replacement Guy Usage 13% Known Local Wind Light 85 MPH Grade A at Replacement Anchor Usage 16% Known Local Wind Light 85 MPH Grade A at Replacement Arm Usage 1% Known Local Wind Light 85 MPH Grade A at Replacement											
Analysis Information Date 6/23/2021 Analysis Type Finite Element L4 Analysis Software PLS-CADD Software Version 16.00 PRG Version 2020.0.2 Structure File p517665_asbuilt.pol Project File C237F_Global True-Up		Structure Details Ahead Span 76 ft Latitude 33.07231453° Back Span 205 ft Longitude -116.77101002° Ahead Span Az. 63° Elevation 2557 ft Line Angle 0° Tangent/DE Dead End Framing Notes											
Pole Loading Details													
Pole Label	Height (ft)	Class	Material	Groundline Circuit (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Point (ft)
P517665	30	I	Corten Steel	43.7	7		100	Known Local Wind Light 85 MPH Grade A at Replacement	33	25	4.1	1.0	0
P517665	30	I	Corten Steel	43.7	7		100	G 0.95 Light Grade A at Replacement	34	12	8.5	1.0	0
Wires				Wire Tension Condition 167 Initial Condition Max Temp. Finite Element									
Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lb)				
12	N12 AWG 20Over2 AWAC GCC Graphag	190	42	0.33	0.11	1	205	205	107				
12	N12 AWG 20Over2 AWAC GCC Graphag	190	42	0.33	0.11	1	207	205	107				
0.0	3 ft Telephone Graphag	190	24.5	0.63	0.19	1	205	204	118				
Insulators				Length = Lead Length for Down Guys, Wire Length for Span Guys									
Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case				
Strain	12kV Long DE	12	190	42	P517665	5	23.8	2.0	Known Local Wind Light 85 MPH Grade A at Replacement				
Strain	12kV Long DE	12	190	42	P517665	5	24.3	2.0	Known Local Wind Light 85 MPH Grade A at Replacement				
Guys and Cables				Length = Lead Length for Down Guys, Wire Length for Span Guys									
Type	Wire Type	Length (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case				
Down	7/16" 7 Strand EHS (770G)	23.85	-1	42.5	P517665	15	0.7	1.5	Known Local Wind Light 85 MPH Grade A at Replacement				
Anchor	16" CRD5FLATE MG				P517665	16	8.5	3.8	Known Local Wind Light 85 MPH Grade A at Replacement				
Span	1-0 AWG Triples 55C AL Nemtha	75	0	33	P517665, SERVICE	7			Known Local Wind Light 85 MPH Grade A at Replacement				
Crossarms and Equipment													
Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case					
Equipment	25 kVA Transformer	190	33	P517665	1								
X-Arm	12" DE FG ARM (BDF)	205	42	P517665	1	166.7	1.8	Known Local Wind Light 85 MPH Grade A at Replacement					

In addition to the details of the circuit, the analytical information and structural details contained in this PLS-CADD report, each report also includes high-resolution images of the asset in situ (see Image 46) and PLS-CADD drawings of the asset (see image 47).

Image 47: PLS-CADD



The “True-Up” process – As an additional QA/QC step on new construction, as well as older infrastructure, SDG&E conducts aerial inspections by deploying drones. The images captured in this manner allow further detailing of structural issues, as shown below. The two examples provided show SDG&E’s QA/QC process at work. Through this process, issues captured through drone imagery are presented for resolution by the relevant contractors. Further inspection may be conducted as needed, before the project is deemed complete.

The caption under the report’s image describes what has been highlighted in the red box. The report also documents the responsible party, the inspector, supervisor, and parties to advise - in short, all players in the chain needed to ensure that corrective action is completed efficiently and effectively.

Collectively, these documents demonstrate that a combination of aerial inspections, patrol inspections, and documentation of new construction (as-builts) detail SDG&E’s efforts to strengthen its infrastructure and build a resilient Overhead Transmission system.

For the two initiatives 7.3.3.17.2, the IE is not able to verify that SDG&E met its 2021 installation objectives for either portion, OH hardening or UB hardening. However, based on the

documentation provided, IE concludes that quality checks governing completion of OH Transmission hardening were completed per the QA/QC steps outlined in Chapter 3.3.

7.3.3.18.1 – Distribution Communications Reliability Improvements (Base Stations)

In 2021, WMP SDG&E planned to improve the reliability of its distribution communications network through installation and use of 10 base stations. The objective of this action was to improve and expand the use of SDG&E’s Falling Conductor Protection (FCP) program. The FCP technology relies on high-speed and high-reliability wireless communication in order to de-energize downed powerlines before they drop to the ground and potentially ignite a wildfire.

SDG&E set a 2021 target of installing 10 distribution communications reliability improvements (“base stations”) by the end of the year. In the Q4 QIU, SDG&E reported meeting that target, having installed 10 base stations.¹¹⁰

Per the IE’s Sampling Plan (see Table 1, Chapter 3.1.1) and the sampling rules approved by Energy Safety, the small sample of ten base stations required a minimum sample of nine units.

The IE verified this initiative through aerial means. Based on locations provided by SDG&E, IE concludes that the wireless network relies on using antennas mounted on towers or roofs. Even though there are places with 1 or 2 antennas (Images 45 and 46), there are some locations with multiple towers and multiple antennas in a single location.

¹¹⁰ SDG&E QIU Q4-2021, Initiative 7.3.3.18.1.

Image 48: DCRI-000003 with 1 antenna.*Image 49: DCRI - 000005 with multiple antennas.*

The IE's first step was to identify the locations and confirm the existence of these base stations (towers and antennas). IE relied on high-resolution imagery acquired in the period March-April 2022.

The IE managed to verify locations of eight towers and antennas out of 10 total samples. In two locations, however, (DCRI- 00001 and DCRI-00009) at the GPS locations provided, the IE found nothing like a tower structure, even while searching in an area 150-500 yards in diameter around the GPS location.¹¹¹

IE finds that beside locating the base stations, the IE did not see a possible way to verify the fulfillment of work performed for initiative 7.3.3.18.1. In addition, of the ten locations provided, two could not be found. A third location held a structure that could not be verified for certain as an antenna.¹¹² Once again, the IE observes the trend of significant inaccuracies in SDG&E-provided GPS locations for infrastructure. The IE also observed that two antennas share the same name—DCRI-000001.¹¹³

¹¹¹ Please see 7.3.3.18.1 - Dist communications reliability base stations, Images 4-5. Also in images 4 and 5, the red circle indicates the coordinates where the base station should be located.

¹¹² All references to images in this section rely on the Analysis Report in Appendix 3 Aerial Analysis Reports: 7.3.2.1 - Weather station reports.

¹¹³ Ibid. See images 48 and 49.

The IE can confirm that 70% of the base station locations were populated by antennas. In order to confirm the installation dates or any further aspects of the base stations and antennas, the IE would require details of the equipment and its installation. The IE is unable to verify that SDG&E met its objective for this initiative.

3.1.4.2 Trends and Themes

Include any trends or recurring themes that the Independent Evaluator found while assessing utility compliance to Small Volume Quantifiable Goal/Target initiatives.

The IE team identified several trends and themes across for the assessment of the WMP "Small Volume Quantifiable Goal/Target - Field Verifiable" initiatives. These included:

- Inspection for several initiatives in this category were conducted by examining data from high resolution aerial images.
- While the IE verified that these activities have been completed, the analysis also highlights the IE's observations of areas where there is room for improvement;
- Aerial inspection methods are not impeded by the ownership status of the sites to be inspected, making it more efficient to achieve samples where field units cannot be deployed.
- The IE was able to conduct inspections with the minimum amount to be statistically valid however it was noted that for several activities the IE was not able to verify SDG&E met its objective because of either asset issues and/or the asset was inaccessible to conduct the inspection
- The inaccessibility of private property was a significant factor in the IE team's ability to conduct verifying inspections. Verification of multiple initiatives was not possible on this basis.
- Several data points such as GPS location of assets were inaccurate when conducting inspections which led to IE unable to verify whether the activity was completed

Emerging trends regarding Small Volume Field Verifiable initiatives are several. At the top of the list are issues of data definition and accuracy. These can be divided into areas in the same way as the process of inspection was—sampling and inspecting. Regarding the sampling process, as expected, the prevailing trend is regarding the incoherent data infrastructure. The amount of time required for the IE to spend on clearing data, requesting additional data sets, and developing useful samples was an order of magnitude greater than anticipated.

Another data trend concerns the accuracy of GPS locations. Low accuracy of infrastructure locations was observed to increase with increasing distance from main roads and landmarks.

Additionally, an important theme throughout the Small Volume Field Verifiable section is instances where data initially provided for verification by the IE did not meet the minimum statistically valid sample count dependent on reported assets completed. This caused a noticeable trend where the statistically valid count of verified assets was lower than the target set by SDG&E and therefore the activity could not be verified.

On the positive side, the IE notes a trend toward SDG&E's increasing use of technologies that allow data to be easily accessed by the public without any requirement for registration or subscription. The IE also notes that all inspected infrastructure was up and running.

To sum main trends and themes are:

- SDG&E presented high responsiveness upon receiving information of non-functioning infrastructure.
- SDG&E's advanced system of monitoring has near-real-time information which is publicly available.
- GPS positioning of poles is not always accurate, and sometimes extremely misleading
- High variability of pole brushing and vegetation clearance maintenance on poles with weather stations.
- Without additional data supply and explanations, sampling and inspections based on initially provided data would not be possible.

3.1.5 Qualitative Goal/Target

3.1.5.1 Review of Initiatives

This section should include the Independent Evaluator's findings and assessment of utility compliance with activities that fall into the Qualitative Goal/Target category. Independent Evaluators shall review documentation and conduct SME interviews, as needed, to verify the qualitative goals/targets of these activities were met.

Include the electrical corporation's list of initiatives that fall into the Qualitative Goal/Target category, including respective goals/targets for each, in the Appendix or within the body of this subsection.

Table 26: Summary of Qualitative Initiatives.

Qualitative Initiatives				
WMP Category ¹¹⁴	Initiative	Planned	Reported	IE Verified
5.3.1 - Risk Assessment & Mapping	7.3.1.1 – A summarized risk map showing ignition probability and estimated wildfire consequence along electric lines and equipment	Continue to enhance WRRM-Ops throughout 2021	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.1.2 – Climate-driven risk map and modeling based on various relevant weather stations	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.1.3. – Ignition probability mapping	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.1.4 – Initiative mapping and estimation of wildfire and PSPS risk-reduction impact	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.1.5 - Match drop simulations	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.1.6 – Weather-driven risk map and modeling	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end.	Verified
5.3.2 - Situational Awareness & Forecasting	7.3.2.2 – Continuous monitoring sensors	No qualitative metrics were provided	SDG&E does not have an applicable program	No Determination

¹¹⁴ Please see "A Note on Numbering," page 11.

	7.3.2.4.2 – Fire potential index	Daily verification of the FPI tool	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.2.4.3 – Santa Ana wildfire threat index	To further develop fire science for integration into SAWTI	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.2.4.4 – High-performance computing infrastructure	To maintain this program, share the data generated, and monitor advancements	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.2.5 – Personnel monitoring areas of electric lines and equipment in elevated fire risk conditions	To integrate the latest risk assessments and scientific understanding during high-risk events	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.2.6 – Weather forecasting and estimating impacts on electric lines and equipment	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	Unable to Verify
	5.3.3 - Grid Design & System Hardening	7.3.3.2 – Circuit breaker maintenance and installation to de-energize lines upon detecting a fault.	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP
7.3.3.4 – Covered conductor maintenance		No qualitative metrics were provided	No Response	Unable to Verify
7.3.3.5 – Crossarm maintenance, repair and replacement		No qualitative metrics were provided	No Response	Unable to Verify

	7.3.3.6 – Distribution pole replacement and reinforcement	DG&E planned to continue its program of enhanced pole inspections and replacements as part of a ten-year commitment	97% of the poles planned for replacement in 2021	Verified
	7.3.3.12 – Other corrective actions	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	No Determination
	7.3.3.13 – Pole loading infrastructure hardening and replacement program	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	No Determination
	7.3.3.14 – Transformers maintenance and replacement	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	No Determination
	7.3.3.15 – Transmission tower maintenance and replacement	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	No Determination
5.3.4 Asset Management & Inspections	7.3.4.7 – LiDAR inspections of distribution electric lines and equipment	SDG&E planned to employ LiDAR imaging to conduct post-construction analysis of grid hardening activities	SDG&E reported that the LiDAR vendor has begun data collection along all distribution lines in HFTD Tiers 2 and 3	Verified
	7.3.4.8 – LiDAR inspections of transmission electric lines and equipment	SDG&E planned to use LiDAR to “implement	SDG&E reported that the LiDAR vendor has begun data collection to	Verified

		vegetation and clearance checks”	“implement vegetation and clearance checks”	
	7.3.4.9.3 – Circuit ownership	SDG&E initially planned to provide refresher training to field personnel	SDG&E had concluded to retire the program going forward	Unable to Verify
	7.3.4.12 – Pole loading assessment program to determine safety factor	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	Unable to Verify
	7.3.4.13 – Quality assurance/ quality control of inspections	SDG&E planned to continue its practice of auditing inspection and maintenance results quarterly	SDG&E reported meeting all of these objectives by year-end.	Verified
5.3.5 - Vegetation Management & Inspections	7.3.5.1 – Additional efforts to manage community and environmental impacts	SDG&E planned to continue its work with multiple internal departments toward the goal of providing comprehensive outreach and education regarding its vegetation management activities	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.5.3 – Detailed inspections of vegetation around transmission electric lines and equipment	No qualitative metrics were provided	SDG&E has established that vegetation management is done on the basis of long-term	Verified

			schedules and vendor work orders	
	7.3.5.4 - Emergency response vegetation management due to red flag warning or other urgent conditions	No qualitative metrics were provided	SDG&E created six periods of 2021 required issuance of Red Flag Warnings (RFW)	Unable to Verify
	7.3.5.6 - Improvement of inspections	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	Unable to Verify
	7.3.5.7 - LiDAR inspections of vegetation around distribution electric lines and equipment	SDG&E intended to explore the use of LiDAR to inspect trimming and vegetation management activities	By the end of 2021, SDG&E had acquired LiDAR data for its entire HFTD territory.	Verified
	7.3.5.8 - LiDAR inspections for vegetation around transmission electric lines and equipment	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	Unable to Verify
	7.3.5.10 – Other discretionary inspection of vegetation around transmission electric lines and equipment, beyond inspections mandated by rules and regulations	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end although no definitive target was set.	Verified
	7.3.5.11 – Patrol inspections of vegetation around distribution electric lines and equipment.	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end although no	Verified

			definitive target was set.	
	7.3.5.12 – Patrol inspections of vegetation around transmission electric lines and equipment	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end although no definitive target was set.	Verified
	7.3.5.13 – Quality assurance/quality control of inspections	SDG&E’s QA/QC target was to develop a comprehensive audit program for vegetation management over the next five years	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.5.14 – Recruiting and training of vegetation management personnel	SDG&E planned to continue its collaboration in the development of a training pathway to shorten the usual on-the-job training requirement	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.5.15 – Remediation of at-risk species	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end although no definitive target was set.	Verified
	7.3.5.16 – Removal and remediation of trees with strike potential to electric lines and equipment (Hazard	SDG&E’s 2021 plans included continuation of its program of hazard tree	SDG&E reported meeting all of these objectives by year-end.	Verified

	tree removal and Right Tree-Right Place)	identification and mitigation		
	7.3.5.17 – Substation inspections	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end although no definitive target was set.	Verified
	7.3.5.18 – Substation vegetation management	No qualitative metrics were provided	SDG&E reported meeting all of these objectives by year-end although no definitive target was set.	Verified
	7.3.5.19 – Vegetation inventory system	SDG&E reported to update its vegetation inventory system by integrating a new work management system	SDG&E reported meeting all of these objectives by year-end.	Verified
5.3.6 - Grid Operations & Operating Protocols	7.3.6.1 – Automatic recloser operations	No qualitative metrics were provided	SDG&E does not have an applicable program	No Determination
	7.3.6.1.1 – Recloser protocols	SDG&E’s plans for this initiative were to maintain the reclosing protocols set in previous years	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.6.1.2 – Sensitive/Fast Protection settings	SDG&E set qualitative targets for 2021, to	SDG&E reported meeting all of	Verified

		include enabling these settings more widely in the HFTD	these objectives by year-end.	
	7.3.6.2 – Crew accompanying ignition prevention and suppression resources and services	SDG&E’s 2021 WMP planned to maintain training and credentials of the CFR Crew	SDG&E reported the continuation of the contracted crews and maintained no wildfires created from SDG&E Crew or Contractors	Unable to Verify
	7.3.6.3 – Personnel work procedures and training in conditions of elevated fire risk	SDG&E planned to continue to update procedures and review training annually with feedback from attendees	SDG&E reported training a total of 3,532 internal personnel in 187 training sessions	Verified
	7.3.6.4 – Protocols for PSPS re-energization	SDG&E’s 2021 plans for this initiative included maintaining the capacity while seeking opportunities to reduce the time post-PSPS that crews take to evaluate the affected lines for re-energization	SDG&E called for a single PPS event	Unable to Verify
	7.3.6.5 – PPS events and mitigation of PPS impacts	No PPS Events or if in the PPS Event occurs the proper protocols are followed	One PPS Event and mitigation action	Verified

	7.3.6.6 – Stationed and On-call Ignition prevention	No qualitative metrics were provided	SDG&E does not have an applicable program	No Determination
	7.3.6.6.1 – Aviation firefighting program	In 2021, SDG&E planned to first, ensure the year-round availability of its aerial firefighting unit and upgrade one of its two leased fire-fighting helicopters with a more capable unit	SDG&E reported that both units had been 100% available for call-out the entire year	Verified
5.3.7 - Data Governance	7.3.7.1 – Centralized repository for data	SDG&E’s 2021 WMP Update anticipated “the completion of data related to all the metrics tables contained in the WMP by the end of 2021	SDG&E had delivered initial data for multiple WMP areas	Verified
	7.3.7.2 – Collaborative research on utility ignition and/or wildfire	SDG&E’s 2021 plans under this initiative to build partnerships and relationships with the academic community	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.7.3 – Documentation and disclosure of wildfire-related data and algorithms	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	Unable to Verify
	7.3.7.4 – Tracking Risk event data	No qualitative metrics were provided	SDG&E does not have an applicable program	No Determination

	7.3.7.4.1 – Ignition management program	In 2021, SDG&E planned to continue to refine the processes by which data is collected	SDG&E reported that the Ignition Management Program has met its goals for 2021	Unable to Verify
	7.3.7.4.2 – Reliability database	SDG&E’s 2021 plan was to continue this effort	SDG&E reported progress migrating 10 years of reliability data into an Oracle application	Verified
5.3.8 - Asset Allocation Methodology	7.3.8.1 – Allocation methodology development and application	SDG&E reported a qualitative objective identifying objectives and key performance indicators and determining action plans	The Investment Prioritization team had completed programming several risk calculations and associated business processes into the C55 prioritization methodology.	Unable to Verify
	7.3.8.2 – Risk reduction scenario development and analysis	No qualitative metrics were provided	SDG&E provided no outcome to this activity	No Determination
	7.3.8.3 – Risk spends efficiency analysis – not to include PSPS	SDG&E will conduct Risk-Spend-Efficiency (RSE) throughout 2021	SDG&E references the Risk-Spend-Efficiency (RSE) as verification that this activity is complete	Verified

	7.3.8.4.1 – Wildfire mitigation personnel	SDG&E’s 2021 target was that the internal WMP team would continue to review feedback from external stakeholders	SDG&E reported that the WMP team had filed all OEIS-required reports and supplemental reports on time	Verified
5.3.9 - Emergency Planning & Preparedness	7.3.9.1 – Adequate and trained workforce for service restoration	SDG&E planned to complete construction that began in December 2020, on a physical infractions test yard with a target of 25-30 infractions that will be changed regularly for Journeyman to identify and properly code	SDG&E’s Skills Training group reported “finalizing all outstanding initiatives and training to meet internal WMP goals	Verified
	7.3.9.2 – Community outreach, public awareness, and communication efforts	SDG&E set several qualitative targets for community outreach	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.9.3 – Customer support in emergencies	SDG&E’s plan for 2021 focused on evaluating creating partnerships with agencies for support during emergencies	SDG&E reported meeting all of these objectives by year-end.	Verified
	7.3.9.4 – Disaster and emergency preparedness plan	SDG&E’s 2021 plans included updating the CERP	During 2021, three new PSPS exercises and three Deputy	No Determination

			Officer in Charge workshops were created	
	7.3.9.5 – Preparedness and planning for service restoration	For 2021, SDG&E’s plans included several programs for preparedness and planning for service restoration	2021, SDG&E reported that the debit card system for payments between mutual assistance organizations had been finalized	Verified
	7.3.9.6 – Protocols in place to learn from wildfire events	In 2021, SDG&E planned to review all incidents to identify potential improvements and establish a comprehensive and measurable After-Action Report	SDG&E’s After-Action Review application was being beta-tested prior to launch	Unable to Verify
	7.3.9.7 – Other – Emergency management operations	SDG&E’s 2021 plans collaboration between the Emergency Management division’s training and exercise team	SDG&E reported “a total of 15 emergency exercises and 30 trainings in 2021.”	Verified
5.3.10 - Stakeholder Cooperation & Community Engagement	7.3.10.1 -- Community Engagement and Public Awareness	No qualitative metrics were provided	SDG&E does not have an applicable program	No Determination
	7.3.10.1.1 – PSPS communication practices	SDG&E planned to improve its PSPS communications efforts expanding outreach to access customers	SDG&E reported multiple PSPS communications and outreach accomplishments	Verified

	7.3.10.2 -- Cooperative and best practice sharing	No qualitative metrics were provided	SDG&E does not have an applicable program	No Determination
	7.3.10.2.1 – Emergency Management and Fire Science & Climate Adaptation	SDG&E planned to continue to build on the track record of these two departments	SDG&E reported success in completing all of their goals for this activity	Verified
	7.3.10.2.2 – International Wildfire Risk Mitigation Consortium	SDG&E plans to continue to add utilities interested in participating and contribute to the collaboration	SDG&E had maintained its membership in IWRMC throughout the year	Verified
	7.3.10.3 – Cooperation with suppression agencies	SDG&E’s plans included refining its wildfire training efforts to ensure that offerings feature topics of interest to firefighters	SDG&E reported a total of 30 training events reaching almost 2,000 trainees	Verified
	7.3.10.4 – Forest service and fuel reduction cooperation and joint roadmap	No qualitative metrics were provided	SDG&E stated that this activity was not an initiative within the 2021 WMP	No Determination
	7.3.10.5 – Non-Conductive Balloon Initiative	SDG&E’s 2021 plans included continued collaboration with the balloon manufacturer toward a	SDG&E had moved forward to execute a commercial agreement with a balloon manufacturer to	Verified

		prototype non-conductive balloon	commercialize the new balloon within the balloon industry	
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5.3.1 Risk Assessment and Mapping

7.3.1.1 – A Summarized Risk Map Showing Ignition Probability and Estimated Wildfire Consequence Along Electric Lines and Equipment

SDG&E maintains a suite of modeling tools aimed at better understanding, predicting, mitigating, and responding to the risks of wildfire in SDG&E’s territory. These include WRRM (Wildfire Risk Reduction Model), developed with Technosylva, its companion WRRM for Operations (WRRM-Ops) and Wildfire Next Generation Systems (WiNGS). After multiple refinements, the original WRRM model is no longer updated. Rather, SDG&E has shifted focus to the WRRM-Ops, the initiative now verified under 7.3.1.1.¹¹⁵

SDG&E’s 2021 WMP plan was to “... continue to enhance WRRM-Ops throughout 2021,” completing enhancements including upgrades to fire behavior modeling to better describe fuel moisture content in herbaceous fuels and integrating WRRM-Ops data into a decision tool utilized with PSPS. SDG&E reported meeting all of these objectives by year-end.

The IE sought verification that the WRRM-Ops had been used in 2021. The IE’s questions and SDG&E responses for 7.3.1.1. Summarized Risk Maps are shown below:

1. Please briefly describe one of the enhancements undertaken in 2021 to improve the tool’s operations.
2. Please provide an example of how this initiative/system was utilized in 2021.

SDG&E RESPONSE: SDG&E met its planned goals for 2021 with regards to WRRM-Ops. Enhancements included upgrades to the herbaceous fuel moisture inputs, updated fuel layers, an updated forecaster interface, and a new version of the PSPS decision support tool which includes the latest data.¹¹⁶

² SDG&E’s 2021 WMP Update describes the WRRM-Ops model fully in section 4.5.1.2.

¹¹⁶ SDG&E’s reply also included examples of the fire risk maps utilized in 2021 and is included in Appendix 8 - DR16-7.3.1.1.-WRRM-Ops fire risk maps.

SDG&E's verification reply did serve to document that the WRRM-Ops model had been enhanced in the manner planned at the beginning of 2021. The IE is able to verify that SDG&E met this target.

7.3.1.2 – Climate-Driven Risk Map and Modeling Based on Various Relevant Weather Stations

A description of the “climate-driven risk map and modeling” used by SDG&E is provided in section 4.5.1.2¹¹⁷ of the 2021 WMP Update. Per the 2021 WMP Update, WMP Initiatives 7.3.1.2 - 7.3.1.6 are all described in Section 7.3.1.1.

No specific actions were committed for the WRRM-Ops updates, as described generically in 4.5.1.2. As a result, no qualitative metrics were provided and at the end of 2021, the initiative was labeled “Complete.”

The IE sought verification of 2021 climate-driven risk maps and modeling, the focus of 7.3.1.2, by asking direct questions of SDG&E. The IE's questions and SDG&E's reply are provided below:

1. Please provide an example of how this initiative/system was utilized in 2021.
2. Please explain what capability was enhanced in 2021 for the budget allocated to this activity. Please also provide a 3rd party document to verify the example you chose.

SDG&E RESPONSE: “7.3.1.2 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.1.1 as inclusive of this initiative.”

While SDG&E's reply states that 7.3.1.2 was “not an initiative SDG&E has within the 2021 WMP,” their reply to 7.3.1.1 per the preceding section confirms that such climate risk maps and modeling was completed during 2021. The IE is able to verify that SDG&E met this target.

In addition, as SDG&E also fulfilled initiative 7.3.2.1 with the installation of additional weather stations during 2021, the IE fails to understand why SDG&E doesn't consider 7.3.1.2 a component of their 2021 WMP.

¹¹⁷ 2021 WMP Update page 178.

7.3.1.3. – Ignition Probability Mapping

A description of 7.3.1.3, the “ignition probability mapping” initiative in the 2021 WMP was also considered to be covered by SDG&E’s WMP section 7.3.1.1.

No specific actions were committed to initiative 7.3.1.3. in 2021. As a result, no qualitative metrics were provided. At the end of 2021, however, the initiative was labeled “Complete.”¹¹⁸

The IE sought verification of ignition probability mapping in 2021 via questions asked under DR16. The IE’s questions and SDG&E’s reply is provided below:

1. Please provide an example of how this initiative/system was utilized in 2021.
2. Please explain what capability was enhanced in 2021 per the budget allocated to this activity. Please also provide a 3rd party document to verify the example you chose.

SDG&E RESPONSE: “7.3.1.3 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.1.1 as inclusive of this initiative.”

SDG&E’s response to the IE’s verification request for 7.3.1.3 did not serve to verify that ignition probability mapping was completed in 2021. On the basis of this summary, reported performance and documentation, the IE is not able to verify that SDG&E met its objectives for this initiative. However, SDG&E’s response to 7.3.1.1, including the fire risk and ignition probability maps provided¹¹⁹ demonstrated that these capabilities were in use in 2021. On this basis, the IE is able to verify that SDG&E met its 2021 objectives for this initiative.

7.3.1.4 – Initiative Mapping and Estimation of Wildfire and PSPS Risk-Reduction Impact

As with the two preceding initiatives, the 2021 WMP Update description of 7.3.1.4 reports that the “Initiative mapping and estimation of wildfire and PSPS reduction impact” was also considered to be covered by WMP section 7.3.1.1.

No specific actions were committed to initiative 7.3.1.4 and, as a result, no qualitative metrics were provided. At the end of 2021, the initiative was labeled “Complete.”

¹¹⁸ SDG&E QIU Q4-2021, Initiative 7.3.1.3

¹¹⁹ See Appendix 8 - DR16-7.3.1.1. fire risk maps.

The IE sought verification of 2021 climate-driven risk maps and modeling, the focus of 7.3.1.2, by asking the following questions of SDG&E. The IE's questions and SDG&E's reply for is provided below:

1. Please provide an example of how this initiative/system was utilized in 2021.
2. Please explain what capability was enhanced in 2021 in this activity. Please also provide a 3rd party document to verify the example you chose.

SDG&E RESPONSE: "7.3.1.4 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.1.1 as inclusive of this initiative."

SDG&E's response to the IE's verification request for 7.3.1.4 did not verify that mapping and estimation of wildfire and risk reduction impact was underway in 2021. On the basis of this reported performance and documentation, the IE is not able to verify that SDG&E met its objectives for initiative 7.3.1.4. However, SDG&E's response to 7.3.1.1 also mentioned completion of "a new version of the "PSPS Decision Support Tool."¹²⁰ Based on the inference that this decision tool would enable the comparison of scenarios and thereby support "estimation of wildfire and PSPS risk reduction benefit." the IE is able to verify that SDG&E met the 2021 objectives for initiative 7.3.1.4.

7.3.1.5 - Match Drop Simulations

A description of 7.3.1.5 in the 2021 WMP was also considered to be covered by WMP section 7.3.1.1. No specific actions were committed to initiative 7.3.1.5, "Match Drop Simulations". As a result, no qualitative metrics were provided for this initiative. At the end of 2021, however, the initiative was labeled "Complete."

The IE sought verification of the "match drop simulations" that were the focus of 7.3.1.5 by asking for verification. The IE's questions and SDG&E's reply is provided below:

1. Please provide an example of how this initiative/system was utilized in 2021.
2. Please describe a capability that was enhanced in 2021 per the budget spent on this activity. Please also provide a 3rd party document to verify the example you chose.

SDG&E RESPONSE: "7.3.1.5 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.1.1 as inclusive of this initiative."

¹²⁰ See Appendix 8 -DR16-7.3.1.1. fire risk maps

SDG&E's response to the IE's verification request for 7.3.1.5 did not verify that match drop simulations were underway in 2021. On the basis of this reported performance and documentation, the IE is not able to verify that SDG&E fulfilled initiative 7.3.1.5. However, SDG&E's response to 7.3.1.1 included an image from the Simulated Wildfire Tool.¹²¹ Based on this showing of virtual wildfire spread, the IE is able to verify that SDG&E met the 2021 objectives for initiative 7.3.1.5.

7.3.1.6 – Weather-Driven Risk Map and Modeling

A description of 7.3.1.6 in the 2021 WMP was also considered to be covered by WMP section 7.3.1.1. No specific actions were committed to initiative 7.3.1.6 and, as a result, no qualitative metrics were provided for 2021. At the end of 2021, however, the initiative was labeled "Complete."

The IE sought verification of 2021 climate-driven risk maps and modeling, the focus of 7.3.1.2, via the request shown below, with SDG&E's reply:

1. Please provide an example of how this capability was utilized in 2021.
2. Please provide a 3rd party document to verify the example you chose.

SDG&E RESPONSE: "7.3.1.6 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.1.1 as inclusive of this initiative."

SDG&E's response to the IE's verification request for 7.3.1.6 did not verify that "weather-driven risk map and modeling" was underway in 2021. On the basis of this reported performance and documentation, the IE is not able to verify that SDG&E fulfilled initiative 7.3.1.6. However, SDG&E's response to 7.3.1.1 included a selection of images from the updated WRRM-Ops model.¹²² Based on an understanding that this 2021 update incorporated new "fire growth algorithms to increase the spot fire potential in windy conditions," i.e., that new weather data has been incorporated in the past year, the IE is able to verify that SDG&E met the 2021 objectives for initiative 7.3.1.6.

¹²¹ See Appendix 8 - DR16-7.3.1.1 fire risk maps

¹²² See Appendix 8 -DR16-7.3.1.1. fire risk maps

5.3.2. Situational Awareness & Forecasting

7.3.2.2 – Continuous Monitoring Sensors

Per SDG&E's 2021 WMP Update, SDG&E reports that "SDG&E does not have an applicable program." We have retained 7.3.2.2 in this report despite SDG&E's comment because it has been reported as an initiative for which SDG&E provided financial reporting (see Chapter 3.2 Verification of Funding). Given the absence of any qualitative targets or reported 2021 results, the IE did not undertake any verification effort. Accordingly, the IE has not made a determination regarding completion of any work fitting Energy Safety's description for this category in 2021.

7.3.2.4.2 – Fire Potential Index

The Fire Potential Index (FPI) is a foundational tool in SDG&E's WMP program. The FPI communicates to SDG&E operational personnel as well as wildfire teams when the conditions are deemed to have elevated potential to trigger a wildfire event or, in the alternative, to permit normal, safe operations. The FPI identifies operating conditions (Normal, Elevated, Extreme, and Red Flag Warning) based on weather conditions, fuel risks and other factors. SDG&E utilizes the FPI to inform such decisions as: "... recloser settings, restrictions on the type of work being performed in high-risk locations, and the use of contract firefighting resources... (and) "as an input to PSPS decision-making."¹²³

SDG&E's 2021 WMP Update provided qualitative targets for this initiative in 2021, to include "daily verification of the FPI tool" through a close partnership with the University of California, San Diego.¹²⁴

"SDG&E will continue to prioritize the integration of the FPI into its operational decision-making to mitigate wildfire potential. Additionally, SDG&E's meteorology team consists of experts in fire science and data science who will continue to conduct daily verification of the FPI tool. Through the verification process of the FPI, any instance of the index not performing as expected will be investigated, leading to improvements by the fire science team."

SDG&E operationalized improvements to the FPI in 2021 to include an improvement to the weather component of the index. The daily verification conducted by SDG&E SMEs continues and

¹²³ Ibid - WMP Update, pg. 184.

¹²⁴ SDG&E Quarterly Initiative Update Q4 - initiative 7.3.2.4.2.

the Capstone Team of graduate students at the University of California, San Diego (UCSD) conducted analysis and has informed updates to the index.

The IE sought to verify the outcomes reported in SDG&E's QIU Q4-2021. The IE's questions and SDG&E responses for 7.3.2.4.2. are shown below:

1. Please provide an example of how the FPI was integrated into operational decision-making in 2021. If possible, provide a 3rd-party doc verifying this example/action.
2. Please provide an example of how the FPI was updated by UCSD collaborators in 2021. If possible, provide a 3rd-party doc verifying this example/ action.

SDG&E RESPONSE: "From a work practice perspective, SDG&E utilized Electric Standard Practice 113.1 to guide mitigations put in place while performing at risk activities adjacent to wildland fuels. This document is reviewed/updated at least annually to incorporate lessons learned and enable SDG&E personnel and contractors to perform work in a fire safe manner. The FPI is utilized by this plan to guide the level of mitigation required for a specific work activity. Please note, even during a Normal FPI day there are still mitigations in place to prevent ignitions and the spread of fire."

"Additionally, operational mitigation measures that reduce the risk of a wildfire ignition from a system fault or other system operation are applied based on criteria including the FPI level. These mitigation measures include disabling reclosing, enabling sensitive relay protection schemes, and performing visual patrols prior to re-energizing power lines after a fault. These practices are governed by Distribution Operating Procedures. For reference, both ESP 113.1 and the Distribution Operating Procedures can be found publicly."¹²⁵

"Collaborators from the Data Science & Engineering program at UCSD developed a machine learning model that incorporates new variables, including solar radiation and fuel temperatures, into the pre-existing calculations for the Fire Potential Index. Full documentation of the project findings can be found publicly."¹²⁶

On the basis of this summary, the reported performance and the documentation provided, the IE is able to verify that SDG&E met its objectives for this initiative.

¹²⁵ <https://www.SDG&E.com/2021-wildfire-mitigation-plan> and [https://www.SDG&E.com/sites/default/files/regulatory/Electric%20Standard%20Practice%20No.%20113.1 3.pdf](https://www.SDG&E.com/sites/default/files/regulatory/Electric%20Standard%20Practice%20No.%20113.1%203.pdf)

¹²⁶ <https://library.ucsd.edu/dc/object/bb0691480b>

7.3.2.4.3 – Santa Ana Wildfire Threat Index

The Santa Ana Wildfire Threat Index (SAWTI) enables SDG&E to deepen the understanding of fire potential when the conditions also include the additional threat factors posed by Santa Ana winds. The SAWTI adds into the calculation of wildfire risk additional elements that characterize the strength, duration, extent and location of the expected winds, and the dryness of the air, vegetation and land. Generated through a multi partner collaborative and the Predictive Services unit of the U.S. Forest Service (USFS), the SAWTI is also widely shared.¹²⁷ The general public and local fire suppression agencies can all take advantage of this tool.

SDG&E's 2021 metrics for this initiative were entirely qualitative in nature and included continuation of collaborations with academic and fire agencies "to further develop fire science for integration into SAWTI." By year's end, SDG&E reported that this initiative had been completed with continued daily generation of the SAWTI and collaboration with the San Diego Supercomputer Center (SDSC) to help share the data with the USFS.¹²⁸

The IE sought verification that the SAWTI had been used in 2021. The IE's questions and SDG&E responses for 7.3.2.4.3. are shown below:

1. Please provide an example of SDG&E's work with academia in 2021 to use and/or improve the SAWTI.
2. Please describe the collaboration between SDG&E and the SDSC with regard to the SAWTI. Please provide a 3rd-party document to verify the example you provided.

SDG&E RESPONSE: "Per section 7.3.2.4.2 of the SDG&E WMP, no significant changes were made to the SAWTI model in 2021. In 2021, SDG&E worked with the SDSC to modernize data delivery and archive all SAWTI forecast files. Once the forecast files have been produced on SDG&E servers, they are then sent to SDSC, where they are archived in .csv format and converted into an Application Programming Interface (API) for use by the U.S. Forest Service. Data archives for all SAWTI zones can be found on the SDSC portal."¹²⁹

¹²⁷ See <https://fsapps.nwcg.gov/psp/sawti>

¹²⁸ Ibid SDG&E Quarterly Initiative Update Q4 - initiative 7.3.2.4.3.

¹²⁹ <https://SDG&E.sdsc.edu/data/SDG&E/sawti/>

On the basis of this summary, reported outcomes and verification documentation, the IE is able to verify that SDG&E met its objectives for this initiative.

7.3.2.4.4 – High-Performance Computing Infrastructure

SDG&E’s generation of the WMP tools discussed in this section requires the use of large amounts of complex data. Whether this data is required for understanding fire risk, predicting the FPI, or making use of the WRRM-Ops or SAWTI, SDG&E must rely on significant computing capability. As described in the WMP 2021 Update, “SDG&E utilizes three high-performance computing clusters... (and) ... nearly 2,000 compute core hours... are used per day.”¹³⁰ SDG&E also makes “...(A)ll the data generated is made publicly available through the San Diego Supercomputer Center.”¹³¹

SDG&E’s 2021 targets for this initiative were all qualitative in nature—to maintain this program, share the data generated, and monitor advancements in data science to ensure that SDG&E’s computing capability remains capable of providing the analytic support these complex indices require. By years’ end, SDG&E confirmed that their “...High Performance Computing infrastructure continued to operate as planned and designed in 2021.”¹³²

The IE sought verification that SDG&E’s high-performance computing infrastructure had been maintained and utilized in 2021 as reported. The IE’s questions and SDG&E responses for 7.3.2.4.4. are shown below:

1. Please provide an example of how SDG&E shared the data in its high-performance computing infrastructure with the wildfire community.
2. Please provide an example of how SDG&E’s high-performance computing infrastructure “continued to operate as planned and designed in 2021.”

SDG&E RESPONSE: “SDG&E high-performance computers were used to generate weather and fire condition forecasts that were shared publicly through the SDSC WiFire Commons portal.¹³³ This site includes all current and historical forecast data generated by SDG&E, as well as input

¹³⁰2021 WMP Update, pg. 187.

¹³¹ SDG&E Quarterly Initiative Update Q4 - initiative 7.3.2.4.4.

¹³² Ibid.

¹³³ <https://wifire-data.sdsc.edu/organization/SDG&E>

data for products such as the SAWTI¹³⁴ and the FPI.¹³⁵ High-performance computing infrastructure reliably produced twice-daily forecasts that were both incorporated into utility operations and made publicly available through archives.”¹³⁶

On the basis of this summary, reported performance and verification documentation provided, the IE is able to verify that SDG&E met its objectives for this initiative.

7.3.2.5 – Personnel Monitoring Areas of Electric Lines and Equipment in Elevated Fire Risk Conditions

SDG&E complements its data intelligence in situational awareness by utilizing teams of electrical workers to inspect areas of electrical infrastructure. These crews monitor electric lines for vegetation encroachment, potentially unsafe debris accumulation, and any equipment conditions such as line slapping, conductor movement or other forms of potential system damage. These field crews are deployed to areas of high-risk, and especially prior to and during periods of probable high Santa Ana winds.

SDG&E’s 2021 target for this initiative was to “...integrate the latest risk assessments and scientific understanding to the deployment of observers during high-risk events to try to place observers in the best place to mitigate risk.” By the end of the year, SDG&E reported they had provided “the latest science to support the deployment of observers during high-risk events in 2021.”¹³⁷

The IE sought verification that these patrol crews had been utilized as described in 2021. The IE’s questions and SDG&E responses for 7.3.2.5. are shown below:

1. Please provide an example of an incident where observers were deployed during a high-risk event anytime in 2021 and explain how these observers mitigated the risk of that incident escalating.
2. Please provide documentation of this event and outcome, ideally from a 3rd-party/non-SDG&E source.

¹³⁴ <https://SDG&E.sdsc.edu/data/SDG&E/sawti/>

¹³⁵ <https://SDG&E.sdsc.edu/data/SDG&E/fpi/>

¹³⁶ <https://wifire-data.sdsc.edu/organization/SDG&E>

¹³⁷ SDG&E Qualitative Initiative Update Q4, Initiative 7.3.2.5.

SDG&E RESPONSE: “SDG&E had an elevated risk event with a Public Safety Power Shutoff Nov. 24-26, 2021, where observers were deployed to areas that saw high wind. During the event, a Qualified Electrical Worker observer located downstream of device 357-50R identified unsafe conditions and requested that the power line be de-energized. In this instance, the line was de-energized without incident in order to prevent a wildfire ignition. Documentation of this event and outcome can be found in the post-event report.”¹³⁸

SDG&E’s documentation of the November 2021 PSPS event did include a description of the post-event patrols in use, per Section 8, page A-30. In addition, as the format for the post-PSPS report is dictated by the CPUC, it qualifies as an objective source. On the basis of this summary, SDG&E’s reported performance and verification documentation, the IE is able to verify that SDG&E met the objectives for this initiative.

7.3.2.6 – Weather Forecasting and Estimating Impacts on Electric Lines and Equipment

By way of describing this initiative, SDG&E’s 2021 WMP Update referred to section 7.3.2.4. High-Performance Computing Infrastructure. The IE infers that SDG&E’s weather forecasting draws on the same computing capability utilized by the FPI, SAWTI, WRRM-Ops, and other modeling tools.

This initiative was assigned neither quantitative nor qualitative targets for 2021. The year-end status of this initiative was reported as “N/A.”

The IE sought verification that the weather forecasting capability was in use in 2021 and supported the development of estimated impacts on the electric system. The IE’s questions and SDG&E responses for 7.3.2.6. are shown below:

1. Please provide an example of how SDG&E’s weather forecasting capabilities assisted in estimating the impacts on electric lines and equipment. Please provide a 3rd-party document that verifies the example you have chosen.

SDG&E RESPONSE: “7.3.2.6 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.2.4 as inclusive of this initiative.”

¹³⁸ <https://drive.google.com/file/d/1Wz9ml0pxe3EOEJuRGWKBDyItPZgvq19c/view?usp=sharing>

SDG&E's response to the IE's verification request for 7.3.2.6 did not verify that "weather forecasting and estimating impacts on electric lines and equipment" was underway in 2021. On the basis of this reported performance and missing documentation, the IE is not able to verify that SDG&E fulfilled initiative the intent of 7.3.2.6.

A more informative response would have clarified the extent to which SDG&E creates its own weather forecasts as a precursor or element of these previously described indices. Reference to the impacts of weather events on electric infrastructure is also implied by the discussion of SAWTI but again not made explicitly or clearly. In addition, SDG&E also installed additional weather stations during 2021 under 7.3.2.1¹³⁹ and it is clear that all the elements of 7.3.2.6 are in place. The IE fails to understand why SDG&E didn't consider 7.3.2.6 a component of their 2021 WMP and report on it accordingly.

5.3.3 - Grid Design & System Hardening

Section 5.3.3 Grid Design and System Hardening is the collection of Initiatives most concerned with "hardware" fixes to the grid. The term "hardening" generally refers to sets of controls and other forms of mitigations that directly reduce wildfire risk by changing the manner in which the grid operates.

Such changes in grid design may be accomplished by placing some lines underground and/or hardening (making more safe) specific lines or equipment located above ground. As a general rule, the initiatives and actions described in this section address a specific type of failure that is known to increase the possibility of an ignition event. This section also covers other programs that seek to reduce PSPS impacts by a) sectionalizing the grid, b) microgrid and generator programs, and c) strategic undergrounding.

The activities in this category include control systems and other types of actions, including overhead hardening, microgrids and undergrounding, all of which have the intention of reducing the risk of ignition from SDG&E's system. Other equipment-based actions in this category include the replacement of expulsion fuses and lightning arrestors. The common theme is the implementation of changes to the grid—its equipment and/or operations—to reduce the number of customers impacted by a PSPS event.

¹³⁹ Discussed further in Chapter 3.1.4 Small Volume Quantity Field Verifiable.

7.3.3.2 – Circuit Breaker Maintenance and Installation to De-Energize Lines Upon Detecting a Fault

SDG&E bundled circuit breaker installation, operations, and maintenance activities into initiative 7.3.4.15. Regrettably, however, neither the 2021 WMP Update nor the SDG&E 2021 QIU contain any description of an initiative 7.3.4.15.

7.3.4.15 is listed twice in Table 7-1: Summary of Models Used to Evaluate SDG&E's Initiatives, on page 162 in connection with the circuit breaker Operations and Maintenance (O&M) and "advanced protection" program, and in Table 12: Mitigation Incentive Financials. Yet 7.3.4.15 is missing from both the 2021 WMP Update and the SDG&E 2021 QIU Q4.

SDG&E's Advanced Protection Program (described under initiative 7.3.3.9¹⁴⁰ of the WMP 2021 Update) installed 13 circuit breakers in 2020 and planned additional circuit breakers for 2021 as part of hardening activities for 10 substations and eight circuits (discussed under initiative 7.3.3.9 in Chapter 3.1.4. Small Quantity Field Verifiable). O&M efforts to maintain all circuit breakers per 7.3.3.2 were combined and tracked with O&M activities for covered conductors (7.3.3.4) and crossarm maintenance (7.3.3.5). SDG&E's Q4 QIU showed no annual target or actual outcome for circuit breaker O&M.

The IE sought verification of 2021 circuit breaker O&M activities by asking direct questions of SDG&E through DR16. The IE's questions and SDG&E's reply for 7.3.3.2 (Circuit Breaker O&M), 7.3.3.4 (Covered Conductor O&M), and 7.3.3.5 (Crossarm O&M) are provided below.

1. Please provide a sample of Work Orders for each of these activities (by initiative number) to document the completion of O&M activities in 2021 for each equipment category.

SDG&E RESPONSE: "7.3.3.2 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.4.15 as inclusive of this initiative."

As the IE cited above, neither the 2021 WMP Update nor the SDG&E QIU-Q4 2021 mentions 7.3.4.15. SDG&E has bundled circuit breaker O&M into a program of O&M in such a way that none of the types of activity included within this aggregation can be independently tracked or verified.

¹⁴⁰ 7.3.3.9, Installation of system automation equipment, 2021 WMP Update pg. 202.

In addition, SDG&E's answer to the IE's questions provided no information that would enable independent verification that any number of circuit breakers received O&M attention in 2021. The IE is not able to verify that this activity took place.

7.3.3.4 – Covered Conductor Maintenance

Per SDG&E's 2021 WMP Update, 7.3.3.4 was bundled into initiative 7.3.4.1, Detailed Inspections of Distribution Electric Lines and Equipment. The resulting array of actions—from inspections to multiple O&M activities—were conducted as SDG&E's Corrective Maintenance Plan (CMP).¹⁴¹ The CMP was created in response to the CPUC's¹⁴² General Order 165 which required SDG&E and other utilities to “perform a service territory-wide inspection of its electric distribution system.”¹⁴³ Under this mandated inspection program, all California utilities must “patrol their systems once a year” and “conduct detailed inspections at a minimum every three to five years, depending on the type of equipment.”¹⁴⁴

By bundling covered conductor maintenance into 7.3.4.1, SDG&E created no target or reported actual outcomes for covered conductor maintenance (7.3.3.4).

The IE sought verification of 2021 covered conductor O&M activities by asking direct questions of SDG&E via DR16. The IE's questions and SDG&E's reply for 7.3.3.2 (Circuit Breaker O&M), 7.3.3.4 (Covered Conductor O&M), and 7.3.3.5 (Crossarm O&M) are provided below.

1. Please provide a sample of Work Orders for each of these activities (by Initiative number) to document the completion of O&M activities in 2021 for each equipment category.

SDG&E RESPONSE: “N/A”.¹⁴⁵

As stated above, neither the 2021 WMP Update nor the SDG&E QUI-Q4 2021 provides any report of completed covered conductor O&M. SDG&E has bundled covered conductor O&M into an inspection program (7.3.4.1) in such a way that performance of none of the categories of activity included within this aggregation can be independently tracked or verified.

¹⁴¹ 2021 WMP Update, pg. 194. Initiative 7.3.4.1 is on page 231.

¹⁴² The CPUC's WSD was transferred to the newly-created OEIS, effective July 1, 2021.

¹⁴³ 2021 WMP Update, pg. 231.

¹⁴⁴ Ibid.

¹⁴⁵ “N/A”, which the IE understands as “Not Applicable” or “Not Available,” was SDG&E's response to the verification questions posed above.

In addition, SDG&E's reply to the IE's verification questions provided no information that would enable independent verification that any number of covered conductors received O&M attention in 2021. The IE is not able to verify that this activity took place.

7.3.3.5 – Crossarm Maintenance, Repair, and Replacement

In the 2021 WMP Update (page 194), SDG&E refers crossarm maintenance, repair and installation activities to Initiative 7.3.4.1, under the collection of Asset Inspection Programs in section 7.3.4.¹⁴⁶ The resulting array of actions—from inspections to multiple O&M activities—were conducted as SDG&E's CMP.¹⁴⁷

SDG&E sets no quantitative or qualitative metrics for crossarm maintenance, repair or replacement in the SDG&E Q4 QIU, not in 7.3.3.4 or under 7.3.4.1, Detailed Inspections of Distribution Electric Lines and Equipment.

The IE sought verification of 2021 crossarm maintenance, repair, and replacement by asking direct questions of SDG&E via its SME. The IE's questions and SDG&E's reply for 7.3.3.2 (Circuit Breaker O&M), 7.3.3.4 (Covered Conductor O&M) and 7.3.3.5 (Crossarm O&M) are provided below.

1. Please provide a sample of Work Orders for each of these activities (by initiative number) to document the completion of O&M activities in 2021 for each equipment category.

SDG&E RESPONSE: "N/A".¹⁴⁸

As stated above, neither the 2021 WMP Update nor the SDG&E QUI-Q4 2021 provides any report of completed crossarm O&M. SDG&E has placed crossarm maintenance into an inspection program (7.3.4.1) in such a way that no metrics have been provided for any of the O&M activities aggregated within the CMP.

¹⁴⁶ Per SDG&E 2021 WMP Update, pg. 194, and Table 7-1: Summary of Models Used to Evaluate SDG&E's initiatives - pgs. 160-168.

¹⁴⁷ 2021 WMP Update, pg. 194. Initiative 7.3.4.1 is on pg. 231.

¹⁴⁸ "N/A", which the IE understands as "Not Applicable" or "Not Available," was SDG&E's response to the verification questions posed above.

In addition, SDG&E's reply to the IE's questions provided no information that would enable independent verification of any crossarm maintenance, repair or replacement activities. The IE is not able to verify that any crossarm O&M took place in 2021.

7.3.3.6 – Distribution Pole Replacement and Reinforcement

As described in the 2021 WMP Update, under this Initiative SDG&E replaces and/or reinforces deteriorated wooden poles with composite or steel poles. Doing so reduces the potential for ignition events that might arise from, for example, the presence of fungi, decay, bird, or termite damage. Work orders are created and sent to SDG&E districts for pole replacement. Replacements are subsequently audited 100% by SDG&E's Civil/Structural Engineering department. SDG&E's Construction services inspects 10% of these replacements while SDG&E's QA/QC department does an additional 100% audit on all WMP projects.¹⁴⁹

In 2021, SDG&E planned to continue its program of enhanced pole inspections and replacements as part of a ten-year commitment to regular inspections and subsequent remediations as a critical component of the WMP's prevention of potential equipment failures, faults, and ignitions. By year-end, SDG&E reported completion of 97% of the poles planned for replacement in 2021.

The IE sought to verify 2021 distribution pole replacement and reinforcement by asking for data from SDG&E. The IE's questions and SDG&E's reply for 7.2.2.6. Distribution Pole Replacement – Pole Replacement and Reinforcement are provided below.

1. This initiative, to replace distribution poles with an emphasis on the HFTD, had no specific quantitative targets for 2021. What evidence would you use to demonstrate that the Initiative met its objectives for the 2021 WMP year?

SDG&E RESPONSE: "In the Excel file attached, "2021 HFTD Pole Replacements 5-27-22.xls."¹⁵⁰ you will find a list of poles that were replaced in 2021. A small sample of 10 pole calculations are also included."

SDG&E's provision of the list of poles replaced in the HFTD in 2021 enables the IE to verify that the pole replacements reported under this initiative can be qualitatively verified.

¹⁴⁹ Description drawn from 2021 WMP Update pg. 194.

¹⁵⁰ See Appendix 7 for information regarding DR16, response 19.

7.3.3.12 – Other Corrective Actions

In the 2021 WMP Update,¹⁵¹ the category of “other corrective actions” is defined as “regarding detailed inspections of distribution electric lines and equipment below.” By lumping 7.3.3.12 into 7.3.4.1, SDG&E has placed these “detailed inspections of electric lines and equipment” in with other O&M activities for circuit breakers, covered conductors and crossarms (see 7.3.4.1: Detailed inspections of distribution electric lines and equipment).

No annual targets or outcomes were set for initiative 7.3.3.12. Neither does initiative 7.3.4.1 break out any target for “other”.

The IE attempted to verify this initiative category qualitatively by requesting verification documents under DR16. Both the IE’s question and SDG&E’s reply for 7.3.3.12 are below:

1. Please provide a sample of Work Orders for this Initiative number to document the completion of “detailed inspections of distribution electric lines and equipment” under this Initiative, as distinct from 7.3.4.1.

SDG&E RESPONSE: “7.3.3.12 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.4.1 as inclusive of this initiative.”

SDG&E’s reply confirms that there was no action taken under 7.3.3.12 in 2021. As a result, the IE makes no determination of whether SDG&E met its target for this initiative.

7.3.3.13 – Pole Loading Infrastructure Hardening and Replacement Program

SDG&E has grouped this Initiative under 7.3.3.17.1 with other distribution system overhead hardening initiatives.

Initiative 7.3.3.13 has no separate annual target, or 2021 actual performance reported under this Initiative.

The IE sought information to verify any effort under this initiative. The IE’s question and SDG&E’s reply for 7.3.3.13 Pole loading infrastructure hardening and replacement program are below:

¹⁵¹ Ibid, page 215.

1. Please provide a sample of Work Orders for this Initiative number to document the completion of “pole loading infrastructure hardening and replacement” under this Initiative, as distinct from 7.3.3.6: Distribution pole replacement and reinforcement.

SDG&E RESPONSE: “7.3.3.13 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.3.17.1 as inclusive of this initiative.”

SDG&E’s reply confirms that there was no action taken under 7.3.3.13 in 2021. As a result, the IE makes no determination of whether SDG&E met its target for this initiative.

7.3.3.14 – Transformers Maintenance and Replacement

Per the 2021 WMP Update,¹⁵² SDG&E has placed 7.3.3.14 transformer maintenance and replacement into 7.3.4.1: Detailed Inspections of Distribution Electric Lines and Equipment, along with other O&M activities for circuit breakers, covered conductors, crossarms, and “other corrective action.”

SDG&E included no target or reported outcomes for transformer repair work in 2021, under either Initiative 7.3.3.14 or 7.3.4.1.

The IE sought information to verify any activities to repair, replace or otherwise maintain any transformers in 2021. The IE’s questions and SDG&E’s response for 7.3.3.14 Transformers Maintenance and Replacement are below:

1. Please describe how O&M activities for transformers were planned, scheduled or otherwise triggered in 2021.
2. Please provide a sample of Work Orders for this Initiative number to document the completion of transformer O&M activities during 2021.

SDG&E RESPONSE: “7.3.3.14 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.4.1 as inclusive of this initiative.”

The IE notes that, while the IE’s questions were asked in connection with Initiative 7.3.3.14, the first question was generic. A simple description would have illustrated the process by which these activities were undertaken in 2021. SDG&E chose to not provide any generic information on how

¹⁵² Ibid, pg. 215.

“O&M activities for transformers were planned, scheduled or otherwise triggered in 2021,” that might have enabled the IE to verify that such activities were undertaken in 2021.

The combination of activities as specific as transformer O&M into the broad category of “detailed inspections,” 7.3.4.1, removes the ability to track the performance of any type of activity lumped within that broader category. As a result, the IE makes no determination that any transformer O&M work was completed in 2021.

7.3.3.15 – Transmission Tower Maintenance and Replacement

In a similar manner to several other initiatives in 7.3.3 Grid Design and System Hardening, SDG&E has placed 7.3.3.15 into 7.3.4.1: Detailed Inspections of Transmission Electric Lines and Equipment.¹⁵³ This means that transmission tower O&M and even tower replacements are combined into the same initiative category as other O&M activities for circuit breakers, covered conductors, crossarms, transformers, and “other corrective action.” This category also explicitly covers replacements for high-budget items such as transformers and transmission towers.

Initiative 7.3.3.15 has no separate annual target, or 2021 actual performance reported under this initiative, nor does 7.3.4.1 break out any targets for transmission tower O&M or replacements in 2021.

The IE sought information to verify any activities to repair, replace or otherwise maintain any transformers in 2021. The IE’s questions and SDG&E’s response for 7.3.3.15 are below:

1. Please describe how transmission tower O&M activities were planned, scheduled, or otherwise triggered in 2021.
2. Why are there no annual targets for transmission tower O&M?
3. Please provide a sample of Work Orders for this Initiative number to document the completion of O&M activities on transmission towers during 2021.

SDG&E RESPONSE: “7.3.3.15 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.4.1 as inclusive of this initiative.”

The IE notes that, while the IE’s questions were asked in connection with initiative 7.3.3.15, the first two questions were generic. A simple description would have illustrated the process by

¹⁵³ Ibid, pg. 215.

which these transmission tower O&M were undertaken in 2021. SDG&E chose to not provide any such information that might have enabled the IE to verify that such activities were in fact undertaken in 2021.

By aggregating activities as specific as transmission tower O&M into the broad category of “detailed inspections” per 7.3.4.1, SDG&E removes the ability to track the completion of these activities as distinct from the other activity types lumped into that category. As a result, the IE makes no determination that any transmission tower O&M work was completed in 2021.

5.3.4 - Asset Management & Inspections

7.3.4.7 – LiDAR Inspections of Distribution Electric Lines and Equipment

SDG&E uses LiDAR inspections to conduct surveys of electric distribution equipment including rights of way, existing distribution lines, vegetation, structures, and other elements that can inform and/or check the accurate design and construction of distribution system assets.

In 2021, SDG&E planned to employ LiDAR imaging to conduct post-construction analysis of grid hardening activities, to inform vegetation management plans in the HFTD and potentially to expand the use of LiDAR in non-HFTD areas. Per the Q4 QIU, SDG&E reported that the LiDAR vendor has begun data collection along all distribution lines in HFTD Tiers 2 and 3, covering roughly 44% of the 4,370 circuit miles in those two Tiers.

To verify performance under this initiative, the IE requested a sample of LiDAR reports from flights in 2021 to verify inspection lines around distribution poles and equipment. The IE’s verification request and SDG&E’s reply for 7.3.4.7. LiDAR Inspections of Distribution Lines are below:

1. Please provide sample reports of these LiDAR inspections with at least 5 such reports from each of quarters 1-4 of 2021.

SDG&E RESPONSE: “SDG&E began its LiDAR inspection of distribution equipment in 2021. However, since the data had to be processed and quality checked, the IE did not have any actionable information in 2021. Please see attachment titled “Response_28_SDG&E ESH21 Flight Planning V1.0”¹⁵⁴ for a list of circuits and flight completion status.”

¹⁵⁴ Please see Appendix 7 DR16-7.3.4.7-LiDAR_fights

Review of the reports provided verified that SDG&E collected LiDAR through the last quarter of 2021 and into 2022. On the basis of this summary, reported performance and documentation, the IE is able to verify that SDG&E met its objectives for this initiative.

7.3.4.8 – LiDAR Inspections of Transmission Electric Lines and Equipment

According to SDG&E’s 2021 WMP Update, “The NERC FAC-003-4 Transmission Vegetation Management established a standard for utilities to evaluate their transmission system for clearance compliance...LiDAR surveys provide the most cost effective, scalable, and accurate solution for overhead power line analysis increasing both system reliability and safety.”¹⁵⁵

In 2021, SDG&E planned to use LiDAR to “implement vegetation and clearance checks within the HFTD and potentially expand into non-HFTD projects... (and) use the results of these analyses for emergency operations during red flag and other extreme events.”

By the end of Q4, SDG&E had used LiDAR to examine transmission lines that had experienced high winds during red flag events in 2021, and other lines identified as likely to be high-risk for such winds. During the year SDG&E also utilized vendors to secure new LiDAR for an additional 50 miles of HFTD Tier 2 transmission.

To verify performance under this initiative, the IE requested a sample of LiDAR reports from flights in 2021 to verify inspection lines around transmission equipment. The IE’s verification request and SDG&E’s reply for 7.3.4.8 - LiDAR Inspections of Transmission Lines are below:

1. Please provide sample reports of these LiDAR inspections taken of transmission lines during 2021, with at least 5 such reports from each of quarters 1-4 of 2021.

SDG&E RESPONSE: “Sample reports of SDG&E’s transmission LiDAR inspections have been provided,¹⁵⁶ although there were not enough LiDAR inspections of transmission assets to provide at least 5 such reports per quarter. SDG&E has attached the following reports: an as-built survey control report from Q1, a LiDAR delivery report from Q2, a LiDAR survey control report and a LiDAR delivery report from Q3, and five LiDAR survey control reports from Q4.”

¹⁵⁵ SDG&E 2021 WMP Update 02.07.21, pg. 243.

¹⁵⁶ Please Appendix 7 DR16-7.3.4.8-LiDAR Transmission Reports 2021.

The provided LiDAR reports documented both the nature of SDG&E's use of LiDAR for transmission inspections and the timing, verifying SDG&E's report that this use did not cover the full year or result in a volume sufficient to support five samples per quarter. These reports did not, however, verify SDG&E's objective per the QIU to expand the use of LiDAR into other areas, namely to "implement vegetation and clearance checks within the HFTD... (and) use... these analyses for emergency operations during red flag and other extreme events." Nonetheless, on the basis of the documentation provided, the IE is able to verify that SDG&E met the objectives of this initiative, namely, to conduct "LiDAR inspections of transmission lines and assets."

7.3.4.9.3 – Circuit Ownership

Initiative 7.3.4.9.3 Circuit Ownership describes SDG&E's Circuit Ownership platform as a "program [that] facilitated supplemental submission of circuit vulnerabilities" by SDG&E field personnel using various mobile applications. This program enables SDG&E personnel to identify concerns and potential hazards, flagging these for possible supplemental inspections and proactive mitigation.

In 2021, SDG&E initially planned to provide refresher training to field personnel,¹⁵⁷ seeing in it the potential to "expand to all users in SDG&E's Electric Regional Operations or even outside departments to submit concerns." By Q4, however, the program was considered under evaluation, and by the end of 2021, after a low level of submissions during the year, SDG&E had concluded to retire the program going forward, based on the fact that "... many other initiatives [that] rendered this [program] obsolete."¹⁵⁸

The IE was unable to verify that SDG&E conducted the "refresher training" that was its 2021 qualitative objective for the initiative. As this program had been discontinued at the end of 2021, the IE concluded that further steps toward verification were not warranted.

7.3.4.12 – Pole Loading Assessment Program to Determine Safety Factor

SDG&E's 2021 WMP Update provided no description of this effort,¹⁵⁹ referring instead to 7.3.3.17.1. Initiative 7.3.3.17.1 ("Updates to Grid Topology to Minimize the Risk of Ignition in

¹⁵⁷ SDG&E 2021 WMP Update - pg. 252.

¹⁵⁸ SDG&E_Quarterly_Initiative_Update_Q4_2021.

¹⁵⁹ 2021 WMP Update, pg. 260.

HFTD”) also clusters four¹⁶⁰ other initiatives, all focused on hardening and otherwise upgrading the distribution system in the HFTD. These separate initiatives constitute SDG&E’s Distribution Overhead System Hardening program.

SDG&E provided no quantitative or qualitative target for this initiative. No 2021 outcomes were reported.

To verify that SDG&E actually performed “pole loading assessments” to determine the safety of poles, the IE requested a sample of assessments performed. The IE’s verification request and SDG&E’s reply for 7.3.4.12

are below:

1. Please provide a brief description of this Initiative, including a sample (2 per quarter) of the assessments performed.
2. Please include in this summary an explanation of the relationship between Initiative 7.3.4.12 and 7.3.3.17.1.
3. Please report whether 7.3.4.12 remains an active Initiative at the end of 2021.

SDG&E RESPONSE: “7.3.4.12 was not an initiative SDG&E has within the 2021 WMP and has no costs. SDG&E points to 7.3.3.17.1 as inclusive of this initiative. Within initiative 7.3.3.17.1 SDG&E describes its pole loading assessment process where SDG&E utilizes LiDAR survey data and PLS-CADD to design for proper line clearances at all operating temperatures (hot and cold) and ensure that steel poles and other structural components are adequately sized and arranged to withstand the maximum mechanical forces imposed by wind and ice loads (i.e., known local conditions).”

In its reply, SDG&E described the manner in which actions within 7.3.3.17.1 fulfill the intent of 7.3.4.12, questions 1 and 2 above. They did not, however, provide the requested sample reports. In the absence of any verification documents that support the completion of pole loading assessments, regardless of the initiative under which these may be placed, the IE is not able to verify that SDG&E met the objectives for this initiative.

¹⁶⁰ While the Q4 QIU lists seven Initiative activities under 7.3.3.17 (1 under 7.3.3.17.1; 3 under 7.3.3.17.2, and 3 more for the Cleveland National Forest initiative 7.3.3.17.3), per DR#10 these have been consolidated into a total of four, per the description above of Initiative 7.3.3.17.

7.3.4.13 – Quality Assurance/Quality Control of Inspections

SDG&E's QA/QC of inspections relies on its CMP to monitor progress in both inspections and repairs. Inspection audits, monthly meetings and inspection protocols are utilized by operations and engineering managers who oversee the QA/QC process in each SDG&E district.

In 2021, SDG&E planned to continue its practice of auditing inspection and maintenance results quarterly but did not plan to implement any changes to its QA/QC protocols. As of the end of 2021, SDG&E reported "SDG&E had completed 100% of the QA/QC audits for the electric distribution system for Q4 2021. SDG&E performed 343 audits on the OH distribution system, with 10 additional findings found."¹⁶¹

To qualitatively verify SDG&E's performance of QA/QC audits,¹⁶² the IE requested a sample of QA/QC audits performed. The IE's verification request and SDG&E's reply for 7.3.4.13 are below:

1. Please provide sample reports of QA/QC audits conducted with at least 5 such reports from each of quarters 1-4 of 2021.

SDG&E RESPONSE: "Files are attached."¹⁶³

SDG&E submitted 28 samples of QA/QC audits performed during all quarters of 2021 and in a variety of districts. SDG&E's objective was to complete 100% of the QA/QC audits of the electric distribution system for 2021." The submitted reports document that each inspector completed 100% of the audits assigned to them on a timely basis, noting observed requirements for follow-up as appropriate. On the basis of these reports, the IE is able to verify that SDG&E met its qualitative objectives for this initiative. For a more complete discussion of the QA/QC programs overall, please see Chapter 3.3. Verification of QA/QC Programs.

¹⁶¹ SDG&E_Quarterly_Initiative_Update_Q4_2021

¹⁶² Please refer to Chap 3.3 Verification of QA/AC Programs for a more complete verification of SDG&E's QA/QC programs overall.

¹⁶³ Please see Appendix 7 DR16-7.3.4.13-QA-QC reports of inspections.

5.3.5 - Vegetation Management & Inspections

7.3.5.1 – Additional Efforts to Manage Community and Environmental Impacts

This initiative covers SDG&E’s efforts to inform customers and community members of its “routine tree activities and wildfire communication activities.”¹⁶⁴ By conducting outreach activities, virtual online webinars and drive-through fire-preparedness events, SDG&E personnel educate stakeholders regarding the need for vegetation management and the specific protocols that apply around power lines and system assets.

In addition to explaining its “Right Tree Right Place” program, SDG&E’s efforts under this WMP initiative also include close collaboration with state and federal land agencies (e.g., US Forest Service, California State Parks) to implement best-practices to protect the lands under its management for habitat and species protection. Lastly, this initiative also covers SDG&E’s management of green waste from trimming and vegetation management activities in a manner that recycles and/or diverts green waste from landfill to beneficial reuses where possible.

The QIU for Q4 reported SDG&E’s 2021 target as “... to continue to work with multiple internal departments toward the goal of providing comprehensive outreach and education regarding its vegetation management activities including web content, specific literature, and public events.” By year-end, SDG&E reported vegetation management activities that included “... Public Wildfire Safety Fairs May 8... June 12... And June 26,” plus “three Wildfire Open House Webinars on June 23, 25, and 30th.”¹⁶⁵

To verify performance under this initiative, the IE requested a sample of materials from any of the Wildfire Safety Fairs in 2021 that showed SDG&E personnel presenting. IE’s verification request and SDG&E’s reply for 7.3.5.1 are below:

1. Please provide a copy of a flier or similar materials on any of the 2021 Wildfire Safety Fairs that show SDG&E personnel making a presentation.

¹⁶⁴ WMP 2021 Update pg 265.

¹⁶⁵ SDG&E_Quarterly_Initiative_Update_Q4_2021

SDG&E RESPONSE: “Please see attachments titled, Response_DR_18_Question_1a and Response_DR_18_Question_1b.”¹⁶⁶

On the basis of this summary, reported performance and verification documentation provided, the IE is able to verify that SDG&E met its objectives for this initiative.

7.3.5.3 – Detailed Inspections of Vegetation Around Transmission Electric Lines and Equipment

This WMP Initiative is described in the 2021 WMP¹⁶⁷ through reference to the similar initiative 7.3.5.2, conduct of detailed inspections around distribution lines and equipment. 7.3.5.2, one of the larger initiatives in the 2021 WMP, is verified through field inspections detailed in Chapter 3.1.2. Large Volume Quantity Field Verifiable. By contrast, the 2021 WMP Update provided no description of vegetation management inspections around transmission assets.

In the QIU Q4 2021, SDG&E also provided no quantitative or qualitative targets for detailed inspections around transmission assets. The IE sought information that would verify whether SDG&E met the intent of this WMP initiative. IE’s questions and SDG&E’s response for 7.3.5.3 are below:

1. Please describe how vegetation management activities around transmission assets are planned, scheduled or otherwise triggered in 2021.
2. Why are there no annual targets for vegetation management around transmission assets?
3. Please provide a sample of Work Orders for this Initiative number to document the completion of vegetation management activities around transmission assets during 2021.

SDG&E RESPONSE: “SDG&E points to 7.3.5.2 as inclusive of this initiative. Vegetation Management performs its work activities, including tree inspections around transmission lines, in conjunction with the Master Schedule based on the Vegetation Management Area (VMA) polygons. The service territory is broken into 133 separate VMAs that include all distribution and transmission assets contained within each VMA. Tree inspection and tree trimming activities occur conjointly within the VMAs.

- Please see attachment titled, “Response_DR_18_Question_2a” for an example of a completed Scheduling Work Order for the Pre-inspection activity completed in VMA 220

¹⁶⁶ Please see Appendix 9 -DR18-7.3.5.1-Wildfire_Safety_Fair_fliers.

¹⁶⁷ SDG&E 2021 WMP Update, pg. 270.

in 2021. VMA 220 includes inventory tree records associated with both transmission and distribution assets.¹⁶⁸

- Please also see attachment titled, “Response_DR_18_Question_2b” for a sample report of Pre-inspection Scheduling Work Orders associated with NERC-rated timeline (North American Electric Corporation) transmission inspections in 2021.”

SDG&E has established that vegetation management is done on the basis of long-term schedules and vendor work orders covering multiple VMA and both transmission and distribution assets. The IE notes that the Sample Report documents Work Orders over periods from 30 days to 12 months in duration, so often outside 2021. However, a quick internet search established the nature and location of tieline 23001, verifying that this report does indeed cover transmission-level assets.

On the basis of this summary, therefore, and the reported performance and verification documentation provided, the IE is able to verify that SDG&E met the qualitative objectives for this initiative.

7.3.5.4 - Emergency Response Vegetation Management Due to Red Flag Warning or Other Urgent Conditions

This initiative calls for a description of SDG&E’s mechanisms for providing emergency vegetation management when red flag conditions arise. In the 2021 WMP Update,¹⁶⁹ SDG&E refers to initiative 7.3.5.1 (Additional Efforts to Manage Community and Environmental Impacts), and 7.3.5.9 (Other Discretionary Inspection of Vegetation Around Distribution Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations) by way of describing this emergency response capability.

7.3.5.1 is the vegetation management and wildfire preparedness outreach effort. Per the 2021 WMP Update,¹⁷⁰ however, there is no indication in SDG&E’s description of 7.3.5.1 that vegetation management outreach events are changed, or additional events are held in specific response to red flag or other emergency conditions.

¹⁶⁸ Please see Appendix 9 -DR18-7.3.5.3-vegmgmt_around_transmisison

¹⁶⁹ Ibid, pg. 270.

¹⁷⁰ Ibid, pgs. 265-267.

7.3.5.9, the primary vegetation management category, is described in Chapter 3.1.2. Large Volume Quantity Field Verifiable. SDG&E's indication that these two initiatives describe its emergency response to vegetation management needs during red flag events leaves the IE team with questions about whether such an emergency capability exists and if so, how it differs from the efforts focused on vegetation management (7.3.5) or discretionary inspections (7.3.5.9).

In the QIU Q4 2021, SDG&E provided no qualitative objectives for the conduct or maintenance of emergency vegetation response capabilities under any of the three initiatives: 7.3.5.1, 7.3.5.4, or 7.3.5.9. Initiative 7.3.5.1 (Comprehensive Vegetation Management Outreach) provided a qualitative target for comprehensive outreach.

The IE sought information that would enable verification of the emergency red flag outreach capacity that is the focus of 7.3.5.4. The IE's questions and SDG&E's response for 7.3.5.4 - Emergency Response Vegetation Management Due to Red Flag Warning or Other Urgent Conditions are below:

1. How many Red Flag days did SDG&E experience in 2021?
2. Please provide documentation that describes any emergency response capabilities SDG&E has specifically for the red flag or other urgent conditions that are the focus of this initiative.

SDG&E RESPONSE: "The following table includes the beginning and end dates/times of declared red flag warning (RFW) days SDG&E experienced in 2021. Data source is SDG&E Meteorology."

Table 27: SDG&E Data for 2021 RFW Start and End Times.

RFW Begin	RFW End
1/14/2021 16:00	1/16/2021 16:00
1/18/2021 22:00	1/19/2021 22:00
11/21/2021 9:00	11/21/2021 19:00
11/24/2021 10:00	11/26/2021 18:00
11/24/2021 18:00	11/25/2021 15:00
11/24/2021 21:00	11/26/2021 18:00

“Please see attachment titled, “Response_DR_18_Question_3.”¹⁷¹ section 2.4 for documentation on Vegetation Management’s priority “memo” procedures.”

SDG&E’s response established that six periods of 2021 required issuance of RFWs. They also provided its internal protocol for Vegetation Management which established in Section 2.4¹⁷² that routine vegetation management practices can be varied for reasons spelled out in this section.

Variances are categorized as “Same Day/Next Day,” “Group,” or “Transmission,” categories set based on a priori knowledge of the vegetation in question: vegetation “in direct contact or potential intermittent contact” qualifies for “Same/Next Day” attention, while “Group” orders are issued for vegetation that “will not hold compliance until the routine pruning occurs.”¹⁷³

While this system provides the discretion and flexibility for SDG&E to call for “Same Day/Next Day” pruning in advance of a RFW, it does not require that SDG&E do so. The procedure itself makes no mention of RFW at all. Rather, in the absence of prior knowledge of vegetation that might come into contact during RFW conditions, this procedure does not require SDG&E to evaluate tree/vegetation conditions at all.

SDG&E issued RFW in 2021 but did not verify an emergency vegetation management capability triggered by RFW. Nor does SDG&E’s vegetation management protocol require any action in advance or during RFW. On this basis, the IE is not able to verify that SDG&E met the objectives of this initiative.

7.3.5.6 - Improvement of Inspections

The 2021 WMP Update¹⁷⁴ describes this initiative in terms of 7.3.7.10. According to the QIU for 2021 Q4, there is no WMP initiative by that number.

No performance targets or actual outcomes were provided for either 7.3.5.6 or 7.3.7.10.

¹⁷¹ Please see Appendix 9 -DR18_7.3.5.4_VMA_in_RFW

¹⁷² Ibid, pg. 8.

¹⁷³ Ibid, pg. 9.

¹⁷⁴ Ibid, pg. 274.

The IE sought clarification on SDG&E's approach to the subject of this initiative, and/or verification of improvement in the inspections that are the focus of 7.3.5.6. The IE's questions and SDG&E's response for 7.3.5.6. Improvement of Inspections are below:

1. Per page 274 of the 2021 WMP Update, this initiative is described in terms of 7.3.7.10. According to the QIU for 2021 Q4, there is no WMP initiative by that number.
2. Please provide a description of the SDG&E activities attributed to initiative 7.3.5.6 or 7.3.7.10.
3. Please provide a sample of inspection reports attributable to either initiative, ideally in Q4 of 2021. If 7.3.7.10 is a typo, please provide the initiative to which 7.3.5.6 is to be linked.

SDG&E RESPONSE: "The reference within 7.3.5.6 to 7.3.7.10 is a typo. Initiative 7.3.5.6 is intended to reference Initiative 7.3.5.10, which references 7.3.5.9 within the 2021 WMP. The initiative activities in 7.3.5.9 include routine and off-cycle inspection activities. Please see attachment titled, "Response_DR_18_Question_4"¹⁷⁵ for a sample of the Scheduling Work Order and associated Dispatch Work Orders for the Pre-inspection activity performed in VMA 455 in Q4 of 2021."

SDG&E's reply confirmed the non-existence of 7.3.7.10. The reply also confirmed that the Company's 2021 objectives for 7.3.5.6 were subsumed in 7.3.5.9, "Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations". In SDG&E's 2021 WMP Update, initiative 7.3.5.9 has been clustered with five other initiatives, all of which presumably fit under this broad description.

The document provided is a product of SDG&E's Vegetation Management System (VMS). It shows vegetation management work orders, both Scheduling and Dispatch W-Os, for Q4, 2021, as requested. The report is detailed about the nature of the work performed (Tree Pre-Inspections), tree IDs, prior work on specific trees, species, locations, tree heights, clearances, etc.

What is not clear from this document, however, is that there was any change in the nature of these tree pre-inspection activities. It appears that from these reports that tree pre-inspections performed in September were qualitatively the same as those performed in December.

¹⁷⁵ Please see Appendix 9 - DR18-7.3.5.6-VMS_sched+dispatchWO_Q4-2021

The IE understood the intent of Initiative 7.3.5.6 to be **improvement** of inspections. On the basis that this activity has been aggregated with “other discretionary inspections,” which allows no way to ascertain whether inspections have been improved in 2021 or not, the IE is not able to verify that SDG&E met the objectives for initiative 7.3.5.6.

7.3.5.7 - LiDAR Inspections of Vegetation Around Distribution Electric Lines and Equipment

Light Detection and Ranging (LiDAR) is a technology that enables extremely accurate measurement of distances and other physical characteristics. In both 7.3.5.7., focused on distribution assets, and in 7.3.5.8., the following initiative focused on transmission applications, SDG&E turns to its past use of LiDAR to “...potentially augment and enhance vegetation inspection and auditing activities by providing highly accurate clearances between trees and power lines...”¹⁷⁶

In 2021, SDG&E intended to explore the use of LiDAR to inspect trimming and vegetation management activities, primarily in the HFTD. The frequency of flights in SDG&E territory was expected to increase, providing SDG&E with an expanded data acquisition capability with which to evaluate the effectiveness of its vegetation management activities under both 7.3.5.7 and 7.3.5.8.

By the end of 2021, SDG&E had acquired LiDAR data for its entire HFTD territory. Additional 2021 outcomes under these two initiatives included progress “to further identify and develop proof of concepts for utilization of LiDAR, satellite, and AI technologies.”

The IE sought information that would enable verification of LiDAR capability that is the focus of 7.3.5.7. The IE’s SME questions and SDG&E’s response regarding the use of LiDAR Inspections of Vegetation Around Distribution Electric Lines and Equipment are below:

1. Please provide sample reports of LiDAR inspections taken of vegetation management activities around distribution lines and other distribution assets during 2021, with at least 5 such reports from each of quarters 1-4 of 2021.

SDG&E Response: “SDG&E began its LiDAR inspection of distribution equipment in 2021, however, since the data had to be processed and QA/QCd, SDG&E did not have any actionable

¹⁷⁶ 2021 WMP Update, pg. 274.

information in 2021. Please see attachment titled “Response_DR_18_Question_5” for a list of circuits and flight completion status.”

SDG&E’s verification documents confirm that this initiative and LiDAR capability existed in 2021 and flights were conducted throughout the year. As confirmed in SDG&E’s reply, however, their efforts were generally exploratory in 2021, to better understand the possible applications of this technology. SDG&E did not expect to make use of LiDAR data until 2022.

On the basis of this summary, the 2021 initiative target and documented performance, the IE is able to verify that SDG&E met its objectives for this initiative.

7.3.5.8 - LiDAR Inspections for Vegetation Around Transmission Electric Lines and Equipment

This initiative employs the same LiDAR technology used to inspect vegetation around distribution assets in the previous initiative (See description in 7.3.5.7 above). However, in this application, LiDAR is used to inspect transmission assets. SDG&E’s 2021 WMP Update states that “SDG&E plans to assess transmission lines for vegetation and clearance compliance with a targeted completion of all HFTD Tier 3 projects by the end of 2021.”¹⁷⁷

No separate targets or outcomes were reported for this initiative. The IE sought information that would enable verification of the LiDAR inspections that are the focus of 7.3.5.8. IE’s SME questions and SDG&E’s response for 7.3.5.8 are below:

1. Please provide sample reports of LiDAR inspections taken of vegetation management activities around transmission lines during 2021, with at least 5 such reports from each of quarters 1-4 of 2021.

SDG&E RESPONSE: “7.3.5.8 was not an initiative SDG&E has within the 2021 WMP. SDG&E only captured LiDAR data associated with distribution circuits and had no plans to capture LiDAR data associated with transmission lines.”¹⁷⁸

¹⁷⁷ 2021 WMP Update, pg. 244.

¹⁷⁸DR18-Batch 3-SDG&E_narrative_responses. Please see Response 6.

SDG&E's 2021 WMP Update suggested plans for this initiative, but these were not borne out in the QIU, which set no targets. On the basis that SDG&E set no targets for this initiative, the IE is unable to verify that SDG&E met its objective under 7.3.5.8.

7.3.5.10 – Other Discretionary Inspection of Vegetation Around Transmission Electric Lines and Equipment, Beyond Inspections Mandated by Rules and Regulations

SDG&E's Vegetation Management Program describes itself as utilizing "best-in-class innovative approaches" to address and mitigate the risks associated with vegetation growth around power lines, particularly in the HFTD. Through enhanced vegetation management activities that include "...annually scheduled routine inspection and enhanced patrol activities"¹⁷⁹ SDG&E monitors closely the 240,000 of its inventory trees located within the HFTD.

These "other discretionary inspections" are described under 7.3.5.9.(Other discretionary inspections around distribution electric lines and equipment, beyond inspections mandated by rules and regulations). 7.3.5.9., a major vegetation management category and the subject of verification by the IE's field inspectors, is described fully in Chapter 3.1.2. Large Volume Quantity Field Verifiable.

No 2021 targets and no outcomes were reported. The IE sought information that would enable verification of the discretionary "beyond mandated" inspections that are the focus of 7.3.5.10. The IE's SME questions and SDG&E's response for 7.3.5.10 are below:

1. Please explain how inspections around transmission lines and equipment recorded under Initiative 7.3.5.10 differ from those taken and recorded under 7.3.5.7.
2. Please provide a sample of inspection reports for this Initiative number, with 5 from each of quarters 1-4 of 2021.
3. How do the "rules and regulations" that apply to these two asset categories (7.3.5.9 and 7.3.5.10) differ?

SDG&E's RESPONSE: "SDG&E notes that Question 7 includes a typo in the initiative description where the word "distribution" was mistakenly used instead of "transmission."¹⁸⁰

¹⁷⁹ 2021 WMP Update, pg. 277.

¹⁸⁰ This has been corrected in the current draft.

- Initiative 7.3.5.10 references 7.3.5.9 and includes discretionary inspections not mandated by applicable rules and regulations; these include SDG&E’s additional, annual hazard tree inspection activities within the HFTD, and on specific targeted species (e.g., Century plant and bamboo). These activities were performed as incremental risk mitigation measures. Initiative 7.3.5.7 references the use of technologies such as LiDAR to augment inspection activities. The use of this technology was limited to a pilot in 2021 and had not been operationalized or fully integrated into inspection activities.
- Please see attachment titled, “Response_DR_18_Question_7_2” for a sample report of off-cycle inspection activities for Century plant and bamboo species.¹⁸¹
- Categories 7.3.5.9 and 7.3.5.10 are initiatives “beyond inspections mandated by rules and regulation.” However, requirements for distribution and transmission voltages are addressed in CPUC G.O. 95, Rule 35 and Public Resources Code 4293. In general, the minimum clearance requirements increase as voltages increase.”

SDG&E’s responses to this IE request were full and informative, and clarified information missing from the WMP Update in the description of and distinction between efforts under 7.3.5.9 and 7.3.5.10. Since SDG&E had no targets for 7.3.5.10, the IE is able to verify that those objectives were met.

7.3.5.11 – Patrol inspections of vegetation around distribution electric lines and equipment &

7.3.5.12 – Patrol inspections of vegetation around transmission electric lines and equipment

Patrol crews place trained operations personnel on the ground to examine SDG&E’s equipment during periods of high risk. These experts are able to catch conditions that, if left unattended, might trigger more dangerous conditions. Per the 2021 WMP Update,¹⁸² these two initiatives (7.3.5.11 and 7.3.5.12) have been combined into “Detailed inspections of vegetation around distribution electric lines and equipment”. These two types of activity—patrol crews for both distribution lines and for transmission lines—are two of the 15 categories of activity bundled into Initiative 7.3.5.2.

¹⁸¹ Please see Appendix 9 – DR18-7.3.5.10-Inspection reports.

¹⁸² Ibid, pg. 279.

In the SDG&E QIU Q4-2021, SDG&E provided neither quantitative or qualitative targets or outcomes for these patrols. The IE sought information that would enable verification of the emergency red flag outreach capacity that is the docs of 7.3.5.4. IE's questions and SDG&E's response for 7.3.5.11 are below:

1. What is the difference between a "patrol inspection" of distribution system assets and a "detailed inspection" of distribution system assets, per 7.3.5.2 and 7.3.5.3?
2. Why are there no planned or actual targets for patrol inspections around distribution system lines and equipment?
3. Please provide a sample of inspection reports for this Initiative number, with 5 from each of quarters 1-4 of 2021.

SDG&E RESPONSE:

- SDG&E interchangeably uses the terms "patrol inspection" and "detailed inspection" to describe a pre-inspection activity. The annual ("routine") pre-inspection activity entails the inspection and record update of all inventory trees. This activity includes a detailed, Level 2 inspection of all trees within the HFTD. The "off-cycle" inspection activity (sometimes referred to as the "patrol" activity) also includes a detailed, Level 2 inspection of all trees within the HFTD, however, only inventory tree records that require off-cycle trimming are updated during this activity.
- The planned target for the off cycle "patrol" activity is to inspect all trees within the utility strike zone of the HFTD twice annually. Per the response to 'Question part 1' above, SDG&E does not update all inventory tree records during the off cycle "patrol" activity. In consultation and agreement with the OEIS in early 2022, SDG&E determined it would begin to target and quantify this activity in association with initiative 7.3.5.16 via the QIU. The target metric will be the total number of HFTD VMAs where this activity is performed.
- Please see attachment titled, "Response_DR_18_Question_8_3"¹⁸³ for a sample report of off-cycle inspection activities for Century plant and bamboo species.

IE verification request for 7.3.5.12 are as follows:

1. What is the difference between a "patrol inspection" of transmission system assets and a "detailed inspection" of transmission system assets per 7.3.5.3?
2. Why are there no planned or actual targets for patrol inspections around transmission system lines and equipment?

¹⁸³ Please see Appendix 9 – DR18-7.3.5.11-Patrol-inspection reports distribution.

3. Please provide a sample of inspection reports for this Initiative number, with 5 from each of quarters 1-4 of 2021.

SDG&E RESPONSE:

- Please see response to Question (7.3.5.11 above) part 1.
- Please see response to Question (7.3.5.11 above) part 2.
- Please see attachment titled, “Response_DR_Question_7_2.”¹⁸⁴

The response to these two requests is very informative, clarifying a point of confusion between SDG&E’s terminology and that of Energy Safety regarding “patrol inspections” and “detailed inspections.” While the use of the term “pre-inspection” to describe both routine and off-cycle inspections remain confusing, the intent of the IE’s questions regarding these two initiatives is to verify that “patrol” (off-cycle) inspections of vegetation around both distribution and transmission lines occurred in 2021. On the basis of this verification and despite SDG&E showing no targets for either initiative, the IE must verify that SDG&E met its objectives for these two initiatives because no targets were actually set.

7.3.5.13 – Quality Assurance/Quality Control of Inspections

Per the 2021 WMP Update¹⁸⁵, this initiative tracks SDG&E’s efforts to ensure that all inspections are completed with appropriate compliance with SDG&E protocols and standards. QA/QC inspections are done to ensure that contractors deliver and maintain the quality of their work throughout the term of SDG&E’s contractual relationship with them.

SDG&E uses a third-party vendor to conduct QA audits of their vegetation management activities. The contractor performs its QA audits by utilizing a statistically representative sample of vegetation management work performed, including a 100% audit of “all its enhanced HFTD enhanced trim and removal activities.”¹⁸⁶ which is then inspected by a certified Arborist.

¹⁸⁴ Please see Appendix 9 – DR18-7.3.5.12-Patrol-inspection reports-transmission

¹⁸⁵ Ibid.

¹⁸⁶ 2021 WMP Update, pg. 280.

In 2021, SDG&E's QA/QC target was to develop a comprehensive audit program for vegetation management over the next five years. At the end of 2021, SDG&E reported auditing "... 100% of all completed hazard tree trimming in HFTD and 100% of all completed tree removals in HFTD."¹⁸⁷

The IE sought information that would enable verification of QA/QC capability that is the focus of 7.3.5.13. The IE's questions and SDG&E's response for 7.3.5.13 – Quality Assurance/Quality Control of Inspections are below:

1. Please provide a sample of vegetation management QA/QC audit reports from 2021, with five from each of Q1-4.

SDG&E RESPONSE: "Please see attachment titled, Response_DR_18_Question_10."¹⁸⁸

While the IE cannot verify that SDG&E's vendor audited "100% of all 2021 hazard tree trimming and 100% of all completed tree removals in the HFTD," per the documentation provided, the IE can verify that SDG&E met the target of establishing a vegetation management audit program. On the basis of this summary, reported objectives and outcomes and the verification documentation provided, the IE is able to verify that SDG&E met its objectives for this initiative.

7.3.5.14 – Recruiting and Training of Vegetation Management Personnel

This initiative captures SDG&E's efforts to ensure the skills and performance of its contracted vegetation management personnel. This is done by ensuring the high-quality performance of current contractors, and through efforts to expand the pipeline of qualified personnel available to SDG&E and its contractors.

SDG&E's vegetation management contractors are required to maintain professional certifications, to participate in annual training on such issues as customer engagement, fire preparedness and others; and to adhere to SDG&E's ESP113.1 Wildfire Mitigation Plan. Contractors must also stage appropriate fire Personal Protective Equipment (PPE) at each job site, carry PPE on their vehicles, document their own employee training and meet minimum safety thresholds to remain a certified vendor.

¹⁸⁷ SDG&E QIU-Q4 2021.

¹⁸⁸ Please see Appendix 9 – DR18-7.3.5.13-QA-QC reports on vegetation management.

In 2021, SDG&E planned to continue its collaboration in the development of a training pathway to shorten the usual on-the-job training requirement for workers entering the Utility Arborist Trainee program. Working with a collaboration of stakeholders, SDG&E participated in piloting the program in 2020. By the end of 2021, "...SDG&E decided to continue this collaborative effort with labor, utilities, and the green industry."¹⁸⁹

The IE sought information that would enable verification of the recruitment activities for vegetation management personnel described in 7.3.5.14. The IE's questions and SDG&E's response for 7.3.5.14 are below:

1. How many vegetation management contractors did SDG&E have under contract in Q4 of 2021?
2. Please describe and provide documentation of SDG&E's 2021 role and participation in the utility Arborist Trainee program.

SDG&E's RESPONSE:

- "SDG&E had approximately 386 contracted individuals in Q4 of 2021.
- Please see attachment titled, Response_DR_18_Question_11.¹⁹⁰ SDG&E sponsored and co-hosted the 2021 inaugural Arborist Trainee Program in San Diego. SDG&E employees participated in the presentation to the trainees and the graduation exercises for the ten individuals who completed the course. SDG&E local tree trim contractor personnel also provided portions of the training for the course attendees."

The IE sought to verify that SDG&E had continued to participate in the recruitment and training of qualified vegetation management personnel via the Utility Arborist Trainee program. On the basis of the materials provided describing that program and SDG&E's role in it, the IE is able to verify that SDG&E met its objectives for this initiative.

7.3.5.15 – Remediation of At-risk Species

Remediation of at-risk species is a very specific effort, one that may be growing in attention and need as the effects of climate change on habitats grow more intense across SDG&E's service territory. Remediation efforts may be expected to vary depending on the species of concern, e.g., trees, bird's vs mammals, amphibians, etc.

¹⁸⁹ SDG&E QUI-Q4 2021, Initiative 7.3.5.14.

¹⁹⁰ Please see Appendix 9 – DR18-7.3.5.14-Arborist_Trainee_Program_2021

Per the 2021 WMP Update,¹⁹¹ however, SDG&E has lumped these activities into 7.3.5.2, “Detailed inspections of vegetation around distribution electric lines and equipment.” Care and remediation for at-risk species is therefore bundled in with another 14 categories of activity in this broad inspection initiative.

7.3.5.2, one of the larger initiatives in the 2021 WMP, is verified through field inspections detailed in that section and described in Chapter 3.1.2. Large Volume Quantity Field Verifiable. By contrast, the 2021 WMP Update provided no description of 7.3.5.15, Remediation of at-risk species and the SDG&E QIU Q4 2021 provided no qualitative targets or outcomes.

The IE sought information to verify the remediation activities for at-risk species described in 7.3.5.15. The IE’s questions and SDG&E’s response for 7.3.5.15 - Remediation of At-risk Species are below:

1. Please describe how SDG&E defines “at risk species.”
2. Please describe how “other discretionary inspections” address the remediation of at-risk species.
3. Please provide a sample of 4 2021 inspection reports that document examples of such remediation work completed in Q1-4 2021.

SDG&E RESPONSE:

- “At-risk species are the trees that account for the highest risk of causing an outage within SDG&E’s service territory. These five species were determined to be Eucalyptus, Palm, Pine, Oak, and Sycamore. These five species are the targeted species within the HFTD that SDG&E attempts to obtain enhanced clearances of greater than twelve feet and up to twenty-five feet. These enhanced clearances of the at-risk species are described in section 7.3.5.9.
- ‘Other discretionary inspections’ include the off-cycle HFTD hazard tree patrol targeting at-risk species, and targeted species inspections such as Century plant and bamboo. Please see attachment titled, Response_DR_18_Question_12_2¹⁹² for a sample of eucalyptus trees identified during a hazard tree inspection.”

¹⁹¹ Ibid, pg. 282.

¹⁹² Please see Appendix 9 – DR18-7.3.5.15-Discretionary_inspections_for_at_risk_trees

By its reply, SDG&E confirms that at-risk species are tree species only, and do not include any other species that may inhabit the lands through which electric lines may pass. On the basis of this summary, SDG&E's complete answers and verification documents provided, and despite the lack of any 2021 target or reported outcomes for this initiative, the IE is able to verify that SDG&E met its objectives for 7.3.5.15, again because no targets were set.

7.3.5.16 – Removal and Remediation of Trees with Strike Potential to Electric Lines and Equipment (Hazard Tree Removal and Right Tree-Right Place)

SDG&E's vegetation management program inspects all trees in and near its power lines annually to monitor their risk of posing any hazard to lines and equipment. Areas in the HFTD are patrolled twice a year with in the "utility strike zone," an area defined as the area where a tree could hit the power lines if it fell. Hazard trees are assessed by Certified Arborists, tree trim contractors are specifically trained for hazard tree trimming, and a third-party contractor audits 100% of all trees removed to ensure compliance with SDG&E protocols.¹⁹³

SDG&E's 2021 plans included continuation of its program of hazard tree identification and mitigation, developing an internal cadre of trained SDG&E inspectors, and its outreach to stakeholders regarding tree planting as a sustainability initiative. By the end of 2021, SDG&E reported that they "fully integrated its team of internal company Patrollers to perform both routine and off-cycle hazard tree inspections in the HFTD."¹⁹⁴

The IE sought information in order to verify the hazard tree removal activities described under 7.3.5.16. The IE's questions and SDG&E's response for 7.3.5.16 are below:

1. How many hazard trees did SDG&E's vegetation management team remove in 2021?
2. Please provide a sample report documenting one such hazard tree mitigation effort.

SDG&E's RESPONSE: "SDG&E removed 507 hazard trees in 2021. Please see attachment titled, "Response_DR_18_Question_13".¹⁹⁵

¹⁹³ 2021 WMP Update, pg. 282.

¹⁹⁴ SDG&E QUI Q4 - Initiative 7.3.5.16

¹⁹⁵ Please see Appendix 9 – DR18-7.3.5.16-Removal_of_trees_w_strike_potential

On the basis of this summary, reported performance and provided verification documentation, the IE is able to verify that SDG&E met the objectives for this initiative.

7.3.5.17 – Substation Inspections

From the title and placement of this initiative in the WMP Vegetation chapter,¹⁹⁶ the IE infers that the intended focus is the completion of vegetation management inspections around SDG&E's distribution and/or transmission substations. In SDG&E's 2021 WMP Update, however, 7.3.5.17 is described in terms of 7.3.5.2 (Detailed inspections around distribution electric lines and equipment) and 7.3.5.9 (Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations).

Both of these categories refer to distribution assets only. Both 7.3.5.2 and 7.3.5.9 have annual targets and 2021 outcomes that place them in the verification category for Large (over 100) Field Verifiable initiatives. These two vegetation management initiatives are discussed further in Chapter 3.1.2. Large Volume Quantity Field Verifiable.

SDG&E's Q4-2021 QIU reported no quantitative or qualitative targets for substation inspections (7.3.5.17) in 2021. At year-end, the status of this initiative was reported as "N/A." The IE sought information to verify the completion of substation inspections, the focus of 7.3.5.17. The IE's questions and SDG&E's response for 7.3.5.17 are below:

1. Please clarify a) how often substations are inspected, and b) which substations are inspected and for what purposes under 7.3.5.17 versus 7.3.5.18, Substation Vegetation Management.
2. Please provide a sample of substation inspection reports that a) describe how the actions taken differ under 7.3.5.17 versus 7.3.5.18, and b) verify that substation inspections were completed in 2021.
3. Please explain why there is neither a quantitative nor a qualitative target for 7.3.5.17.

SDG&E RESPONSE: "Vegetation control within and immediately surrounding substations is not performed by Vegetation Management and is outside the scope of SDG&E's Wildfire Mitigation Plan. As described in the response to Question 2, Vegetation Management performs its work activities, including tree inspections around distribution lines and transmission lines in conjunction with the Master Schedule based on the Vegetation Management Area (VMA)

¹⁹⁶ 2021 WMP Update, pg. 284.

polygons. The service territory is broken into 133 separate VMAs that include all distribution and transmission assets contained within each VMA. Tree inspection and tree trimming activities occur conjointly within the VMAs. Therefore, all inspections are accounted for within 7.3.5.2 and there is not an applicable quantitative or qualitative target for 7.3.5.17.”

SDG&E’s response above asserts that vegetation management around substations falls outside the purview of the WMP, raising questions about the inclusion of this item within the WMP framework. The reply also did not address the differences between 7.3.5.17 (Substation inspections) and 7.3.5.18 (Substation vegetation management) or provide a sample of substation inspection reports that might have made these distinctions clearer.

Finally, the reply to asserts that, since all tree inspection and trimming activities are covered by 7.3.5.2, there is no need for any annual targets for substation inspections. In sum, on the basis of this reply, the IE is not able to verify that any substation inspections were performed in 2021. However, since SDG&E set no targets for substation inspections, the IE can verify that SDG&E fulfilled its objectives for this initiative.

7.3.5.18 – Substation Vegetation Management

Per the 2021 WMP Update, actions to manage vegetation around substations are lumped into the same two categories as virtually all other vegetation management activities (7.3.5.2 and 7.3.5.9; please see preceding discussion of 7.3.5.17, Substation inspections.

Similar to 7.3.5.17, neither does 7.3.5.18 have any annual targets, quantitative or qualitative, or any reported outcomes in 2021. As with 7.3.5.17 discussed above, the IE sought to understand the difference between these two categories of vegetation management around substations. The IE’s questions and SDG&E’s response for 7.3.5.18 – Substation Vegetation Management are below:

1. Please clarify how vegetation management practices around substations (7.3.5.18) vary from those around lines, poles and other distribution assets (7.3.5.2).
2. Please provide a sample of substation inspection reports that a) verify how the actions taken differ under 7.3.5.18 versus 7.3.5.2 and/or 7.3.5.9, and b) verify that vegetation management actions were completed in 2021.
3. Please explain why there is neither a quantitative nor a qualitative target for 7.3.5.18.

SDG&E RESPONSE: “Vegetation control within and immediately surrounding substations is not performed by Vegetation Management and is outside the scope of SDG&E’s Wildfire Mitigation Plan. As described in the response to Question 2, Vegetation Management performs its work

activities, including tree inspections around distribution lines and transmission lines in conjunction with the Master Schedule based on the Vegetation Management Area (VMA) polygons. The service territory is broken into 133 separate VMAs that include all distribution and transmission assets contained within each VMA. Tree inspection and tree trimming activities occur conjointly within the VMAs. Therefore, all inspections are accounted for within 7.3.5.2 and there is not an applicable quantitative or qualitative target for 7.3.5.17.”

The IE notes that this response is word-for-word the same as that provided for 7.3.5.17, although the initiatives are different, and the verification questions were different. In part based on the remaining ambiguity between these different categories of vegetation management around substations, and the fact that these responsibilities fall outside the purview of the WMP and SDG&E’s WMP team, the IE is not able to verify that any substation inspections were performed in 2021. However, as SDG&E set no targets for substation inspections, the IE verifies that SDG&E fulfilled its objectives for this initiative.

7.3.5.19 – Vegetation Inventory System

SDG&E has maintained since 1998 a database of roughly 457,000 specific trees located near its electric lines, making use of this inventory to schedule and track all work on trees “... with the potential of impacting power lines by encroachment and/or tree failures within three years of the inspection date”. This system, known as “PowerWorkz,” utilizes an ESRI-based mobile mapping application that is accessible to SDG&E vegetation management contractors for the purposes of scheduling and reporting on vegetation management work completed.¹⁹⁷

SDG&E’s 2021 WMP Update reported its plan to integrate into PowerWorkz a “... new work management system ... to streamline workflows” and to “... research opportunities to share its inventory data with external stakeholders.”¹⁹⁸ At year-end, SDG&E’s Q4 QIU reported multiple outcomes under this initiative, to include:

- Integration of “(a) new work management system database called EPOCH to schedule, manage, and document all VM work activities”;
- Integration of “...the Vegetation Risk Index (VRI) GIS layer into the mobile application (EPOCH).” enabling SDG&E “...to capture the accurate GPS (latitude/longitude) location

¹⁹⁷ SDG&E 2021 WMP Update, pg. 285.

¹⁹⁸ Ibid.

of its inventory trees." and to "...track and record the Genus/species in its database for each tree associated with an outage."

The IE sought to verify the vegetation inventory management system that is the focus of 7.3.5.19. The IE questions and SDG&E's response for 7.3.5.19 - Vegetation Inventory System are below:

1. Please provide a sample of 5 reports from each Q1-4 of 2021 showing the use of EPOCH a) to schedule, manage and document vegetation management activities, and b) to capture accurate GPS locations and genus/ species detail on specific trees.

SDG&E's RESPONSE: "Please see attachment titled, Response_DR_18_Question_16a and Response_DR_18_Question_16b.¹⁹⁹ SDG&E did not capture the genus/species of its inventory trees in 2021. The inventory trees are identified by their common name. Direction to include genus and species level information from Energy Safety was issued as a key area for improvement in the Final Action Statement on the 2021 WMP Update by Energy Safety on July 14th, 2021. This action statement is specific to trees that cause an outage/ignition as reported in the Quarterly Data Reports. SDG&E is currently in the process of redesigning its Epoch data attribute capabilities to include genus/species."

SDG&E's response clarified their reported outcome in the QIU Q4-2021, that the new EPOCH system was in place but not capturing genus/species information until later in 2021. The reply did verify that the VMS system tracks work activities and accurate GPS coordinates, as documented in the sample of reports provided. On the basis of this summary, reported performance and documentation, the IE verifies that SDG&E met its objectives for this initiative.

5.3.6 - Grid Operations & Operating Protocols

7.3.6.1 – Automatic Recloser Operations

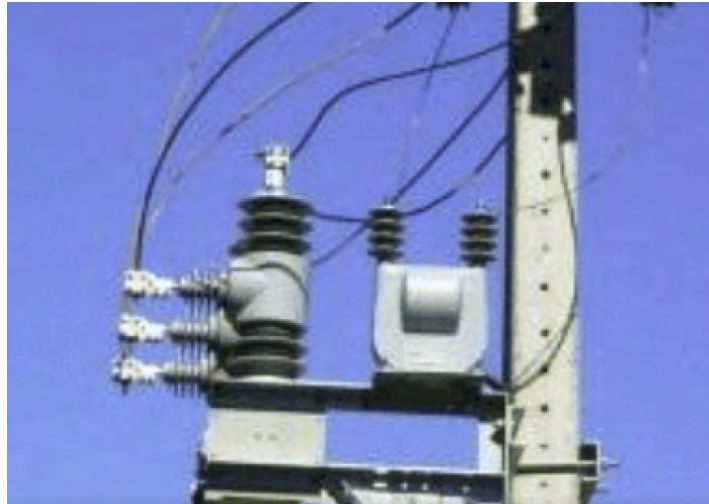
We have retained 7.3.6.1 in this report because it was reported as one of the 112 initiatives for which SDG&E provided financial reporting (see Chapter 3.2 Verification of Funding). Given the absence of any objectives or 2021 results, the IE did not undertake and verification effort. Accordingly, the IE has not made a determination regarding completion of any work fitting Energy Safety's description for this category during the 2021 WMP year.

¹⁹⁹ Please see Appendix 9 – DR18-7.3.5.19-Vegetation-inventory-system.

7.3.6.1.1 – Recloser Protocols

An automatic circuit recloser is a type of automated protection equipment that helps keep operations of the power system safe and efficient. A recloser is a category of automated switched that can be controlled to automatically operate in specific ways, for example to shut off power to a section of line when a fault is detected. Use of reclosers is a standard operating best-practice for all California utilities.

Image 50: Recloser.



Protocols for the use of reclosers govern how these automated switches perform under specific circumstances. In an example provided in SDG&E’s 2021 WMP Update: “...a small branch could fall across the electric lines, causing the protection device [the recloser] to trip the line (a risk event and an outage), but that branch could fall to the ground, clearing the fault. With reclosing enabled, the device would automatically reclose the switch with the fault now cleared, restoring service to all customers...”

In faults of longer duration, greater complexity and risk, however, the actions of the reclosing switch may need to be set to different parameters. SDG&E has followed the protocol of disabling reclosers from automatically reestablishing service in areas of high fire risk, namely the HFTD.

In 2021, SDG&E’s plans for this initiative were to maintain the reclosing protocols set in previous years, specifically that automatic reclosing remains disabled in the HFTD. In their year-end report, SDG&E stated “SDG&E continues to leave reclosing disabled in the HFTD on its distribution circuits”. Elsewhere in the SDG&E system, they reported a “single wildfire risk event... in Q4 2021 that required disabling reclosing in part of the WUI located outside the HFTD during the event.”

SDG&E's target and outcomes under this measure were to generally maintain recloser settings in the HFTD. The IE sought information to document the manner in which the performance of reclosers is established and confirmed over time. IE's SME questions and SDG&E's response for 7.3.6.1.1 - Recloser Protocols are below:

1. Are the protocols governing the actions of reclosers written down?
2. How are these protocols a) enacted in the switches themselves, and b) checked for accurate performance overtime?
3. Please provide a verification report from 2021 that documents accurate performance of a recloser in a) a HFTD location and b) non-HFTD location.

SDG&E RESPONSE: "Yes, reclosing protocols are documented in both Transmission and Distribution standard operating procedures.²⁰⁰ Manual reclosing is switched in the field and controlled through authorization procedures. Additionally, reclosing status in the overhead electric system is monitored and controlled through the SCADA system and status is verified using dashboards within the tool.

Since 2017, SDG&E has not enabled reclosing in the HFTD overhead electric system. Reclosing is verified disabled upon commissioning all new devices being installed that sectionalize HFTD overhead infrastructure. That being said, testing of the recloser function is completed at initial commissioning of the device and each subsequent maintenance cycle. The recloser is tested in a similar manner for both HFTD and non-HFTD locations. A sample recloser verification report is attached in the file titled Response_DR_18_Question_7-Test Report – OV 1250-677R TT 9-30-21_Recloser Testing.²⁰¹

SDG&E's response to the IE's verification request addressed all questions completely, including the nature and frequency of recloser testing. The sample recloser test report verified that testing was completed during 2021. While a single test report cannot verify that all reclosers performed in this manner, on the basis of this summary, reported performance and documentation, the IE verifies that SDG&E met its objectives for this initiative.

²⁰⁰ DR18-Batch 3-SDG&E_narrative_responses, Question and Response 17.

²⁰¹ Please see Appendix 9 – DR18-7.3.6.1.1-Recloser sample test report.

7.3.6.1.2 – Sensitive/Fast Protection Settings

The 2021 WMP Update²⁰² describes the focus of this initiative as “a protective relay setting (that is) focused on detecting and isolating faults as quickly as possible... These sensitive relay settings improve both the sensitivity of fault detection and the speed at which faults are cleared.”²⁰³ Stated in non-technical terms, these sensitive and fast-reaction settings in devices such as reclosers and circuit breakers enable quicker protective action in areas and periods when dangerous conditions arise.

Per the SDG&E QIU Q4-2021, SDG&E set qualitative targets for 2021, to include enabling these settings more widely in the HFTD. Specifically, the QIU stated “...As more remote sectionalizing devices are deployed and upgraded system protection equipment is installed on the distribution system, then these fast protection settings can be enabled.”²⁰⁴ By year-end, SDG&E reported that protective settings had been enabled “on new sectionalizing devices installed in the HFTD and areas of coastal risk.” SDG&E also reported having one “wildfire risk event” that triggered these sensitive relays, in Q4 of 2021.

Per SDG&E’s objectives and outcomes for the use of protective settings in reclosers, the IE sought to verify where these settings were in use and establish their testing protocols. IE’s questions and SDG&E’s response for 7.3.6.1.2 are below:

1. What percentage of SDG&E’s installed reclosers are set to Sensitive/ Fast protection settings?
2. Please provide a verification report from 2021 that documents accurate performance of a recloser under the sensitive/fast protection settings described in 7.3.6.1.2.

SDG&E RESPONSE:²⁰⁵ “All of SDG&E’s reclosers installed in the HFTD have Sensitive Relay Profile settings programmed and ready to use. These relay profiles are only enabled and disabled based on when wildfire conditions meet defined thresholds and when no conflicting system conditions exist (such as abnormal configurations on circuits, which could cause inadvertent operations).”

²⁰² 2021 WMP Update, pg. 291.

²⁰³ Ibid.

²⁰⁴ SDG&E QIU-Q4-2021, initiative 7.3.6.1.2.

²⁰⁵ DR18-Batch 3-SDG&E_narrative_responses, Question and Response 18.

“A verification report for accurate performance of sensitive/fast protection settings is attached in the file titled Response_DR_18_Question 18-Test Report – OV 1250-677R TT 9-30-21_SRP Testing.²⁰⁶

SDG&E’s response answered the questions partially, by confirming that 100% of the reclosers in HFTD are programmed with sensitive/protective relay profiles. Use of these settings throughout the balance of the service territory was not provided. The sample test report verified that testing was performed in 2021 to confirm recloser performance under Sensitive/Protective settings.

While a single test report cannot verify that all reclosers so programmed will exhibit similar test results, SDG&E’s 2021 target for this initiative was to utilize protective settings “in the HFTD and areas of coastal risk”. On the basis of this summary, reported performance and verification documentation, the IE verifies that SDG&E met its objectives for this initiative.

7.3.6.2 – Crew Accompanying Ignition Prevention and Suppression Resources and Services

Because SDG&E has a significant percentage of its geography located in areas of high fire risk (High Fire Threat Districts or HFTD), extra precautions are taken when performing utility work in these areas. In addition to the annual fire prevention training that all SDG&E field personnel must attend, SDG&E has additional teams of fire prevention personnel under contract to further mitigate any risk of an ignition from utility activities. These contracted personnel—called Contract Fire Resources (CFR)—accompany utility crews during periods of high fire risk, for example during Red Flag warnings, and/or when the FPI is high.

These crews can mitigate any ignition event that might occur, can immediately notify SDG&E and/or any agency with jurisdiction over the area involved, and take steps to suppress the ignition event until first responders arrive. As such, the CFR crews provide an added level of prevention and mitigation around any at-risk areas where utility actions will occur.

SDG&E’s 2021 WMP planned to maintain this initiative while continuing to “regularly refine... the training qualifications of personnel serving on CFRs.” In the 2021 Q4 QIU, SDG&E reported the

²⁰⁶ Appendix 9 – DR18-7.3.6.1.2-Recloser sensitive settings test report.

continuation of the contracted crews and “... there have been no large wildfires that originated from activities being performed by SDG&E or our contractors.”²⁰⁷

The IE sought information that would enable verification of the crew capabilities described in 7.3.6.2. IE’s questions and SDG&E’s responses for 7.3.6.2 are below:

1. How many CFR crews were available to SDG&E in 2021?
2. Please provide an example of a refinement in the training qualifications of the CFR crews that occurred in 2021.

SDG&E RESPONSE: “SDG&E utilized 12 daily CFRs distributed throughout our service territory to serve as fire prevention during at risk activities and to meet our internal requirements of “SDG&E OPERATIONS AND MAINTENANCE WILDLAND FIRE PREVENTION PLAN.”²⁰⁸ This plan also lists the required training that any personnel serving in the role of Dedicated Fire Patrol must have received. The document is provided and in general the objective of the document is to list the minimum fire prevention requirements to be performed at risk activities (defined in section 3.1).

“This plan is also the basis for SDG&E’s project specific plans that all contractors working for SDG&E are also expected to maintain compliance with those plans. Contractors working for SDG&E also employ CFR resources and depending on the number of projects in their construction phase there may be anywhere from 12-20 additional CFRs working in the SDG&E service territory. The primary purpose of these resources is to prevent ignitions. They also have the training to take action in the event of an ignition but the fire agency having jurisdiction is contacted in all instances where an ignition occurs.”

As confirmed in this reply, SDG&E’s “Electric Standard Practice (ESP) 113.1²⁰⁹ applies to its own personnel as well as to the 12 CFRs utilized during 2021. Per ESP 113.1, pages 8-11, under Elevated or Extreme FPI, many activities require Designated or Dedicated Fire Patrols to accompany the operations teams. The 2021 target—to maintain this program—was deemed met based on the fact that “... there have been no large wildfires that originated from activities being

²⁰⁷ SDG&E QIU 2021 Q4, initiative 7.3.6.3.

²⁰⁸ Appendix 9 – DR18-7.3.6.2-ESP113.1 on use of CFR.

²⁰⁹ Ibid. While the ESP version provided was dated Feb-2022, the primary changes since 2021 versions pertained to updated links in ESP 113.1, Attachment 5: SDG&E Contracted Qualified Firefighter (QFF) Training Requirements. The IE accepts that the version provided was similar in content to versions available in 2021.

performed by SDG&E or our contractors.”²¹⁰ On the basis of SDG&E’s documentation and reports, the IE is able to confirm that the use of CFR continued throughout 2021.

SDG&E’s reply did not provide an example of “a refinement in the training qualifications of the CFR crews that occurred in 2021.” per IE’s request. The IE must conclude that no such refinements were made in 2021. The IE is therefore not able to verify that SDG&E met the portion of its 2021 objective to “regularly refine... the training qualifications of personnel serving on CFRs.”

7.3.6.3 – Personnel Work Procedures and Training in Conditions of Elevated Fire Risk

The 2021 WMP Update described this initiative²¹¹ as a set of protocols for the kinds of work activities that may be performed by SDG&E personnel under different levels of fire risk. The FPI leads to identification of operating conditions based on the fire risk, “Normal condition,” “Elevated condition,” “Extreme,” or “Red Flag Warning.” Protocols are developed and utilized under this initiative to govern the work that may be done, the protective steps to be taken, and the equipment and training needed to ensure that all associated risks are appropriately anticipated and managed.

In 2021, SDG&E planned “to continue to update procedures and review training annually with feedback from attendees.”²¹² By year-end, SDG&E reported training a total of 3,532 internal personnel in 187 training sessions in these protocols while incorporating feedback from the training sessions into updates for future sessions.

The IE sought information that would enable verification of continuous improvement and refinement of these procedures and/or the training received by personnel to ensure full understanding of work procedures during periods of elevated fire risk. IE’s questions and SD&GE’s response for 7.3.6.3 are below:

1. Please provide the total number of training events and personnel trained in these events during 2021.
2. Please provide examples of 2-4 personnel training procedures that were updated in 2021.

²¹⁰ SDG&E QIU 2021 Q4, initiative 7.3.6.3.

²¹¹ 2021 WMP Update, pg. 293.

²¹² SDG&E QIU Q4-2021, initiative 7.3.6.3

3. Please provide an example of a trainee feedback or evaluation form from a training event conducted in Q4 2021.

SDG&E RESPONSE: “All personnel are able to participate in SDG&E’s fire prevention and preparedness training and all personnel who perform field work for SDG&E are required to attend the training annually. In 2021 Fire Coordination performed 187 internal trainings with 3,532 attendees. The primary training is built from the supplied PPT²¹³ that is updated throughout the year as students have questions or suggestions. As Q4 is typically the busiest time of year for fires in our region, the majority of training is completed prior to Q4 with only 22 of the 187 sessions happening from Oct- Dec. The process for updating training is dynamic because it is an instructor lead class. This leads to improvements throughout the year.”²¹⁴

SDG&E’s answers enabled verification that the training events were held in 2021 and that their content is comprehensive and detailed. By not responding to question 2, however, the IE is not able to verify that either the protocols or the training has changed in any specific year. Nor were any trainee evaluation forms provided.

In reported 2021 outcomes for 7.3.6.3, SDG&E emphasized the importance of incorporating trainee feedback into subsequent training materials. On the basis of the description and materials provided, the IE is not able to verify that such updates, procedural refinements or training improvements occur, or therefore that SDG&E met its “continuous improvement” objectives for this initiative.

7.3.6.4 – Protocols for PSPS Re-Energization

SDG&E uses patrols to inspect 100% of the lines that are de-energized during a PSPS event, through both ground and aerial resources. Ground patrols are used when wind events are too high for aerial crews. Post-PSPS patrols are sent out after the weather event that gave rise to the PSPS on the circuit(s) affected. Patrol crews are equipped with mapping software that enables them to use standard forms to provide photos and upload damage reports.

SDG&E’s 2021 plans for this initiative included maintaining the capacity while seeking opportunities to reduce the time following the PSPS event that crews require to evaluate the

²¹³ Appendix 9 – DR18-7.3.6.3-Fire training presentation 2021.

²¹⁴ Appendix 9 – DR18-Batch 3-SDG&E_narrative_response, Question and Response 20.

affected lines for re-energization. Leveraging drone pilots to replace helicopters during conditions that prevent helicopter flight was one such possibility. Outcomes for 2021 included:

- Refinements to protocols for the restoration of lines following PSPS events;
- Pre-identifying resource requirements for patrols of circuits and circuits segments;
- Reviewing operational data before dispatching circuit patrols to identify whether the fault resulted from dangerous conditions or tripped due to sensitive/ fast protection settings.

In 2021 Q4, SDG&E called for a single PSPS event. Following this event, SDG&E followed its protocols for re-energizing the affected sections including the use of post-PSPS patrols.

The IE sought information that would enable verification of the refinements to protocols, as is the focus of SDG&E's reported outcomes for 7.3.6.4. IE's questions and SDG&E's response for 7.3.6.4 are below:

1. How many personnel participate on aerial and ground post-PSPS patrols?
2. Following the Q4 PSPS event in 2021, how many crews of what type were deployed?
3. Please provide an example of one PSPS re-energization protocol that was refined in 2021.

SDG&E RESPONSE: In the Q4 [2021] PSPS event, SDG&E deployed 27 Qualified Electrical Workers (QEW) to specifically patrol and restore circuits affected by PSPS in a combination of single QEW aerial inspectors, and 2–7-man circuit patrol teams. The size of the circuit patrol teams is dictated by the length of the circuit. Additional resources utilized during the event include contract fire resources (CFR) and vegetation management crews. SDG&E continues to refine the PSPS process through continued implementation and refinement of Incident Command Structure (ICS) training and protocols.²¹⁵

SDG&E's reply reported the number of post-PSPS QEW personnel utilized for the single 2021 PSPS event and explained that the number of 'crews' per se can be expected to vary based on the length of the circuits involved. They did not provide the number of SDG&E personnel qualified to participate in such crews. Finally, no example was provided of a re-energization protocol refined during 2021.

Since both SDG&E's reported 2021 outcomes for this initiative and their verification response (above) highlighted the importance of refinements to procedures and protocols, the IE finds it

²¹⁵ Appendix 9 - DR18-Batch 3-SDG&E_narrative_responses, Question and Response 21.

surprising that no documentation of these improvements has been provided. On the basis of this summary, reported performance and verification documentation, the IE is able to verify that SDG&E utilized post-PSPS patrols in 2021. The IE team is not able to verify that SDG&E has made any improvements to re-energization protocols during that same period.

7.3.6.5 – PSPS Events and Mitigation of PSPS Impacts

PSPS events are a “last resort mitigation” measure used by SDG&E and all utilities during extreme conditions when the possibility of an ignition event is high. In the 2021 WMP Update,²¹⁶ SDG&E describes its use of patrol crews to inspect lines for damage after the PSPS event and ensure that needed repairs are completed. Other initiatives and sections of the WMP describe the use of other SDG&E tools (ala WRRM-Ops, FPI, SAWTI) to inform the decision to call a PSPS and to end it when the triggering weather events have subsided.

Under this initiative SDG&E also ties in its past and planned progress to reduce the impacts of PSPS events through, for example, the grid hardening and sectionalizing activities, improvements to weather forecasting capabilities and practices, and the provision of generators to medical baseline customers in high-risk areas to help mitigate the impacts of the PSPS events that are called.

SDG&E’s QIU Q4-2021 began the year with the hope if not expectation that no PSPS events would be necessary in 2021. In the absence of such events to trigger PSPS protocols, SDG&E planned to continue to refine the PSPS protocols and their use with partners. By year-end, however, SDG&E had experienced one PSPS event in the 4th quarter of 2021²¹⁷ impacting 5,858 customers. SDG&E prepared a published report of this one 2021 PSPS event. The report and associated links may be accessed at CPUC.ca.gov.²¹⁸

The IE’s sought to verify SDG&E’s mitigation of the impact of PSPS events on its customers, per the focus of 7.3.6.5. IE’s questions and SDG&E’s responses for 7.3.6.5 are provided below:

²¹⁶ 2021 WMP Update, pg. 296.

²¹⁷ A detailed report of the event is provided in the public post event report located on the CPUC website. Please note that the format and information contained in this report conforms to CPUC-required templates.

²¹⁸ At CPUC.ca.gov, [PSPS Post-Season Reports 2021](#), posted at the link “SDG&EPOSTSR1 AMENDED > Report titled “Corrections to 2021 Public Safety Power Shutoff Post-Season Report and Public Safety Power Shutoff Post-Event Report for November 24-November 26, 2021”

1. Please explain how SDG&E determines the number of customers that did NOT experience an outage during the 2021 Q4 PSPS event who would, absent mitigation actions, have done so.

SDG&E RESPONSE: “SDG&E provided three types of mitigation activities specific to PSPS events. The first is back-up generation/storage, the second is microgrid utilization, and the third is sectionalization. Back-up generation/storage captures customers who were provided power from back-up generation on a circuit that was de-energized. Microgrid utilization is like back-up generation as it captures customers who were provided power from a microgrid on a circuit that was de-energized. Sectionalization allows SDG&E to de-energize precise segments of circuits that are at high risk during a PSPS event. It also captures changes SDG&E made to the source of electricity for customers such that when the normal source of electricity was de-energized those customers still had power from another circuit.”

“To determine the number of customers that did NOT experience an outage during the 2021 Q4 PSPS event, SDG&E considers the number of customers that could have experienced the outage had mitigation efforts been absent and subtracts the number of customers that did experience an outage. For example, in the post event report for the November 24-26, 2021, PSPS event, SDG&E listed 698 customers that did NOT experience an outage on circuit 79. At the time of the event, circuit 79 fed 880 customers. Due to the availability of sectionalizing devices, SDG&E was able to limit the de-energization to only 182 customers instead of de-energizing at the circuit breaker, saving 698 customers from PSPS impacts.”

“SDG&E also counts customers fed from Microgrids that were utilized during the PSPS event, and customers fed from sections of circuits that had been undergrounded that experienced wind speeds that would have resulted in a PSPS de-energization prior to undergrounding. Customers that receive behind the meter back-up generation are not counted in this analysis.”²¹⁹

In its reply to this verification request, SDG&E explained their calculation of PSPS mitigation benefits using the November 2021 PSPS event²²⁰ on circuit 79 as an example. Thanks to sectionalizing devices, PSPS impacts were limited to only 182 of the 880 customers on that circuit—clearly a successful mitigation.

²¹⁹ Appendix 9 - DR18-Batch 3-SDG&E_narrative_responses, Question and Response 22.

²²⁰ Appendix 7 - DR16-7.3.2.5-PSPS report Nov 24-26, 2021.

What is less clear, however, is SDG&E's reference to microgrids and undergrounding in this case. The public report of SDG&E's November PSPS event described how SDG&E assigned its distributed energy resources personnel at appropriate locations in the PSPS area to set up microgrids for additional mitigation benefit; an additional 340 customers were served via two temporary microgrids.²²¹

The IE can verify, through this explanation and associated documentation, that there were significant mitigation benefits to customers during the PSPS event of November 24-26. The IE cannot, however, verify whether the calculation provided is inclusive of all forms of mitigation attributable to efforts outlined in SDG&E's 2021 WMP Update. On the basis of this summary, reported performance and documentation, the IE verifies that SDG&E met its PSPS mitigation objectives for this initiative.

7.3.6.6 – Stationed and On-Call Ignition Prevention and Suppression Resources and Services

Initiative 7.3.6.6 has no annual target or outcomes. Despite the absence of any 2021 objective, the IE retained 7.3.6.6 in this report because it was included in the financial reports of WMP spending discussed in Chapter 3.2 Verification of Funding. Without targets or reported results, however, the IE did not undertake any verification effort. The IE has made no determination regarding completion of any 2021 work fitting Energy Safety's description for this category.

7.3.6.6.1 – Aviation Firefighting Program

SDG&E's Aerial Firefighting Program (Initiative 7.3.6.6.1)²²² offers an early-action fire suppression capability that assists both SDG&E and the communities it serves, especially those within the HFTD. SDG&E maintains two firefighting helicopters and appropriate crews on standby 365 days per year. In addition to their capability to provide quick-response fire suppression capability within SDG&E's service territory, these helicopters can also assist fire agencies elsewhere in the County, and as needed provide construction support for SDG&E's work in rural areas where access may be otherwise difficult for installation and repair crews.

²²¹ Ibid, pg. A-34.

²²² 2021 WMP Update, pg. 298.

In 2021, SDG&E planned to first, ensure the year-round availability of its aerial firefighting unit, and second, to upgrade one of its two leased fire-fighting helicopters with a more capable unit. In Q1 of 2021, SDG&E decided to postpone acquisition of the new unit, retaining its original fleet of an Erickson S-64 helitanker, capacity 2,650 gallons; and a Sikorsky UH-60 Blackhawk helitanker, capable of dropping 850 gallons. By year-end, SDG&E reported that both units had been 100% available for call-out the entire year.

The IE sought information that would enable verification of the aviation firefighting capability under initiative 7.3.6.6.1. IE's questions and SDG&E's response for are below:

1. How many pilots did SDG&E employ/contract/retain to maintain the year-round firefighting capacity?
2. Please provide documentation of two dispatches of aviation firefighting equipment during 2021—one for a utility-triggered ignition that was successfully suppressed and another for a non-utility ignition.

SDG&E RESPONSE:²²³ "Aviation firefighting program is 365 days per year but NOT 24/7. Per MOU with San Diego County/CALFIRE, assets are available for dispatch 1000 until sunset and due to the shortened days during the winter months, start time is moved to 0900. SDG&E has two leased firefighting helicopters: an S-64 Air Crane and an H-60 Blackhawk. Both of these assets require two pilots. These pilots are part of the lease terms and supplied by the contractor. Normal rotations are two weeks on, two weeks off but this is determined by the contractor and follows USFS directives for aerial firefighting crews.

"SDG&E Aviation Services Division (ASD) is the point of contact for CALFIRE dispatch (Monte Vista). ASD does not track the ignition source. CALFIRE determines the need for aerial firefighting and dispatches assets as required. SDG&E supports all dispatches that CALFIRE asks of SDG&E assets regardless of fire start. This stance is to ensure that SDG&E aerial firefighting assets are used to quickly extinguish fires within our service territory since every fire has the potential to destroy SDG&E infrastructure. Attached below²²⁴ are two dispatches with fire attack for Copter 129 (Blackhawk) and Helitanker 729 (Air Crane) in 2021. This is all the historical data that is maintained by ASD for any given dispatch."

²²³ Appendix 9 - DR18-Batch 3-SDG&E_narrative_responses, Question and Response 23.

²²⁴ Appendix 9 - DR18-7.3.6.6.1-Aviation firefighter dispatches 2021.

SDG&E's response clarified the hours of availability for its leased aviation firefighting equipment and explained why the number of pilots cannot be provided in answer to question 1 above. SDG&E also clarified that they do not track ignition sources for fires to which its units are called upon by CalFire. Visible in the reports provided is that both aviation units were dispatched on August 30, 2021, for service in the Chaparral Fire. This blaze burned over 1,400 acres between August 28 and early September 2021, in an area of the Cleveland National Forest northeast of Camp Pendleton near the intersection of San Diego and Riverside Counties.

These dispatches document the contribution of SDG&E's aviation resources to helping get this blaze under control, through 40 dumps of almost 19,000 gallons of water in just over 5 hours of flight time on August 30. By noon August 31 all evacuation orders had been lifted, with the blaze fully encircled and contained over the next few days.

While these explanations and documents do not enable the IE to verify that the firefighting capability was in service 365 days in 2021, it is possible to establish that these resources make a contribution to the mitigation of wildfire risk and damage in and around SDG&E's service territory. On the basis that their WMP target for 7.3.6.6.1 was to "ensure the availability of" this airborne fire-fighting capacity, the IE verifies that SDG&E met its objectives for this initiative.

5.3.7 - Data Governance

7.3.7.1 – Centralized Repository for Data

SDG&E discusses its efforts to centralize the management and improve the collection of WMP data in WMP Section 7.3.7.²²⁵ From the start of this effort in 2020, SDG&E has worked to inventory its data needs, define each data metric, and develop "a repeatable and verifiable process(es) to accumulate and track the data to ensure its integrity and auditability."²²⁶ The Central Data Repository (CDR) is an automated central data repository, accessible by multiple internal WMP actors, which SDG&E envisions as a "single source of truth" for all WMP-related data.

²²⁵ 2021 WMP Update, pg. 301.

²²⁶ Ibid.

At the start of 2021, SDG&E had completed 25% of the work to implement the CDR and the Data Governance Framework that supports it. In 2021, SDG&E's 2021 WMP Update²²⁷ anticipated "the completion of data related to all the metrics tables contained in the WMP by the end of 2021." By the end of 2021, SDG&E had delivered initial data for multiple WMP areas, including distribution switches, transmission structures, distribution capacitors, transmission conductors, overhead conductors, and inspections, and had developed Data Quality/Availability Scorecards for transmission and distribution inspection data.²²⁸

The IE sought information that would enable verification of the centralized data repository that is the focus of 7.3.7.3.1. IE's SME questions and SDG&E's response for 7.3.7.1 are below:

1. Please provide a sample of SDG&E actions to develop and maintain the Enterprise Asset Management Platform (EAMP)²²⁹ program in 2021.
2. Please provide documentation that the governance structure (the systems, processes, and procedures for each line of metric identified in Tables 1-12 of the 2021 WMP), was completed by the end of Q4 2021.

SDG&E RESPONSE: "Please see the attached governance documentation in "Response_DR_18_Question 24."²³⁰ WMP Central Data Repository – DFG Compliance Documentation: Provides an outline of the systems used as part of the centralization and automation to the central repository, including supporting processes and procedures therein. The WMP Data Governance and Metric User Guide: Outlines the processes and procedures for each line item of metric identified in Metrics Tables 1-12 of the 2021 WMP, relative to automated or manual logic."²³¹

The IE's verification request sought to verify SDG&E's actions in 2021 under this initiative, namely, as reported above, to complete the CDR and Data Governance Framework. To do this, Question 1 requested "a sample of SDG&E actions to develop and maintain..." the EAMP, a component of the Central Data Repository. The IE would have accepted any documented actions to develop or maintain any component of the repository; the documents provided, however,

²²⁷ Ibid, pg. 303.

²²⁸ SDG&E QIU Q4-2021, initiative 7.3.7.1.

²²⁹ A component of the Central Data Repository, per WMP Update, pg. 303.

²³⁰ Appendix 9 - DR18-7.3.7.1-WMP Central Data Repository.

²³¹ DR18-Batch 3-SDG&E_narrative_responses, Question and Response 24.

while important protocols for the maintenance of the Repository going forward, do not enable verification of actions taken—by individuals, teams, groups, whomever—in 2021 to fulfill the required steps.

In answer to the second question, SDG&E provided the “WMP Central Data Repository - DFG Compliance Documentation,” a full description of the structure, life cycle and steps, uses and terminology, and responsibilities and controls applicable to the CDR. On the basis that 25% of this framework was in place at the beginning of 2021, completion of this framework by the effective date of 10/15/21 serves as a basis for verifying SDG&E’s objectives for this initiative. On the basis of this summary, therefore, the reported performance and verification documentation provided, the IE verifies that SDG&E met its objectives for this initiative.

7.3.7.2 – Collaborative Research on Utility Ignition and/or Wildfire

Under this initiative, SDG&E joins and collaborates with other stakeholders in academia, the state of California, and the western United States to better understand the state of climate science and predictions that wildfire risk will continue to increase throughout this region. SDG&E’s collaborations in this area include the Scripps Institute of Oceanography, the San Diego Supercomputer Center, and San Jose State University, among others.²³²

SDG&E’s 2021 plans under this initiative included building “...even stronger partnerships and relationships with the academic community to sponsor ongoing wildfire mitigation-related collaborative research.”²³³ By the end of the year, these partnerships included:

- projects with Scripps Institution of Oceanography to explore the impact of fall precipitation on PSPS events;
- work with San Jose State University on modeling fuel moistures to improve fire behavior modeling; and
- collaboration with the San Diego Supercomputing Center on a data sharing platform and analysis of vegetation related power outages.

²³² Ibid, pg. 305.

²³³ SDG&E QIU Q4-2021, initiative 7.3.7.2.

The IE found verification of this initiative via the publicly available portal that offers these and other collaborative efforts for public reference, via tag 'SDG&E'.²³⁴

Based on this description and the information available via this portal, the IE verifies that this initiative exists, and that SDG&E has completed the outcomes it reported.

7.3.7.3 – Documentation and Disclosure of Wildfire-Related Data and Algorithms

SDG&E did not provide any description of activity under this Initiative within its 2021 WMP Update.²³⁵ By referring to Section 4.5.1²³⁶ of the WMP Update, however, SDG&E implies that “documentation and disclosure of wildfire-related data and algorithms” is covered by its efforts in modeling wildfire risk, ignition probability and PSPS risk. While the use of algorithms and fire-related data can be inferred from these sections, documentation methods are not apparent or addressed.

SDG&E set no 2021 targets and reported no results for this initiative. On the basis of this description, the absence of any targets or results from this initiative, the IE cannot verify that SDG&E met the objectives to document or disclose wildfire-related data or algorithms for this initiative.

7.3.7.4 – Tracking and Analysis of Risk Event Data

Recording, tracking, and understanding the patterns of risk events encountered throughout the SDG&E system is an initiative of overarching importance. Initiative 7.3.7.4 is a category for which no annual target or outcomes were assigned. Despite the absence of any 2021 objective, the IE retained 7.3.7.4 in this report because it was included in the financial reports of WMP spending discussed in Chapter 3.2 Verification of Funding. Without targets or reported results, however, the IE did not undertake any verification effort. The IE has not made a determination regarding completion of any 2021 work fitting Energy Safety’s description for this category.

²³⁴ <https://wifire-data.sdsc.edu/dataset?organization=SDG&E>

²³⁵ See WMP Update, pg. 306.

²³⁶ WMP Update, pgs.75-98.

7.3.7.4.1 – Ignition Management Program

Under this effort, SDG&E has tracked and documented both ignition events and conditions leading to potential ignitions. The objective of this initiative is to better understand the origins and contributing factors for ignitions and near-ignition events. When an ignition is identified, SDG&E directs a systematic internal analysis to document the cause of the ignition. These findings are shared with SDG&E’s subject matter experts in the appropriate operational areas to address appropriate mitigation steps.

In 2021, SDG&E planned to continue to refine the processes by which data is collected, documented, and shared with appropriate internal stakeholders. By the end of 2021, SDG&E reported that the Ignition Management Program (IMP) had pursued evidence of heat reports, further refined its data gathering procedures, and “...continued to enhance the automated process for gathering ignition and near ignition information with a new integrated data flow process.”

The IE sought information that would enable verification of the IMP and reported improvements to it in 2021. The IE’s request and SDG&E’s response for 7.3.7.4.1 are below:

1. Please provide a sample (2-4) of heat reports documented by SDG&E's Ignition Management Program in 2021.

SDG&E RESPONSE: “Evidence of Heat Data Example July 2021”²³⁷

Event ID	835648	837069	838199	842101
Job Desc	Branch Outage	Branch Outage	Dmg/Wilite-Other	Emr-Specl Req – Fire/Police/Govt
Enroute	7/1/2021	7/7/2021	7/12/2021	7/25/2021
On Site	10:05 AM	9:45 PM	6:13 PM	8:47 PM
Elect In Origin	N	N	N	Y
Self-Sustaining	N	N	N	N
Left Elec Facility	Y	N	N	N
Traveled > 1 Meter	N	N	N	N
Evidence of Heat	Actual Ignition	Arching/Charring	Arching/Charring	Arching/Charring

²³⁷ Appendix 9 - DR18-Batch 3-SDG&E_narrative_responses, Question and Response 25.

Primary Voltage	12kv	12kv	12kv	12kv
Secondary Voltage				
Cause of Heat Desc	Veg Contact	Other/ Undetermined	Veg Contact	Elect. Facility
Cause of Heat Details		Wire On Wire Charr		Insulator Tracking
Outage Cause Desc	Wire Down	Connector Damage	Customer Problem	Weather Damage Pole
Device ID	1023-35	F202955668	350-810	161-768
Device Type Desc	Switch	Fuse	Transformer	Transformer
Device Size		100A	150A	50A
Facility ID	P119249	P932696		P572275
Circuit ID	1023	276	350	161
Damage Assess Details		Wire Down		x-arm
Reported By	56561	23123	5651	05036
District	NE	NC	NE	EA
Field Remarks		Old hot lien clamp		X-arm tacking
Latitude	33.26	32.82	33.31	32.65
Longitude	-117.15	-117.21	-117.09	-117.24

SDG&E's 2021 target for this initiative was to "continue to enhance" both data gathering and automated processes inherent in the IMP. The heat reports provided enable verification that the IMP exists and collected data in 2021. On this basis, the IE can verify that the IMP had "pursued evidence of heat reports" in 2021, adding to its database of such events and meeting this portion of its 2021 objective. The IE is not able to verify that SDG&E achieved its objective to improve this process or capability in 2021.

7.3.7.4.2 – Reliability Database

SDG&E's reliability database tracks data on the operation and reliability of its electric system. As described in the 2021 WMP Update, this database "tracks and maintains customer outage impact data... including any outages in the primary voltage (i.e., 4kV, 12kV, 69kV, 230kV, 500kV) electric systems that lead to customer impact."²³⁸

²³⁸ 2021 WMP Update, pg. 307.

The resulting data is used by SDG&E for multiple purposes, including the calculation of numerous industry-wide performance metrics such as Customer Minutes Interrupted (CMI), System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI). This reliability information also helps in identification of faults and/or other risk events and is therefore useful in building a deeper understanding of patterns and correlations between system operations and potential ignitions.

SDG&E's 2021 plan was to continue this effort. By year-end, SDG&E reported progress migrating 10 years of reliability data into an Oracle application.

The IE sought information that would enable verification that the reliability database was in use in 2021. The IE's question and SDG&E's response for 7.3.7.4.2 are below:

1. Please provide 2-4 sample reports from SDG&E's Reliability Database of outage data tracked by this system in 2021.

SDG&E RESPONSE:

Outage ID	210101E223244	210107E223616	210909E242173	210411E230872
Outage Type	DI	DI	ST	DI
Occurrence Date	1/1/2021	1/7/2021	9/9/2021	4/11/2021
Occurrence Time	15:50	15:01	19:56	1:18
District Code	NE	CM	BC	EA
Circuit	970	334	968	401
Substation Name	CREELMAN	SAN YSIDRO	EASTGATE	MURRAY
Cause Description	Vehicle contact	Balloon contact	Severe Weather	UG connector failure
Damaged Device	FUSE	INSULATOR	SUBSTATION BREAKER	BUSHING
Sustained Customers	384	0	9	1,490
Duration	151	1	6	629
SAIDI	0.03	0	0.000036	0.06
SAIFI	0.0003	0	0.000006	0.001

The provided sample of four outages reported in 2021 and recorded in SDG&E's Reliability Database enables the IE to verify that this database was in existence and utilized in 2021. On the

basis of this summary, the performance reported, and verification documentation provided, the IE verifies that SDG&E met its objectives for this initiative.

5.3.8 - Asset Allocation Methodology

7.3.8.1 – Allocation Methodology Development and Application

The 2021 WMP Update’s chapter 7.3.8, “Resource Allocation Methodology,” references SDG&E’s process for making internal funding decisions. Capital allocations are prioritized in view of the risks to be addressed, with input from a cross-functional team, then approved by an executive committee. Core to this allocation process is the development and use of specific tools to better understand wildfire, safety, and other categories of risks.

SDG&E has begun to implement a software solution from C55 to improve the processes of investment prioritization, in company with other tools including SDG&E’s WiNGS model (quantifies PSPS impacts), calculation of the “Risk-Spend-Efficiency” (RSE) metric, and more granular analytical tools applied to grid hardening investments. The output of this methodology is a suite of “long-term and short-term plans for capital investment, operation and maintenance, and asset retirement.”²³⁹

SDG&E’s QIU Q4-2021 reported a qualitative objective for this initiative to include “... performance evaluation and continuous improvement capabilities will be developed... identifying objectives and key performance indicators and determining action plans.”²⁴⁰ By years-end, the Investment Prioritization team had completed programming several risk calculations and associated business processes into the C55 prioritization methodology.

The IE sought information that would enable verification of the allocation methodology and its use during 2021. The IE’s questions and SDG&E’s response for 7.3.8.1 are below:

1. Please provide an example of how the C55 software has been used to streamline investment prioritization and allocation.
2. Please pick an example from 2021 that shows how this methodology resulted in a change from the former allocation results.

²³⁹ 2021 WMP Update, pg. 309.

²⁴⁰ SDG&E QIU Q4-2021, initiative 7.3.8.1.

SDG&E RESPONSE: “The strategic goal of Investment Prioritization is to incorporate a risk-informed methodology to evaluate prioritization and optimization of capital investments. The new methodology utilizes a Multi-Attribute Value Framework (MAVF) to enable investment decision-making to be executed in a more consistent, transparent, repeatable and standardized manner through a data-driven, quantitative risk- and safety-based lens. The MAVF utilizes SDG&E’s strategic values to determine standardized value-based metrics that quantitatively compare projects and thereby enhance the ability to cross-prioritize across portfolios and optimize investment decisions, including wildfire mitigation investments. In addition to the quantitative tool, the implementation of the new system also includes development of key supporting processes and reviews on an end-to-end basis.”²⁴¹

Enhancements achieved in 2021 include:

- Programmed the investment prioritization prototype into a software solution as the capital portfolio allocation tool.
- Completed initial MAVF for transmission and substation portfolio (under FERC) and conducted testing and sample project entry sprint, identifying enhancements of the value framework.
- Began development of the next phase of the value framework electric distribution.

2021 status: The implementation of the Investment Prioritization tool, Copperleaf Portfolio (C55), was in development in 2021 with Electric Transmission and Substation Project Portfolio and hasn’t been implemented for production use. The enhancements above were forecast in SDG&E’s 2021 WMP Update and this initiative met its 2021 WMP targets.”

The IE understood from available reports that this initiative was in progress. The IE sought examples of its utilization in order to verify those reports. The above response does not document any specific uses of the tool or provide any means for the IE to verify the assertion that objectives were met—providing any examples would have enabled this verification. On the basis of current information, however, self-reported performance and lack of verification documentation, the IE is not able to verify that SDG&E met its objectives for this initiative.

²⁴¹ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 1.

7.3.8.2 – Risk Reduction Scenario Development and Analysis

SDG&E's 2021 WMP Update included no description, target, or outcomes for this effort.²⁴² Instead, SDG&E referred to discussion in Chapter 4, "Lessons Learned and Risk Trends."²⁴³

No 2021 annual target or outcomes were reported for initiative 7.3.8.2. With no qualitative target or outcomes reported, the IE makes determination concerning this initiative.

7.3.8.3 – Risk Spend Efficiency Analysis – Not to Include PSPS

SDG&E's 2021 WMP Update²⁴⁴ referenced WMP Initiative 7.3.8.1 Resource Allocation methodology in description of initiative 7.3.8.3 "Risk Spend Efficiency Analysis." Elsewhere in the WMP Update, however, SDG&E references the RSE framework frequently, as a key component of wildfire mitigation capital allocation, planning, and operational decision-making.

The IE sought information that would enable verification of the RSE analysis in 2021. The IE's review of both the 2021 WMP Update and the SDG&E 2022 WMP Update, both of which feature numerous discussions of the RSE in use, suggest that this metric was in use throughout the 2021 WMP year.

On the basis of this summary, reported performance and documentation, the IE verifies that SDG&E met its objectives for this initiative.

7.3.8.4.1 – Wildfire Mitigation Personnel

In response to initiative 7.3.8.4.1, SDG&E described its internal Wildfire Mitigation Program (WMP) team created to develop and manage SDG&E's overall WMP effort. Responsibilities of this program include efforts: to develop WMP strategy; to oversee, coordinate and monitor the execution of all related activities; and to maintain communication with both external and internal stakeholders.

²⁴² Ibid, pg. 311.

²⁴³ 2021 WMP Update - Chapter 4 - Lessons Learned and Risk Trends (page 22), including 4.2 - Understanding Major Trends Impacting Ignition Probability and Wildfire Consequence, pg. 22.

²⁴⁴ Ibid, pg. 311.

The WMP team also reviews the performance of WMP activities, tracking operational targets routinely, and reviews proposals for any new initiatives with WMP implications. The cross-departmental WMP team consists of personnel assigned to WMP activities from across the operational areas and functional departments of SDG&E, under the direction of a senior program manager. In this way, WMP program management, operational, and financial results receive attention at high levels of the organization.²⁴⁵

SDG&E's 2021 target was that the internal WMP team would continue to "...review feedback from external stakeholders including Energy Safety²⁴⁶ and intervenors so that SDG&E's WMP, WMP Updates, and WMP Quarterly Reports meet or exceed expectations."²⁴⁷ By year-end, SDG&E reported that the WMP team had filed all OEIS-required reports and supplemental reports on time.

A review of the OEIS e-filing system shows that SDG&E has filed its public reports (WMP, WMP Updates, and WMP Quarterly Reports, Quarterly Data Reports and Quarterly Initiative Updates) on time. The IE was able to verify the timely submission of 2021 quarterly reports via the OEIS docket log. To document the regular work of the internal WMP team, the IE asked the question below for 7.3.8.4.1. SDG&E's response is also provided:

1. Please provide at least four sample reports (1 per Q1-4) that document the wildfire mitigation team's weekly tracking of operational targets and progress.

SDG&E's RESPONSE: "This initiative met its 2021 WMP targets.²⁴⁸ Examples of Wildfire Mitigation weekly reporting for each quarter are provided in the attached files, "Response IE DR17 Q2 WMP Weekly Summary."²⁴⁹

On the basis of their 2021 targets and reported performance, public documents, and provided verification documentation, the IE verifies that SDG&E met its objectives for this initiative.

²⁴⁵ Ibid, pg. 312.

²⁴⁶ WSD, the former Wildfire Safety Division of the California Public Utilities Commission, was transferred to the OEIS on July 1, 2021. As of that date, OEIS assumed responsibility for overseeing the WMP planning, implementation and reporting responsibilities of the California investor-owned utilities.

²⁴⁷ SDG&E QIU Q4-2021, initiative 7.3.8.4.1

²⁴⁸ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 2.

²⁴⁹ Appendix 8 - DR17-7.3.8.4.1-WMP weekly tracking reports.

5.3.9 - Emergency Planning & Preparedness

7.3.9.1 – Adequate and Trained Workforce for Service Restoration

SDG&E maintains an Emergency Management department, the mission of which is “...to coordinate safe and effective emergency preparedness for the Company, SDG&E’s customers, and emergency response personnel.”²⁵⁰ This initiative addresses a significant constraint to the timely implementation of post-PSPS patrols and other operational prerequisites to restoring power safely and efficiently after an outage.

For 2021, SDG&E planned to complete construction that began in December 2020 on a “physical infractions test yard with a target of 25-30 infractions that will be changed regularly for Journeyman to identify and properly code.” Also planned were “exercises and tabletops” in a variety of other SDG&E departments, presumably to recruit personnel for such internal training and placement opportunities.

By the end of 2021, SDG&E’s Skills Training group reported “finalizing all outstanding initiatives and training to meet internal WMP goals.”²⁵¹ This included classes in support of SDG&E’s 3-year Lineman Apprenticeship program for a total of 85 current employees and partnering with Human Resources to recruit additional Journeyman-level Lineman.

The IE sought information that would enable verification of the training and recruitment efforts described in SDG&E’s QIU Q4-2021. The IE’s questions and SDG&E’s response for 7.3.9.1 are below:

1. Please provide a summary of offerings and participant totals for SDG&E 2021 Skills Training programs.
2. Please provide an outline of program contents that shows how these trainings support internal WMP goals, initiative targets and ESCMP requirements.

SDG&E RESPONSE: “Responses are attached in the folder “Response_Question 3.”²⁵²

²⁵⁰ SDG&E 2020-2022 Wildfire Mitigation Plan Update, February 5, 2021 (hereafter 2021 WMP Update). Page 313.

²⁵¹ SDG&E Quarterly Initiative Update Q4-2021 (hereafter SDG&E QIU Q4-2021), initiative 7.3.9.1.

²⁵² Please see Appendix 8 - DR17-7.3.9.1-Service restoration workforce

In response to Question 1, SDG&E's response provided data on the titles and numbers of participants in courses conducted in 2021.²⁵³ Supporting data was also provided in response to Data Request 15.²⁵⁴ These replies support the observation that 68% of program participants in 2021 took part in a Compliance/Refresher program, thereby ensuring that personnel are current on safety and restoration protocols.

In answer to Question 2, SDG&E provided an extensive summary of training and skills development events, including description of how these programs support SDG&E operational objectives, and how specific training programs and events were updated during 2021.²⁵⁵

On the basis of this summary, SDG&E's reported performance and the verification documentation submitted the IE verifies that SDG&E met its objectives for this initiative.

7.3.9.2 – Community Outreach, Public Awareness, and Communication Efforts

As SDG&E states in its opening to initiative 7.3.9.2, "In California, one of the greatest challenges SDG&E faces is the nearly year-long presence of potential wildfires."²⁵⁶ This fact, and the companion fact that climate change impacts will continue to worsen throughout SDG&E's service territory, necessitates a year-round program of comprehensive wildfire safety and emergency preparedness. In its response to initiative 7.3.9.2, SDG&E describes a three-phase effort of outreach and communications to ensure that customers are, first, aware of and second, safe during any wildfire and/or PSPS events. During the third phase, following the event, SDG&E seeks feedback from customers in order to improve efforts in following years. The description of SDG&E's efforts under this Initiative comprises pages 315 - 320 of the 2021 WMP Update.

For 2021, SDG&E set several qualitative targets, to include: a) expansion of its campaigns to reach more hard-to-reach and vulnerable populations, b) continuing to host educational webinars with CAL FIRE and 2-1-1, and c) exploring additional efforts with local school districts, Tribal Councils,

²⁵³ Ibid.

²⁵⁴ Appendix 6 - DR15-7.3.9.5-Electric employee training counts

²⁵⁵ For example, moving from paper training materials to mobile data terminals; completing the 'physical infractions yard' for hands-on training; and integrating 'real life' scenarios into Undergrounding modules through the use of Virtual Reality. See Appendix 8 - DR17-7.3.9.1-Service restoration workforce.

²⁵⁶ 2021 WMP Update, pg. 315.

and other community-based organizations who represent customers with access and functional needs.

Outcomes reported by SDG&E under this initiative were extensive—please see SDG&E QIU Q4-2021, initiative 7.3.9.2 for the full list. Notable were efforts focused on individuals with access and functional needs, Spanish speaking populations, and PSPS awareness efforts “in all 21 prevalent languages and in a new format accessible to individuals with sensory disabilities.”

To verify outreach, public awareness, and communication efforts, the IE sought the following verification documents. The IE’s questions and SDG&E’s response for 7.3.9.2 are below:

1. Please provide a sample of the materials SDG&E used to inform the public of its 2021 Wildfire Safety Community Awareness campaign.
2. Please provide copies of customer surveys and 2021 survey results documenting customer awareness of this campaign.

SDG&E RESPONSE: “In the attached file “Response_ Question 4,”²⁵⁷ please find multiple samples of some of the direct-to-customer public education materials used to inform the public of the 2021 Wildfire Safety public education campaign. Also included is a 2021 recap of the campaign which provides a campaign overview, executive summary, the strategies employed, campaign timeline, tactics utilized, overall results, and takeaways. Lastly, please refer to the 2021 Wildfire Safety customer survey results measuring the effectiveness of SDG&E’s public education efforts.”²⁵⁸

SDG&E’s responses to these verification requests were complete and informative. SDG&E’s 2021 objectives were to expand the reach and effectiveness of the Wildfire Safety Community Awareness Campaign with non-English speaking audiences and customers vulnerable during power outages due to medical and access needed. The campaign summary and survey results document success at reaching these objectives. On the basis of this summary, therefore, its reported performance and extensive documentation, the IE verifies that SDG&E met its objectives for this initiative.

²⁵⁷ Appendix 8 - DR17-7.3.9.2-Wildfire Safety campaign materials 2021.

²⁵⁸ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 4.

7.3.9.3 – Customer Support in Emergencies

In the wake of a wildfire, power outage or other weather or electric service emergency, customers are often directly and seriously impacted. Both residential and commercial customers may experience losses of various kinds, from loss of electric service, a need to relocate either temporarily or permanently, or simply longer time to pay the electricity bill. Several CPUC decisions have directed the state’s utilities to offer an array of support service, as listed in this WMP section.²⁵⁹

SDG&E’s plan for 2021 focused on evaluating “new partnerships, programs, and service offerings both directly provided by the Company, as well as provided through community partnerships... (such as) 2-1-1 San Diego and 2-1-1 Orange County” for ways to support customers with access and functional needs (AFN customers).²⁶⁰

By the end of 2021, SDG&E’s QIU reported an extensive list of planned and implemented efforts to reach AFN customers’ please see the QIU for the full list. Notable were a) launching the AFN outreach campaign six months prior to its start in the previous year, b) SDG&E’s promotion of services for AFN customers offered by organizations affiliated with 2-1-1 San Diego and 2-1-1 Orange County, c) launching both PSPS and wildfire safety campaigns that ran concurrently during 2021, d) “Print advertising in Hispanic, Asian and African-American publications, as well as local publications in communities with elevated wildfire threat,” and e) notifications to likely PSPS-impacted customers “in all 21 prevalent languages and in a new format accessible to individuals with sensory disabilities.”²⁶¹

The IE sought to verify the extent of SDG&E customer support activities through the verification documents requested below. The IE’s questions and SDG&E’s response for 7.3.9.3 are below:

1. To document that representatives have responded to client emergencies in SDG&E’s Call Centers, Regional Public Affairs, Business Services, and Fire Coordination, please provide a sample of these reports from 2021 Qs 1-4.

SDG&E’s Response: “This initiative is specific to SDG&E’s response and support provided during wildfire or PSPS events. SDG&E did not experience any wildfire or PSPS events with customer

²⁵⁹ 2021 WMP Update, pgs. 320-324.

²⁶⁰ SDG&E QIU Q4-2021, initiative 7.3.9.3.

²⁶¹ Ibid.

impacts until November of 2021. For the single PSPS event that occurred in 2021, please refer to the attached documentation in folder “Response_ Question 5”²⁶² outlining the partnerships, referrals and types of support provided to customers. The attached include the list of enhanced CBO partnerships positioned to provide support to communities in the HFTD; a summary report of the types of service referrals provided to customers during the PSPS event, including direct services provided; validation of the generators provided to customers in 2021; and the PSPS After Incident report outlining the awareness and usage of SDG&E resources, Resources offered included – community resource centers, language preferences, generators, hotel stays, accessible transportation and meal availability. Also included in the attached is a third-party summary validating the number of generators provided to customers.”²⁶³

The materials provided in response to the IE’s request were complete, informative, and included third-party communications. While documentation describing the role of SDG&E’s Call Centers was not provided, SDG&E did list the community-based organizations that participated in providing support services to customers affected by PSPS events. SDG&E’s objective for this initiative was to provide these post-PSPS services, while deepening reach into more vulnerable communities. On the basis of this summary, reported performance and documentation, the IE verifies that SDG&E met its objectives for this initiative.

7.3.9.4 – Disaster and Emergency Preparedness Plan

In its 2021 WMP Update commitment under this initiative, SDG&E described the efforts of its Emergency Management department to ensure that “...all responders are prepared to respond safely and successfully to likely threats and hazards.” The three pillars of this responsive effort are “application of leading emergency management practices, maintaining 24/7 situational awareness utilizing state-of-the-art technology, and strengthening readiness through training and exciting ‘real-life’ scenarios.” To embody these areas of action, SDG&E prepares its Company Emergency Response Plan (CERP) according to an “all-hazards” approach, one that considers all hazards SDG&E might encounter.²⁶⁴

SDG&E’s 2021 plans included updating the CERP based on lessons learned from previous years, preparing enhanced processes and training exercises incorporating those lessons. The revised

²⁶² Appendix 8 - DR17-7.3.9.3-Customer supports during PSPS.

²⁶³ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 5.

²⁶⁴ 2021 WMP Update, pg. 325.

CERP was circulated for comments then finalized and approved by the CEO and codified before year-end. During 2021, three new PSPS exercises and three Deputy Officer in Charge workshops based on these lessons learned were conducted.

The IE sought information to verify the accessibility of the CERP to employees during 2021. The IE's questions and SDG&E's response for 7.3.9.4 are below:

1. Please document how the CERP was made accessible to employees in 2021.

SDG&E RESPONSE: "The CERP, now retitled the Community Emergency and Disaster Preparedness Plan (CEADPP) per GO 166, is accessible to employees via the EOC Operations SharePoint drive. This SharePoint drive is the document repository for all emergency plans."²⁶⁵

The SDG&E SharePoint drive is not accessible to the IE. The IE makes no determination whether or not SDG&E met its objectives for this initiative.

7.3.9.5 – Preparedness and Planning for Service Restoration

SDG&E, like utilities of all sizes and geographies across the country, has a long history of collaboration to restore service following extreme weather or other service disruptions. In responding to this initiative, SDG&E describes its reliance on an extensive history and network of mutual assistance to assist in restoring service as quickly and efficiently as possible. SDG&E is a member of several organizations that facilitate mutual assistance agreements and maintains three such agreements—for California, the western region, and nation-wide. In 2020, SDG&E's Mutual Assistance Plan was updated to incorporate guidelines for COVID-19.²⁶⁶

For 2021, SDG&E's plans included "...transitioning from cash advances to a debit card system for per diem disbursements. Debit card systems are safer for COVID-19 purposes as handling cash is discouraged by the Centers for Disease Control." By the end of 2021, SDG&E reported that the debit card system for payments between mutual assistance organizations had been finalized, and used in connection with payments to Imperial Irrigation District and PG&E.²⁶⁷

²⁶⁵ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 6.

²⁶⁶ 2021 WMP Update, page 327-28. Mutual assistance organizations include, for example, California Utilities Emergency Association; Western Regional Mutual Assistance Group; Western Energy Institute, and the American Gas Association, among others.

²⁶⁷ SDG&E QIU Q4-2021, initiative 7.3.9.5.

The IE sought information to verify actual collaboration between mutual assistance organizations, by documenting use of the new payment system. The IE's question and SDG&E's response for 7.3.9.5 are below:

1. Please provide a report showing usage of SDG&E's debit-card system of payments between mutual assistance orgs in 2021, ideally in Q4.

SDG&E RESPONSE: "SDG&E provided mutual assistance to PG&E in Oct 2021.²⁶⁸ Attached is the Per Diem credit card log for the event located in "Response_Question 7."²⁶⁹

SDG&E provided documentation of the mutual assistance payment system between SDG&E and listed individuals, used to provide per diem for their service in support of an agreed mutual assistance request. On this basis, the IE accepts that the debit card payment exists, sufficient to verify the reported performance for this initiative.

Training records also confirm extensive SDG&E training on technical topics relevant to system restoration work, and that session attendance in annual Compliance/ Refreshers is high—68% of total 2021 training done. In these two ways, then, the IE is able to verify that SDG&E has both trained personnel and mutual aid processes in place to support the preparedness that is the focus of this initiative. On the basis of this summary, reported performance and the documentation provided, the IE Verifies that SDG&E met its objectives for this initiative.

7.3.9.6 – Protocols in Place to Learn from Wildfire Events

SDG&E's response to initiative 7.3.9.6 "Protocols in place to learn from wildfire events" describes SDG&E's use of an "After-Action Review" (AAR) program to systematically review incidents and capture vital intel from incident participants in a manner that is inclusive, data-driven and strategic. In the case of AARs focused on wildfire events, the process solicits input and feedback from external partners such as CAL FIRE, San Diego Fire and Rescue, as well as other key participants and stakeholders.²⁷⁰

²⁶⁸ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 7.

²⁶⁹ Appendix 8 - DR17-7.3.9.5-Mutual assistance payment log.

²⁷⁰ 2021 WMP Update, pg. 328.

In 2021, SDG&E planned to review all incidents “to identify potential improvements and establish a comprehensive and measurable After-Action Report.” By year-end, SDG&E's After-Action Review application was being beta-tested prior to launch.

The IE sought information to verify that the AAR process was in use, even if not fully final. IE's questions and SDG&E's response for 7.3.9.6 are below:

1. Please provide documentation of at least two improvements made to the After-Action Review program in 2021—ideally in Q4—to incorporate learning from wildfire events.

SDG&E's Response: “The first After-Action Review (AAR) program improvement is centered around post-PSPS event continuous improvement methods; namely, web-based evaluations. In years prior, web-based evaluations (i.e., electronic surveys) were created post-event, complete with a review and approval process. In 2021, the AAR program pre-developed and pre-approved several survey templates for quick customization and dissemination to address various scenarios, including cascading threats, extended PSPS events, and short-lived weather events with limited scope. This new process ensured that feedback was shared more quickly with more accuracy.

A second process improvement developed addressed the need to integrate stakeholders into the improvement planning stage following a PSPS event. In years prior, key stakeholders were tasked to draft corrective actions to lessons learned in their area of expertise. The process was improved in Q4 of 2021 by incorporating an improvement planning session immediately following a post-event de-brief. First, lessons learned were collected, then subject matter experts were charged with attending an improvement planning session to prioritize, action plan, and discuss continuous improvement.”²⁷¹

SDG&E's response to requests for verification documents yielded qualitative descriptions without any backup documentation. It appears that SDG&E does not commit its After-Action Review processes to any form of documentation that might have been used to verify the examples provided. In the absence of such documentation, the IE is not able to verify that SDG&E met its 2021 objectives for this initiative.

²⁷¹ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 8.

7.3.9.7 – Other – Emergency Management Operations

Under the heading of “Other emergency management operations” (Initiative 7.3.9.7), SDG&E described its participation in state and federal emergency management communications networks to ensure “a common organizational structure and ...mechanism to direct those functions during an emergency response.” SDG&E’s Emergency Management department is charged “to support effective, efficient, and collaborative planning, preparedness, response and recovery processes for all hazards and risks.”²⁷² This section further describes the protocols under which SDG&E’s Emergency Operations Center (EOC) operates during any incident or emergency, including the 299 days in 2020 of the COVID-19 emergency.

SDG&E’s 2021 plans under 7.3.9.7 included collaboration between the Emergency Management division’s training and exercise team and the AAR program to capture lessons learned from emergency operations and/or incidents, to ensure these are incorporated into future training. By the end of 2021, SDG&E reported “a total of 15 emergency exercises and 30 trainings in 2021.”

The IE sought verification of the emergency management collaboration and trainings reported in 2021. IE’s question and SDG&E’s response for 7.3.9.7 are below:

1. Please provide documentation of SDG&E conduct or participation in the 15 emergency exercises and 30 trainings in 2021, choosing one sample from each of Q1-4 in 2021.

SDG&E RESPONSE: “SDG&E has attached is the requested documentation within the file “Response_Question 9,”²⁷³ which contains two files of training and exercise documentation and associated tracker.”²⁷⁴

On the basis of this summary, the outcomes reported, and the verification documentation provided, the IE verifies that SDG&E met its objectives for this initiative.

5.3.10 - Stakeholder Cooperation & Community Engagement

²⁷² Ibid, pg. 329.

²⁷³ Appendix 8 - DR17-7.3.9.7-Emergency mgmt operations

²⁷⁴ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 9.

“A first-class level of engagement and cooperation amongst all wildfire stakeholders is extremely important to SDG&E”²⁷⁵ are the opening words in this WMP Initiative category, focused on Stakeholder Cooperation and Community Engagement. The community of stakeholders in all wildfire events, both actual and preventative, is extremely large—encompassing as it does all the communities, customers residential and nonresidential, and the agencies and community-based organizations that work and serve in these communities. SDG&E employees and management are also critical partners in the effort to prevent wildfires, while providing an essential service required by all stakeholders in this extended partnership.

This section of the ARC, and the WMP on which it is based, examines SDG&E’s actions to engage those communities in multiple ways, all intended to mitigate if not prevent any loss or damage resulting from wildfires and planned or unplanned outages that may accompany them.

7.3.10.1 – Community Engagement – Community Outreach and Public Awareness

“The importance of providing accurate, timely information to increase public awareness cannot be understated,” in reference to wildfire safety and community outreach.²⁷⁶ While 7.3.10.1 is the general category for community engagement activities in the WMP’s chapter on stakeholder engagement, SDG&E described community awareness and outreach activities fully under section 7.3.9.2, where these are placed in the context of emergency planning and preparation. Other community engagement and outreach activities have also been reported under PSPS Communications practices (7.3.10.1.1, following section) described below, and 7.3.6.5 (PSPS), with which these initiatives have been combined. The IE makes no determination on whether the objectives of 7.3.10.1 have been met.

7.3.10.1.1 – PSPS Communication Practices

As SDG&E points out in this section of 2021 WMP Update,²⁷⁷ communications focused on PSPS events are closely tied if not tightly interwoven with the SDG&E’s communications efforts focused on wildfire safety. This section discusses how SDG&E conducts its PSPS communications efforts in three phases. The intent is to reach and inform the public *before* a PSPS event, keep

²⁷⁵ 2021 WMP Update, pg. 334.

²⁷⁶ Ibid, pg. 335.

²⁷⁷ Ibid. pg. 337.

them safe and aware *during* the event, and then invite their feedback *after* the event is concluded.

For 2021, SDG&E planned to improve its PSPS communications efforts by expanding outreach to AFN customers and starting their awareness campaign earlier in the year.

By the end of 2021, SDG&E reported multiple PSPS communications and outreach accomplishments, among them the following:²⁷⁸

- Launched an AFN landing page (SDG&E.com/AFN), bringing available resources together in one place, including safety and education information about wildfire preparedness, PSPS solutions and customer assistance programs;
- Incorporated American Sign languages within PSPS public education campaign via subtitles, captions and alternative text (Alt Text) on photos and images used on the wildfire safety and PSPS webpages;
- Offered PSPS public awareness communications in English, Spanish, and in 21 prevalent languages, achieving more than 74 million in-language impressions;
- Achieved more than 310 million impressions (touchpoints) by the start of Q4, exceeding the goal of 200 million impressions through year-end;
- Emphasized the connection between PSPS and wildfire safety in a manner that was understandable to customers and the general public;
- Ran the PSPS campaign year-round across the entire service territory, achieving PSPS communications customer favorability rating of 67% in the HFTD, an increase from 55% in 2020, and a 57% favorability rating in non-HFTD.

The IE sought information that would enable verification of the PSPS communications and outreach activities that are the focus of 7.3.10.1.1. The IE's questions and SDG&E's response for 7.3.10.1.1 – PSPS communication practices are below:

1. Please provide documentation of the total downloads of the PSPS app in 2021 and the recorded satisfaction rate as stated in the WMP.
2. Please provide samples of the messaging and public education events for the PSPS program from each of Q1-4 in 2021.

²⁷⁸ Outcomes reported by SDG&E under this initiative were extensive; please see SDG&E QIU Q4-2021, Initiative 7.3.10.2 for the full list. Please note that many of these accomplishments are also attributed to 7.3.9.2.

SDG&E's RESPONSE: "Included in the attached folder "Response_ Question 10"²⁷⁹ is the total number of downloads of SDG&E's PSPS Alerts app (Apple and Android) for 2021, along with the customer satisfaction rating included in the 2021 PSPS After Incident customer results survey. Also attached are multiple samples of some of the direct-to-customer PSPS public education messaging and materials used to inform the public of the 2021 PSPS public education campaign. Also included is a 2021 recap of the campaign which provides a campaign overview, executive summary, the strategies employed, campaign timeline, tactics utilities, overall results, and takeaways. Lastly, please refer to the 2021 PSPS customer survey results measuring the effectiveness of SDG&E's public education efforts."²⁸⁰

SDG&E's responses to the verification requests for this initiative were responsive to the questions and complete. The verification documents also corroborate similar documents and responses provided in related initiatives. On the basis of this summary, therefore, SDG&E's reported targets and 2021 performance, and the documentation provided to verify those results, the IE verifies that SDG&E met its objectives for this initiative.

7.3.10.2 – Cooperation and Best Practice Sharing with Agencies

Initiative 7.3.10.2 is a general category over two related subsidiary initiatives, verified in the sections that follow. Despite the absence of any 2021 objective for 7.3.10.2, the IE retained this initiative in this report because it was included in the financial reports of WMP spending discussed in Chapter 3.2 Verification of Funding. Without targets or reported results, however, the IE did not undertake any verification effort. The IE has not made a determination regarding completion of any 2021 work fitting Energy Safety's description for this category.

7.3.10.2.1 – Emergency Management and Fire Science & Climate Adaptation

Under this Initiative in the 2021 WMP Update,²⁸¹ SDG&E describes the mandate and capability of the two departments charged under this initiative: Emergency Management Department and the Fire Science and Climate Adaptation Department. Each of these teams is integral to SDG&E's WMP strategy, implementation, and track record in wildfire mitigation.

²⁷⁹ Appendix 8 - DR17-7.3.10.1.1-PSPS awareness campaign documentation.

²⁸⁰ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 10.

²⁸¹ 2021 WMP Update, pg. 342.

In 2021, SDG&E planned to continue to build on the track record of these two departments in understanding and responding to wildfire and other hazards implicated in the changing climate, through collaboration with agencies. By year-end, SDG&E reported “SDG&E was successful in anticipating, preparing for, reacting to, and recovering from periods of high fire risk. We collaborated across all stakeholder groups from local to international and worked towards assisting our communities in their resilience building efforts.”²⁸²

The IE sought information to verify the inter-agency collaboration in the service of better understanding climate science, as a reported outcome of this initiative. The IE’s questions and SDG&E’s response for 7.3.10.2.1 are below:

1. Please provide samples of 2021 communication with local and international stakeholder groups regarding this collaboration. Please provide at least one example for each of Q1 through 4.

SDG&E RESPONSE: “Please see attachment for response to question 11, which includes screenshots of recurring meetings with local and international stakeholders.”^{283, 284}

SDG&E provided screenshots of meeting requests with entities with which they partner in these areas. In the first screenshot, the collaboration with San Jose State University was documented; in the second, routine meetings of the “FireScout” comprised of internal SDG&E and external collaborators were shown. SDG&E’s 2021 objective and reported outcomes in both areas were to continue these collaborations throughout the year. On the basis of the documentation provided, the IE verifies that SDG&E met its objectives for this initiative.

7.3.10.2.2 – International Wildfire Risk Mitigation Consortium

In the 2021 WMP Update, SDG&E described its membership in the International Wildfire Risk Mitigation Consortium (IWRMC). The IWRMC was formed to accelerate the development of new approaches to wildfire mitigation by sharing learnings with member utilities in the US, Australia, South America, and elsewhere.²⁸⁵

²⁸² SDG&E QIU Q4-2021, initiative 7.3.10.2.1.

²⁸³ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 11.

²⁸⁴ Appendix 8 - DR17-7.3.10.2.1-FSCA stakeholder collaboration

²⁸⁵ 2021 WMP Update, pg. 344.

SDG&E described the Consortium's plans for 2021 as "The consortium plans to continue to add utilities interested in participating and contribute to the collaboration and learnings," from which SDG&E hopes to gather additional implementation ideas to "...inform future SDG&E wildfire risk mitigation related work." By year-end, SDG&E had maintained its membership in IWRMC throughout the year.

The IE sought information to enable verification of the Consortium's activities and SDG&E's 2021 participation in them. IE's questions and SDG&E's response for 7.3.10.2.2 are below:

1. Please provide a list of participating utilities in the International Wildfire Risk Mitigation Consortium.
2. Please provide meeting minutes or an equivalent documentation attesting to SDG&E's participation in a 2021 Consortium activity, preferably in Q4 of 2021.

SDG&E RESPONSE: "Please see attachments in Response_Question 12²⁸⁶ which includes documentation attesting to SDG&E's participation in the 2021 consortium. Utilities and participants that participate in the consortium are:

- The Centre for Energy Advancement through Technological Innovation from Canada
- Eskom from South Africa
- SA Power Networks from Australia
- Daochun Huang, an engineer from China
- Technosylva from Spain
- Israel Electric Corporation from Israel
- SDG&E from U.S"²⁸⁷

As evidence of its participation in the Consortium's 2021 activities, SDG&E submitted a list of members in the working group in which it participates, and a technical paper submitted to this group in 2021.²⁸⁸ In light of the 2021 objectives, reported and verified performance, the IE verifies that SDG&E met its objectives for this initiative.

²⁸⁶ Appendix 8 - DR17-7.3.10.2.2-IWRMC-participation

²⁸⁷ Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 12.

²⁸⁸ Appendix 8 - DR17-7.3.10.2.2-IWRMC-participation

7.3.10.3 – Cooperation with Suppression Agencies

Fire suppression agencies include many partners with which SDG&E partners closely, including cooperating agencies in San Diego County, Orange County, and Imperial Valley. Other cooperating agencies include state, tribal and federal fire suppression entities. With all of these, as well as with local fire departments in communities throughout SDG&E's service territory, SDG&E seeks to maintain open communications and collaborative relationships. In service of these relationships, for example, SDG&E attends regular meetings with wildfire training personnel and representatives from local agencies and offers training and other exercises that bring suppression personnel together.²⁸⁹

At the beginning of 2021, SDG&E's plans included refining its wildfire training efforts to ensure that offerings feature topics of interest to firefighters. By year-end, SDG&E reported a total of 30 training events reaching almost 2,000 trainees and instructing at the County Wildland Drill in San Diego County on emergency response in the context of utility hazards.²⁹⁰

The IE sought to verify trainings performed in conjunction with other fire suppression agencies. The IE's questions and SDG&E's response for 7.3.10.3 are below:

1. Please provide a sample of meeting minutes or equivalent documentation from 2021 to verify SDG&E's participation in the 2021 San Diego County Wildland Drill and performance of three trainings with cooperating suppression agencies.

SDG&E RESPONSE: "Provided in the folder titled Response_Question 13²⁹¹ are the following:

- A press release from the 2021 County Wildland Drill (indicated SDG&E's involvement (3-day drill with numerous local, state, and federal fire agencies, where SDG&E provides line crews to practice wire down procedures and Fire Coordinators staffing burn tables to practice the logistics of mitigating hazards during a fire),
- An update provided to the County Chief's Association in October 2021,
- The San Diego Evacuation Planning Committee minutes,
- A filtered excel spreadsheet documenting various trainings with the fire agencies in SDG&E service territory."

²⁸⁹ 2021 WMP Update Ibid, pg. 345.

²⁹⁰ SDG&E QIU Q4-2021, initiative 7.3.10.3

²⁹¹ Appendix 8 - DR17-7.3.10.3-Cooperation w suppression agencies.

The provided records come from Fire Coordination and there are other related groups within SDG&E who also provide training to their expertise—for example, SDG&E’s Operations, Field, and Emergency Readiness (OFER).²⁹²

From the press release to the minutes of planning committee meetings, the verification documents provided were complete and responsive. On the basis of the performance reported and the verification documentation provided, the IE verifies that SDG&E met its objectives for this initiative.

7.3.10.4 – Forest Service and Fuel Reduction Cooperation and Joint Roadmap

SDG&E described its plan for initiative 7.3.10.4 by reference to 7.3.5.2., “Detailed inspections of vegetation around distribution electric lines and equipment (tree trimming).²⁹³ The tree trimming description, however, while describing in detail SDG&E’s system of VMAs, certified vendors and Vegetation Work Management System, does not include mention of efforts that might fall under the heading of “forest service and fuel reduction cooperation” and/or “joint roadmap.”

SDG&E reported no qualitative targets or outcomes for this initiative in 2021. On the basis that SDG&E provided no funding, descriptive targets, outcomes, or other 2021 evidence of effort under this initiative, the IE makes no determination regarding this initiative.

7.3.10.5 – Non-Conductive Balloon Initiative

Balloons coated with mylar, or metallic foil have, according to SDG&E, “...caused over 520 costly outages and 18 dangerous fire ignitions in the last five years.”²⁹⁴ To proactively address this issue, SDG&E has worked with a balloon manufacturer to develop a non-conductive balloon, one that will not cause a fault or ignition when in contact with power lines.²⁹⁵

SDG&E’s 2021 plans included continued collaboration with the balloon manufacturer toward a prototype non-conductive balloon. By year-end, the prototype had successfully passed testing at

²⁹² Appendix 8 - DR17-Batch 2-SDG&E_narrative_responses, Question and Response 13.

²⁹³ 2021 WMP Update, pg. 346 (7.3.10.4) and pg. 267 (7.3.5.2).

²⁹⁴ Per SDG&E website at <https://www.SDG&E.com/safety/electrical-safety/mylar-balloons>.

²⁹⁵ 2021 WMP Update, pg. 347.

the 33kV level at a test lab; SDG&E had moved forward to execute a commercial agreement with a balloon manufacturer to commercialize the new balloon within the balloon industry, and SDG&E had submitted the commercial agreement to the CPUC under Advice Letter (AL, SDG&E-3841-E).

Activity under this initiative has been verified in the following ways:

- Public Documentation – The IE accessed Advice letter SDG&E-3841-E²⁹⁶ which, although approved in April 2022, was filed with the CPUC on August 31, 2021. It therefore verifies 2021 activity on this initiative.
- IE Verification Request – The IE’s questions and SDG&E’s response for 7.3.10.5 are below:
 1. Please provide a sample of 2021 correspondence with balloon manufacturers discussing the non-conductive balloon initiative.

SDG&E RESPONSE: “The attached email Response_Question 14²⁹⁷ contains an email correspondence regarding the agenda for an Institute of Electrical and Electronics Engineers (IEEE) meeting with IEEE members that includes a manufacturer in attendance to develop the industry standard.”

SDG&E submitted documentation of a meeting with the IEEE PES Distribution working group as verification of these communications. The IE was also able to access the public Advice Letter referenced above. On the basis of SDG&E’s 2021 objective and this verification documentation, the IE verifies that SDG&E met its objectives for this initiative.

3.1.5.2 Trends and Themes

Include any trends or recurring themes that the Independent Evaluator found while assessing utility compliance to Qualitative Goal/Target initiatives.

The IE recognizes the importance of pulling “Trends and Themes” out of the detailed assessments of individual initiatives. This section highlight’s themes that became clear over the portfolio of initiatives verified through qualitative means. Of the 70 initiatives in the Qualitative section, 49 have been verified and 23 have not. Of the 21 unverified initiatives, the IE considered 21 unverifiable and 2 were not verified for other reasons explained in those sections.

²⁹⁶ Please see Appendix 9 - DR18-7.3.10.5 - AL-3841-E Mylar balloons.

²⁹⁷ Appendix 8 - DR17-7.3.10.5-Non-conductive balloon IEEE correspondence.

It is important to highlight upfront that the over two-thirds of the Qualitative initiatives were verified. 32 of these initiatives were verifiable based on SDG&E's reported outcomes and documentation provided in response to the IE's verification requests. The category of vegetation management had a substantially higher number of qualitative initiatives than other categories in this chapter, and of the 16 total the IE found 14 verified and only 2 unverified. Vegetation management findings are covered in more detail in 3 other chapters. Within the Qualitative category of initiatives, whether verified and not, clusters of reasons arose. This summary describes those themes and raises them for further discussion.

The major trend across these initiatives, seen elsewhere in this ARC as well, has been the challenge of securing high quality information. For qualitative initiatives, the challenge was apparent in SDG&E's responses to the IE's requests for verification documentation. In several cases, initiatives were deemed impossible to verify because no objective evidence of the initiative's performance in 2021 was provided. The responses repeated information already public and/or answered in global, generic ways rather than in the specific terms requested by the IE.

A second significant trend concerns the manner in which SDG&E categorizes its activities under the outline and headings of the WMP. Twelve initiatives were affected by this issue. Of these 12, the IE was able to verify five of them in other ways, but seven could not be verified.

The IE understands that consolidating initiatives into groups for implementation or budgeting purposes may have a pragmatic usefulness. For tracking performance, however, such "lumping" makes it much more difficult to verify any of the subsumed initiatives. SDG&E reports no outcomes, simply "Initiative is part of [x – another] initiative." In some cases, up to 15 initiatives have been lumped into an initiative deemed 'over-arching' by SDG&E. The IE is not able to verify compliance with any of those "lumped" initiatives.

Ideally, objectives and targets should be Specific, Measurable, Achievable, Relevant, and Time-Bound. As a general theme particularly affecting the Qualitative activities, if no objective stated and no metric in place, the challenge of verification increases. The IE finds SDG&E non-compliant (unverified) in many Qualitative initiatives that may have been verified by SMART goal setting.

A third trend is that of documentation missing or just not provided. This was evidenced by 11 initiatives, all of which the IE was not able to verify. In the absence of documentation, the IE is unable to ascertain whether or not work fitting SDG&E's description for that category took place.

This does not mean the actions didn't take place, but only that the IE has no evidence that it did. Two trends related to this:

- An observable increase in IE effort to seek verification information in other ways, based not on the SDG&E's responses, but upon further independent investigation: online research, aerial maps, visual intel, etc. The scope of the IE assignment, however, does not include figuring out how to document what SDG&E did using any means possible; rather, the IE's job is to verify based on their WMP reporting.
- IE's difficulty confirming the presence of a program, or an initiative in progress, without verifiable objectives required of that initiative. If a target in an initiative is only partially verifiable or there are portions missing, then it has been reported as unverifiable.

The last trend raised through the Qualitative analysis raises areas of ambiguity still inherent in the IE process. These include:

- Objectives matter. The IE found that, when SDG&E set clear quantitative objectives, there is no ambiguity of expectation. In categories of WMP effort only measurable by qualitative means, however, SDG&E lumps initiatives together, labels them "N/A", or in other ways renders them unverifiable.
- Whose objectives? When confronted with a WMP category empty of any SDG&E objective, the IE's interpretation of its mandate was "If the WMP has an initiative for this, we should attempt to verify, even if SDG&E doesn't agree." In so doing, we were effectively substituting an assumed Energy Safety objective for an absent SDG&E objective.

As shown in discussion of the qualitative initiatives, this approach did not always work. For future years, clarification of the IE's role upon discovery of such a gap would be helpful.

Finally, the line between poor reporting and noncompliance is ambiguous. Only what gets measured and reported can be evaluated. The IE finds SDG&E unverified in many initiatives that may have been ameliorated by accurate documentation and reporting. In other cases, the outcome under one initiative has been lumped into another category, leaving it impossible to verify.

In the final assessment of the qualitative section, the IE finds it possible to verify that SDG&E met its 2021 WMP objective in about 70% of qualitative initiatives across all initiative categories.

3.2 Verification of Funding

The Financial Verification activities, SOW Task 3, is led by MM & Co, a CPA firm based in Santa Ana, CA. In regard to their IE efforts, MM & Co followed the April 15, 2022, OEIS guidance closely, which confirms that “the structure of the verification of the funding activities to be in accordance to Generally Accepted Auditing Standards (GAAS) and/or Generally Accepted Government Auditing Standards (GAGAS).”

The IE team first clarified that GAAS and GAGAS are two separate standards that can be generally applied in different situations. Incidentally, GAGAS requires additional standards that are not applicable under GAAS. MM & Co recommends the use of GAAS as the standards included therein are sufficient for the purpose of the review. To expand, GAAS consists of 10 sets of specific standards: three general standards, four reporting standards, and three standards for financial field work. To the extent possible and applicable in the context of IE verification of WMP performance, the IE followed these standards and reports findings in accordance with that structure.

In guidance received from Energy Safety on April 28, 2022, the IE agreed that GAAS standards should serve as “guide rails” to guide the methodology—but not to require full-scale audits—for the conduct of the financial verification tasks. The sampling approach proposed by the IE begins with the 2021 Q4 Quarterly Data Report (QDR): Non-Spatial financial data reported in Table 12²⁹⁸. The IE team confirmed that each Actual Initiative Total in the QDR is linked to a General Ledger (GL) report that captures 100% of the expenditures associated with that Initiative.

The IE requested from SDG&E definitive 2021 totals for both the 2021 Target / Planned and Actual expenditures in each of the 112 WMP Initiative accounts. To support each of these totals, a Population Report from SDG&E’s GL was also requested for each initiative.

On May 12th, 2022, the IE received an Excel file with financial data. The Excel workbook contained 5 sheets—please refer to the list below for information for each sheet received.

1. O&M Data
2. 11,240 rows of raw O&M data
3. Pivoted Capital Data
4. Capital data by project and month

²⁹⁸ See <https://www.SDG&E.com/2021-wildfire-mitigation-plan>; file “SDG&E WMP Quarterly Data Report on Spatial Non-Spatial 02-01-2022”

5. A screen shot of capital data query

The data received by the IE from SDG&E was highly structured, aggregated, and summarized. In order to conduct data review, the IE team determined to drill down into the data and pivots provided and reach transaction-level data with details and supporting documentation in primary-source system(s).

On the morning of May 23, 2022, in a video conference call, a Senior Legal Counsel for SDG&E expressed an opinion that IE's drilling down into the data and requesting a small sample of transaction-level data for review and validation is out of scope for the review under Energy Safety. At that point, any sharing of detailed financial and accounting data maintained by SDG&E was suspended.

On June 2, 2022, the IE received a confirmation from Energy Safety that the current level of information / verification was sufficient and met the scope of the review. Accordingly, the IE carried out their efforts of WMP financial review based on limited, highly aggregated, and summarized data provided.

A review of SDG&E's financial records disclosed that variances in planned and actual expenditures exist between SDG&E's 2021 ARC and the Table 12 information from the 2020-2022 Wildfire Mitigation Plan Update, which was utilized to report the planned and actual costs in the Independent Evaluator's Data Request #9 (DR9).²⁹⁹

Per SDG&E, the financial data provided in DR9, which was also reported in Table 3-1 of the 2020-2022 Wildfire Mitigation Plan Update (page 7), are the correct and most up-to-date costs. The noted variances appear to be attributable to financial data provided in DR9 that could not be accurately lined up to the initiatives in the ARC. As such, SDG&E underreported the 2021 planned and actual expenditures (Capital & Operating combined) in the amounts of approximately \$6.426 million and \$3.804 million respectively in the ARC. Please see Table 27 below detailing the variance by initiatives provided by SDG&E.

²⁹⁹ https://www.dropbox.com/scl/fi/ynwxkl07rbx1a3aumjjzf/2021-WMP-IE-ARC-Template_Draft.docx?cloud_editor=word&dl=0&rlkey=2mgw5zo9zao7zmr6cv8lfhbvf

Table 28: Variance by Initiative Provided by SDG&E.

Initiative	ARC Capital Target (000's)	ARC Capital Actual (000's)	ARC O&M Target (000's)	ARC O&M Actual (000's)	DR9 Capital Target (000's)	DR9 Capital Actual (000's)	DR9 O&M Target (000's)	DR9 O&M Actual (000's)	Notes
7.3.3.1	\$ 1,587	\$ 1,965	\$ -	\$ -	\$ 1,587	\$ 2,806	\$ -	\$ -	Process changed for 2022. ARC Actual amount represents work performed across one budget code whereas DR9 Actual included two budget codes. The second budget code has been split and will be excluded from WMP reporting going forward.
7.3.3.6	\$ -	\$ -	\$ 2,630	\$ 2,596	\$ -	\$ -	\$ -	\$ -	These costs in DR9 are now embedded within the inspection activities from which the pole replacements originate.
7.3.3.16	\$ 120,256	\$ 69,410	\$ -	\$ -	\$ 120,256	\$ 69,410	\$ 3,127	\$ -	No projected O&M shown ARC. Correct number provided in DR9.
7.3.4.6	\$ -	\$ -	\$ -	\$ -	\$ 1,521	\$ 1,906	\$ 633	\$ 803	Costs in ARC reflected within 7.3.3.6. Ongoing costs now tracked here as provided in DR9.
7.3.7.1	\$ 19,004	\$ 12,014	\$ -	\$ -	\$ 19,004	\$ 7,814	\$ -	\$ -	DR9 response includes \$5.9M moved from 7.3.9.1 to 7.3.7.1 and \$1.7M to moved from 7.3.7.1 to 7.3.8.1 to align with 2022 WMP.
7.3.7.3	\$ -	\$ -	\$ -	\$ -	\$ 3,689	\$ 2,800	\$ -	\$ -	This program was not included in ARC report, but should have been.
7.3.8.1	\$ 2,845	\$ 1,700	\$ 387	\$ 5,299	\$ 2,845	\$ -	\$ 387	\$ 5,299	DR9 response includes \$1.7M moved from 7.3.7.1 to align with 2022 WMP.
7.3.9.1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,950	\$ -	\$ -	ARC costs noted as being embedded within normal operations and not provided. DR9 includes these costs broken out here instead of 7.3.7.1.
7.3.9.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,981	\$ -	\$ 12,907	ARC costs for this initiative are embedded within 7.3.9.7.
7.3.9.7	\$ 5,473	\$ 2,981	\$ 12,153	\$ 12,907	\$ 5,473	\$ -	\$ 12,153	\$ -	This initiative was tracked with 7.3.9.2. ARC Actuals come from 7.3.9.2
7.3.10.5	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 86	\$ -	ARC costs tracked within Fire Science & Climate Adaptation program.

Table 29

	ARC Target (000's)	DR9 Target (000's)	Variance	ARC Actual (000's)	DR9 Actual (000's)	Variance
Cap	\$ 149,165	\$ 154,375	\$ 5,210	\$ 88,070	\$ 93,667	\$ 5,597
O&M	\$ 15,170	\$ 16,386	\$ 1,216	\$ 20,802	\$ 19,009	\$ (1,793)
Total	\$ 164,335	\$ 170,761	\$ 6,426	\$ 108,872	\$ 112,676	\$ 3,804

It does not appear the data updates from ARC (March 31,2022) to DR9 (May 12, 2022) were communicated to Energy Safety. When financial data updates were not included in the ARC submission, Energy Safety as the oversight agency could not adequately monitor the initiatives for under- or overspend. The IE recommends a formalized process to be established, requiring the utility operator to report financial data updates when changes exceed certain thresholds.

Table 30: Underfunded Initiatives.

Initiative Category	Initiative #	Initiative Name	2021 WMP Page #	Plan Capex	Plan Opex	Actual Capex	Actual Opex	Discrepancy	Opex Discrepancy	Capex % Discrepancy	Opex % Discrepancy	Detail on Discrepancy
Risk Assessment & Mapping	7.3.1.1	A summarized risk map showing the overall ignition probability and estimated wildfire consequence along electric lines and equipment [WRRM-Ops]	176	1,539	-	1,446	-	(93)	-	-6%	#DIV/0!	SDG&E met its planned goals for 2021 with regards to WRRM-Ops. Enhancements included upgrades to the herbaceous fuel moisture inputs, updated fuel layers, an updated forecaster interface, and a new version of the PSPS decision support tool which includes the latest data. Actual spend was 94% of plan.
Situational Awareness & Forecasting	7.3.2.1	Advanced weather monitoring and weather stations [Advanced weather station integration]	179	483	-	391	-	(92)	-	-19%	#DIV/0!	SDG&E was able to complete additional weather station rebuilds due to available inventory and crew availability to perform the work. SDG&E was able to more efficiently perform the extra work and actual spend was 81% of plan.
Situational Awareness & Forecasting	7.3.2.4.1	Fire science and climate adaptation department	183	3,486	3,289	38	2,812	(3,448)	(477)	-99%	-15%	The reduction from planned spend is related to the delays in design and construction of Joint Wildfire and Climate Resilience Center (WCRC)/Emergency Operation Center (EOC). These costs are expected in 2022 and 2023.
Grid Design & System Hardening	7.3.3.3	Covered conductor installation	191	55,000	1,500	39,389	519	(15,611)	(981)	-28%	-65%	The underspend in 2021 is related to engineering and design work for 2023 projects starting later than planned. The delays in beginning the engineering/design work were related to finalizing survey and basemaps. SDG&E hit all construction targets for 2021 but did not complete the amount of engineering/design work for 2023 scope that was originally planned.
Grid Design & System Hardening	7.3.3.7	Expulsion fuse replacement	196	10,176	-	6,489	-	(3,689)	-	-36%	#DIV/0!	The reduced spend can be attributed to efficiencies gained in the construction process in 2021. In 2021, SDG&E condensed the work of three budgets (Expulsion Fuse Replacement, Hotline Clamp Replacement, and Lightning Arrester Replacement) into one work mobilization resulting in savings on labor and equipment. Prior to 2021, these budgets were designed and issued for construction separately requiring an individual work mobilization for each budget.
Grid Design & System Hardening	7.3.3.8.1	PSPS sectionalizing enhancements	198	2,272	-	1,911	-	(361)	-	-16%	#DIV/0!	SDG&E was able to complete additional PSPS sectionalizing device installations due to available inventory and crew availability to perform the work. SDG&E was able to more efficiently perform the extra work and actual spend was 84% of plan.
Grid Design & System Hardening	7.3.3.8.2	Microgrids	200	18,943	1,427	12,997	1,378	(5,946)	(49)	-31%	-3%	The Microgrid target was reduced as part of SDG&E's Change Order Report filed on November 1, 2021. Delays in land acquisitions pushed final design and construction outside of 2021.
Grid Design & System Hardening	7.3.3.9	Installation of system automation equipment (Advanced Protection)	202	11,092	-	10,823	-	(267)	-	-2%	#DIV/0!	One circuit, C222, was delayed due to issues acquiring Caltrans permits, likely until Q4 2022. Two additional circuits, C974 and C221, were not completed due to timing and unfinished design scoping in coordination with traditional hardening programs. Several other circuits were placed on design hold based on updated WINGS analysis and the subsequent decision to rescope these traditional hardening projects with covered conductor and undergrounding, resulting in the removal of these circuits from the original target. Spend for this initiative was 98% of plan despite the shortfall in the number of units. This is because the work to install equipment within the substation was completed in 2021, but required work associated with traditional hardening programs was delayed as described above.
Grid Design & System Hardening	7.3.3.10	Maintenance, repair, and replacement of connectors, including hotline clamps	205	-	3,343	3,714	-	-	(1,628)	#DIV/0!	-30%	The reduced spend can be attributed to efficiencies gained in the construction process in 2021. In 2021, SDG&E condensed the work of three budgets (Expulsion Fuse Replacement, Hotline Clamp Replacement, and Lightning Arrester Replacement) into one work mobilization resulting in savings on labor and equipment. Prior to 2021, these budgets were designed and issued for construction separately requiring an individual work mobilization for each budget.
Grid Design & System Hardening	7.3.3.11.2	Standby Power Programs	210	-	10,330	8,994	-	-	(1,416)	#DIV/0!	-14%	Covid-19 delays regarding supply chain management of generators and a high demand of generator orders during severe weather conditions throughout the country delayed generator deliveries. While 86% of installations were fully complete, it is important to note that many installations were near completion. For instance, at the end of 2021 SDG&E had 406 generators installed in the ground awaiting only safety inspections, propane tank installations, or minor electrical updates. SDG&E had 467 User Agreements signed for the Program. County permitting also proved to take much longer than expected for commercial customer generator installations. Air Pollution Permit process extended the completion of commercial dates by 3-6 months. A handful of backup power systems also had to be redesigned to comply with new rooftop safety standards. For residential generator installations, contracted installers and residential customers had difficulty coordinating dates with the County to perform Final Safety Inspections in a timely fashion.
Grid Design & System Hardening	7.3.3.11.3	Resiliency Assistance Programs	212	-	1,828	744	-	-	(1,084)	#DIV/0!	-59%	The Generator Grant Program target was reduced as part of SDG&E's Change Order Report filed on November 1, 2021. The decreased spend is attributed to the reduction in the program target from 1,250 units to 600 units.

Grid Design & System Hardening	7.3.3.16	Undergrounding of electric lines and/or equipment (Strategic undergrounding)	215	120,256	3,127	69,410	-	(50,846)	(3,127)	-42%	-100%	The reduction in expenditures is not related to a change in the scope of the project as SDG&E met its target of 23 miles of completed undergrounding in 2021. The cost reduction is related to two main factors. The first is that SDG&E was able to more efficiently construct the new underground circuits through development of new construction standards, including allowances for a shallower trench, that has helped to reduce undergrounding construction costs on a per-mile basis. The second is that the projects chosen this year did not run into any subsurface conditions that required significant re-routes or alternate construction methods.
Grid Design & System Hardening	7.3.3.17.2	Overhead transmission fire hardening (Distribution Underbuilt)	221	5,914	-	5,469		(445)	-	-8%	#DIV/0!	Several projects were completed ahead of schedule leading to the completion of additional distribution underbuilt. SDG&E was able to complete the work more efficiently and actual spend was 92% of plan.
Grid Design & System Hardening	7.3.3.17.3	Cleveland National Forest fire hardening - Distribution OH	224	6,965	-	6,888		(77)	-	-1%	#DIV/0!	All targets were met and SDG&E was able to complete the work with actual spend at 99% of plan.
Grid Design & System Hardening	7.3.3.17.3	Cleveland National Forest fire hardening - Distribution US	224	6,051	-	5,653		(398)	-	-7%	#DIV/0!	All targets were met and SDG&E was able to complete the work with actual spend at 93% of plan.
Grid Design & System Hardening	7.3.3.18.1	Distribution communications reliability improvements	227	50,328	-	49,458		(870)	-	-2%	#DIV/0!	All targets were met and SDG&E was able to complete the work with actual spend at 98% of plan.
Asset Management & Inspections	7.3.4.1	Detailed inspections of distribution electric lines and equipment (5-year detailed inspections)	231	7,484	2,852	9,378	1,464	1,894	(1,388)	23%	-46%	O&M spend was lower than planned primarily due to a reduction in the number of crossarm repairs required in 2021.
Asset Management & Inspections	7.3.4.2	Detailed inspections of transmission electric lines and equipment (Transmission ground inspections)	233	787	-	337		(450)	-	-57%	#DIV/0!	The allocation of distribution spend for issues found as part of the transmission equipment inspections is based on the number of distribution issues while performing transmission inspections. SDG&E found less infractions on transmission infrastructure with distribution equipment than originally forecasted.
Asset Management & Inspections	7.3.4.4	Infrared inspections of distribution electric lines and equipment	236	-	175	146		-	(29)	#DIV/0!	-16%	SDG&E completed 95% of planned inspections in 2021. SDG&E was able to more efficiently perform the work and actual spend was 84% of plan.
Asset Management & Inspections	7.3.4.7	LIDAR inspections of distribution electric lines and equipment	242	-	1,800	1,151		-	(649)	#DIV/0!	-36%	The underspend for 2021 is related to timing of the LIDAR data capture and milestone payments associated with the vendor payment structure. The 73% data capture milestone was completed on January 4 th , 2022 and will be reflected in 2022. The expenditure related to this milestone would have put 2021 spend at 95% of target.
Asset Management & Inspections	7.3.4.9.1	HFTD Tier 3 Inspections	245	2,459	381	3,062	49	623	(332)	25%	-87%	The reduced O&M spend was lower than planned primarily due to spend embedded within 7.3.4.1 (Detailed Corrective Maintenance Program Inspections).
Asset Management & Inspections	7.3.4.9.2	Drone assessments of distribution infrastructure	247	13,595	35,358	12,636	33,108	(959)	(2,250)	-7%	-6%	SDG&E completed 97% of planned inspections in 2021. SDG&E was able to more efficiently perform the work and actual spend was 93% for capital and 94% for O&M compared to the plan.
Asset Management & Inspections	7.3.4.9.3	Circuit ownership	250	-	125	-	-	-	(125)	#DIV/0!	-100%	The circuit ownership initiative was stopped in 2021 due to lack of participation and the presence or development of other initiatives that provided alternative opportunities for employees to discover and report fire-related concerns. For instance, SDG&E performs additional inspections in the HFTD to identify fire-related infractions, and SDG&E's Near Miss application added a new category for "Potential for Fire Ignition" to allow any SDG&E employee to report items of concern.
Vegetation Management & Inspections	7.3.5.2	Detailed inspections of vegetation around distribution electric lines and equipment (tree trimming)	267	-	49,765	-	42,016	-	(7,749)	#DIV/0!	-16%	SDG&E completed 110% of planned inspections in 2021. SDG&E was able to more efficiently perform the work and actual spend was 84% compared to the plan.

Vegetation Management & Inspections	7.3.5.5	Fuel management and reduction of "slash" from vegetation management activities	270	-	6,206	4,350	-	(1,856)	#DIV/0!	-30%	There was a shift in focus midway through the year from agency lands to private properties which required customer permission to enter prior to conducting work. The process of acquiring permission led to some delays in work. Moving forward, notification to customers will be initiated well before work is scheduled to occur to ensure permissions are in place and reduce unnecessary delays. Lower spend is primarily timing related due to lack of customer permission to complete work in 2021.	
Vegetation Management & Inspections	7.3.5.9	Other discretionary inspection of vegetation around distribution electric lines and equipment, beyond inspections mandated by rules and regulations (Enhanced inspections, patrols, and trims)	276	-	10,235	9,955	-	(280)	#DIV/0!	-3%	SDG&E completed all inspections of inventory trees required in 2021, including assessing the 17,000 trees to determine if enhanced clearances were necessary. Upon inspection, SDG&E's pre-inspection contractor determined that only 12,578 required enhanced clearance work. Actual spend was 97% of plan.	
Grid Operations & Operating Protocols	7.3.6.6.1	Aviation firefighting program	296	10,183	7,610	13,461	6,330	3,276	(760)	32%	-10%	SDG&E met all targets associated with the Aviation Firefighting Program. Helicopter milestone payment and HD/IR camera payments accelerated into 2021 from 2022 account for the increase in capital costs. O&M costs ended the year at 90% of plan.
Data Governance	7.3.7.1	Centralized repository for data	303	19,004	-	7,814	-	(11,190)	-	-99%	#DIV/0!	Partial variance relates to \$2.1M that was budgeted for hardware and software. It was determined in the 3rd qtr. that neither were required to support the project.
Data Governance	7.3.7.3	Documentation and disclosure of wildfire-related data and algorithms	306	3,689	-	2,800	-	(889)	-	-24%	#DIV/0!	For WMP Advanced Analytics, the project started later in the year than planned, mid-September 2021, leading to reduced spend.
Resource Allocation Methodology	7.3.8.1	Allocation methodology development and application (Asset management)	309	2,845	387	-	5,299	(2,845)	4,912	-100%	1266%	Capital costs for this initiative reported in 7.3.7.1. O&M costs higher than planned primarily due to 2021 spend embedded within 7.3.8.4.1 Wildfire Mitigation Personnel. 7.3.8.1 and 7.3.8.4.1 combined total spend higher than planned primarily due to new regulatory requirements for WMP Independent Evaluator costs, not included in original target.
Resource Allocation Methodology	7.3.8.4.1	Wildfire mitigation personnel	312	-	4,153	-	-	(4,153)	#DIV/0!	-100%	-	Actual O&M costs reported within 7.3.8.1. See explanation in 7.3.8.1.
Emergency Planning & Preparedness	7.3.9.1	Adequate and trained workforce for service restoration	313	-	-	3,900	3,900	-	#DIV/0!	#DIV/0!	-	Planned costs reported in 7.3.7.1. See explanation for variance in 7.3.7.1.
Emergency Planning & Preparedness	7.3.9.2	Community outreach, public awareness, and communications efforts	315	-	-	2,981	12,907	2,981	12,907	#DIV/0!	#DIV/0!	Planned costs reported in 7.3.9.7. See explanation for variance in 7.3.9.7.
Emergency Planning & Preparedness	7.3.9.7	Other - Emergency management Operations	-	5,473	12,153	-	-	(5,473)	(12,153)	-100%	-100%	Delay in design and construction of joint Wildfire and Climate Resilience Center (WCRC)/Emergency Operation Center (EOC) led to reduced Capital spend. O&M spend was 100% of plan.
Stakeholder Cooperation & Community Engagement	7.3.10.3	Mylar Balloon Alternative	-	-	86	-	-	-	(86)	#DIV/0!	-100%	The O&M 2021 Target for this line item is embedded within the Fire Science & Climate Adaptation (FSCA) program in 7.3.2.4.1.

California Public Utilities Code § 8386, (h), (2)(B)(i) mandates, in part, that “the independent evaluator shall determine whether the electrical corporation failed to fund any activities included in its plan.” As evident from data in SDG&E’s ARC dated March 31, 2022, SDG&E spending is short in the following categories (NOTE: all amounts are in 1,000’s, unless otherwise noted):

Table 31: Spend Shortages by Category by \$ Amount (sorted).

WMP Category	2021 Planned	2021 Actual	(Underspend) / Overspend
7.3.3 Grid Design and System Hardening	415,358	335,230	(80,128)
7.3.7 Data Governance	22,693	12,014	(10,679)
7.3.5 Vegetation Management	71,639	61,877	(9,762)
7.3.4 Asset Management and Inspections	68,357	62,777	(5,580)
7.3.2 Situational Awareness	7,914	4,345	(3,569)
7.3.9 Emergency Planning	17,626	15,888	(1,738)
7.3.8 Resource Allocation	7,387	6,999	(388)
7.3.1 Risk and Mapping	1,539	1,446	(93)
7.3.6 Grid Operations	20,731	23,382	2,651

7.3.10 Stakeholder Cooperation and Community Engagement	13,222	15,973	2,751
Total	646,466	539,931	(106,535)

Table 30 above shows that the most underfunded Category in terms of \$ amount is 7.3.3 Grid Design and System Hardening.

Table 31 below shows the most underfunded Initiatives within that Category by \$ amount:

*Table 32: 7.3.3 Grid Design and System Hardening
Spend Shortages by Initiative by \$ Amount (sorted)*

WMP Category	2021 Planned	2021 Actual	(Underspent)
7.3.3.16 Strategic Undergrounding	120,256	69,410	(50,846)
7.3.3.3 Covered Conductor Installation (Capital)	55,000	39,389	(15,611)
7.3.3.8.2 Microgrids (Capital)	18,943	12,997	(5,946)
7.3.3.7 Expulsion Fuse Replacement (Capital)	10,178	6,489	(3,689)
7.3.3.10 Hotline Clamps (O&M)	5,343	3,714	(1,629)
7.3.3.11.2 Fixed Backup Power Program (O&M)	10,350	8,934	(1,416)
7.3.3.11.3 Expanded Generator Grant Program (O&M)	1,828	744	(1,084)
7.3.3.3 Covered Conductor Installation (O&M)	1,500	519	(981)

7.3.3.18.1 Distribution Communicated Reliability Improvements	50,328	49,458	(870)
7.3.3.8.2 Microgrids (O&M)	1,427	1,378	(49)

SDG&E explains in its ARC that the funding shortage for 7.3.3.16 Strategic Undergrounding initiative—or, rather, costs saving—is the result of 1) construction efficiencies and 2) favorable subsurface conditions. The goal for this particular initiative is over-achieved by 4% as 25.9 miles of undergrounding was actually completed as compared to 25.0 miles planned. The IE was not able to verify any of the above-mentioned claims because the detailed project data was not made available.

SDG&E’s explanation for a \$15.6M underfunding of the initiative 7.3.3.3 Covered Conductor Installation (Capital) is due to “delays ... related to engineering and design work for 2023 projects, [which] delays ... were related to finalizing survey and basemaps.” The IE was not able to verify these claims either due to the detailed project data not being made available.

Table 33: Spend Shortages by % Underspent (sorted).

WMP Category	2021 Planned	2021 Actual	(Underspend)	(-) Underspend % of Planned
7.3.7 Data Governance	22,693	12,014	(10,679)	-47.1%
7.3.2 Situational Awareness	7,914	4,345	(3,569)	-45.1%
7.3.3 Grid Design and System Hardening	415,358	335,230	(80,128)	-19.3%
7.3.5 Vegetation Management	71,639	61,877	(9,762)	-13.6%
7.3.9 Emergency Planning	17,626	15,888	(1,738)	-9.9%
7.3.4 Asset Management and Inspections	68,357	62,777	(5,580)	-8.2%

7.3.1 Risk and Mapping	1,539	1,446	(93)	-6.0%
7.3.8 Resource Allocation	7,387	6,999	(388)	-5.3%
7.3.6 Grid Operations	20,731	23,382	2,651	12.8%
7.3.10 Stakeholder Cooperation and Community Engagement	13,222	15,973	2,751	20.8%
Total	646,466	539,931	(106,535)	-16.5%

Table 30 above displays that the two of the most underfunded Categories of the WMP, by % of Actual vs. Planned Spend for that Category, are A) 7.3.7 Data Governance (47.1% short) and B) 7.3.2 Situational Awareness (45.1% short). The IE reviewed, in reverse order, the reasons given by SDG&E.

B) 7.3.2 Situational Awareness

SDG&E short-funded its Situational Awareness by \$3,569,000 of \$7,419,000 or 45%. The largest portion of the underspend (\$3.4M in Capital and \$0.5M in Operations) comes from “delays in design and construction of joint Wildfire and Climate Resilience Center (WCRC)/Emergency Operation Center (EOC).” The IE was not able to verify the validity of the above statement(s) as the detailed project data was not made available.

A) 7.3.7 Data Governance

SDG&E explained that \$2.1M of the underfunding for Data Governance came from “hardware and software” becoming unnecessary “to support the project.” The remaining shortage was explained by “WMP Advanced Analytics ... project start[ing] later in the year than planned.” (See ARC, page 69) The IE was not able to verify the validity of the above statement(s) as the detailed project data was not made available.

Recommendation

GAAS mandate, in part: “The auditor must obtain sufficient appropriate audit evidence by performing audit procedures.” Because the IE was not able to access detailed WMP accounting, costing, and other data, which prevented the IE from sampling, examining, reviewing, questioning, and validating details of WMP activities, the IE recommends that a follow-up financial review is conducted until PUC-mandated requirements are met fully, as set forth in

Public Utilities Code of California, Division 4.1. Chapter 6, § 8386, (h), (i) and (j), and further detailed in RFQ No.: 21-89482 dated Nov. 5, 2021, and the slides from “INDEPENDENT EVALUATOR KICK-OFF” dated Apr. 4, 2022.

Table 34: Large Volume Quantifiable – Field Verifiable Activities Budget Variance.

Large Volume Quantifiable - Field Verifiable Activities Budget Variance									
Category #	Category	Activity #	Activity	Units	Capital (\$000)		O&M (\$000)		% Budget
					Target	Actual	Target	Actual	
7.3.2	Situational Awareness & Forecasting	7.3.2.3	Wireless Fault Indicators	544.0	\$ 656	\$ 1,104			0.10%
7.3.3	Grid Design and System Hardening	7.3.3.3	Covered Conductor Installation	20.6	\$ 55,000	\$ 39,389	\$ 1,500	\$ 519	8.74%
7.3.3	Grid Design and System Hardening	7.3.3.7	Expulsion Fuse Replacement	3,976.0	\$ 10,178	\$ 6,489			1.57%
7.3.3	Grid Design and System Hardening	7.3.3.10	Hotline Clamps	2,743.0			\$ 5,343	\$ 3,714	0.83%
7.3.3	Grid Design and System Hardening	7.3.3.16	Strategic Undergrounding	25.9	\$ 120,256	\$ 69,410	\$ 3,127	\$ -	19.09%
7.3.3	Grid Design and System Hardening	7.3.3.17.1	Distribution Bare Conductor System Hardening	100.4	\$ 92,000	\$ 94,372	\$ 2,000	\$ 2,596	14.54%
7.3.3	Grid Design and System Hardening	7.3.3.17.2	Overhead Transmission Fire Hardening (OH Transmission)	6.7					0.00%
7.3.3	Grid Design and System Hardening	7.3.3.17.2	Overhead Transmission Fire Hardening (Distribution Underbuilt)	3.4	\$ 5,914	\$ 5,469			0.91%
7.3.3	Grid Design and System Hardening	7.3.3.17.3	Cleveland National Forest Fire Hardening (OH Transmission)	-					0.00%
7.3.3	Grid Design and System Hardening	7.3.3.17.3	Cleveland National Forest Fire Hardening (OH Distribution)	6.8	\$ 6,965	\$ 6,888			1.08%
7.3.3	Grid Design and System Hardening	7.3.3.17.3	Cleveland National Forest Fire Hardening (UG Distribution)	-	\$ 6,051	\$ 5,653			0.94%
7.3.3	Grid Design and System Hardening	7.3.3.18.2	Lightning Arrestor Replacement	1,789.0	\$ 1,297	\$ 2,030			0.20%
7.3.5	Vegetation Management Inspections	7.3.5.5	Fuels Management	463.0			\$ 6,206	\$ 4,350	0.96%
7.3.5	Vegetation Management Inspections	7.3.5.20	Pole Brushing	35,102.0			\$ 5,433	\$ 5,556	0.84%

Table 35: Large Volume Field Non-Verifiable Activities Budget Variance.

Large Volume Field Non-Verifiable Activities Budget Variance									
Category #	Category	Activity #	Activity	Units	Capital (\$000)		O&M (\$000)		% Budget
					Target	Actual	Target	Actual	
7.3.3	Grid Design and System Hardening	7.3.3.11.1	Customer Resiliency Programs	2,310.0			\$ 7,900	\$ 7,893	1.22%
7.3.3	Grid Design and System Hardening	7.3.3.11.2	Fixed Backup Power Program	355.0			\$ 10,350	\$ 8,934	1.60%
7.3.3	Grid Design and System Hardening	7.3.3.11.3	Expanded Generator Grant Program	735.0			\$ 1,828	\$ 744	0.28%
7.3.4	Asset Management and Inspections	7.3.4.1	Detailed Corrective Maintenance Program Inspections	22,354.0	\$ 7,484	\$ 9,378	\$ 2,852	\$ 1,464	1.60%
7.3.4	Asset Management and Inspections	7.3.4.2	Detailed Inspections of Transmission Equipment	1,957.0	\$ 787	\$ 337			0.12%
7.3.4	Asset Management and Inspections	7.3.4.4	Infrared Inspections of Distribution Infrastructure	17,068.0			\$ 175	\$ 146	0.03%
7.3.4	Asset Management and Inspections	7.3.4.5	Infrared Inspections of Transmission Infrastructure	6,239.0					0.00%
7.3.4	Asset Management and Inspections	7.3.4.6	Intrusive Pole Inspections – Distribution	8,721.0	\$ 1,521	\$ 1,906	\$ 633	\$ 803	0.33%
7.3.4	Asset Management and Inspections	7.3.4.9.1	HFTD Tier 3 Inspections	11,535.0	\$ 2,459	\$ 3,082	\$ 381	\$ 49	0.44%
7.3.4	Asset Management and Inspections	7.3.4.9.2	Drone Assessments of Distribution Infrastructure	21,420.0	\$ 13,595	\$ 12,636	\$ 35,358	\$ 33,108	7.57%
7.3.4	Asset Management and Inspections	7.3.4.9.4	Drone Assessments of Transmission Infrastructure	1,028.0					0.00%
7.3.4	Asset Management and Inspections	7.3.4.9.5	Aerial 69kV Inspections of Transmission Infrastructure	1,652.0					0.00%
7.3.4	Asset Management and Inspections	7.3.4.10	Patrol Inspections of Distribution Poles – CMP	86,490.0					0.00%
7.3.4	Asset Management and Inspections	7.3.4.11	Visual Inspections of Transmission Equipment	6,423.0	\$ 910	\$ 1,140	\$ 277	\$ 286	0.18%
7.3.4	Asset Management and Inspections	7.3.4.14	Substation System Inspections	405.0					0.00%
7.3.5	Vegetation Management Inspections	7.3.5.2	Detailed Inspections of Vegetation Around Distribution Infrastructure – Inventory Tree Inspections	502,132.0			\$ 49,765	\$ 42,016	7.70%
7.3.5	Vegetation Management Inspections	7.3.5.9	Other Discretionary Inspections of Vegetation Around Distribution Infrastructure – Enhanced Inspections, Patrols, and Trims	12,578.0			\$ 10,235	\$ 9,955	1.58%

Table 36: Small Volume Quantifiable Budget Variance.

Small Volume Quantifiable Budget Variance									
Category #	Category	Activity #	Activity	Units	Capital (\$000)		O&M (\$000)		% Budget
					Target	Actual	Target	Actual	
7.3.2	Situational Awareness and Forecasting	7.3.2.1	Advanced Weather Station Integration	46.0	\$ 483	\$ 391			0.07%
7.3.2	Situational Awareness and Forecasting	7.3.2.4.1	Fire Science and Climate Adaptation Department	17.0	\$ 3,486	\$ 38	\$ 3,289	\$ 2,812	1.05%
7.3.3	Grid Design and System Hardening	7.3.3.1	SCADA Capacitors	35.0	\$ 1,587	\$ 2,806			0.25%
7.3.3	Grid Design and System Hardening	7.3.3.8.1	PSPS Sectionalizing Enhancements	13.0	\$ 2,272	\$ 1,911			0.35%
7.3.3	Grid Design and System Hardening	7.3.3.8.2	Microgrids	-	\$ 18,943	\$ 12,997	\$ 1,427	\$ 1,378	3.15%
7.3.3	Grid Design and System Hardening	7.3.3.9	Advanced Protection	4.0	\$ 11,092	\$ 10,825			1.72%
7.3.3	Grid Design and System Hardening	7.3.3.18.1	Distribution Communications Reliability Improvements	10.0	\$ 50,328	\$ 49,458			7.79%

Table 37: Qualitative Activities Budget Variance.

Qualitative Activities Budget Variance									
Category #	Category	Activity #	Activity	Units	Capital (\$000)		O&M (\$000)		% Budget
					Target	Actual	Target	Actual	
7.3.1	Risk Assessment and Mapping	7.3.1.1	Summarized Risk Map: Operational Wildfire Risk Reduction Model		\$ 1,539	\$ 1,446			0.24%
7.3.2	Situational Awareness and Forecasting	7.3.2.4.2	Fire Potential Index						0.00%
7.3.2	Situational Awareness and Forecasting	7.3.2.4.3	Santa Ana Wildfire Threat Index						0.00%
7.3.2	Situational Awareness and Forecasting	7.3.2.4.4	High Performance Computing Infrastructure						0.00%
7.3.2	Situational Awareness and Forecasting	7.3.2.5	Operating Conditions						0.00%
7.3.3	Grid Design and System Hardening	7.3.3.6	Pole Replacement and Reinforcement						0.00%
7.3.4	Asset Management and Inspections	7.3.4.7	LiDAR Inspections of Distribution Equipment				\$ 1,800	\$ 1,151	0.28%
7.3.4	Asset Management and Inspections	7.3.4.8	LiDAR Inspections of Transmission Equipment						0.00%
7.3.4	Asset Management and Inspections	7.3.4.9.3	Circuit Ownership				\$ 125	\$ -	0.02%
7.3.4	Asset Management and Inspections	7.3.4.13	Monitoring and Auditing of Inspections						0.00%
7.3.5	Vegetation Management Inspections	7.3.5.1	Vegetation Management - Community Engagement						0.00%
7.3.5	Vegetation Management Inspections	7.3.5.7	LiDAR Inspections of Vegetation Around Distribution Infrastructure and Vegetation Management Technology						0.00%
7.3.5	Vegetation Management Inspections	7.3.5.13	Quality Assurance/Quality Control of Inspections						0.00%
7.3.5	Vegetation Management Inspections	7.3.5.14	Recruiting and Training of Vegetation Management Personnel						0.00%
7.3.5	Vegetation Management Inspections	7.3.5.16	Removal and Remediation of Trees with Strike Potential to Electric Infrastructure - Hazard Tree Removal and Right Tree-Right Place						0.00%
7.3.5	Vegetation Management Inspections	7.3.5.19	Vegetation Inventory System - Tree Database						0.00%
7.3.6	Grid Operations and Protocols	7.3.6.1.1	Recloser Protocols						0.00%
7.3.6	Grid Operations and Protocols	7.3.6.1.2	Sensitive / Fast Protection Settings						0.00%
7.3.6	Grid Operations and Protocols	7.3.6.2	Wildfire Infrastructure Protection Teams - Contract Fire Resources				\$ 2,936	\$ 3,071	0.45%
7.3.6	Grid Operations and Protocols	7.3.6.3	Other Special Work Procedures						0.00%
7.3.6	Grid Operations and Protocols	7.3.6.4	Protocols for PSPS Re-energization						0.00%
7.3.6	Grid Operations and Protocols	7.3.6.5	Mitigating the Public Safety Impact of PSPS Protocols						0.00%
7.3.6	Grid Operations and Protocols	7.3.6.6.1	Aviation Firefighting Program		#####	#####	\$ 7,610	\$ 6,850	2.75%
7.3.7	Data Governance	7.3.7.1	Centralized Repository for Data		#####	\$ 7,814			2.94%
7.3.7	Data Governance	7.3.7.2	Collaborative Research on Utility Ignition and/or Wildfire - Innovation Lab and Other Collaboration						0.00%
7.3.7	Data Governance	7.3.7.3	Documentation and Disclosure of Wildfire-Related Data and Algorithms		\$ 3,689	\$ 2,800			0.57%
7.3.7	Data Governance	7.3.7.4.1	Ignition Management Program						0.00%
7.3.7	Data Governance	7.3.7.4.2	Reliability Database						0.00%
7.3.8	Resource Allocation Methodology	7.3.8.1	Asset Management		\$ 2,845	\$ -	\$ 387	\$ 5,299	0.50%
7.3.8	Resource Allocation Methodology	7.3.8.4.1	Wildfire Mitigation Personnel				\$ 4,155	\$ -	0.64%
7.3.9	Emergency Planning and Preparedness	7.3.9.1	Adequate and Trained Workforce for Service Restoration		\$ -	\$ 5,950			0.00%
7.3.9	Emergency Planning and Preparedness	7.3.9.2	Community Outreach, Public Awareness, and Communication Efforts		\$ -	\$ 2,981	\$ -	#####	0.00%
7.3.9	Emergency Planning and Preparedness	7.3.9.3	Overview of Customer Support in Emergencies						0.00%
7.3.9	Emergency Planning and Preparedness	7.3.9.4	Overview of Emergency Preparedness Plan						0.00%
7.3.9	Emergency Planning and Preparedness	7.3.9.5	Preparedness and Planning for Service Restoration - Mutual Assistance and Contractors						0.00%
7.3.9	Emergency Planning and Preparedness	7.3.9.6	Protocols in Place to Learn from Wildfire Events - After Action Reports						0.00%
7.3.9	Emergency Planning and Preparedness	7.3.9.7	Other - Emergency Management Operations		\$ 5,473	\$ -	\$ 12,153	\$ -	2.73%
7.3.10	Stakeholder Cooperation and Community Engagement	7.3.10.1	Community Engagement - Community Outreach and Public Awareness				\$ 448	\$ 579	0.07%
7.3.10	Stakeholder Cooperation and Community Engagement	7.3.10.1.1	PSPS Communication Practices		\$ 3,302	\$ 5,186	\$ 9,386	#####	1.96%
7.3.10	Stakeholder Cooperation and Community Engagement	7.3.10.2.1	Emergency Management and Fire Science & Climate Adaptation						0.00%
7.3.10	Stakeholder Cooperation and Community Engagement	7.3.10.2.2	International Wildfire Risk Mitigation Consortium						0.00%
7.3.10	Stakeholder Cooperation and Community Engagement	7.3.10.3	Cooperation with Suppression Agencies						0.00%
7.3.10	Stakeholder Cooperation and Community Engagement	7.3.10.5	Non-Conductive Balloon Initiative				\$ 86	\$ -	0.01%

3.3 Verification of QA/QC Programs

This section should include a detailed description of all QA and QC programs that the Independent Evaluator validated during its compliance review. Independent Evaluators shall review all documentation and perform interviews to validate an electrical corporation's QA and QC programs for WMP compliance.

Per the Request for Proposals for Independent Evaluators, the IE Scope of Work for Task 4, Verification of QA/QC programs, consists of four subtasks. Each of these will be addressed in this section, with cross-references to other sections as appropriate. The IE was charged to:

- Obtain from SDG&E a complete list of all existing QA/QC programs “with detailed descriptions”
- “On an as-needed basis, request additional documentation and conduct SME interviews”. Please see Chapter 3.1.1 for discussion of SME interviews. The additional documentation requested is listed below.
- “Review all documentation and perform interviews, as needed, to validate QA and QC programs”. The IE’s steps to review these documents are described below and our findings summarized.
- “Include a description of all WMP compliance QA and QC programs in the final IE ARC”.

3.3.1 SDG&E Description of QA and QC programs

SDG&E’s Quality Control (QC) and Quality Assurance (QA) programs reflect its commitment to safety and reliability. The IE requested SDG&E’s description of these programs first through Data Request (DR) 9 as part of a request for financial verification information. The request was repeated under DR 20 to ensure the IE had requested and received a complete and inclusive description of all QA and QC programs. SDG&E’s response was the same to both DRs and is repeated here in its entirety. SDG&E described the following five QA/QC programs:

Vegetation Management QA/QC – Documented QA/QC activities are a critical component of a utility’s vegetation management program to measure contractor performance and to further safety, compliance, and reliability.

SDG&E utilizes a third-party contractor to perform quality assurance audits of vegetation management activities to measure work quality, contractual adherence, compliance, and to determine the effectiveness of each component of the program. These audits include a statistical analysis of a representative sample of all completed work. Audits are ongoing throughout the

year. SDG&E continues its routine QA/QC program by performing random sampling audits on a sample population of all completed VM activities including pre-inspection, tree trimming, and pole brushing. Audit consists of a 15% sample of each completed activity.

Vegetation Management additionally audits 100% of all completed hazard-tree trimming in the HFTD and 100% of all completed tree removals in the HFTD to ensure full compliance with the scope of work. SDG&E expanded its audit program by integrating “level 2” hazard tree assessments during the post-trim audit. These assessments are performed by the Certified Arborists performing the audit.

Safety, regulatory requirements, and service reliability dictate the vegetation management methodology of spend and resource allocation. SDG&E works with the audit contractor to determine the scope, frequency, and the number of resources needed to complete all audit activities. During the post-trim audit, the Certified Arborist also performs an inspection of all power lines within the VMA for any trees that will not remain compliant with applicable regulatory requirements for the duration of the annual cycle. Results are reviewed to determine if any additional work is required.

Transmission Inspection QA/QC – 1% of maintenance work performed by SDG&E transmission maintenance crews is randomly selected for QA/QC per quarter. A Construction Supervisor in the Electric Transmission Construction & Maintenance Department (TCM) fields these conditions for workmanship, compliance with SDG&E standards and CPUC General Orders. Conditions not meeting expectations are coded and entered into the maintenance database for corrective action. Follow up work is completed in compliance with SDG&E’s maintenance practice. And feedback is given to the specific crew who performed the work and reviewed with all crews as well for lessons learned.

Drone Investigation Assessment and Repair (DIAR) QA/QC – SDG&E performs quality assurance reviews on all inspections completed as part of its Drone Investigation Assessment and Repair (DIAR) Program.

For distribution inspections, 100% of assessments are QA/QC’d by a Contract Supervisor and 100% of images are reviewed by machine learning models in production.

- Qualified contract inspector performs a visual inspection in the field at the same time that the drone pilot captures images of the OH structure
- Drone pilot uploads the photos for that facility into our CORE application

- Qualified contract inspector reviews the photos and finalizes the assessment for OH structure
- Contract Supervisor performs QA/QC review of the assessment
- All images associated with that assessment are processed through the machine learning models currently in production and identified any variations between what the model found versus the inspector
- Variations are reviewed by an SDG&E Qualified Supervisor and if any issues were missed, that information is provided back to the Contract Supervisor. If there were no issues missed, SDG&E notifies the Contract Supervisor is ready for final approval.
- The Contract Supervisor either adds the missed item into the assessment or approves the assessment.

For transmission inspections, 100% of assessments are QA/QC'd by a Contract Supervisor and 100% of findings are reviewed by SDG&E Supervisor.

12. Qualified contract inspector performs a visual inspection in the field while the drone pilot captures images of the OH structure
13. Drone pilot uploads the photos for that facility into our CORE application
14. Qualified contract inspector reviews the photos and finalizes the assessment for OH structure
15. Contract Supervisor performs QA/QC review of the assessment and assessment is finalized.
16. If issues are identified, the assessment findings are provided to SDG&E's Transmission Construction and Maintenance (TCM) supervisors.
17. TCM supervisor reviews the issue via image and/or field and validates that the issue requires repair/mitigation.

Distribution CMP QA/QC – Please refer to the attached Electric Standard Practice (ESP) 612 – Distribution QA Audits for details.

Electric System Hardening QA/QC – SDG&E's QA/QC teams perform post construction inspections of the overhead construction by visiting each facility in scope, taking photos with a high-resolution camera, and then compare the project build to the design and SDG&E Construction Standards. All findings are provided back to the project management team for follow-up and remediation with construction and engineering as appropriate. QA/QC inspections are performed on both internal and external crews. In some cases the QA/QC findings are used as feedback to our engineering department to make improvements to construction standards, material specifications, and design guides.

In a parallel effort post construction “True-Up” analysis is performed by collecting and processing post construction Light Detection and Ranging (LiDAR) survey data and then have the engineer of record perform an analysis of the as-built design in Power Line Systems – Computer Aided Drafting and Design (PLS-CADD). The analysis in PLS-CADD allows the engineer of record to perform mechanical loading analysis of poles, crossarms, anchors & guy wires, as well as perform wire clearance analysis. True-Up analysis findings are provided back to the project management and construction team for resolution. In some cases, a new work order is created, and a new job package issued to resolve the findings. In some cases, the True-Up analysis findings are used as feedback to our engineering department to make improvements to construction standards, material specifications, and design guides.

3.3.2 Additional Documentation requested

The IE requested multiple documents for use in its verification of SDG&E’s QA/QC programs. These are listed below and are available in the Appendices to this report:

- *Data Request 16* - The focus of this DR was on verification documents for Qualitative initiatives in the first four WMP categories. In verification of 7.3.4.13 - Quality assurance /quality control of inspections, the IE requested: “Please provide sample reports of QA/QC audits conducted with at least five such reports from each of quarters 1-4 of 2021”. The findings from our review of these reports are discussed in the following section.
- *Data Request 18* - This DR focused on verification documents for Qualitative initiatives in the last four WMP categories. To assist in verification of Initiative 7.3.5.13 - Quality assurance /quality control of inspections, the IE requested: “Please provide a sample of vegetation management QA/QC audit reports from 2021, with five from each of quarters 1-4”. The findings from our review of these reports are discussed in the following section.
- *Data Request 20* – This DR requested QA/QC reports for all areas of SDGE’s QA/QC programs. Specifically, the IE requested: “Please provide 50 examples for each item listed in the Company’s QA/QC Report dated May 4, 2022 (in reference to DR #14). Items include:
 - -Electric System Hardening
 - -DIAR-Distribution CMP (Construction Management Program)
 - -Transmission Inspection
 - -Vegetation Management

SDG&E RESPONSE 1: See attached responses. Each folder is titled with each topic listed in the question and contains 50 examples. Please note that SDG&E only has 30 records of audits for Transmision Inspections, representing the entirety of the population of records.

3.3.3 Discussion and Findings from QA/QC Program Review

In the following sections, the IE describes the steps taken to review and verify the nature of the QA/QC program described by SDG&E.

Vegetation Management QA/QC – SDG&E provided an excel folder with 50 poles of data of the initial inspection results, as well as results of vegetation management actions after a QA/QC check. An example of a QA/QC report for vegetation management is provided in Image 50 below.

Image 50: screenshot of Vegetation Management Report

YY	QUARBJE	CTOBALQ	REATIONA	CREATED	DATE	MODIFIED	LASTUSER	ACTIVITY	ACTIVITYBY	ACTIVITYDATE	FACILITY	WORKORDER	COND	AUDIT	RESULTS	AUDITDATE	LINE	CLEARANCE	H	TREE	HEIGHT	SPECIES	GROW	
2021	-Q3	1576414	168753C	P/M2D	12/1/2021	2:10:20 PM	8/24/2021	10:33:27 AM	MPCOPIEL	PIA	MPCOPIEL	8/24/2021	10:33:27 AM	GLU3060	1225917087	PIC	Pass	8/24/2021	10:33:27 AM	20.0 to 30.0 ft	24.0 to 3520.1 to 30.0 ft	Ok	SLOW	
2021	-Q4	1593044	1698504	M/VANM	10/1/2021	9:30:46 AM	11/8/2021	3:40:10 PM	MCHANTAB	PIA	MCHANTAB	11/8/2021	3:40:10 PM	CS442	1225929485	PIP	Pass	11/8/2021	3:40:10 PM	6.0 to 9.9 ft	8.0 to 12.90.1 to 30.0 ft	Ok	VFST	
2021	-Q4	159841940	1764003	R/Noelle	11/30/2019	9:58:59 AM	12/8/2021	7:43:57 AM	MCHANTAB	PIA	MCHANTAB	12/8/2021	7:43:57 AM	OQ1486	1225921503	PIP	Pass	12/8/2021	7:43:57 AM	0.0 to 5.0 ft	8.0 to 12.95.1 to 20.0 ft	Ok	FAST	
2021	-Q3	15723529	0743D	BB/short	7/8/2019	9:09:35 AM	8/11/2021	4:24:06 PM	ESTONE	PIA	ESTONE	8/11/2021	4:24:06 PM	OV9493	1225917185	PIC	Pass	8/11/2021	4:24:06 PM	40.1 to 50.0 ft	13.0 to 1760.1 to 50 ft	Ok	VFST	
2021	-Q2	15611255	171CD	B/M2D	12/1/2013	3:42:07 PM	8/21/2021	10:43:38 AM	MCHANTAB	PIA	MCHANTAB	8/21/2021	10:43:38 AM	FF3870	1225915165	PIP	Pass	8/21/2021	10:43:38 AM	8.0 to 9.9 ft	36.0 to 4120.1 to 20.0 ft	Ok	Pecca	
2021	-Q1	15267829	3487F	S3/Chrsto	12/16/2013	1:52:06 PM	1/13/2021	2:43:03 PM	JCornele	PIA	JCornele	1/13/2021	2:43:06 PM	BQ178	1225710618	PIP	Pass	1/13/2021	2:43:03 PM	4.1 to 5.9 ft	8.0 to 12.95.1 to 30.0 ft	Ok	VFST	
2021	-Q2	15477868	4414543	B/MTAVLQ	3/6/2018	2:57:33 PM	4/22/2021	10:35:53 AM	MCHANTAB	PIA	MCHANTAB	4/22/2021	10:35:53 AM	PG1106	1225912876	PIC	Fail-Contractor	Fail	4/22/2021	10:35:53 AM	10.0 to 11.9 ft	3.0 to 7.9.1 to 15.0 ft	Ok	VFST
2021	-Q3	15755448	449D	2/C2F/M2D	12/1/2013	12:57:13 PM	8/19/2021	11:28:55 AM	MRPRESLE	PIA	MRPRESLE	8/19/2021	11:28:55 AM	OM780	1225917039	PIP	Pass	8/19/2021	11:28:55 AM	4.1 to 5.9 ft	24.0 to 3520.1 to 30.0 ft	Ok	MED	
2021	-Q2	15516919	1C2	8E/FD/M2D	12/1/2013	9:34:37 AM	5/11/2021	3:56:55 PM	MRMIRE2	PIA	MRMIRE2	5/11/2021	3:56:55 PM	UA75	1225913965	PIC	Pass	5/11/2021	3:56:55 PM	10.0 to 11.9 ft	13.0 to 1720.1 to 30.0 ft	Ok	SLOW	
2021	-Q4	16027805	0CF3	FPE/Chlman	4/2/2015	2:10:41 PM	12/22/2021	3:21:30 PM	JJEBrAIL	TTA	JJEBrAIL	12/22/2021	3:21:30 PM	MA7300	1225921270	CP	Pass	12/22/2021	3:21:30 PM	10.0 to 11.9 ft	13.0 to 175.1 to 15.0 ft	Ok	Avo	
2021	-Q3	15780390	0GAS	C0/M2D	12/1/2013	10:04:05 AM	9/8/2021	12:05:35 PM	AFAPOUL	PIA	AFAPOUL	9/8/2021	12:05:35 PM	QJ2765	1225918313	PIP	Pass	9/8/2021	12:05:35 PM	4.1 to 5.9 ft	8.0 to 12.90.1 to 40 ft	Ok	Syst	
2021	-Q4	15971367	128B	2/C02F/M2D	12/1/2013	3:15:20 PM	11/29/2021	1:57:44 PM	MCHANTAB	PIA	MCHANTAB	11/29/2021	1:57:44 PM	EW3750	1225921250	ARFT	Fail-Contractor	Fail	11/29/2021	1:57:44 PM	6.0 to 7.9 ft	36.0 to 4120.1 to 30.0 ft	Ok	Pecca
2021	-Q4	15949933	1BB	529B/M2D	12/1/2013	6:45:44 AM	11/17/2021	9:42:36 AM	MCHANTAB	PIA	MCHANTAB	11/17/2021	9:42:36 AM	AZ247	1225920485	GRP	Pass	11/17/2021	9:42:36 AM	4.1 to 5.9 ft	36.0 to 4140.1 to 50 ft	Ok	SLOW	
2021	-Q1	15341518	1B07	B5F/valdez3	12/7/2021	11:33:14 AM	2/18/2021	7:53:40 AM	dill	PIA	dill	2/18/2021	7:54:02 AM	SG265	1225806993	PIC	Pass	2/18/2021	7:53:40 AM	10.0 to 11.9 ft	13.0 to 1720.1 to 30.0 ft	Ok	RFIn	
2021	-Q3	15805748	19B	39E3/M2D	12/1/2013	7:33:25 AM	8/19/2021	12:40:30 PM	AROSS	PIA	AROSS	8/19/2021	12:40:30 PM	PY200	1225918279	PIC	Pass	8/19/2021	12:40:30 PM	12.0 to 14.9 ft	24.0 to 3530.1 to 40 ft	Ok	Elm	
2021	-Q2	15430540	248C	3/18/M2D	12/1/2013	2:17:19 PM	4/11/2021	10:21:47 AM	MRMIRE2	TTA	MRMIRE2	4/11/2021	10:21:47 AM	DW12279	1225912375	CP	Pass	4/11/2021	10:21:47 AM	6.0 to 9.9 ft	8.0 to 12.95.1 to 20.0 ft	Ok	FAST	
2021	-Q2	15596533	8A71	B/E0N/Felice	5/15/2017	10:48:11 AM	8/15/2021	4:49:24 PM	JNOVACEK	PIA	JNOVACEK	8/15/2021	4:49:24 PM	OW261	1225914851	PIC	Pass	8/15/2021	4:49:24 PM	20.0 to 30.0 ft	0.0 to 2.9.0 to 5.0 ft	Ok	Cep	
2021	-Q1	1539042	1141D	12F/M2D	12/1/2013	3:09:37 PM	3/16/2021	8:55:16 AM	ESTONE	PIA	ESTONE	3/16/2021	8:55:16 AM	FL1098	1225987725	PIC	Pass	3/16/2021	8:55:16 AM	8.0 to 9.9 ft	13.0 to 1720.1 to 30.0 ft	Ok	Mel	
2021	-Q3	15635568	7311	BDA/M2D	12/1/2013	11:15:03 AM	7/1/2021	11:05:19 AM	JNOVACEK	TTA	JNOVACEK	7/1/2021	11:05:19 AM	FC7296	1225915176	CP	Pass	7/1/2021	11:05:19 AM	10.0 to 11.9 ft	13.0 to 1760.1 to 50 ft	Ok	VFST	
2021	-Q3	15800147	0E58	F770/sjimene	8/21/2019	4:12:11 PM	9/9/2021	4:55:19 PM	AROSS	PIA	AROSS	9/9/2021	4:55:19 PM	O1287	1225918279	PIC	Pass	9/9/2021	4:55:19 PM	20.0 to 30.0 ft	3.0 to 7.9.0 to 6.0 ft	Ok	Cep	
2021	-Q3	15797849	474583	F/M2D	12/1/2013	1:41:23 PM	9/9/2021	10:12:28 AM	JJEBrAIL	PIA	JJEBrAIL	9/9/2021	10:12:28 AM	VE1200	1225918319	PIP	Pass	9/9/2021	10:12:28 AM	12.0 to 14.9 ft	13.0 to 1715.1 to 20.0 ft	Ok	VFST	
2021	-Q4	15925862	4A00	51/M2D	12/1/2013	5:29:27 AM	11/5/2021	2:27:33 PM	NBURKE	TTA	NBURKE	11/5/2021	2:27:33 PM	FM7572	1225920376	CP	Pass	11/5/2021	2:27:33 PM	8.0 to 9.9 ft	8.0 to 12.90.1 to 40 ft	Ok	Ash	
2021	-Q1	15276016	786	C38F/M2D	12/1/2013	7:15:38 AM	11/8/2021	1:03:17 PM	NBURKE	PIA	NBURKE	11/8/2021	1:03:17 PM	J462	1225716628	PIC	Pass	11/8/2021	1:03:17 PM	6.0 to 9.9 ft	8.0 to 12.90.1 to 30.0 ft	Ok	LIQ	
2021	-Q2	15478984	616	4338F/M2D	12/1/2013	4:03:54 PM	4/22/2021	9:24:37 AM	NBURKE	PIA	NBURKE	4/22/2021	9:24:37 AM	RI408	1225912762	PIC	Pass	4/22/2021	9:24:37 AM	4.1 to 5.9 ft	24.0 to 3530.1 to 40 ft	Ok	Pine	
2021	-Q2	15520720	01	16753D/M2D	12/1/2013	12:33:31 PM	5/12/2021	5:09:45 PM	JJEBrAIL	PIA	JJEBrAIL	5/12/2021	5:09:45 PM	TI1038	1225914014	PIC	Pass	5/12/2021	5:09:45 PM	10.0 to 11.9 ft	24.0 to 3520.1 to 30.0 ft	Ok	ICi	
2021	-Q4	15930210	9485	A85E/VONDER0	10/20/2021	1:17:31 PM	11/9/2021	2:42:27 PM	AROSS	PIA	AROSS	11/9/2021	2:42:27 PM	GB7639	1225920492	PIC	Pass	11/9/2021	2:42:27 PM	10.0 to 11.9 ft	8.0 to 12.95.1 to 20.0 ft	Ok	RFIn	
2021	-Q4	16013933	372	22C76/PFL	10/28/2021	3:19:14 PM	12/16/2021	2:03:55 PM	JJEBrAIL	PIA	JJEBrAIL	12/16/2021	2:03:55 PM	VW531	1225921655	PIC	Pass	12/16/2021	2:03:55 PM	30.1 to 40.0 ft	0.0 to 2.9.0 to 5.0 ft	Ok	RFIn	
2021	-Q1	15987749	236	58387890/M2D	12/1/2013	5:18:01 AM	12/6/2021	3:14:53 PM	DVERVIN	TTA	DVERVIN	12/6/2021	3:14:53 PM	FB708	1225929993	PIC	Pass	12/6/2021	3:14:53 PM	10.0 to 11.9 ft	18.0 to 2315.1 to 20.0 ft	Ok	AVO	
2021	-Q1	15406748	19	7CDA89/M2D	12/1/2013	10:31:08 AM	3/24/2021	8:18:35 AM	MCHANTAB	PIA	MCHANTAB	3/24/2021	8:18:35 AM	AF1039	1225907638	PIC	Fail-Contractor	Fail	3/24/2021	8:18:35 AM	10.0 to 11.9 ft	13.0 to 1720.1 to 30.0 ft	Ok	RFIn
2021	-Q4	16036284	037	8C2F/PAZ	4/11/2016	11:44:26 AM	10/29/2021	8:02:28 AM	DORNELAS	TTA	DORNELAS	10/29/2021	8:02:28 AM	AR7443	1225922554	CRM	Pass	10/29/2021	8:02:28 AM	100.1 ft +	3.0 to 7.9.15.1 to 20.0 ft	Ok	RFIn	

The IE’s review of the provided sample of Vegetation Management Reports shows that the QA/QC report provided by SDG&E provides a high level of detail including geographical coordinates, dates, inspector, and results from the audit. Additional information is provided regarding the clearance, species and the rate of vegetation growth, which can provide valuable insight with regard to the appropriate intervals to recheck certain locations to ascertain whether vegetation clearances are still met.

The IE’s review of these QA/QC inspections showed a high percentage of satisfactory results, defined as locations where vegetation clearances around the pole marked as satisfactory. A “Fail” indicates that encroaching vegetation had been observed in the QA/QC inspection. In the sample provided, the IE found that 96% of the sample passed this inspection.

Table 38: QA/QC Summary: Distribution Management QA/QC Check

Distribution Vegetation Management QA/QC Check		
Pole Audit Status	Count from Sample	Percent of Sample
Pass	47	96
Fail	3	6

Drone Investigation Assessment and Repair (DIAR) QA/QC – The DIAR QA/QC program is an important aspect of SDG&E’s drone inspection programs, to ensure the quality and applicability of the images that result. The full description of the DIAR program is provided above. Per SDG&E’s description of the steps in this program, it is possible to see that drone imagery receives a QA/QC review at step 4, then processed through machine learning (Step 5) before being reviewed by a second level of supervision at step 6.

As evidence of these steps in the DIAR process, SDG&E sent 99 reports of drone inspections of distribution assets. These records show the Inspection Order ID, the Facility ID and approval date, review date and, in column G, an indication of whether the inspection identified any issues for follow up attention. The boxes shown in Image 51 circle the reports that have been found to be “With Issues,” i.e., in need of follow up attention, and those – shown in the green box–found to be “Without Issues.”

Image 51: screenshot of DIAR inspection records

4	619d7dcbf60859096ab2b9c3	P571696	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithIssues	2021-12-30T11:33:14.385Z
5	619d7dcbf60859096ab2b9c3	P470601	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithIssues	2021-12-30T11:33:14.385Z
6	619d7dcbf60859096ab2b9c3	P175188	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithIssues	2021-12-30T11:33:14.385Z
7	619d7dcbf60859096ab2b9c3	P571695	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithIssues	2021-12-30T11:33:14.385Z
8	619d7dcbf60859096ab2b9c3	P574868	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithIssues	2021-12-30T11:33:14.385Z
9	619d7dcbf60859096ab2b9c3	P571971	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithIssues	2021-12-30T11:33:14.385Z
10	619d7dcbf60859096ab2b9c3	P175187	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithIssues	2021-12-30T11:33:14.385Z
11	619d7dcbf60859096ab2b9c3	P377136	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithIssues	2021-12-30T11:33:14.385Z
12	619d7dcbf60859096ab2b9c3	P470035	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithoutIssues	2021-12-30T11:33:14.385Z
13	619d7dcbf60859096ab2b9c3	P175192J	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithoutIssues	2021-12-30T11:33:14.385Z
14	619d7dcbf60859096ab2b9c3	P471296J	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithoutIssues	2021-12-30T11:33:14.385Z
15	619d7dcbf60859096ab2b9c3	P377134	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithoutIssues	2021-12-30T11:33:14.385Z
16	619d7dcbf60859096ab2b9c3	P774507	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithoutIssues	2021-12-30T11:33:14.385Z
17	619d7dcbf60859096ab2b9c3	P175191J	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithoutIssues	2021-12-30T11:33:14.385Z
18	619d7dcbf60859096ab2b9c3	P875141	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithoutIssues	2021-12-30T11:33:14.385Z
19	619d7dcbf60859096ab2b9c3	P377135	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithoutIssues	2021-12-30T11:33:14.385Z
20	619d7dcbf60859096ab2b9c3	P574867	FEAG664 LKMM 1129	2022-01-09T17:24:38.639Z	mmccconnell@hilinenation.net	61462792f037b200019b43a	WithoutIssues	2021-12-30T11:33:14.385Z

SDG&E also provided an audit of the recorded drone inspection of the sample to accompany the DIAR inspection reports as a quality control measure. The image below is a sample of a listing of all work orders for the drone inspections and the assets located per each work order. This is a vital part of the quality control process as it provides additional verification from the inspection reports.

Image 52: screenshot of DIAR-Work Order Assessment Tracker

NAME / WORK ORDER NUMBER	ASSESSOR	LOCATION	ASSETS	ISSUES	PROGRESS	DUE DATE	CREATED	UPDATED
ASIP1258 JN.JF 0531_1of7	jfletchall@hill...	Fallbrook S...	1	0	Completed on 5/31/2022	5/31/2022	5/25/2022	5/31/2022
ASIP1249 JN.JF 0527	jfletchall@hill...	Vista San D...	19	2	Completed on 5/31/2022	5/27/2022	5/18/2022	5/31/2022
ASMMa1220 LKJC 0520	jcox@hillinena...	Vista San D...	18	9	Completed on 5/31/2022	5/20/2022	5/11/2022	5/31/2022
ASMM1201 JNSC 0526	scunningham...	Bonsall Sa...	24	0	Completed on 5/31/2022	5/26/2022	5/11/2022	5/31/2022
ASMP1202 LKJF 0526	kfullmer@hill...	Bonsall Sa...	13	1	Reviewed on 5/31/2022	5/26/2022	5/11/2022	5/31/2022
ASIP1195 JN.JF 0517	jfletchall@hill...	Bonsall Sa...	21	8	Reviewed on 5/31/2022	5/17/2022	5/11/2022	5/31/2022
FEMM1043 LKJC 0506	jcox@hillinena...	Fallbrook S...	20	12	Approved on 5/31/2022	5/6/2022	4/26/2022	5/31/2022
FEMM1039 LKJC 0505	jcox@hillinena...	Fallbrook S...	20	11	Approved on 5/31/2022	5/5/2022	4/26/2022	5/31/2022

The IE’s analysis of the DIAR QA/QC program is shown in the table below. The IE reviewed a sample of 99 distribution assets (poles) where drone inspections had been performed. The sample showed that over ¾ of the assets inspected by the drones were found to have no issues. 24% of the sampled locations, however, as shown in the sample provided, did have issues that required follow up. The IE notes that identifying such issues is exactly the function of “quality assurance/ quality control” inspections.

Table 39: QA/QC Summary of SDG&E DIAR Drone Inspections

QA/QC Summary: DIAR Drone Inspections		
Pole Status	Count from Sample	Percent of Sample
No Issues	75	75.8
With Issues	24	24.2

Distribution Construction Management Program (CMP) QA/QC - The steps required to audit distribution assets are described in SDG&E’s Electric Standard Practice (ESP) 612, the protocol directing corrective maintenance in SDG&E’s transmission and distribution engineering activities. As described in this protocol, “Each quarter, each inspector ID shall be audited at a rate of 1.5% or a minimum of 1 structure, whichever is greater.” for every type of structure that SDG&E maintains, whether the asset is located underground or overhead.

This description clarifies that QA/QC for distribution assets or structures takes at least two steps. Following the initial corrective maintenance action, the work is inspected at the rate of 1.5% of each inspector effort that quarter. Please see Image 53 below for an example of this calculation in an inspection report. The inspector will audit 1.5% of each employee’s effort in that district during that quarter; the top of this report shows that calculation.

Image 53: Distribution QA/QC Audit Frequency

District:	BC
Total Facilities to Audit:	24
Order Type	101
Count Of Inspectors:	18
Year/Quarter:	20211

Employee Name	District	Calendar Quarter	Personnel Number	Total Structures	1.5% Audit
BF	BC	20211	00003936	50	1
DC	EY	BC	00118738	5	1
FF	BC	20211	00001766	46	1
JA	BC	20211	00003472	35	1
JE	LER	BC	00004188	20	1
JIN	BC	20211	00000930	79	1

The report of the auditor’s findings is shown in the second portion of this same report, a snapshot of which follows below in Image 54. In this report, the inspector records the asset where the QA/QC audit will occur, Pole ID, Damage code and Description, Dates, and the inspector's notes. This inspector review step constitutes the QA/QC check on the original work.

Image 54: Distribution QA/QC Audit Results

Asset Description	Equipment	Pole ID	Damage Code	Damage Code Description	Activity Text	Ref Date	Street	Thomasbrogside	Notes
ED-POLE-P932571	600539319	P932571	R227	Damaged Missing Warning Signs (Mr. Ouch)	Field Cleared	02/17/2021	1060 CHALCEDONY-ALLEY	1247-15	Done 03/17 Telco drop hanging
ED-POLE-P193441	600543387	P193441	D299	No Repairs Needed	Cleared	01/06/2021	1512 LAW ST-ALLEY	1247-35	Done 03/17
ED-POLE-P936794	600539928	P936794	R227	Damaged Missing Warning Signs (Mr. Ouch)	Field Cleared	03/22/2021	CRNER 4814 CRYSTAL DR. & OCEAN BLVD.	1247-15	Done 03/17
ED-POLE-P230069185	600554021	P230069185	D299	No Repairs Needed	Cleared	03/04/2021	ALLEY S/O GARNET AV W/O BAYARD	1247-16	Done 03/17

Any issues identified that require follow up work receive a send inspection after the follow-up has been completed, per Image 55 below.

Image 55: Post-QA/QC Follow Actions Report

QA Follow Ups Beach Cities 2021 Q1						
ED:POLE::P933158	I207 SDGE Leaning Pole or Potential Over	3823 UDALL ST.	SCH 3/8	MLopez4	1268-B7	Done 03/17
ED:POLE::P838839	I207 SDGE Leaning Pole or Potential Over	A/R/O 4892 CAPE MAY AVE.	SCH 3/22	jbarba1	1267-j6	Done
ED:POLE::P2138969340	I241 Damaged Cross-Arm	A/R/O 2110 BACON ST & BRIGHTON	SCH 3/2	JDTAN	1267-J5	Done 03/17
ED:POLE::P2139169338	I207 SDGE Leaning Pole or Potential Over	A/R/O 2122 BACON ST	SCH 3/2	bpfloren	1267-J5	Done 03/17
ED:POLE::P735105	I241 Damaged Cross-Arm	A/R/O 4580 NARRAAGANSETT ST.	SCH 3/17	rswells	1267-J7	Done 03/17

Handwritten notes:
 - "New pole" with an arrow pointing to the first row.
 - "Need Telco + Cable to transfer" with arrows pointing to the last two columns of the first row.
 - "Done" written in the last column of each row.

SDG&E provided a sample of inspection reports on 72 poles. As part of the Distribution CMP QA/QC process, SDG&E completes both an Initial Inspection and a Post Inspection. Through review of these inspection reports, the IE determined that, through its initial inspection, SDG&E rectified 8 distribution CMP assets that were identified through the initiative inspection reports. By reviewing these inspection reports for patterns in the conduct of both the Initial inspection and the QA Follow up visit, the IE found the results shown below.

Table 40: QA/QC Summary of Distribution CMP Initial Inspection

QA/QC Summary: Distribution CMP Initial Inspection		
Pole Status	Count from Sample	Percent of Sample
No Repairs needed	63	87.5
Repairs Needed	9	12.5

Table 41: QA/QC Summary: Distribution CMP Post QA/QC Check

QA/QC Summary: Distribution CMP Post-QA/QC Check		
Pole Status	Count from Sample	Percent of Sample
No Repairs needed	71	98.6
Repairs Needed	1	1.4

Electric System Hardening QA/QC – The importance of hardening SDG&E’s electrical system, both distribution and transmission, is apparent throughout the WMP; many initiatives focus on these activities. To ensure that all “hardening” actions exemplify the highest levels of quality achievable, SDG&E “Electric System Hardening QA/QC Program” employs multiple steps, as described above, and summarized as:

- Post-construction inspections with photos;
- Comparisons of “as-built” constructions against SDG&E standards, with any follow up and/or remedial actions taken by the construction and/or engineering departments;
- QA/QC inspections done on all crews working on these projects, both internal SDG&E personnel and/or vendors/ contracted crews;
- Post-construction LiDAR flights, yielding data used in “True Up” checks of the as-built structure through use of SDG&E’s design tools including Power Line Systems – Computer Aided Drafting and Design (PLS-CADD).

Image 55 below provides an example of the Electric System Hardening (ESH) Post-Construction findings report from 2021. From the example, it can be seen that the QA/QC report shows the location of the new asset, the dates the report was both created and closed, as well as the nature of the issue identified and the required action to correct it.

Image 55: Example of Electric System Hardening Post-Construction QA/QC Report

Project Name	#	Location	Type	Date Created	Date Closed	Status	Code Reference Text	Detail
FIRM C157 CC	1	P273910	HFTD Tier 3	2/5/2021	03/11/2021	Closed	OH-283 Damaged/Missing/incorrect Station Pole ID	[08] Pole tag is missing circuit number. Per STD OH208.4 "A".
FIRM C157 CC	2	P273910	QC Tier 3	2/5/2021	05/02/2021	Closed	[C1] OH-257 Overhead Connectors Directly on the Line - (i.e. hot line clamp, parallel groove, split bolts) located on primary wire (12kV- 2.4kV)	[08] Gelpacks are required on bi-metal connections. Per STD OH783.1E.
FIRM C157 CC	3	P572183	HFTD Tier 3	2/5/2021	03/11/2021	Closed	OH-283 Damaged/Missing/incorrect Station Pole ID	[08] Pole tag is missing circuit number. Per STD OH208.4 "A".
FIRM C157 CC	4	P572184	HFTD Tier 3	2/5/2021	03/11/2021	Closed	OH-283 Damaged/Missing/incorrect Station Pole ID	[08] Pole tag is missing circuit number. Per STD OH208.4 "A".
FIRM C157 CC	5	P572185	HFTD Tier 3	2/5/2021	03/11/2021	Closed	OH-283 Damaged/Missing/incorrect Station Pole ID	[08] Pole tag is missing circuit number. Per STD OH208.4 "A".
FIRM C157 CC	6	P572186	HFTD Tier 3	2/5/2021	03/11/2021	Closed	OH-283 Damaged/Missing/incorrect Station Pole ID	[08] Pole tag is missing circuit number. Per STD OH208.4 "A".

Transmission Inspection QA/QC – As with QA/QC for the distribution system, SDG&E randomly selects 1% of the maintenance work performed on its transmission assets for QA/QC inspection. In response to the IE’s request for 50 transmission system inspection reports, SDGE was able to provide reports ranging from 2017 through 2022, representing their reported volume of work for that period. The utility provided 30 sample points with information about the quality control of transmission inspection including information of problems noticed, if the problem was resolved, pole ID, when the pole was selected for a QC check, who verified, and date verified.

Image 53 shows a sample from this report, showing a portion of the transmission structures that received QA/QC inspections in 2021.

Table 56: Sample of Transmission Inspection Reports

TL	Str	Tier	CCID	Job	Selected for QC Check	Job Completed	Verified By	Date Verified
50001	50011	2	116055	Insulators-Ceramic, Standard, 50K - Rust (Heavy)	1/4/2021	Yes	fitzgerald	1/4/2021
23010	223651	2	119797	Anti-Climb Barrier - Broken	1/4/2021	Yes	Fitzgerald	1/4/2021
Year: 2021								
Quarter: 1								
TL	Str	Tier	CCID	Job	Selected for QC Check	Job Completed	Verified By	Date Verified
23051	710006	2	118524	Shieldwire Attachment Point - Reinforcing Assessment R	4/2/2021	Yes	fitzgerald	4/6/2021
Quarter: 2								
TL	Str	Tier	CCID	Job	Selected for QC Check	Job Completed	Verified By	Date Verified
23051	710007	2	118526	Insulators-Ceramic, Standard, 20K - Rust (Heavy)	7/6/2021	Yes	fitzgerald	7/8/2021

As shown in Table 42 below, the IE was able to verify that all 30 QC inspections for which reports were provided had resolved any problems recorded in the inspection. The IE created two tables from these reports. The first table below lists the years when the inspections were conducted (Table 42), while the second categorizes the kind of issues identified during the inspections (Table 43) (2nd below).

Table 42: Transmission Inspections Years Conducted

QA/QC Summary: Transmission Inspections		
Year Inspected	Count from Sample	Percent of Sample
2017	1	3.3
2018	3	10.0
2019	4	13.4
2020	9	30.0
2021	12	40.0
2022	1	3.3

Table 43: Transmission Inspection Issues Identified

QA/QC Summary: Issues Identified in Transmission Inspections			
Defect Category	Examples	Count from Sample	Percent of Sample
Small Hardware	Anchor Rods, Insulators, Cold & Hot End Cotter Keys, Stub Angles, Ground, Switch Handle	13	43.3
Large Hardware	Wood Pole, Steel Tower Members and Poles, Pole Ground Wire, Shield Wire, Blackened Hardware, Guy Wire Guards	10	33.3
Superficial	Anti-Climb Barrie, Encroaching Vegetation	2	6.7
Miscellaneous	Access Road, Ground Grid Traps, Birds Nest	5	16.7

3.3.4 Summary and Conclusions

The descriptions offered in this section document the set of QA/QC programs in operation at SDG&E in 2021 through to the present day. While verification of the full 2021 population of QA/QC actions in all five categories was beyond the constraints of time and resources available to the IE in this project, documents reviewed, and inspection reports sampled do allow a comprehensive description of QA/QC activities in all major areas of operations that intersect with WMP initiatives.

In addition to the descriptions and inspection samples discussed above, the IE was also able to observe the vegetation management QA/QC program through verification activities for WMP Initiative 7.3.5.13, (see Chapter 3.1.5.1, Qualitative Initiatives) and for QA/QC of Inspections,

7.3.4.13, also in Chapter 3.1.5.1. In each case, verification activities for those two initiatives serve to complement and reinforce the descriptions in this chapter.

Based on the descriptions and evaluation in this section, the IE is encouraged by SDG&E's commitment to a robust and multi-layered program of QA/QC.

4. CONCLUSION

The Conclusion section shall summarize all findings that the Independent Evaluator detailed in the sections above.

The IE process has proven to highlight the disconnect among the IEs, OEIS, and the Power Utilities. WMP verification, still in its infancy, requires many improvements to create a valid process that validates IOUs' compliance with their own WMPs. To such efforts, the IE highlights the following necessary improvements,

- SDGE's data is not set up nor organized in a manner congruent with WMP Initiatives. Whether by OEIS (non-) mandate and/or SDGE's legacy systems that were created around very appropriate business needs, the work needed to assemble the samples required by the IE process is untenable for the amount of time IEs are allowed.
- Insufficient time - Especially while the IE process remains new, the amount of time allotted for the IE process remains insufficient, particularly as OEIS requires the "draft" ARC to be essentially "final" by the draft due date,
 - 9 weeks (4/4 - 6/10) for data analysis and inspections. The time frame in securing usable data, performing field inspections, and providing value-add analysis is insufficient.
 - We reiterate with support the comments made by the Office of the Public Advocate that "Energy Safety should ...impose a deadline for IE ARCs **no less than four months** after the scope of work is established, in order to grant the IEs, the opportunity to conduct a more thorough validation of utility work and spending."
- The IE process is replete with ambiguities and questions where interpretation and ongoing collaboration are essential,
 - The IE understands the nascent nature of the WMP evaluation process and the need for the IE to stay Independent.
- Accessibility issues
 - SDG&E's Northeast territory, primarily Tier 3, mostly rural, constituted 90.4% of all Large Field Verifiable inspections.

- It is important to note that 42% of Field Inspections were inaccessible, therefore, affecting the certainty of the quantifiable trends outlined in this report.

Despite some initial administration challenges, the IE worked diligently to procure essential information from SDG&E to validate compliance with the Power Utility's commitments to its WMP-2021.

With the additional complexity of incorporating GAAS and GAGAS to validate expenditures from an accounting standpoint, overall, the IE finds SDG&E approach to QA/QC, commitment to Safety, and innovative approach to Wildfire Mitigation forthcoming progressive and encouraging.

Therefore, the IE encourages SDG&E to continue with its responsible commitment to Wildfire Mitigation and Safety in a manner that fully engages all stakeholders. Moreover, it is the opinion of the IE that SDG&E promptly addresses the issues outlined in this report.

APPENDICES

APPENDIX I: Table of Data Requests

APPENDIX II: Distribution of QA Audits

APPENDIX III: Aerial Analysis Reports

APPENDIX IV: Inspection Summary Maps

APPENDIX V: DR10

APPENDIX VI: DR15

APPENDIX VII: DR16 *

APPENDIX VIII: DR17 *

APPENDIX IX: DR18 *

APPENDIX X: Aerial Assessment of Fuels Mgmt.

**Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.*



FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

Table of Data Requests

DR#	DATA REQUEST	STATUS	REQUEST DATE	DATE FULFILL	SDG&E RESPONSE
1	Please provide a copy of the SDG&E WMP Annual Report of Compliance (ARC) filed 3/31/22.	COMPLETE	4/11/22	4/12/22	SDG&E has uploaded a copy of the ARC to 4Leaf's Dropbox site.
2	Please confirm that the structure of the WMP, Activity Categories and Initiatives, has not changed since the 2020 WMP. Specifically, we seek to confirm that no Initiatives have moved between verification categories.	COMPLETE	4/11/22	4/12/22	No initiatives have moved between verification categories. SDG&E will have updated targets and initiatives in the 2021 WMP when compared to the 2020 WMP. All initiatives and related targets are provided in the ARC or in SDG&E's 2021 WMP Update.
3	Please provide copies of 100% of Work Orders completed during 2021.	COMPLETE	4/11/22	4/12/22	All completed initiative work is provided in SDG&E's Quarterly Data Reports. These four geodatabase files have been uploaded to 4Leaf's Dropbox site.
4	Please provide current GIS files for transmission and distribution lines for 100% of SDG&E service territory.	COMPLETE	4/11/22	4/12/22	The quarterly geodatabase files uploaded contain GIS files for transmission and distribution lines for SDG&E's service territory at the time of submission. For the most up-to-date information 4Leaf can use the GIS files in the Q4 submission.
5	Large-Field Verifiable & Vegetation Inspection VMI Log ID - clarify GIS items, including Vegetation Inspection points connected to VMI Log IDs. Help to procure your aerial data from drones and manned aircraft	COMPLETE	4/18/22	4/25/22	Response provided 04/19/22 - For any clarification regarding the GIS information, please contact Erin Huszar and Casey Cook who are copied on this email. For items 60 & 63, the Drone Program will have imagery associated with each structure inspected for 7.3.4.9.2. They capture 10+ images per structure, so we would have over 200,000 images to share. Is there a subset or some specific poles we can provide? For item #63, these are helicopter inspections performed by a patroller on the helicopter, and images are not captured with these inspections. A virtual meeting with GIS specialists from SDG&E's team occurred Friday, April 22, 2022.
6	In reviewing the Work Order logs, we noted the following kinds of anomalies. Please advise of any explanations and/or rationales why these datapoints should not be excluded from our samples: DR#6.1 - VMI log ID 1225670125 - inspection date 1/3/22 falls outside of the 2021 verification year. DR#6.2 - VMI log ID 1225670120 - inspection date 1/1/21. Tree trimming count of 579 is labeled "in progress", not "completed". DR#6.3 - VMI log ID 1225445030 - inspection date 1/11/20. Outside verification year, and W-O shows 2833 trees. DR#6.4 - VMI log ID 1225445034 shows 996 trees trimmed, yet the same log ID in the vegetation mgmt layer returns 2466 actual inspection points. Please explain this discrepancy.	COMPLETE	4/19/22	4/25/22	6.1 Schedule WO ID 1225670125 - pre-inspection Within this work order ID, 41 points (Tree ID count) of pre inspection activity occurred in 2021. The rest should be excluded. 6.2 Schedule WO ID 1225670120 - pre-inspection This WO ID 1225670120 is in both 2020 Q4 and 2021 Q1 deliverables. The sample shows tree trimming count of 579 is in the 2020 Q4 deliverables and it should be excluded for 2021 evaluation year. Tree unit associated with inspection activity is not Tree Trimmed. It represents trees that are identified to be trimmed and at the point in 2020 Q4, the workorder was not completed yet. 6.3 VMI log ID 1225445030 - Pre inspection Within this work order ID, no actual activity records are found in 2021. This one should be excluded. 6.4 6.4 VMI log ID 1225445034 - Pre inspection This WO ID 1225670120 is 2020-Q4 QDR deliverable. Within this work order ID, no actual activity records are found in 2021. All activity records occurred in 2020.
7	Please provide a map and coordinates for all tribal territories and boundaries in HFTD Tiers 2 and 3.	COMPLETE	4/20/22	4/20/22	Attached is a PDF map as well as a file geodatabase with the Native American boundaries and HFTD feature classes. This data request is completed.
8	8.1 - Please summarize the status of MOUs with Native American entities/ authorities. 8.2 - How best to obtain access to tribal territories for the purpose of conducting field inspections. 8.3 - Please clarify re: "Field Verifiable", which we understand to include only actions that can be visually verifiable. Since the completion of "inspections" can not be visually verified via inspection, we expect that only the financial expenditures associated with inspections can be validated via financial audit. 8.4 - Pole brushing: Is it done mechanically primarily? Please confirm: is the 10' clearance in radius or diameter? 8.5 - Please provide 10% of all drone imagery collected in Tier 3. 8.6 - Please provide any reports on the accuracy of automated analysis of imagery.	COMPLETE	4/25/22	4/28/22	Please see attached for SDG&E's response to Data Request #8. SDG&E was unable to fully comply with request 8.5, but has proposed an alternative delivery method for the drone imagery. 8.1 SDG&E Response: SDG&E currently has 3 active MOU 's with Native American entities/authorities; Viejas Reservation, Campo Reservation & Pala Reservation. These are 5 year MOU's with the option for renewal at term with the agreement between the two parties. 8.2 SDG&E Response: SDG&E's Tribal Relations & Land Services Department works directly with the various tribal territories within the service territory on notification for access to its lands to conduct company business including Vegetation Management activities. 8.3 SDG&E Response: With respect to Vegetation Management, routine "inspection" activities are recorded via the tree inventory database which includes a date/time stamp of the activity as well as the "condition code" of the tree which indicates whether work is required. Since the completion of inspection without follow-up trimming can not be visually verified via inspection, an audit of the activity completion can be completed using the date/time stamp of the activities recorded in the tree inventory database. Additionally, a financial audit of the activities can also be performed. 8.4 SDG&E Response: Pole brushing is performed as a requirement of Public Resources Code 4292 which requires ground clearance at the base of poles that carry specific hardware that could cause an ignition. The clearance requirement is to remove all vegetation down to bare mineral soil for a radial distance of 10 horizontal feet from the outer circumference of the pole. The requirement also includes the removal of live vegetation up to 8 vertical feet and the removal of dead vegetation up to conductor level within the clearance cylinder. Approximately 34,000 distribution poles that have non-exempt subject hardware attached are brushed. Inspectors determine which poles require work and update the records in the database. Three separately scheduled pole brush activities are performed annually, including mechanical brushing, chemical application, and re-clearing. Pole brush inspection occurs in conjunction with the tree inspection activity. Mechanical pole brushing is the clearing of all vegetation around the base of a pole down to bare mineral soil for a radius of 10 feet from the outer circumference of the pole; removing all live vegetation within the cylinder up to a height of 8 feet above ground; and removing all dead vegetation up to the height of the conductors. Mechanical brushing is typically performed in the spring months. On poles where environmentally safe and with customer consent, contractors will apply an EPA-approved herbicide. SDG&E treats approximately 10,000 poles with a pre-emergent herbicide to minimize vegetative re-growth and reduce overall maintenance costs. The chemical application is typically done just before the rainy season (during the fall and winter months) so the chemical is activated and effective. Re-clearing is a second mechanical activity performed on poles that are not cleared by a chemical application. During re-clearing, vegetation which has grown into, or blown into, the required clearance area since the last maintenance activity is removed. The need to revisit a subject pole multiple times is not uncommon due to leaf litter cast or blown into the cleared area and vegetation regrowth that cannot controlled by mechanical or herbicide treatments. 8.5 SDG&E Response: SDG&E's drone inspections were completed on approximately 22,000 poles in 2021. Over one million images were captured across these inspections. SDG&E's secure file delivery (EDT) can only transmit 1GB of data in a delivery. SDG&E delivered images from 11 poles that included over 100 photos and ran up against the 1GB data limit. In order to fully comply with delivering 10% of images it would require dozens of separate EDT deliveries and significant manual effort for the team. SDG&E proposes that access be granted to the web-based software that houses all of the drone imagery to any requested members of the Independent Evaluator team. This will reduce the manual effort and data delivery delays that would occur should SDG&E proceed with downloading and sending the additional images. Please confirm 4Leaf and AerialZeus accept this proposal, along with the names and email addresses of those that would be granted access to the imager 8.6 SDG&E Response: Reports on the Intelligent Image Processing (IIP) tool's accuracy will be provided and uploaded to Dropbox.
9	9.0 Please provide a listing of WMP initiatives, in MS Excel format, with the accumulated actual spend for period ended December 31, 2021 for Capital Expenditure and Operating Expenditures. 9.1 Please provide a listing of WMP initiatives, in MS Excel format, with the aggregated funding projection for period ended December 31, 2021 9.2 Please provide the detail for Request #9.0 & #9.1, in MS Excel format, from which selections will be made for review. For Request # 9.0, # 9.1 and # 9.2, the data provided should agree to the supporting documentation, preferably to a system generated ledger report with the appropriate report criteria page to ensure data accuracy and completeness. 9.3 Please provide a complete list of existing QA & QC programs with detailed descriptions. 9.4 Please provide the transaction details and supporting documentation for our limited initial samples we propose in the attached Excel spread sheet. 9.5. Discrepancies in spend amount noted between ARC and Data Request #9 9.0-9-2. Please schedule a conference call with SDGE to discuss their e-mail response of 5/19/2022 to ensure we fully understand root cause of the discrepancies follow up 9.6. A listing of initiatives with actual expenditures and planned expenditures for period ending 12/31/2021 for capital vs operating expenditures. The data provided should agree to Data Request #9 9.0-9-2. The data should be provided in MS Excel format. For initiative with <100% spend from plan, please provide explanation. 9.7 Reporting of the following items: Table 11: Large Volume Quantifiable Field Verifiable Activities Budget Variance. Table 13: Large Volume Field Non-Verifiable Budget Variance. Table 15: Small Volume Quantifiable Budget Variance. Table 17: Qualitative Activities Budget Variance. Please see attached excel file as to how the data should be presented/ reported. When preparing each table, please include all initiatives to ensure data accuracy and completeness but highlight the initiatives that are relevant to the table.	PARTIAL	4/29/2022 5/31/2022	5/6/2022 6/3/2022	5/6/2022 - Please see below and referenced attached documents for SDG&E's response to DR#9. 5/12/22 - Please see attached Excel file "Data Request #9 9.0-9.2". See attached Word document "Independent Evaluator DR_9_QAQC" and the referenced attachment ESP 612. 11:30 AM meeting on Monday, 5/9/2022 for Q&A on Data Request #9 held. 5/19/2022 = SDG&E has pulled the initial capital samples requested, and they are attached to this email. SDG&E continues to process the remaining capital and O&M data and will provide as it becomes available. 5/20/2022 - SDG&E has prepared the O&M samples for financial verification. The supporting documents will be sent to you via EDT as they are too large to attach to this email. 5/23/2022: 9:30 AM Virtual meeting. 5/24/2022: SDG&E is preparing the responses to the summary of differences and providing explanations in the requested format. I expect to have the summary of differences ready by COB today and the explanations in the requested format by COB tomorrow. I, personally, am available between 1:30-2:30 on Thursday, May 26th and 2:00-3:00 on Friday, May 27th. If there are agenda items to be discussed at these times, I would respectfully request that 4Leaf or M-M send meeting notices for these times. 5/25/22 - Response to #9.5: As discussed in our phone call on May 23rd, SDG&E utilized its Table 12 information from the 2022 WMP Update to populate the planned and actual costs reported in Data Request #9. It is important to note that the planned costs in Table 12 of the 2021 WMP Update do not match up exactly with the actual costs in Table 12 of the 2022 WMP Update because initiatives changed year over year and costs were tracked within different areas. When creating the Annual Report on Compliance, SDG&E made its best effort to categorize costs to provide the best comparison from planned to actuals for 2021. During this exercise, as you have noted, approximately 1.0% of the target costs and 0.7% of the actual costs within the ARC do not line up with what was provided in DR9. The attached Excel file, "ARC DR9 Financial Variances" explains each variance between the ARC and DR9. Response to #9.6: See "DR Funding Variance Explanations". 6/3/22 - RESPONSE 9.7: The attached file "SDGE Response_DR9_9.7_v1" contains the requested information in response to DR 9.7. The highlighted rows in each tab are the initiatives that fit into the category for that tab. The "% Budget" column was interpreted to mean the initiative's overall spend (both capital and O&M combined) as a percentage of all Wildfire Mitigation Plan spend.

DR#	DATA REQUEST	STATUS	REQUEST DATE	DATE FULFILL	SDG&E RESPONSE
10	<p>10.1For Initiative 7.3.3.3, Covered conductor installation - Distribution OH Hardening, please convert the units of "miles" to "poles", for both the Q1 Target and the Q1-4 Actual totals.</p> <p>10.2For Initiative 7.3.3.16, Undergrounding of electric lines and/or equipment, please convert the units of "miles" to "poles", for both the Q1 Target and the Q1-4 Actual totals.</p> <p>10.3For Initiative 7.3.3.17.1, Distribution overhead system hardening, please convert the units of "miles" to "poles", for both the Q1 Target and the Q1-4 Actual totals.</p> <p>10.4For Initiative 7.3.3.17.2, Transmission overhead system hardening, please convert the units of "miles" to "poles", for both the Q1 Target and the Q1-4 Actual totals.</p> <p>10.5For Initiative 7.3.3.17.2, Transmission overhead system hardening - Distribution Underbuilt, please convert the units of "miles" to "poles", for both the Q1 Target and the Q1-4 Actual totals.</p> <p>10.6For Initiative 7.3.3.17.3, Cleveland National Forest distribution and transmission system hardening, please convert the units of "miles" to "poles", for both the Q1 Target and the Q1-4 Actual totals. 5/18/2022: Please provide the asset IDs and location coordinates for the poles provided in your answer to DR 10</p>	COMPLETE	5/3/2022 - 5/18/22	5/6/22	5/6/2022: In response to all of question 10, including 10.1 through 10.6, please see attached spreadsheet, "SDGE IE 2022 DR 10". 5/18/2022: Please see attached file that provides asset IDs and coordinates for the poles provided in the answer to DR10. The relevant tab on the file is "RawQDRData".
11	Initiative 7.3.3.17.1 – Distribution Overhead System Hardening – allows for three possible actions to complete /fulfill the WMP objective: a) change a wooden to steel pole; b) installation of high-strength conductors; or c) removal of a pole. For the Q1-4 Tier 2 and 3 Work Orders in this Initiative category, please specify which of these actions were taken.	COMPLETE	5/3/22	5/6/22	6/6/2022: SDG&E's response to DR 11 is attached as "SDGE IE 2022 DR 11 Final". Tab DR-11b addresses the span/conductor information. Tab DR-11a&c address the pole information.
12	<p>Please see Data Request #12 issued to obtain (1) SDG&E's protocols, standards, and/or specifications for the work orders such that we can measure quality of the work during our field verifications as well as (2) clarification of related/previously provided data.</p> <p>12.1Please provide a copy of the official SDGE vegetation management standards used for Initiative # 7.3.5.2; 7.3.5.5; 7.3.5.9, and 7.3.5.20.</p> <p>12.2Please provide a copy of the installation standards used for expulsion fuses Initiative #7.3.3.7.</p> <p>12.3Please confirm the installation date for each expulsion fuse installation in Q 1-4</p> <p>12.4Work Order data for this initiative shows duplication between installations done in all 4 quarters. IF these fuses are actually installed 4 times in 2021, please explain the rationale for this action.</p> <p>12.5Please provide the type of expulsion fuse installed in each location completed in 2021, Q1-4.</p> <p>12.6Please provide the official SDGE installation protocols and standards for all of the Field Verifiable installations (Large and Small), in Initiative Category 5/7.3.3 Grid Design and System Hardening.</p> <p>12.7Please provide the location coordinates for the transition points from above ground to below ground for the Undergrounding Initiative.</p>	COMPLETE	5/9/22	5/17/22	5/13/2022: Attached is SDG&E's response to DR #12. Reference documents were uploaded to 4Leaf's Dropbox site. 5/17/2022: Attached is an updated DR12 Excel file that includes pole IDs along with coordinates for the fuse replacements.
13	<p>13.0In 2021 Q1, we have found Work orders that have a description but are not associated with any specific Initiative activities. Please clarify the following:</p> <p>13.1Are Work Orders described as "fire fuels removal" to be associated with Initiative 7.3.5.9 "Other discretionary inspection of vegetation around distribution electric lines and equipment beyond inspections mandated by rules and regulations (7.3.5.9)"?</p> <p>13.2Please confirm that no work was performed in Q1 under Initiative 7.3.5.5 "Fuels management and reduction of 'slash' from vegetation management activities (7.3.5.5)".</p> <p>One follow-up question on DR#13 -To what Initiative are Work Orders labeled "fire fuels removal" to be assigned?</p>	COMPLETE	5/16/22	5/19/22	5/19/2022: SDG&E's responses to DR13 are provided below. Response: 13.1 – No. Initiative 7.3.5.9 is associated with our enhanced vegetation management which includes the number of targeted tree species with a height greater than thirty feet within the HFTD that are trimmed to clearances greater than twelve feet. 13.2 – Confirmed. There was no work scheduled under initiative 7.3.5.5 for Q1 2021. Do you have examples of Work Orders that are labeled "fire fuels removal"? Are these items from the QDR, or another data source?This is not a term we typically apply to our vegetation management work, and are unaware of any items labeled as such in 2021.
14	<p>14.1Please provide a complete list of all QA and QC programs for WMP compliance</p> <p>14.2Please provide a detailed description of each program in 14.1</p> <p>14.3Please provide the contact information for the Subject Matter Expert(s) for each program in 14.1</p>	COMPLETE	5/19/22	5/20/22	5/19/2022: This request was provided as part of DR 9.3. 5/20/2022 - Some minor adjustments were made to the SME list. Any changes were entered in red text. Please see attached file to close 14.3.
15	<p>15.1 Please provide Lat/Lon GPS-coordinates and addresses for the generators installed in 2021 under Initiative 7.3.3.11.1. Resiliency Grant Programs. Generators, Large F-V. Please include and highlight any installations that are Not Complete. 15.2Please provide Lat/Lon GPS-coordinates and addresses as accessible for inspectors to verify installations of the Standby Power generators installed in 2021 under Initiative 7.3.3.11.2. Standby Power Programs. Generators, Large non-F-V. Please include and highlight any installations that are Not Complete. 15.3Please provide Lat/Lon GPS-coordinates and addresses for the generators installed in 2021 under Initiative 7.3.3.11.3. Resiliency Assistance Programs. Please include and highlight any installations that are Not Complete. 15.4Please provide Lat/Lon GPS-coordinates and addresses as accessible for inspectors to verify installations of the PSPS sectionalizing enhancements installed in 2021 under Initiative 7.3.3.8.1. PSPS sectionalizing enhancements. Sectionalizing devices, Small <100. Please include and highlight any installations that are Not Complete. 15.5Please provide Lat/Lon GPS-coordinates and addresses as accessible for inspectors to verify installations of the Advanced protection /system automation equipment installed in 2021 under Initiative 7.3.3.9. Installation of system automation equipment- Advance Protection. Circuits, Small <100. Please include and highlight any installations that are Not Complete. 15.6Please provide Lat/Lon GPS-coordinates and addresses to enable inspectors to verify 2021 Base Station installations of Distribution Communications Reliability Improvements under Initiative 7.3.3.18.1. Distribution Communications Reliability Improvements. Base Stations, Small <100. Please include and highlight any installations that are Not Complete. 15.7For EACH of the following six Initiatives, please provide a random sample of 60 inspection reports, 15 from each quarter of 2021: 7.3.4.1; 7.3.4.2; 7.3.4.4, 7.3.4.5; 7.3.4.9.1; Inspections, Large non-F-V; and 7.3.5.2, Detailed inspections of vegetation around distribution electric lines and equipment. Tress inspected, Large non-F-V. 15.8For EACH of the following five Initiatives, please provide a random sample of 60 inspection reports, 15 from each quarter of 2021: 7.3.4.6; 7.3.9.5; 7.3.4.10; 7.3.4.11; 7.3.4.14, Inspections, Large F-V. 15.9Please provide in an Excel format: Global ID, Tier, District, Installation Date, WMP Section, Complete Status, Asset or Pole ID, Lat/Lon, Address in a Quarterly breakdown for Initiative 7.3.2.3. Fault Indicators for detecting faults on electric lines and equipment. Wireless Fault Indicators, Large F-V. 15.10Please provide in an Excel format: Global ID, Tier, District, Installation Date, WMP Section, Complete Status, Asset or Pole ID, Lat/Lon, Address in a Quarterly breakdown for Initiative 7.3.3.10. Maintenance, repair, and replacement of connectors, including hotline clamps. Hotline Clamps, Large F-V. 15.11Please provide in an Excel format: Global ID, Tier, District, Installation Date, WMP Section, Complete Status, Asset or Pole ID, Lat/Lon, Address, in a Quarterly breakdown for Initiative 7.3.3.1. Capacitor maintenance and replacement-SCADA Capacitors. Small <100. 15.12Please provide in an Excel format: Global ID, Tier, District, Installation Date, WMP Section, Complete Status, Asset or Pole ID, Lat/Lon, Address in a Quarterly breakdown for Initiative 7.3.3.18.2. Lighting arrester, removal, and replacement. Lighting arrestors, Large F-V. 15.13Please provide Lat/Lon GPS-coordinates and addresses to enable inspectors to verify 2021 Advance weather monitoring and weather stations under Initiative 7.3.2.1 Weather stations (upgrades), Small <100. Please include and highlight any installations that are Not Complete. 15.14Please provide Lat/Lon GPS-coordinates and addresses to enable inspectors to verify 2021 Fire science and climate adaptation department under Initiative 7.3.2.4.1. Cameras, Small <100. Please include and highlight any installations that are Not Complete</p>	PARTIAL	5/20/22	5/31/22	5/25/2022: Attached is SDG&E's response to this data request, along with appropriate attachments. This response is partially incomplete, and SDG&E is working to address portions of responses noted below: Question 15.7- 7.3.4.2, 7.3.4.5 & Question 15.8.- 7.3.9.5, 7.3.4.10 15.1 SDG&E cannot provide additional GPS-coordinates and addresses for the generators provided as this would include customer personal information. The data has been provided previously as part of the Quarterly Data Reports. 15.2 SDG&E cannot provide additional GPS-coordinates and addresses for the generators provided as this would include customer personal information. The data has been provided previously as part of the Quarterly Data Reports. 15.3 SDG&E cannot provide additional GPS-coordinates and addresses for the generators provided as this would include customer personal information. The data has been provided previously as part of the Quarterly Data Reports. 15.4 Please provide Lat/Lon GPS-coordinates and addresses as accessible for inspectors to verify installations of the PSPS sectionalizing enhancements installed in 2021 under Initiative 7.3.3.8.1. See attached DR15 excel spreadsheet – Grid Hardening Point Addresses provided when available 15.5 See attached DR15 excel spreadsheet – Grid Hardening Line Advanced protection works from the substation breaker to protect the whole circuit. Lat/long provided is for the substation. Addresses provided when available. 15.6. See attached DR15 excel spreadsheet – Grid Hardening Point Addresses not available. Lat/Long provided. 15.7 Please see attachment titled, "IE_DR_15_Q15.7_7.3.5.2.xlsx". This data sheet includes the GPS lat/long for the sample tree inspections in columns AN and AO. SDG&E is still in the process of entering its newest GPS data in all its inventory tree records. Instances of blank cells in columns AN and AO indicate where the data has not yet been captured in the field 15.9 Please provide in an Excel format: Global ID, Tier, District, Installation Date, WMP Section, Complete Status, Asset or Pole ID, Lat/Lon, Address in a Quarterly breakdown for Initiative 7.3.2.3. Fault Indicators for detecting faults on electric lines and equipment. Wireless Fault Indicators, Large F-V. See attached DR15 excel spreadsheet – Other Initiative Installation dates are contained in the individual work orders and are not readily accessible Addresses provided when available 15.10See attached DR15 excel spreadsheet – Grid Hardening Point Installation dates are contained in the individual work orders and are not readily accessible Addresses provided when available 15.11See attached DR15 excel spreadsheet – Grid Hardening Point Installation dates are contained in the individual work orders and are not readily accessible Addresses provided when available. 15.12See attached DR15 excel spreadsheet – Grid Hardening Point Installation dates are contained in the individual work orders and are not readily accessible Addresses provided when available. 15.13See attached DR15 excel spreadsheet – Other Initiative Addresses provided when available. 15.14See attached DR15 excel spreadsheet – Other Initiative No address available. Lat/long provided. https://hpwren.ucsd.edu/cams/ . 5/27/2022: Attached is additional information that responds to the outstanding responses to portions of this data request: Question 15.7: 7.3.4.2, 7.3.4.5, and Question 15.8: 7.3.4.10. SDG&E is still working on the response to Question 15.8: 7.3.9.5 and plans to send that response to you on Tuesday. 5/31/2022: Attached is SDG&E's response to question 15.8: 7.3.9.5, which has also been submitted as a response to DR #17, question #3.
16	<p>Per SDG&E request, these requests for verification of qualitative WMP activities are being sent via the Data Request process. This request focuses on the first four sections of the WMP. Similar requests for sections 5.3.5 – 5.3.10 will be issued separately (expected to be issued tomorrow morning).</p> <p>Please see the attached list of questions for SMEs associated with WMP Initiatives</p> <p>16.1 - 5.3.1 – Risk Assessment and Mapping</p> <p>16.2 - 5.3.2 – Situational Awareness & Forecasting</p> <p>16.3 - 5.3.3 – Grid Design and System Hardening</p> <p>16.4 - 5.3.4 – Asset Management & Inspections</p>	COMPLETE	5/24/22	5/27/22	5/27/2022: Attached is SDG&E's response to the data request propounded below. The file with corresponding attachments is too large to send via email, and I will send the completed data request via electronic data transfer momentarily.

DR#	DATA REQUEST	STATUS	REQUEST DATE	DATE FULFILL	SDG&E RESPONSE
17	Per SDG&E request, these requests for verification of qualitative WMP activities are being sent via the Data Request process. This request addresses sections 5.3.8 – 5.3.10 and is DR 2 of 3 for this effort. Please see the attached list of questions for SMEs associated with WMP Initiatives 17.1 - 5.3.8 – Resource Allocation Methodology 17.2 - 5.3.9 – Emergency Planning & Preparedness 17.3 - 5.3.10 – Stakeholder Cooperation & Community Engagement	COMPLETE	5/25/22	6/2/22	5/31/2022 - Attached is SDG&E's response to the data request below. The files are large, and will be submitted via EDT shortly. SDG&E will need an extra day to produce a response to questions 11 and 12 in this data request. Thank you for your patience. 6/1/2022: Attached are the updated files to respond to question 9, and response to question 14 in a word document. Let me know if you have any issue accessing these files. 6/2/2022: Attached is the completed data request response, along with the final attachments for questions 11 and 12.
18	Per SDG&E request, these requests for verification of qualitative WMP activities are being sent via the Data Request process. This request focuses on WMP sections 5.3.5 – 5.3.7. Please see the attached list of questions for SMEs associated with WMP Initiatives 18.1 - 5.3.5 – Vegetation Management & Inspections 18.2 - 5.3.6 – Grid Operations & Operating Protocols 18.3 - 5.3.7 – Data Governance	COMPLETE	5/25/22	6/2/22	5/31/2022: SDG&E will need an additional day to complete this data request. I apologize for this inconvenience, and appreciate your patience as we work to gather a comprehensive response to this request. 6/2/2022: Attached is SDG&E's response to data request #18. I will be sending the attachments via electronic data transfer shortly.
19	19.1Please provide all MOUs with all 30-Native American tribes within SDG&E's territory. 19.2Please provide all snapshots for all 30-Native American Tribes within SDG&E's territory. 19.3Please provide GPS-coordinates and addresses for the generators installed in 2021, within Native American Lands, if any, under Initiative 7.3.3.11.3. Resiliency Assistance Programs. Please include and highlight any installations that are Not Complete. 19.4Please provide GPS-coordinates and addresses as accessible for inspectors to verify installations of the PPS sectionalizing enhancements installed in 2021, within Native American Lands, if any, under Initiative 7.3.3.8.1. PPS sectionalizing enhancements. Sectionalizing devices, Small <100. Please include and highlight any installations that are Not Complete. 19.5Please provide GPS-coordinates and addresses as accessible for inspectors to verify installations of the Advanced protection /system automation equipment installed in 2021, within Native American Lands, if any, under Initiative 7.3.3.9. Installation of system automation equipment- Advance Protection. Circuits, Small <100. Please include and highlight any installations that are Not Complete. 19.6Please provide GPS-coordinates and addresses to enable inspectors to verify 2021, within Native American Lands, if any, Base Station installations of Distribution Communications Reliability Improvements under Initiative 7.3.3.18.1. Distribution Communications Reliability Improvements. Base Stations, Small <100. Please include and highlight any installations that are Not Complete. 19.7For EACH of the following six Initiatives, please provide a random sample of 4 inspection reports, 1 from each quarter of 2021: 7.3.4.1; 7.3.4.2; 7.3.4.4, 7.3.4.5; 7.3.4.9.1; Inspections, Large non-F-V; and 7.3.5.2, within Native American Lands, if any. Detailed inspections of vegetation around distribution electric lines and equipment. Tress inspected, Large non F-V. 19.8For EACH of the following five Initiatives, please provide a random sample of 4 inspection reports, 1 from each quarter of 2021: 7.3.4.6; 7.3.9.5; 7.3.4.10; 7.3.4.11; 7.3.4.14, within Native American Lands, if any. Inspections, Large F-V. 19.9Please provide in an Excel format: Global ID, Tier, District, Installation Date, WMP Section, Complete Status, Asset or Pole ID, Address in a Quarterly breakdown for Initiative 7.3.2.3, within Native American Lands, if any. Fault Indicators for detecting faults on electric lines and equipment. Wireless Fault Indicators, Large F-V. 19.10Please provide in an Excel format: Global ID, Tier, District, Installation Date, WMP Section, Complete Status, Asset or Pole ID, Address in a Quarterly breakdown for Initiative 7.3.3.1, within Native American Lands, if any. Capacitor maintenance and replacement-SCADA Capacitors. Small <100. 19.12Please provide in an Excel format: Global ID, Tier, District, Installation Date, WMP Section, Complete Status, Asset or Pole ID, Address in a Quarterly breakdown for Initiative 7.3.3.18.2, within Native American Lands, if any. Lighting arrestor, removal, and replacement. Lighting arrestors, Large F-V. 19.13Please provide GPS-coordinates and addresses to enable inspectors to verify 2021 Advance weather monitoring and weather stations under Initiative 7.3.2.1, within Native American Lands, if any. Weather stations (upgrades), Small <100, Please include and highlight any installations that are Not Complete. 19.14Please provide GPS-coordinates and addresses to enable inspectors to verify 2021 Fire science and climate adaptation department under Initiative 7.3.2.4.1, within Native American Lands, if any. Cameras, Small <100. Please include and highlight any installations that are Not Complete. 19.15Please provide access to all aerial intelligence from Drones, Manned Aircraft and/or satellites exclusive to Native American Lands	COMPLETE	5/25/22	5/26/22	5/26/2022: Attached is SDG&E's response to the data request below with corresponding attachments. In response to request 19.2, SDG&E is providing a GIS shapefile of the tribal areas in its service territory. As Request 19.1 seeks "all MOUs with all 30-Native American Native American tribes within SDG&E's service territory," this request is overly broad, unduly burdensome, and seeks information not relevant to an evaluation of SDG&E's 2021 WMP. SDG&E is providing MOUs that are germane to assessing compliance with SDG&E's 2021 WMP Update. Requests 19.3 through 19.15 request that SDG&E break down its wildfire mitigation initiatives and the locations of initiative activity by those located within tribal lands. First, that breakdown is not in SDG&E's possession as SDG&E does not identify or track the requested initiatives or activities by whether they are located on tribal lands. Where possible, to perform a breakdown as requested, SDG&E would have to perform significant additional analysis, which is unduly burdensome. Second, Requests 19.3 through 19.15 are not relevant to an assessment of SDG&E's compliance with its 2021 WMP Update, so it is unclear how separating information into work/installations/inspections performed on tribal lands (which are not the focus of the WMPs generally) is helpful to the Independent Evaluator's compliance assessment. Providing the GIS shapefile should allow for a high-level understanding of where initiatives overlap with tribal lands. We would also like to note that we continue to receive requests for the GPS coordinates and addresses of customers who received generators under the Resiliency Assistance Programs (See, e.g. Request 19.3). SDG&E is unable to provide such information as it would require us to provide individual customer addresses. We feel that it would be inappropriate to provide this information in light of our customers' interest in their personal privacy. Most of the resiliency assistance programs are not field verifiable since the generators are located inside customers' homes. SDG&E is happy to provide documentation regarding the program, should the Independent Evaluator find it helpful.
20	Please provide 50 examples for each item listed in the Company's QA/QC Report dated May 4, 2022 (in reference to DR #14). Items include: -Electric System Hardening -DIAR -Distribution CMP -Transmission Inspection -Vegetation Management	COMPLETE	6/1/22	6/3/22	6/3/2022: Attached is SDG&E's response to data request #20. The additional files will be submitted via electronic data transfer momentarily.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

Distribution of QA Audits

ELECTRIC STANDARD PRACTICE

DEPARTMENT	DIVISION	EFFECTIVE DATE
TRANS. & DISTRIB. ENGINEERING	DISTRIBUTION ENGINEERING	SEPTEMBER 20, 2017
SECTION		
CORRECTIVE MAINTENANCE		
SUBJECT TITLE		
DISTRICT INTERNAL QUALITY ASSURANCE AUDITS		
<p>1.0 PURPOSE</p> <p>1.1 District supervision is responsible for auditing CMP inspections and follow up repairs to ensure quality and compliance to the established program. The purpose of this Standard Practice is to provide a uniform set of procedures for District Internal Quality Assurance Audits and will also define the procedures for equipment selection, documentation, field review, and follow-up action items.</p> <p>2.0 APPLICABILITY</p> <p>2.1 This standard applies to all personnel involved with the Quality Assurance Audits.</p> <p>3.0 DEFINITIONS</p> <p>3.1 SAP WM – Systems Applications & Products Work Management</p> <p>3.2 CMP – Corrective Maintenance Program</p> <p>3.3 PMG – Program Management Group</p> <p>3.4 CPUC – California Public Utility Commission</p> <p>3.5 GO – General Order</p> <p>4.0 PROCEDURE</p> <p>4.1 GENERAL PROCESS FOR UNDERGROUND QUARTERLY AUDITS</p> <p>4.1.1 Each quarter, each Inspector ID shall be audited at a rate of 1.5% or a minimum of 1 structure, whichever is greater, for each of the following inspection types: Above Ground Dead-front (AGDF), Above Ground Live-front (AGLF), Subsurface with Equipment (SS3), Subsurface without Equipment (SS10), and Oil and Gas Switches (SW3).</p> <p>4.1.1.1 Infraction Condition (I), Reliability Condition (R), and Discretionary Conditions (D) will be reviewed for auditing purposes</p> <p>4.1.2 Follow up repairs, excluding repairs made during the inspection, shall be audited at a rate of 1% of the total underground infractions repaired each quarter or a minimum of 5 infractions, whichever is greater.</p> <p>4.2 GENERAL PROCESS FOR OVERHEAD QUARTERLY AUDITS</p> <p>4.2.1 Each quarter, each Inspector ID shall be audited at a rate of 1.5% or a minimum of 1 structure, whichever is greater for Overhead Visual Inspections (OHVI).</p> <p>4.2.1.1 Infraction Condition (I), Reliability Condition (R), and Discretionary Conditions (D) will be reviewed for auditing purposes</p> <p>4.2.2 Follow up repairs, excluding repairs made during the inspection, shall be audited at a rate of 1% of the total overhead infractions repaired each quarter or a minimum of 5 infractions, whichever is greater.</p>		
ISSUED BY	APPROVED BY	
LONNY SALDIVAR	GERRY LEHMANN	

ELECTRIC STANDARD PRACTICE

DEPARTMENT	DIVISION	EFFECTIVE DATE
TRANS. & DISTRIB. ENGINEERING	DISTRIBUTION ENGINEERING	SEPTEMBER 20, 2017
SECTION		
CORRECTIVE MAINTENANCE		
SUBJECT TITLE		
DISTRICT INTERNAL QUALITY ASSURANCE AUDITS		
<p>4.3 PROCESS FOR AUDITING AND REPORTING DEFICIENCIES</p> <p>4.3.1 The Operations Assistant will pull the Overhead Visual Inspections and the Above Ground Dead Front (AGDF), Above Ground Live Front (AGLF), Subsurface with equipment (SS3), Subsurface without equipment (SS10), and Switches (SW3) Inspections through the PMR Report to ensure consistent and unbiased data.</p> <p style="padding-left: 20px;">4.3.1.1 The report can be located at http://electricopspmr/ under reports → Corrective Maintenance Program → CMP QA Audit</p> <p>4.3.2 District supervision will field visit each structure selected for auditing to ensure accuracy and quality of work and also to ensure compliance with SDG&E Construction Standards and CPUC GO 95 & 128.</p> <p style="padding-left: 20px;">4.3.2.1 A structure does not require a field visit if it will cause the district to use an inordinate amount of time and/or resources (i.e. outage, extended permitting, budget constraints) to complete.</p> <p style="padding-left: 20px;">4.3.2.2 Please notate the structure on the initial report with a reason and select another structure for the inspector by re-running the report and select another structure.</p> <p style="padding-left: 20px;">4.3.2.3 4.3.2.3. If that is the only structure the inspector has inspected, it may be omitted from the audit.</p> <p>4.3.3 Each structure audited in the report should include who audited the structure, the date it was audited and any findings.</p> <p>4.3.4 Deficiencies should be noted on the quality assurance report and discussed with employees. The district shall keep a copy of the quarterly report form for two years after upload.</p> <p>4.3.5 Any additional infractions found by district supervision on the audit should be inputted into SAP WM and repaired within the internal company established timeframe.</p> <p>4.3.6 The Quality Assurance Report along with the summary (See Attachments) will be uploaded onto the CMP SharePoint (https://sps.sdge.com/so/EO-cmp/QuarterlyAudits/default.aspx) no later than 90 days after the end of the quarter.</p> <p>4.4 PROGRAM MANAGEMENT REVIEW</p> <p>4.4.1 PMG will be checking to ensure each district completed their Quality Assurance Report along with the summary and uploaded to the CMP SharePoint.</p> <p>4.4.2 PMG will send out a monthly status report to district personnel regarding the completion status of the quarterly audits.</p> <p>5.0 REFERENCES</p> <p>5.1 None</p>		
ISSUED BY	APPROVED BY	
LONNY SALDIVAR	GERRY LEHMANN	

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE SEPTEMBER 20, 2017
SECTION CORRECTIVE MAINTENANCE		
SUBJECT TITLE DISTRICT INTERNAL QUALITY ASSURANCE AUDITS		

6.0 REVISION HISTORY

Effective Date:	Type Of Change	Brief Description of Change
28 Aug 2017	Revised	Updated the Audit Rate Counts and Procedure; Updated the UG Inspection Categories; Changed the monitoring responsibility; added attachments; clarified record requirements
20 Mar 2015	Revised	UG Quality Assurance Report Form revised

ISSUED BY

LONNY SALDIVAR

APPROVED BY

GERRY LEHMANN

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE SEPTEMBER 20, 2017
SECTION CORRECTIVE MAINTENANCE		
SUBJECT TITLE DISTRICT INTERNAL QUALITY ASSURANCE AUDITS		
<p>7.0 ATTACHMENTS</p> <ul style="list-style-type: none"> 7.1 Attachment A: Overhead Quality Assurance Inspection Report Form 7.2 Attachment B: Underground (AGDF) Inspection Quality Assurance Report Form 7.3 Attachment C: Underground (AGLF) Inspection Quality Assurance Report Form 7.4 Attachment D: Underground (SW3) Inspection Quality Assurance Report Form 7.5 Attachment E: Underground (SS3) Inspection Quality Assurance Report Form 7.6 Attachment F: Underground (SS10) Inspection Quality Assurance Report Form 7.7 Attachment G: Repairs Inspection Quality Assurance Report Form 		
ISSUED BY LONNY SALDIVAR	APPROVED BY GERRY LEHMANN	

ELECTRIC STANDARD PRACTICE

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE SEPTEMBER 20, 2017
SECTION CORRECTIVE MAINTENANCE		
SUBJECT TITLE DISTRICT INTERNAL QUALITY ASSURANCE AUDITS		

ATTACHMENT A

Overhead Quality Assurance Inspections Report Form

CMP Internal Audit for the _ Quarter of 20__

Clear All

Type of Inspection	Cycle	Inspector ID	Total Facilities Inspected	1.5% Audit (minimum 1)	# of Condition Codes Reported by Inspector	# of Same Condition Codes Confirmed by Supv.	# of Additional Condition Codes Identified by Supv.	% Score Reported / Confirmed + Identified
Overhead Visual (OHVI)	5 Year							#VALUE!
Overhead Visual (OHVI)	5 Year							#VALUE!
Overhead Visual (OHVI)	5 Year							#VALUE!
Overhead Visual (OHVI)	5 Year							#VALUE!
Overhead Visual (OHVI)	5 Year							#VALUE!
Overhead Visual (OHVI)	5 Year							#VALUE!
Overhead Visual (OHVI)	5 Year							#VALUE!

ATTACHMENT B

Underground (AGDF) Inspections Quality Assurance Report Form

CMP Internal Audit for the _ Quarter of 2__

Clear All

Type of Inspection	Cycle	Inspector ID	Total Facilities Inspected	1.5% Audit (minimum 1)	# of Condition Codes Reported by Inspector	# of Same Condition Codes Confirmed by Supv.	# of Additional Condition Codes Identified by Supv.	% Score = Reported / Confirmed + Identified
Above Ground Deadfront (AGDF)	5 year							
Above Ground Deadfront (AGDF)	5 year							
Above Ground Deadfront (AGDF)	5 year							
Above Ground Deadfront (AGDF)	5 year							
Above Ground Deadfront (AGDF)	5 year							

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APPROVED BY

GERRY LEHMANN

ELECTRIC STANDARD PRACTICE

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE SEPTEMBER 20, 2017
SECTION CORRECTIVE MAINTENANCE		
SUBJECT TITLE DISTRICT INTERNAL QUALITY ASSURANCE AUDITS		

ATTACHMENT C

Underground (AGLF) Inspections Quality Assurance Report Form

CMP Internal Audit for the _ Quarter of 20__

Clear All

Type of Inspection	Cycle	Inspector ID	Total Facilities Inspected	1.5% Audit (minimum 1)	# of Condition Codes Reported by Inspector	# of Same Condition Codes Confirmed by Supv.	# of Additional Condition Codes Identified by Supv.	% Score = Reported / Confirmed + Identified
Above Ground Livefront (AGLF)	5 year							
Above Ground Livefront (AGLF)	5 year							
Above Ground Livefront (AGLF)	5 year							
Above Ground Livefront (AGLF)	5 year							

ATTACHMENT D

Underground (SW3) Inspections Quality Assurance Report Form

CMP Internal Audit for the _ Quarter of 20__

Clear All

Type of Inspection	Cycle	Inspector ID	Total Facilities Inspected	1.5% Audit (minimum 1)	# of Condition Codes Reported by Inspector	# of Same Condition Codes Confirmed by Supv.	# of Additional Condition Codes Identified by Supv.	% Score = Reported / Confirmed + Identified
Oil or Gas Switches (SW3)	3 year							
Oil or Gas Switches (SW3)	3 year							
Oil or Gas Switches (SW3)	3 year							
Oil or Gas Switches (SW3)	3 year							
Oil or Gas Switches (SW3)	3 year							
Oil or Gas Switches (SW3)	3 year							

ISSUED BY

LONNY SALDIVAR

APPROVED BY

GERRY LEHMANN

ELECTRIC STANDARD PRACTICE

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE SEPTEMBER 20, 2017
SECTION CORRECTIVE MAINTENANCE		
SUBJECT TITLE DISTRICT INTERNAL QUALITY ASSURANCE AUDITS		

ATTACHMENT E

Underground (SS3) Inspections Quality Assurance Report Form

CMP Internal Audit for the _ Quarter of 20__

Clear All

Type of Inspection	Cycle	Inspector ID	Total Facilities Inspected	1.5% Audit (minimum 1)	# of Condition Codes Reported by Inspector	# of Same Condition Codes Confirmed by Supv.	# of Additional Condition Codes Identified by Supv.	% Score = Reported / Confirmed + Identified
Subsurface w/ Equipment (SS3)	3 year							
Subsurface w/ Equipment (SS3)	3 year							
Subsurface w/ Equipment (SS3)	3 year							
Subsurface w/ Equipment (SS3)	3 year							
Subsurface w/ Equipment (SS3)	3 year							

ATTACHMENT F

Underground (SS10) Inspections Quality Assurance Report Form

CMP Internal Audit for the _ Quarter of 20__

Clear All

Type of Inspection	Cycle	Inspector ID	Total Facilities Inspected	1.5% Audit (minimum 1)	# of Condition Codes Reported by Inspector	# of Same Condition Codes Confirmed by Supv.	# of Additional Condition Codes Identified by Supv.	% Score = Reported / Confirmed + Identified
Subsurface w/o Equipment (SS10)	10 Years							
Subsurface w/o Equipment (SS10)	10 Years							
Subsurface w/o Equipment (SS10)	10 Years							
Subsurface w/o Equipment (SS10)	10 Years							
Subsurface w/o Equipment (SS10)	10 Years							

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LONNY SALDIVAR

APPROVED BY

GERRY LEHMANN

ELECTRIC STANDARD PRACTICE

DEPARTMENT TRANS. & DISTRIB. ENGINEERING	DIVISION DISTRIBUTION ENGINEERING	EFFECTIVE DATE SEPTEMBER 20, 2017
SECTION CORRECTIVE MAINTENANCE		
SUBJECT TITLE DISTRICT INTERNAL QUALITY ASSURANCE AUDITS		

ATTACHMENT G

Repairs Quality Assurance Report Form

CMP Internal Audit for the ___ Quarter of 2___

Clear Overhead Repairs Table

Overhead Repairs

Type of Infraction	Cycle	Total Condition Codes Repaired	1% Audit (minimum 5)	# of Condition Codes Reported as Repaired in SAP Based on 1%	# of Same Condition Codes Confirmed by Supv. as Repaired	% Score = Confirmed / Reported
Overhead Visual (OHVI)	5 Year					

Clear Underground Repairs Table

Underground Repairs

Type of Infraction	Cycle	Total Condition Codes Repaired	1% Audit (minimum 5)	# of Condition Codes Reported as Repaired in SAP Based on 1%	# of Same Condition Codes Confirmed by Supv. as Repaired	% Score = Confirmed / Reported
Underground	All					

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LONNY SALDIVAR

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GERRY LEHMANN

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

Aerial Analysis Reports

Date: June 8, 2022

Author: Nenad Surjanac, Senior Environmental Engineer and GIS Expert

RE: 7.3.2.1. Weather Stations

SDG&E’s network of weather stations consists of 195 individual stations mounted on poles (Image 1). According to SDG&E, their network produces approximately 200,000 pieces of weather data daily, and already has generated 700 million pieces of data.

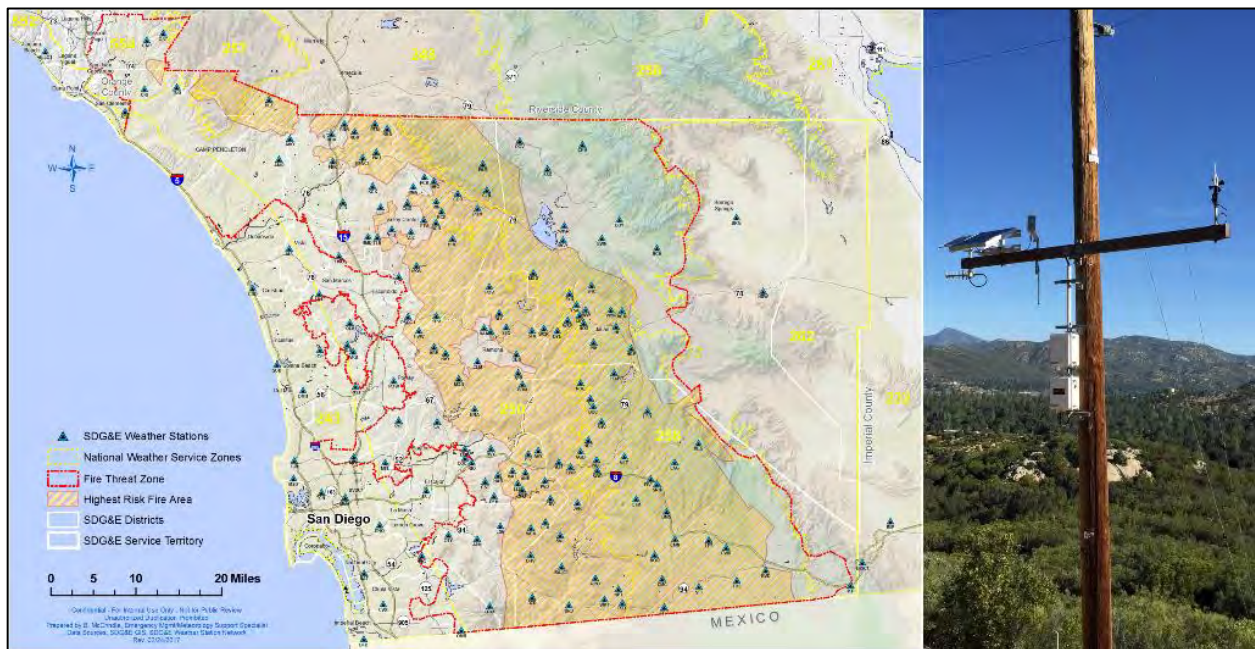


Image 1. SDG&E network of weather stations and weather station mounted on a pole (*source: <https://www.sdgenews.com/article/additional-monitoring-stations-backcountry-provide-hyper-local-data-weatherfire-conditions>*).

This data is used to map the service area, create thematic maps (such as Relative Humidity map on Image 2) and run simulation models.

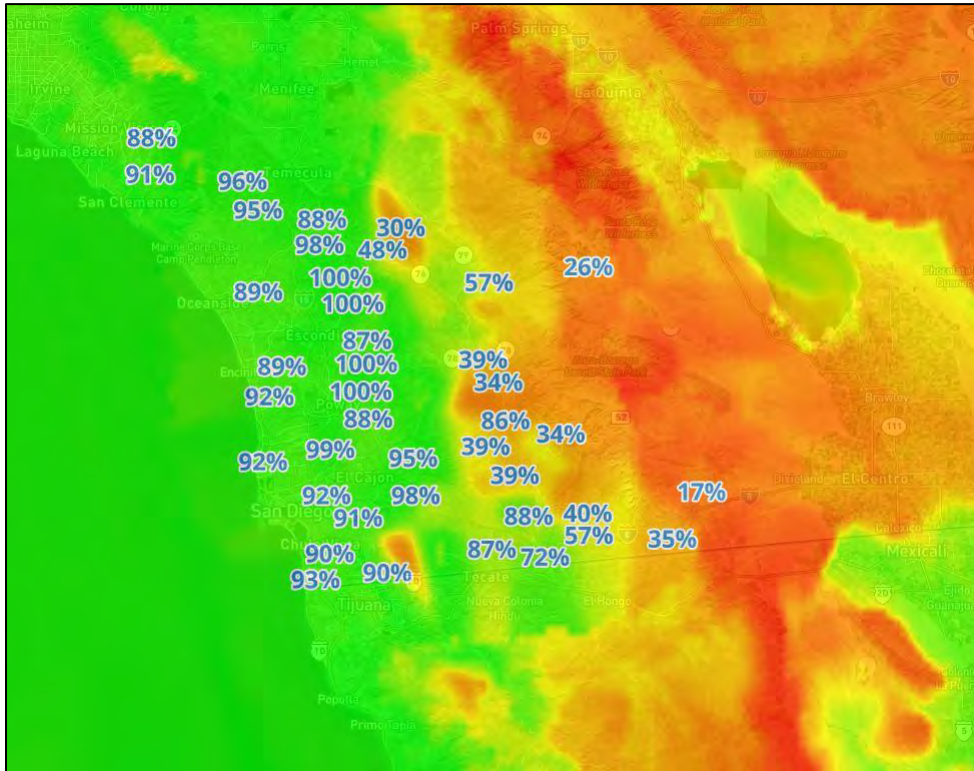


Image 2. Relative humidity maps produced by SDG&E (*source: <https://maps.sdgweather.com/>*)

Out of 195 weather stations in total, 27 were chosen as a sample to review the physical locations and operational status of weather stations in the SDG&E network. A map of the sampled locations is shown in Image 3.

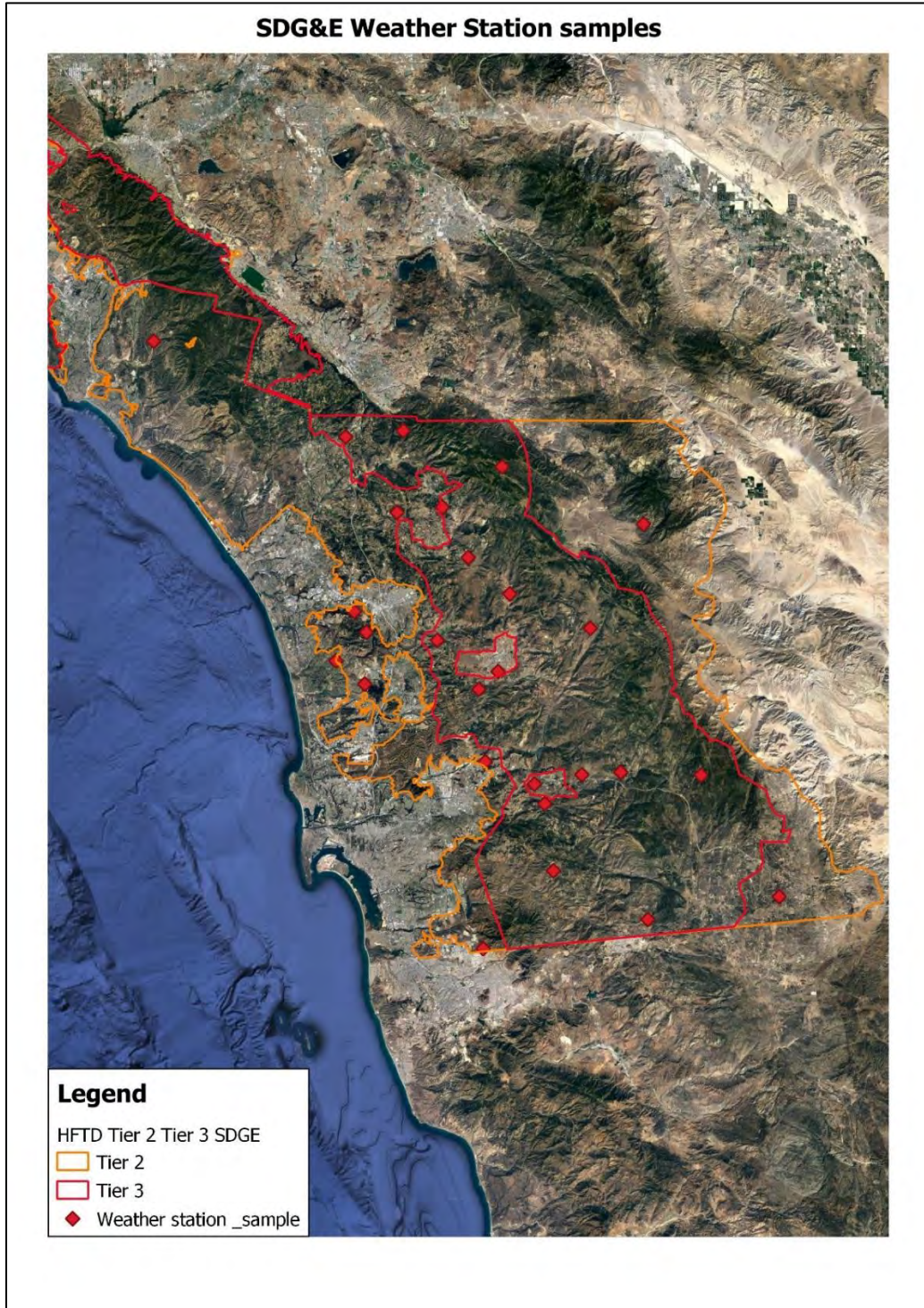


Image 3. SDG&E Weather Stations sample



ANALYSIS REPORT

The IE's review was performed through inspection of high-resolution aerial images (images 4 – 8) and review of streamed data from the sampled weather stations (<https://weather.sdgeweather.com/>).





Images 4 – 8. Collection of high-resolution aerial images

Based on data streamed from weather station and the images retrieved, a weather station consists of a small solar panel as a power source and equipment for measurement for wind speed and direction, air humidity, and temperature.

This report presents data found in the form of aerial images, excerpts of the images, and screenshots of streamed data retrieved from the weather stations. Alongside this primary data, secondary data included the information on poles/weather station surroundings.

The images were used in three variations: a) Nadir, b) aerial orthogonal images, and c) Oblique. Nadir imagery was used in both RGB (Red-Green-Blue) and CIR (Color Infra Red) modes. To explain these terms:

Nadir or orthogonal imagery consists of images taken at a 90 degree angle toward the object of interest. For aerial images, this means vertical imaging looking straight down. Ideally, the object of interest would be represented with flat surfaces and clear boundary lines (image 1, left).

Oblique imagery represents images taken at angles anywhere between 0 (horizontal) and 90 degrees (vertical). Usually, it means between 45° and 90° for low oblique for 3D information, and 0° to 45° (high oblique) for information regarding the object's sides (image1, right).

While NADIR imagery is ideal for two-dimensional information (maps) and accurate measurements in a 2D plane, oblique imagery provides greater insight in three dimensions, enabling a clearer spatial distribution of the objects.

Combining nadir images and oblique images from four directions (North, East, South, West) provides very good information on dimensions and spatial distribution of object.

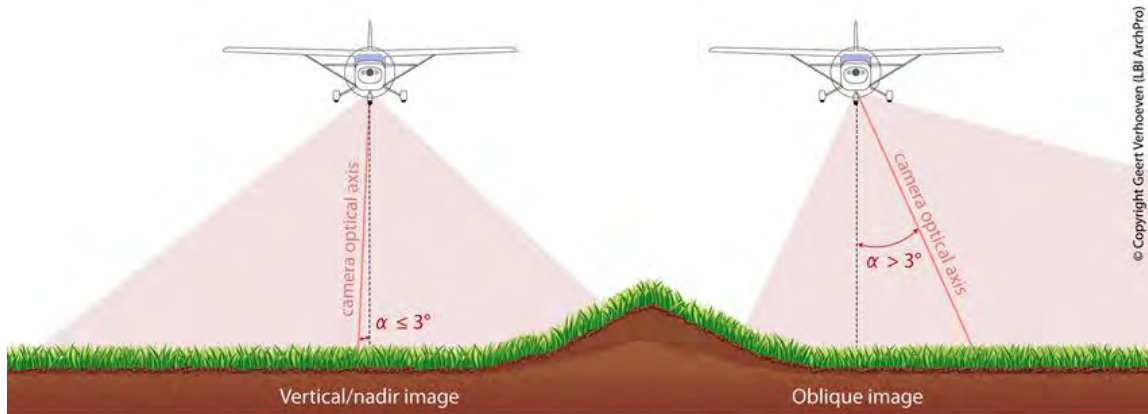


Image: Nadir versus Oblique imagery, (source: Verhoeven, Geert. (2017). *Are We There Yet? A Review and Assessment of Archaeological Passive Airborne Optical Imaging Approaches in the Light of Landscape Archaeology*. *Geosciences*. 7. 86. 10.3390/geosciences7030086.)

In the images of these weather stations, the RGB images are shown in natural color (as seen with naked eye). CIR images have the red component of the color spectrum switched with the Near-Infra-Red part of the light spectrum. This portion of the spectrum is very useful for the observation of plants. Of all the light that falls on plants, most of it is reflected as Near-Infra-Red (NIR), which is invisible to human eye. By using NIR values in the red channel, the image analysis shows the healthy and active plants as an intensive red color, while plants in poor health and dry show as pale red to grey. This color distinction can help in distinguishing the presence and location of dead vegetation as potential fire fuel.



Image 9. Installation of weather station (*source: <https://www.sdgenews.com/article/sdges-weather-station-network-has-expanded>*)

Sampling of SDG&E's weather station network was done in 2 phases. The first sampling was done with the data initially provided by SDG&E. In that sample, the data bases indicated just four weather stations installed in Q3/2021. The 2021 WMP Compliance report, however, cited installation of 46 of 20 planned weather stations. The sampling method looked for sample locations distributed over the entire area of San Diego County.

For the purpose of verifying completion of this initiative, 27 sample locations were selected. In response to Data Request 15, the IE received information on 46 weather station that had been upgraded, ten of which were already included in the IE sample. This report includes all initially selected 27 samples; descriptions of the ten samples from subsequent data are titled in red.

The IE found that all weather stations are operational and are providing live stream data. The report also includes comments on the environments surrounding the poles on which the weather stations are mounted.

One finding is that weather stations are located in various environments. All checked stations are mounted between 5 and 6 meters off the ground. Some poles have appropriate vegetation clearance, for example Bell Canyon, while others such as Highland Valley West have high vegetation in the immediate vicinity of pole and weather station. The IE expresses a concern regarding the effect of vegetation on the changing microclimate around the pole, changes that may influence the quality of the weather data collected and therefore on the subsequent decisions that rely upon that data.

Another observation that caught the IE’s attention while inspecting images of poles and weather stations is visible in the pole for the weather station in Rainbow Valley. The IE compared the structure of the pole with a vertical line; it seems that pole is crooked as though under stress and pulled by wires. The IE suggests further inspection of this particular pole.

Based on the reported installation work and the functionality of the sampled weather stations, the IE can verify that SDG&E met their objective for this initiative. However, the IE can also observe room for improvement in the areas of pole maintenance, to enable these weather stations to better fulfill their purpose as a weather station, in both functionality and data quality.

1. Bell Canyon

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
CAP	Bell Canyon	NOV-DEC 2021	2009/08/01	33.557510375976563	-117.547416687011719	Operational

1.1. Aerial Images



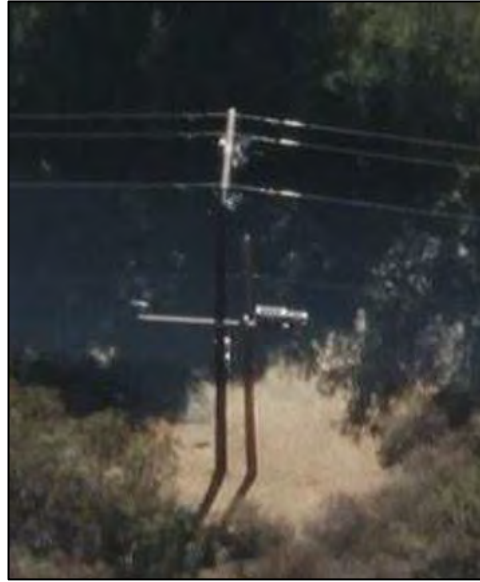
1.1.1. NADIR RGB



1.1.2 North

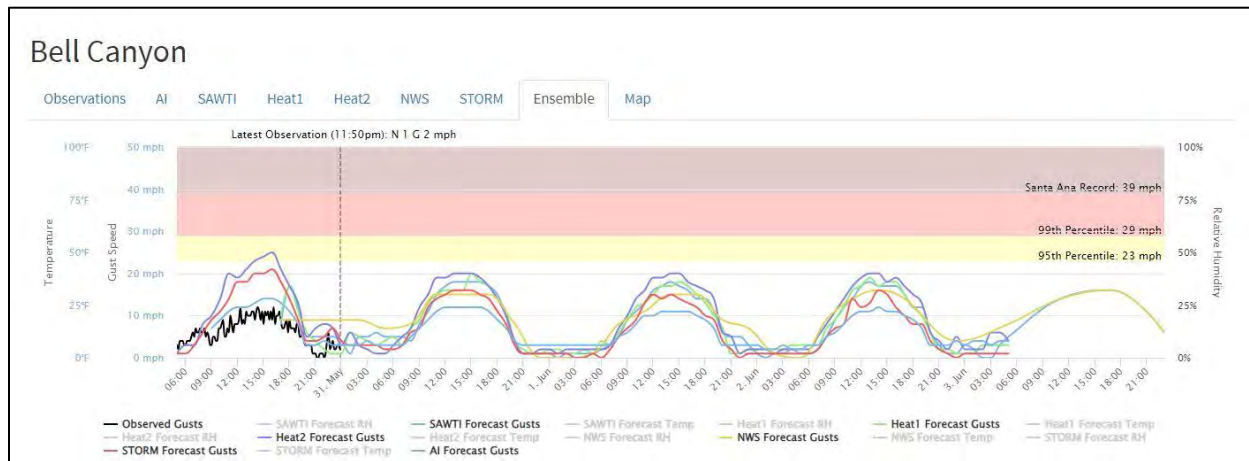


1.1.3 East



1.1.4. South

1.2. Station data



1.2.1. Data streamed from weather station CAP

1.3. Comment

Weather station is operational. GIS location provided by SDG&E is 21 meters away from actual location of the pole. There is 3.3 meters of clearance around the pole. Weather station is installed at 6 meters height.

Link: <https://weather.sdgeweather.com/station/CAP>

2. Escondido

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
ESC	Escondido	January 2022	2018/12/17	33.171571	-117.051485	Operational

2.1. Aerial Images



2.1.1. North



2.1.2. East

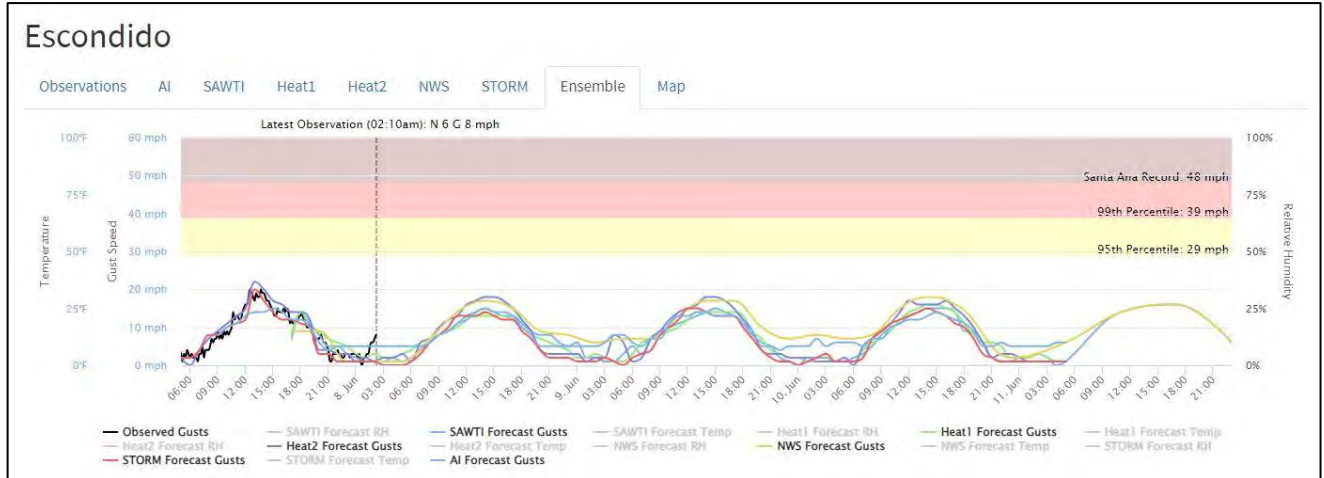


2.1.3. South



2.1.4. West

2.2. Station data



2.2.1. Data streamed from weather station ESC

2.3 Comment

Weather station is operational. GIS location provided by SDG&E is accurate. The equipment is mounted on Transmission tower. There is low vegetation present in around the tower base. (images 2.1.1. – 2.1.4.).

Link: <https://weather.sdgeweather.com/station/ESC>

3. Olivenhain

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
OLV	Olivenhain	January 9 2022	2011/07/28	33.0801010131835	-117.129600524902	Operational

3.1 Aerial images of the pole



3.1.1. NADIR RGB



3.1.2. North



3.1.3. East

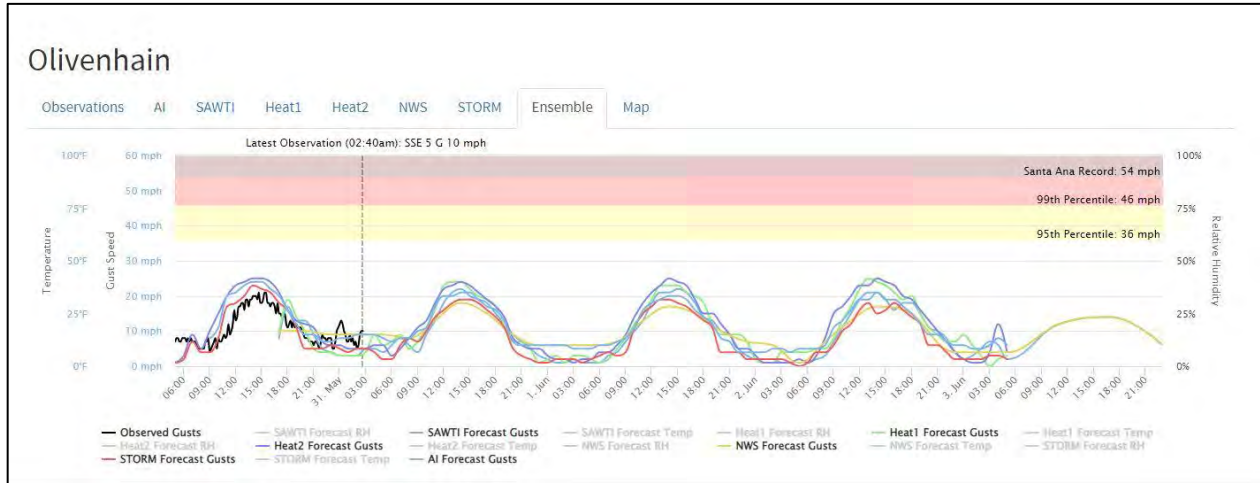


3.1.4. South



3.1.5. West

3.2. Station data



3.2.1. Data streamed from weather station OLV

3.3. Comment

Weather station is operational. GIS location provided by SDG&E is accurate, 3 meters away from the pole. There is 4.4-meter clearance around the pole. Weather station is installed at height of 6 meters.

Link: <https://weather.sdgweather.com/station/OLV>

4. Otay Mesa Border

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
OMB	Otay Mesa Border	January_9_2022	2012/09/08	32.558135986328125	-116.9004516601562	Operational

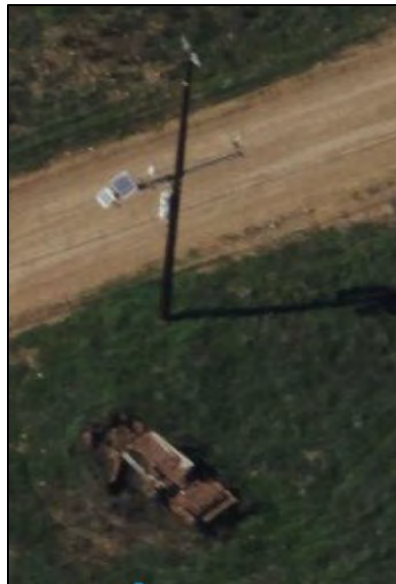
4.1. Aerial images



4.1.1. NADIR RGB



4.1.2. NADIR CIR

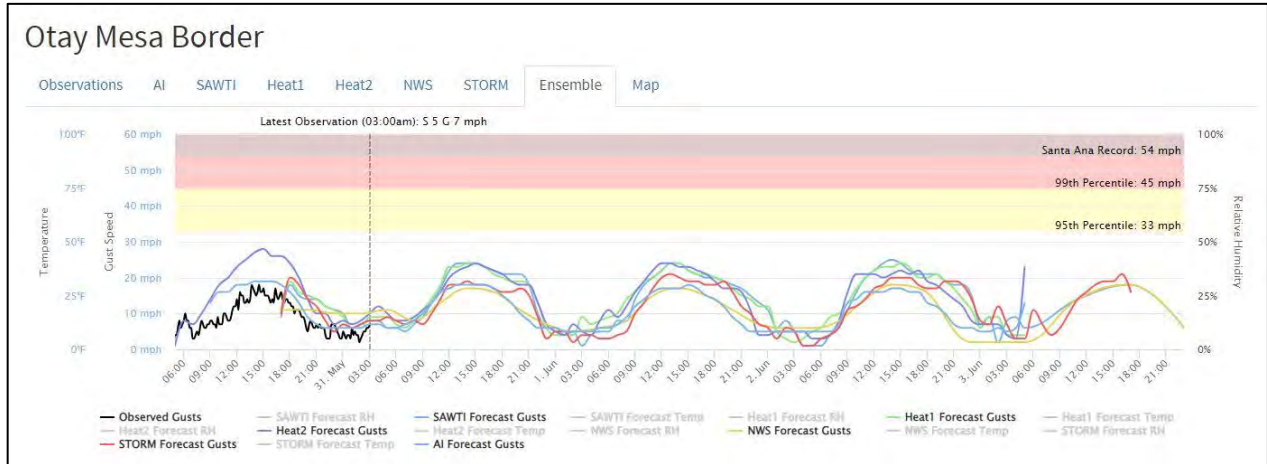


4.1.3. West – year 2022



4.1.4. West – year 2017

4.2. Station data



4.2.1. Data streamed from weather station OMB

4.3. Comment

Weather station is operational. Image 4.2.1 shows data streamed from the weather station in 10-minute intervals. GIS data (blue point on the images 4.1.1. and 4.1.2.) provided by SDG&E is accurate – it is 5 meters away from the actual pole. Low vegetation is present in the base of the pole. Available images are of 20cm/pix resolution in natural – RGB and NearInfrared wavelength bands. Produced images are in natural color as shown 4.1.1 and Color infrared – CIR on image 4.1.2 Images show presence of weather station mounted on the pole. The images show what seems to be a wrecked vehicle in the vicinity of the pole. The vehicle has been around for at least 5 years according to the image 4.1.4. which was taken on March 29th 2017.

Link: <https://weather.sdgweather.com/station/OMB>

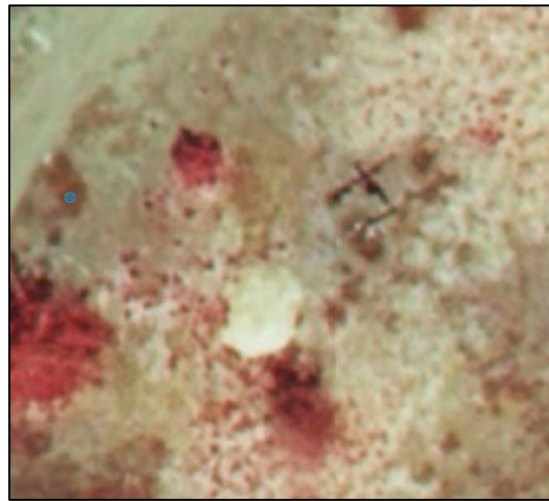
5. Palomar

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
PAM	Palomar	April 19 2021	2009/08/29	33.352138519287109	-116.86286163330078	Operational

5.1. Aerial images



5.1.1. NADIR RGB



5.1.2. NADIR CIR

5.2. Station data



5.2.1. Data streamed from weather station – RCE

5.3. Comment

Weather station is operational. Image 5.2.1 shows data streamed from the weather station in 10-minute intervals. GIS data (blue point on the images 4.1.1. and 4.1.2.) provided by SDG&E 19 meters away from the actual pole. There is no vegetation present in the base of the pole. Available images are of 20cm/pix resolution in natural – RGB and NearInfrared wavelength bands. Produced images are in natural color as shown 5.1.1 and Color infrared – CIR on image 5.1.2 Images show presence of weather station mounted on the pole.

Link: <https://weather.sdgweather.com/station/PAM>

6. Ricon Central

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
RCE	Rincon Central	January_7_2022	2015/03/07	33.270666	-116.946043	Operational

6.1. Aerial imagery



6.1.1. NADIR RGB



6.1.2. NADIR CIR



6.1.3. North



6.1.4. East

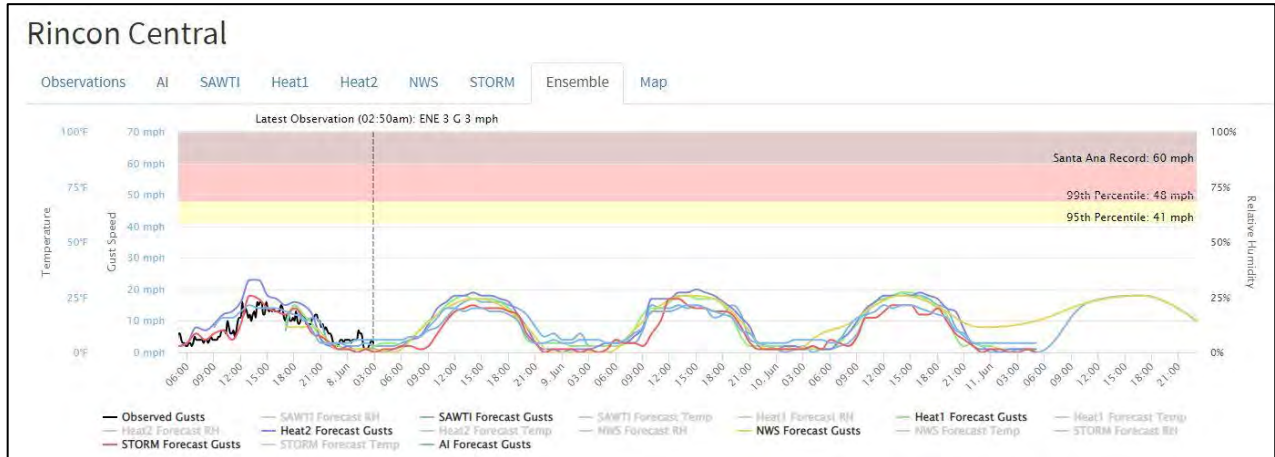


6.1.5. South



6.1.6. West

6.2. Station data



6.2.1. Data streamed from weather station RCE

6.3. Comment

Weather station is operational. Image 6.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data (blue point on the images 6.1.1. and 6.1.2.) provided by SDG&E is accurate. Low vegetation is present in the base of the pole. Available images are in natural – RGB and Near Infrared wavelength bands. Produced images are in natural color as shown 6.1.1, 6.1.3., 6.1.4., 6.1.5., and 6.1.6. Color infrared – CIR on image 6.1.2. The images show the presence of the weather station mounted on the pole.

Link: <https://weather.sdgeweather.com/station/RCE>

7. El Monte

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
ELM	El Monte	January_25_2022	2013/12/09	33.143417358398438	-116.848052978515	Operational

7.1. Aerial images



7.1.1. NADIR RGB



7.1.2. NADIR CIR



7.1.3. ELM Weather station – north

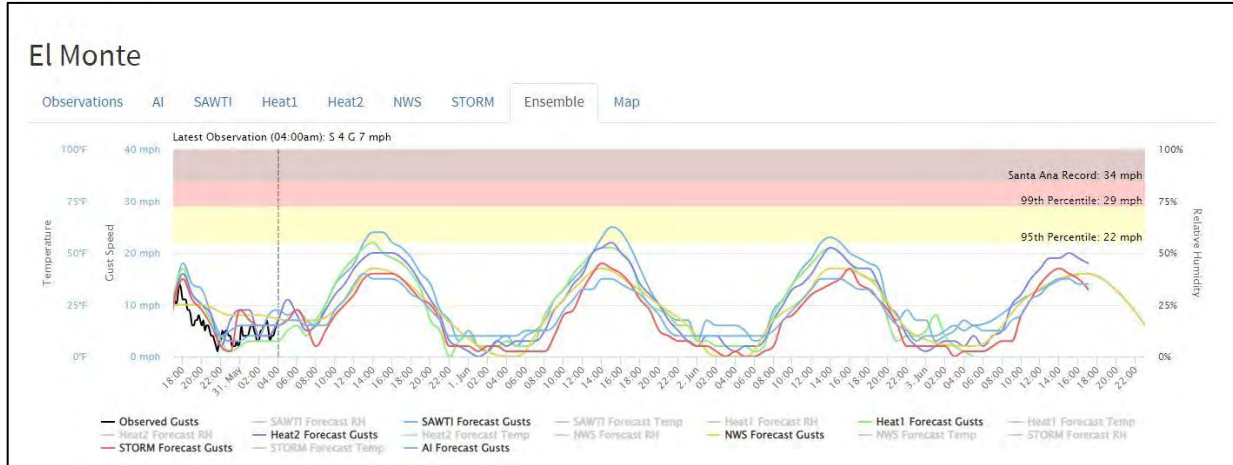


7.1.4. ELM weather station - east



7.1.5. ELM weather station – south

7.2. Station data



7.2.1. Data streamed from weather station ELM

7.3. Comment

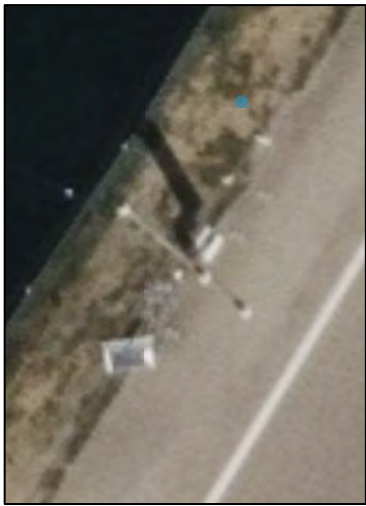
Weather station is operational. Image 7.2.1 shows data streamed from the weather station in 10-minute intervals. GIS data (the blue point on the images 7.1.1. and 7.1.2.) provided by SDG&E is 6.3 meters away from the actual pole. There is no vegetation present in the base of the pole. Available images are nadir in natural – RGB and NearInfrared wavelength bands and oblique in RGB. Produced images are in natural color as shown 7.1.1, 7.1.3., 7.1.4, 7.1.5. and CIR on image 7.1.2. All images show the presence of the weather station mounted on the pole. Weather station is mounted at a 6-meter height.

Link: <https://weather.sdgweather.com/station/ELM>

8. Rainbow Valley

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
RBV	Rainbow Valley	January_21_2022	2016/06/10	33.401222229003906	-117.170166015624	Operational

8.1 Aerial imagery



8.1.1. Nadir RGB



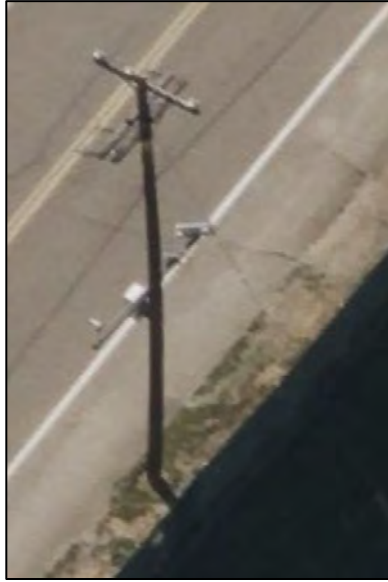
8.1.2. Nadir CIR



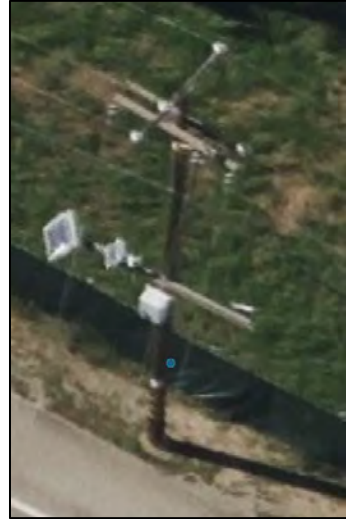
8.1.3. RBV weather station – north



8.1.4. RBV weather station – east



8.1.5. RBV weather station – south.

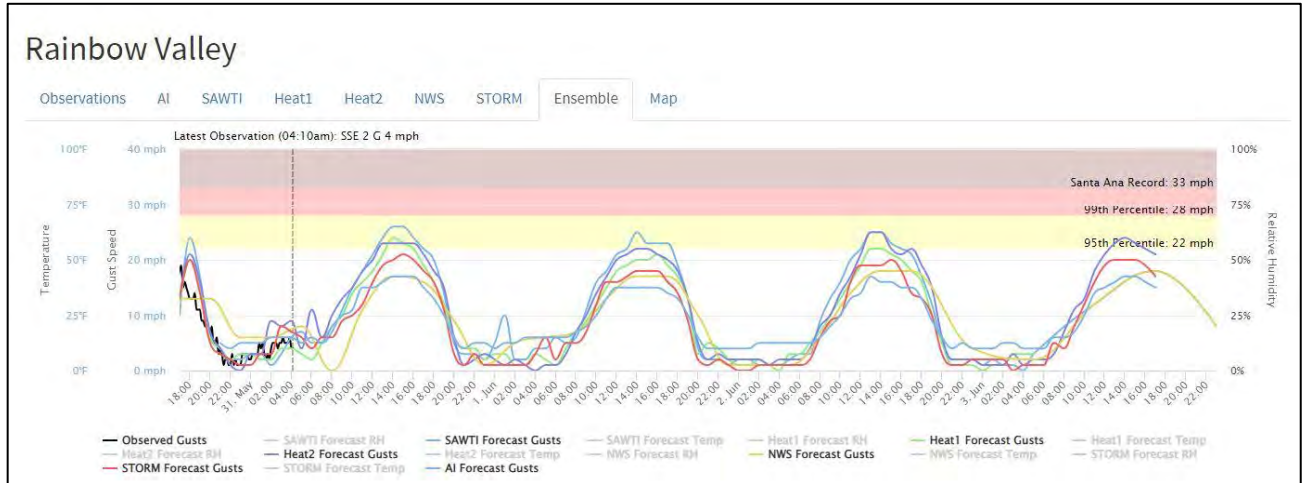


8.1.6. RBV weather station – west



8.1.7. RBV weather station vertical line comparison

8.2. Station data



8.2.1. Data streamed from weather station RBV

8.3. Comment

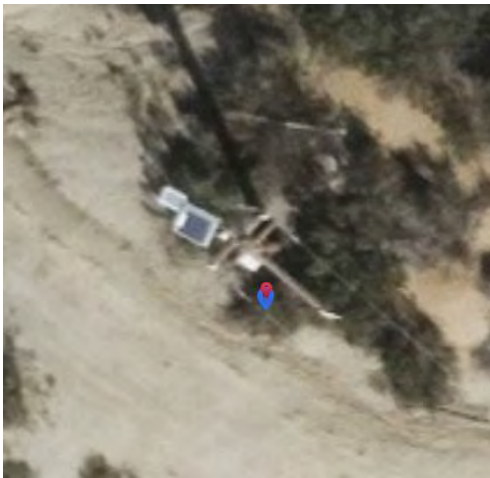
The weather station is operational. Image 8.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data (blue point on the images 8.1.1. and 8.1.2.) provided by SDG&E is accurate. It is 1.5 meters away from the actual pole. There are patches of low vegetation present at the base of the pole. Available images are nadir in natural /RGB and NIR wavelength bands and oblique in RGB. Produced images are in natural color as shown 8.1.1, 8.1.3., 8.1.4, 8.1.5. 8.1.6 and 8.1.7. Color infrared – CIR is presented on image 8.1.2. All images show the presence of the weather station mounted on the pole. The weather station is mounted at a 6-meter height. The image 8.1.7. shows a comparison of the imaged pole with a straight vertical line which indicates the possible deformation of the pole.

Link: <https://weather.sdgeweather.com/station/RBV>

9. Anderson Valley

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
AVY	Anderson Valley	January_25_2022	2015/07/18	32.864675	-116.74797	Operational

9.1 Aerial imagery



9.1.1. Nadir RGB



9.1.2. Nadir CIR



9.1.3. North



9.1.4. East

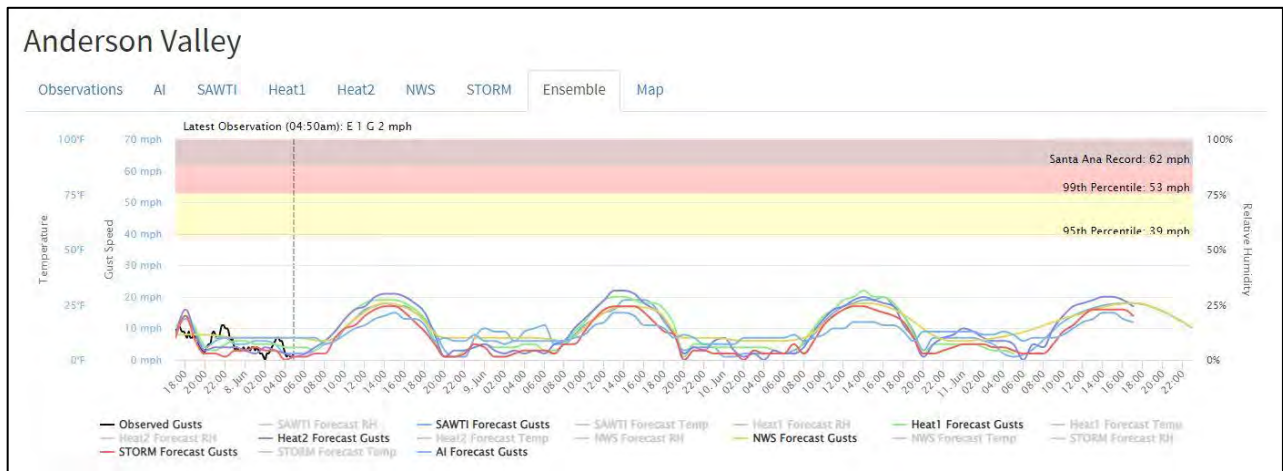


9.1.5. South



9.1.6. West

9.2. Station data



9.2.1. Data streamed from weather station AVY

9.3. Comment

The weather station is operational. Image 9.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data (blue point on the images 9.1.1. and 9.1.2.) provided by SDG&E is accurate. There is low to medium vegetation present at the base of the pole. The available images are nadir in natural RGB and NIR wavelength bands. Produced images are in natural color as shown in 9.1.1., 9.1.3., 9.1.4., 9.1.5., 9.1.6., and CIR

which is presented on image 9.1.2. The images show the presence of the weather station mounted on the pole.

Link: <https://weather.sdgeweather.com/station/AVY>

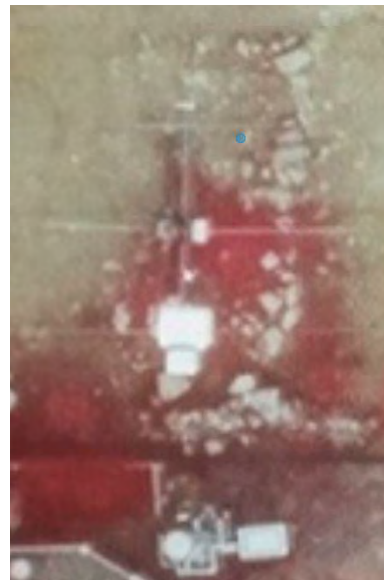
10. West Alpine

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
WAL	West Alpine	January_10_2022	2010/08/24	32.830104827880859	-116.799522399902	Operational

10.1 Aerial Images



10.1.1. Nadir RGB



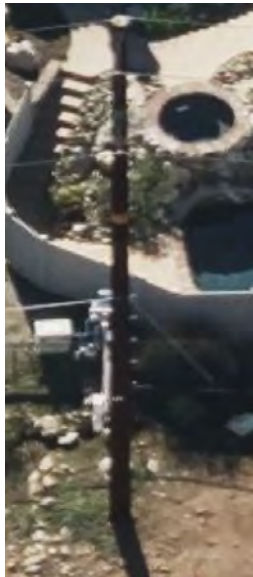
10.1.2. Nadir CIR



10.1.3. WAL weather station - north



10.1.4. WAL weather station - east



10.1.5. WAL weather station - south

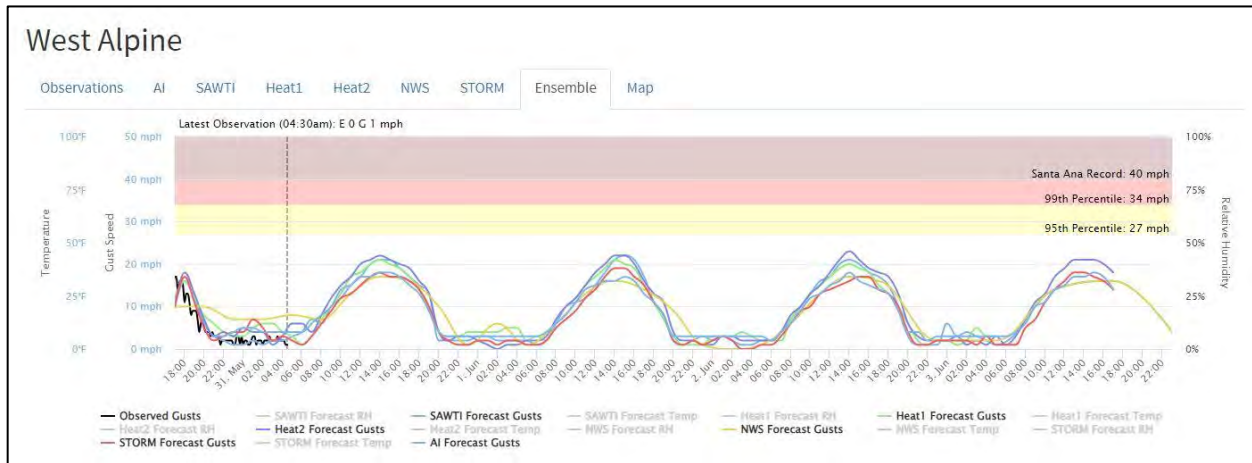


10.1.6. WAL weather station – west



10.1.7. WAL weather station – vertical line comparison

10.2. Station data



10.2.1. data streamed from weather station WAL

10.3. Comment

The weather station is operational. Image 10.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data (blue point on the images 10.1.1. and 10.1.2.) provided by SDG&E is accurate. It is 2.1 meters away from the actual pole. There is low vegetation present at the base of the pole. The available images are nadir in natural – RGB and NearInfrared wavelength bands and oblique in RGB. The produced images are in

natural color as shown (10.1.1, 10.1.3., 10.1.4, 10.1.5. 8.1.6 and 10.1.7). CIR is presented on image 10.1.2. All images show the presence of the weather station mounted on the pole. The weather station is mounted at 5.4-meter height. The image 10.1.7. shows a comparison of the imaged pole with straight vertical line.

Link: <https://weather.sdgeweather.com/station/WAL>

11. Liliac

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
LLC	Liliac	January_20_2022	2010/08/24	33.277111053466797	-117.069297790527	Operational

11.1. Aerial Imagery



11.1.1 Nadir RGB



11.1.2. Nadir CIR



11.1.3. North



11.1.4. East

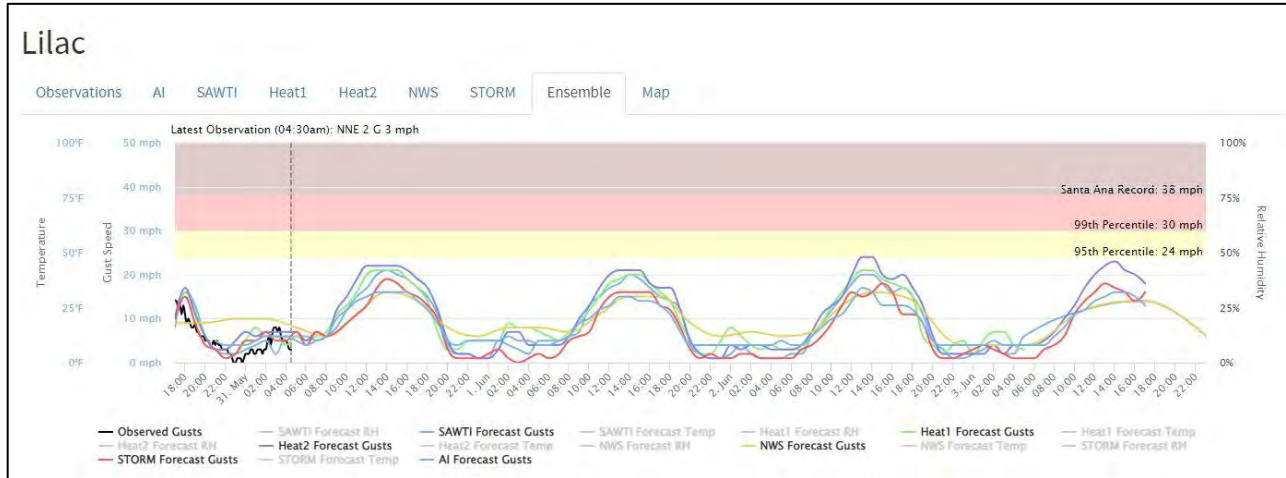


11.1.5. South



11.1.6. West

11.2. Station data



11.2.1. Data streamed from weather station LLC

11.3. Comment

The weather station is operational. Image 11.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data (blue point on the images 11.1.1. and 11.1.2.) provided by SDG&E is accurate. It is 3.8 meters away from the actual pole. There is low vegetation present at the base of the pole. Available images are nadir in natural – RGB and Near-Infrared wavelength bands and oblique in RGB. The produced images are in natural color as shown (10.1.1, 10.1.3., 11.1.4, 11.1.5., and 11.1.6) with CIR presented on image 11.1.2. All images show the presence of the weather station mounted on the pole at at 5.1-meter height. The image 8.1.7. shows a comparison of the imaged pole with a straight vertical line.

Link: <https://weather.sdgeweather.com/station/LLC>

12. East Willows Road

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
EWR	East Willows Road	January_10_2022	2013/12/16	32.836874	-116.682487	Operational

12.1. Aerial imagery



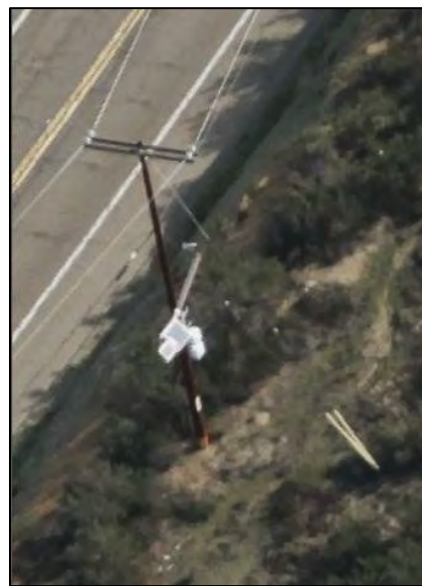
12.1.1. Nadir RGB



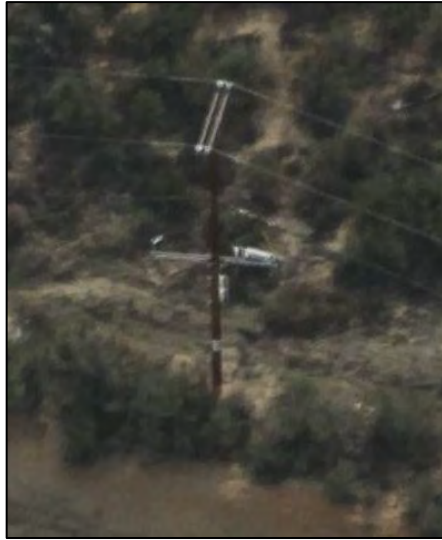
12.1.2. Nadir CIR



12.1.3. North



12.1.4. East

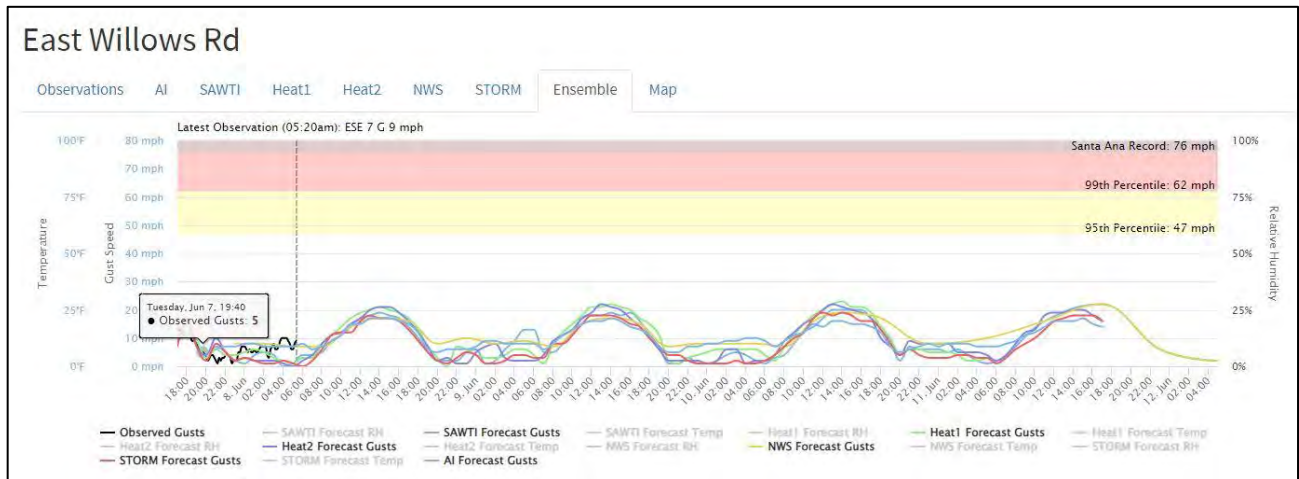


12.1.5. South



12.1.6. West

12.2. Station data



12.2.1. Data streamed from weather station EWR

12.3. Comment

The weather station is operational. Image 12.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data (blue point on the images 12.1.1. and 12.1.2.) provided by SDG&E is shown accurately. The offset from the actual pole is negligible. There is low vegetation present at the base of the pole. Bush vegetation is present as well. Available images are nadir in natural – RGB and Near-Infrared wavelength bands. The produced images are in natural color as shown (12.1.1, 12.1.3., 12.1.4., 12.1.5., 15.1.6).

Color infrared – CIR is presented on image 12.1.2. All mages show the presence of the weather station mounted on the pole.

Link: <https://weather.sdgeweather.com/station/EWR>

13. Highland Valley West

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
HVW	Highland Valley West	January_9_2022	2012/06/16	33.067138671875000	-116.990112304687	Operational

13.1. Aerial Imagery



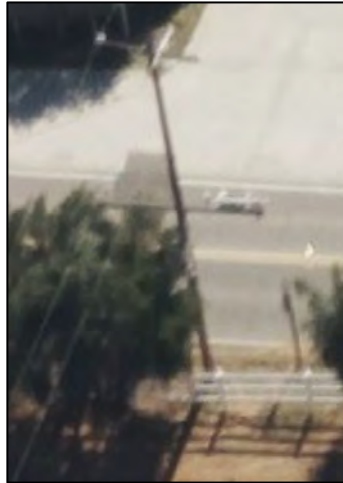
13.1.1. Nadir RGB



13.1.2. Nadir CIR



13.1.3. East

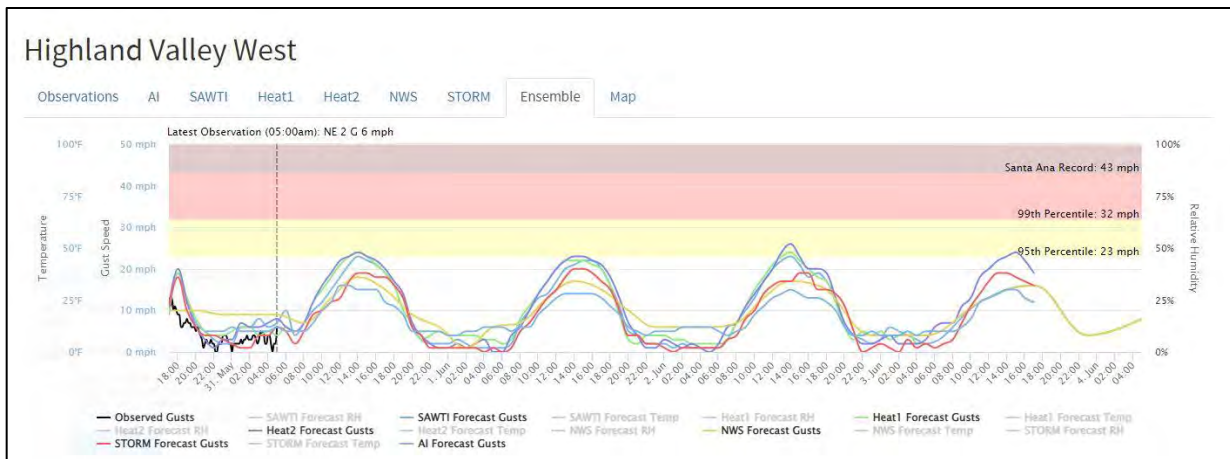


13.1.4. South



13.1.5. West

13.2. Station data



13.2.1. Data streamed from weather station HVW

13.3. Comment

The weather station is operational. Image 13.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is shown accurately. The offset from the actual pole is 3.3 meters. There is high vegetation present in the immediate proximity of the pole. Available images are nadir and oblique in natural – RGB and Near-Infrared wavelength band. The produced images are in natural color as shown in 13.1.1,

13.1.3., 13.1.4., and 13.1.5., and color infrared – CIR is presented on image 13.1.2. All images show the presence of the weather station mounted on the pole at 6 meters in height.

Link: <https://weather.sdgeweather.com/station/HWV>

14. Rancho Santa Fe

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
RSF	Rancho Santa Fe	January_21_2022	2009/10/19	33.033370971679688	-117.189613342285	Operational

14.1. Aerial imagery



14.1.1. Nadir RGB



14.1.2. Nadir CIR



14.1.3. North



14.1.4. East

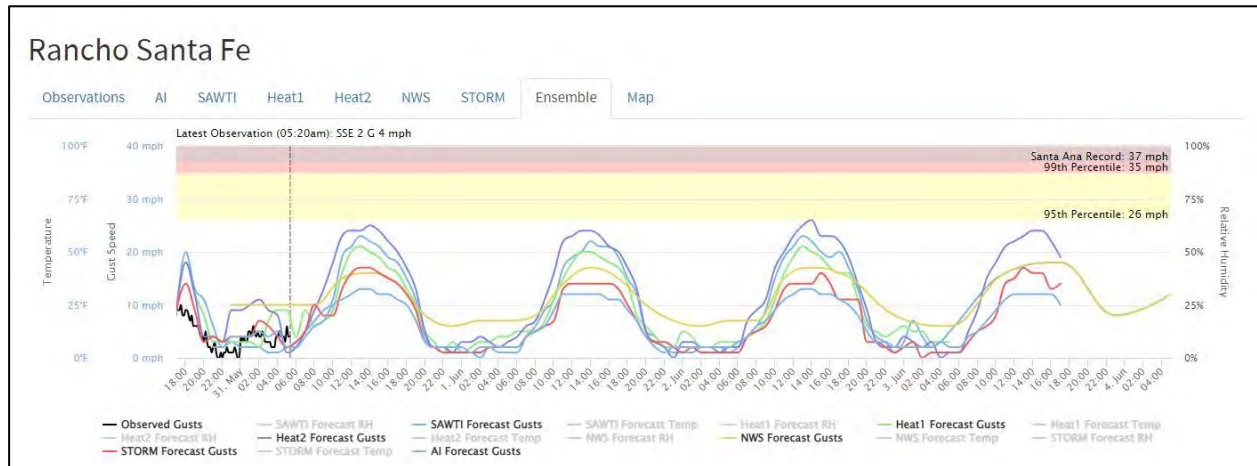


14.1.4. South



14.1.5. West

14.2. Station data



14.2. Data streamed from weather station RSF

14.3. Comment

The weather station is operational. Image 14.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E shows the unit located away from the actual pole by a distance of 8 meters. There is high vegetation present in the immediate proximity of the pole (image 14.1.1 and 14.1.2.). Available images are nadir and oblique in natural – RGB and Near-Infrared wavelength band. Produced images are in natural color as shown (images 14.1.1, 14.1.3., 14.1.4., and 14.1.5), and CIR is presented on image 14.1.2. All images show the presence of the weather station mounted on the pole at 6 meters in height.

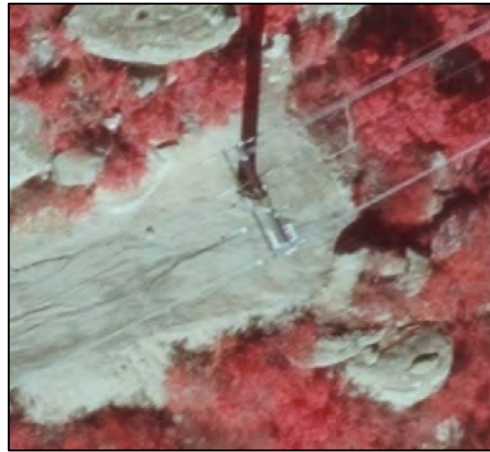
15. Rim of the Valley

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
ROV	Rim Of the Valley	January_21_2022	2020/09/02	33.285694122314453	-116.980270385742	Operational

15.1. Aerial Imagery



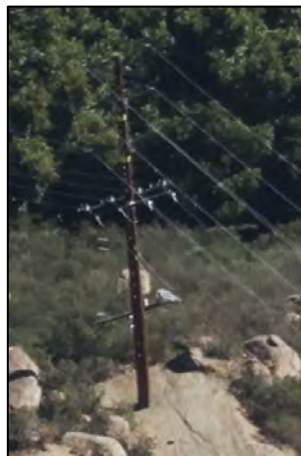
15.1.1. NADIR RGB



15.1.2. NADIR CIR



15.1.3. North



15.1.4. East

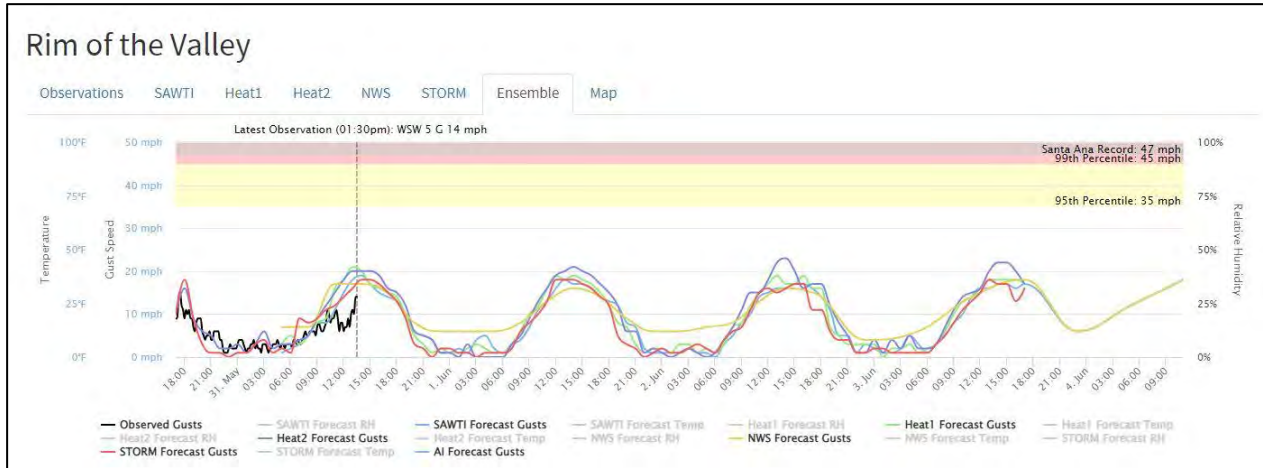


15.1.5. South



15.1.6. West

15.2. Station data



14.2.1. Data streamed from weather station ROV

15.3. Comment

The weather station is operational. Image 15.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is misleading. The indicated location is away from the actual pole location by 30 meters and is actually positioned in the proximity of another pole. There is no vegetation present in the immediate proximity of the pole (image 15.1.1 and 15.1.2.). Clearance around the pole is 3 meters. Available images are nadir and oblique in natural – RGB, and Near-Infrared wavelength band. Produced images are in natural color as shown in images 15.1.1, 15.1.3., 15.1.4., 15.1.5. and 15.1.6. Color infrared – CIR is presented in image 15.1.2. All images show the presence of the weather station mounted on the pole at 5.6 meters of height.

Link: <https://weather.sdgweather.com/station/ROV>

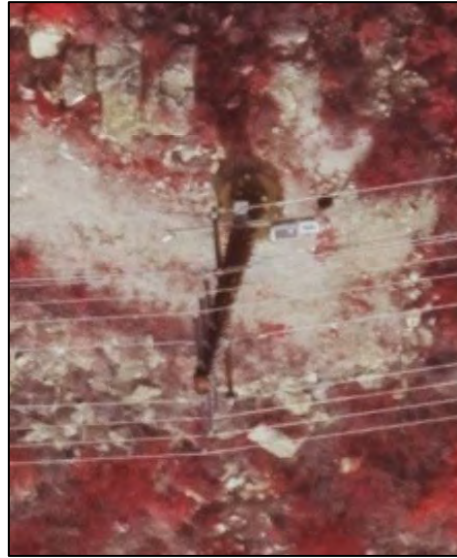
16. Sequan Truck Trail

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
SQT	Sequan Truck Trail	January_10_2022	2020/09/02	32.797668457031250	-116.779251098632	Operational

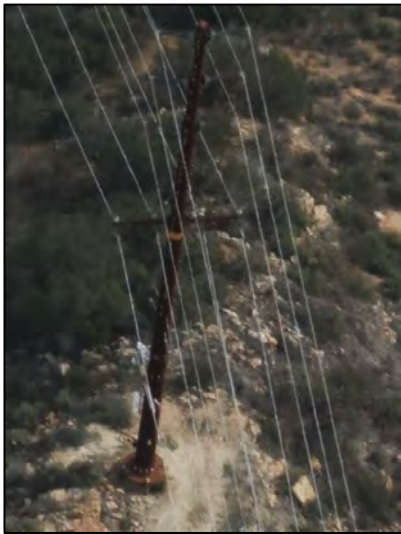
16.1 Aerial imagery



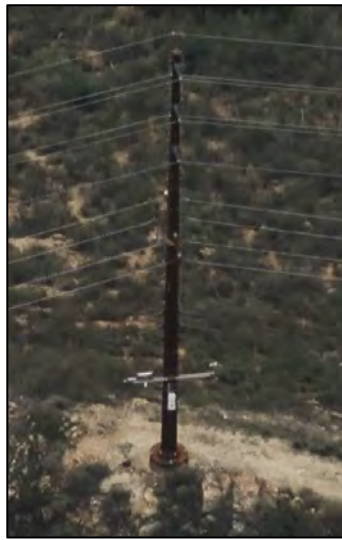
16.1.1. NADIR RGB



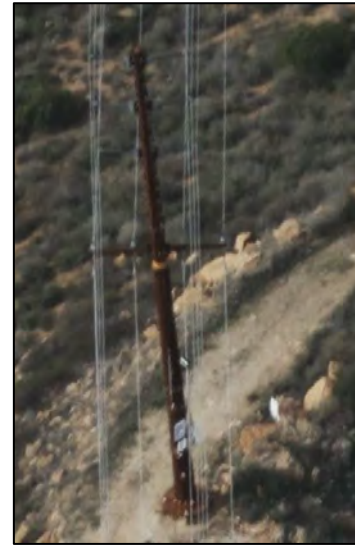
16.1.2. NADIR CIR



16.1.3. East

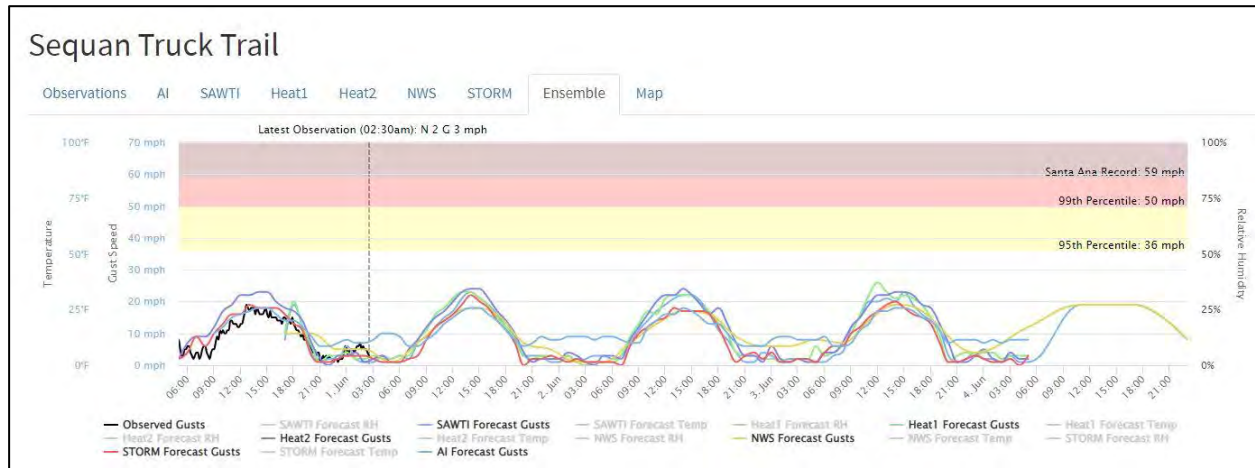


16.1.4. South



16.1.5. West

16.2. Station data



16.2.1. Data streamed from weather station SQT

16.3. Comment

The weather station is operational. Image 16.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is not accurate. The offset from the actual pole is 12.6 meters. There are patches of vegetation around the pole base but there is no high vegetation present in the immediate proximity of the pole (image 16.1.1 and 16.1.2.). Clearance around the pole is 3.5 meters. Available images are nadir and oblique in natural – RGB, and Near-Infrared wavelength band in NADIR. The produced images are in natural color per images 16.1.1, 16.1.3., 16.1.4., and 16.1.5. Color infrared – CIR is presented on image 16.1.2. All images show the presence of the weather station mounted on the pole at 5.5 meters in height.

Link: <https://weather.sdgweather.com/station/SQT>

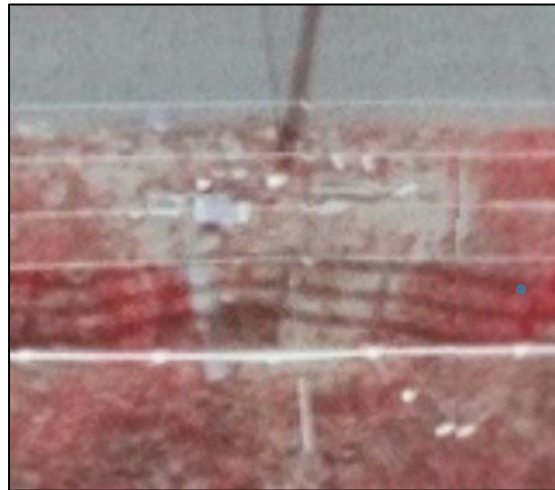
17. Viejas

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
VJS	Viejas	January 25 2022	2010/06/12	32.845592498779297	-116.706260681152	Operational

17.1. Aerial imagery



17.1.1. Nadir RGB



17.1.2. Nadir CIR



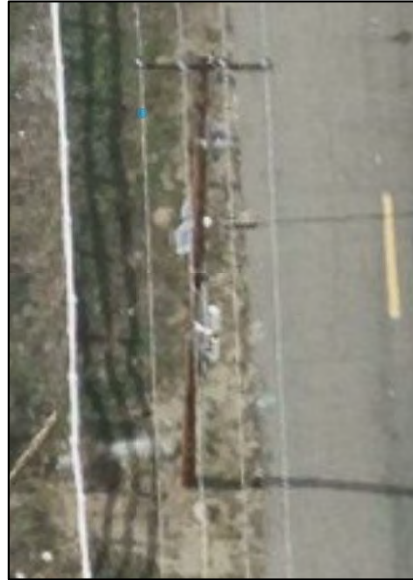
17.1.3. North



17.1.4. East

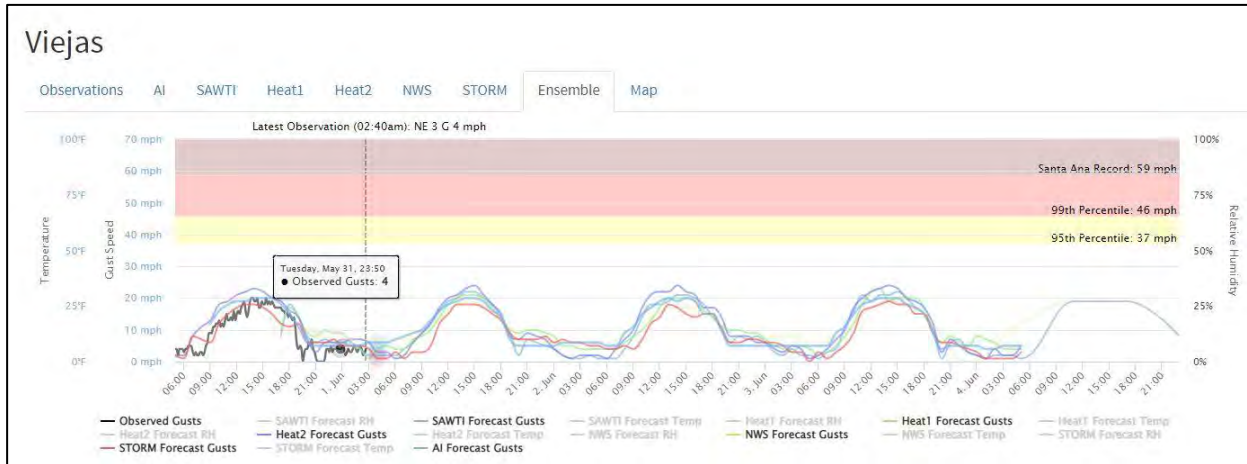


17.1.5. South



17.1.6. West

17.2. Station data



17.2.1. Data streamed from weather station VJS

17.3. Comment

The weather station is operational. Image 17.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E (indicated as blue dot) is shown accurately, with the offset from the actual pole of 4 meters. There are insignificant

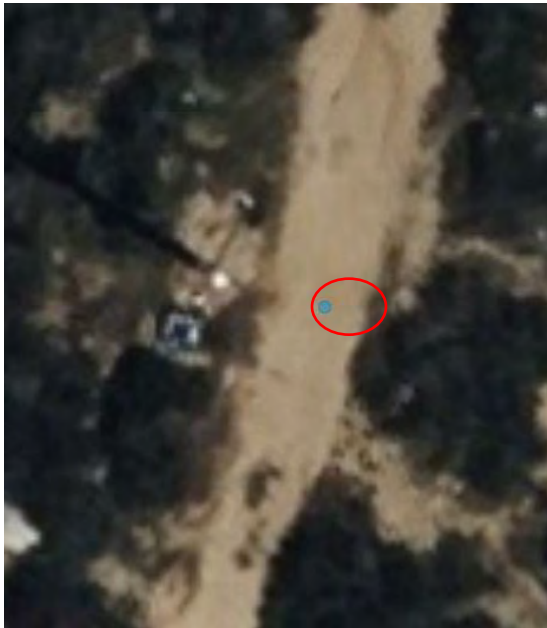
patches of vegetation around the pole base and there is no high vegetation present in the immediate proximity of the pole (image 17.1.1 and 17.1.2.). Clearance around the pole is 1.5 meters. Available images are nadir and oblique in natural – RGB, and Near-Infrared wavelength band in nadir. Produced images are in natural color (per images 17.1.1, 17.1.3., 17.1.4., 17.1.5., and 17.1.6). Color infrared – CIR is presented on image 17.1.2. All images show the presence of the weather station mounted on the pole at a height of 6 meters.

Link: <https://weather.sdgeweather.com/station/VJS>

18. Potrero

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
POT	Potrero	March_25_2022	2009/05/16	32.606357574462891	-116.576881408691	Operational

18.1 Aerial images

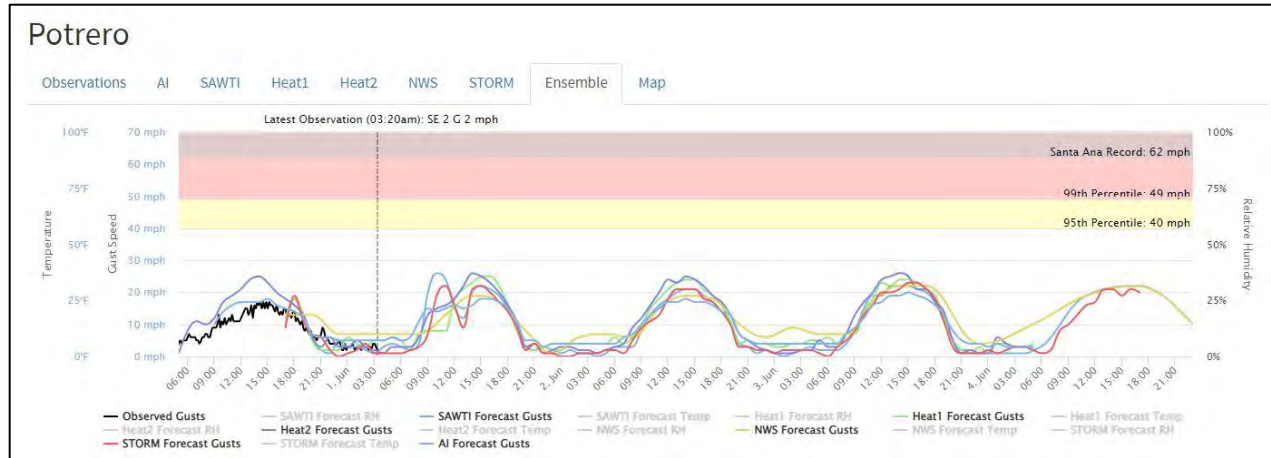


18.1.1 Nadir RGB



18.1.2. Nadir CIR

18.2. Station data



18.2.1. Data streamed from weather station POT

18.3. Comment

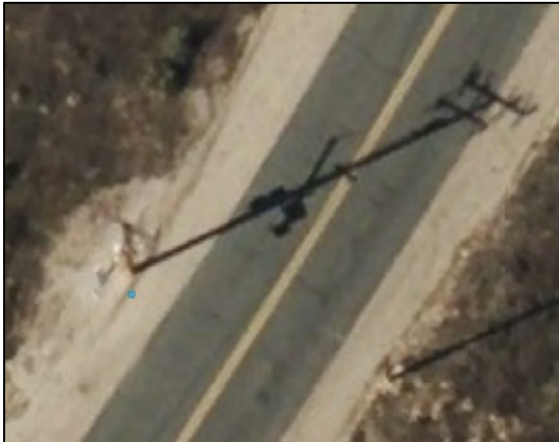
The weather station is operational. Image 18.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is accurate. The offset from the actual pole is 3 meters. There is no vegetation around the pole base (image 18.1.1 and 18.1.2.). Clearance around the pole is 0.8 meters. Available images are nadir in natural – RGB, and Near-Infrared wavelength band. Produced images are in natural color as shown in images 18.1.1, and CIR presented in image 18.1.2. Both images show presence of weather station mounted on the pole; the red circle on image 18.1.1. is over the solar panel of the weather station.

Link: <https://weather.sdgeweather.com/station/POT>

19. White Star

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
WST	White Star	March_24_2022	2019/08/29	32.644298553466797	-116.318603515624	Operational

19.1. Aerial imagery

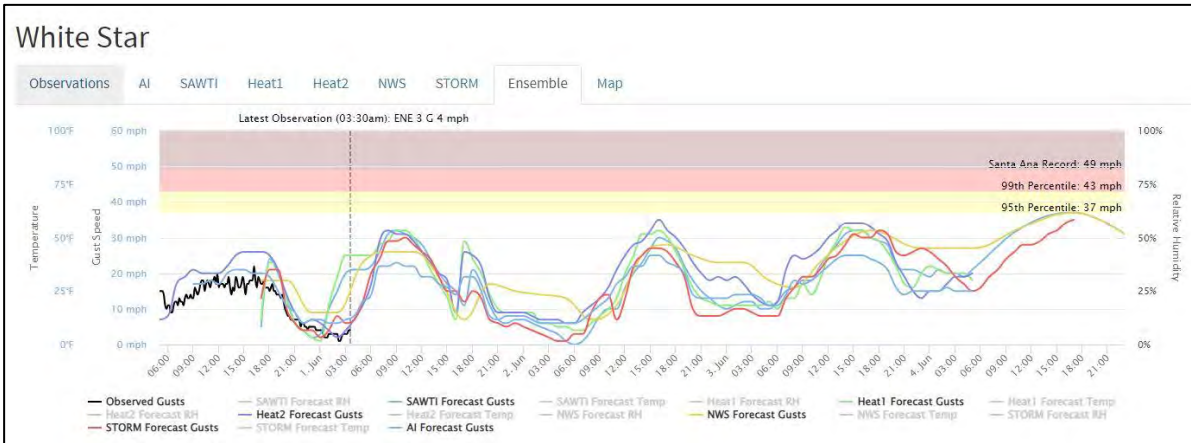


19.1.1. Nadir RGB



19.1.2. Nadir CIR

19.2. Station data



19.2.1. Data streamed from weather station WST

19.3. Comment

The weather station is operational. Image 19.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is accurate. The offset from the actual pole is insignificant. There is no vegetation around the pole base (image 19.1.1 and 19.1.2.). Clearance around the pole is 3.3 meters. Available images are nadir in natural – RGB, and Near-Infrared wavelength band. Produced images are in natural color as shown in images 19.1.1, and CIR is presented on image 19.1.2. Both images show the presence of the weather station mounted on the pole.

Link: <https://weather.sdgeweather.com/station/WST>

20. Coronado Hills

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
COH	Coronado Hills	January_21_2022	2019/08/23	33.114311218261719	-117.15329742431	Operational

20.1. Aerial Imagery



20.1.1. Nadir RGB



20.1.2. Nadir CIR



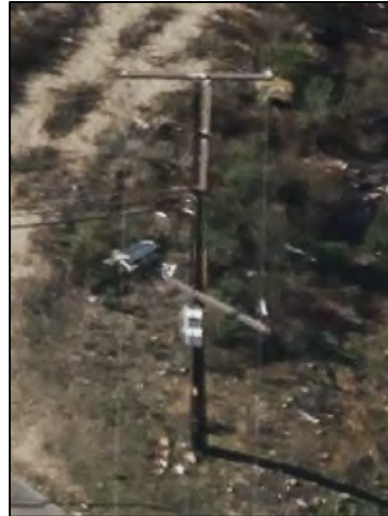
20.1.3. North



20.1.4. East

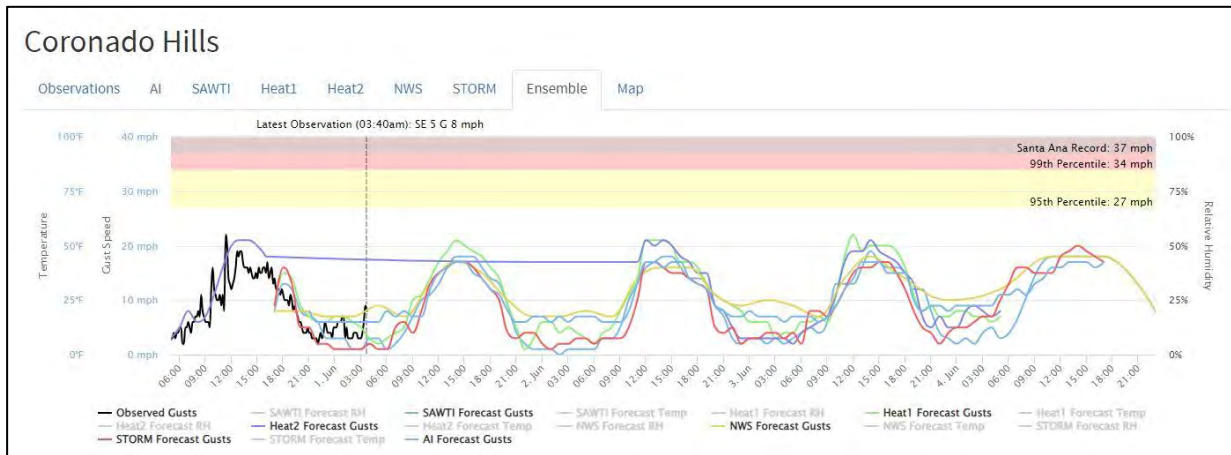


20.1.5. South



20.1.6. West

20.2. Station data



20.2.1. Data streamed from weather station COH

20.3. Comment

The weather station is operational. Image 20.2.1 shows data streamed from the weather station in 10-minute intervals. GIS data provided by SDG&E is not accurate; the offset from the actual pole is 8 meters. There is low vegetation around the pole base (image 20.1.1 and 20.1.2.). Available images are nadir and oblique in natural – RGB, and Near-Infrared wavelength bands. Produced images are in natural color (as shown in images 20.1.1., 20.1.3., 20.1.4., 20.1.5., and 20.1.6). Color infrared – CIR is presented in image 20.1.2. All images show the presence of the weather station mounted on the pole at a height of 5.4 meters.

Link: <https://weather.sdgweather.com/station/COH>

21. Black Mountain Ranch

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
BMR	Black Mountain Ranch	January_9_2022	2019/08/25	32.994884490966797	-117.132934570312	Operational

21.1. Aerial Imagery



21.1.1. NADIR RGB



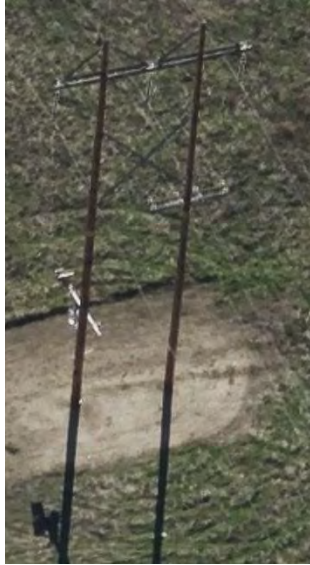
21.1.2. NADIR CIR



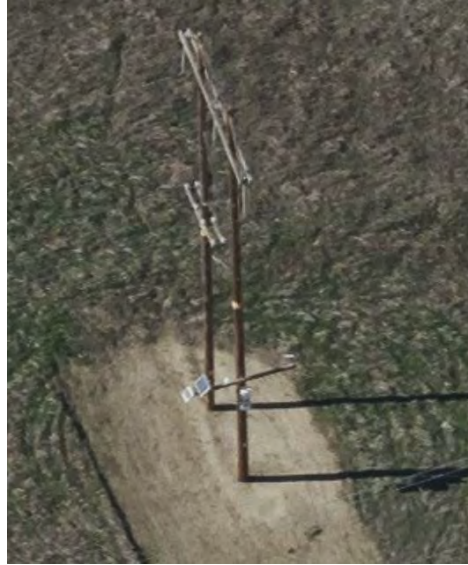
21.1.3. North



21.1.4. East

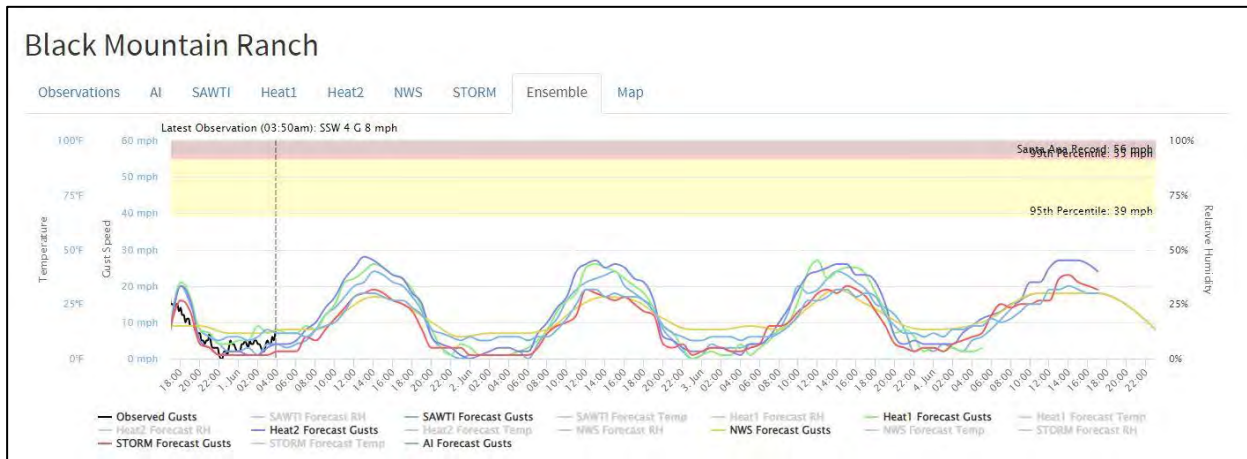


21.1.4. South



21.1.5. West

21.2. Station data



21.2.1. Data streamed from weather station BMR

21.3. Comment

The weather station is operational. Image 21.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is accurate; there is no offset from the actual pole location. There is no vegetation around the pole base (image 21.1.1 and 21.1.2.). Available images are nadir and oblique in natural – RGB, and Near-Infrared wavelength band. Produced images are in natural color (as shown in images 21.1.1., 21.1.3., 21.1.4., 21.1.5). Color infrared – CIR is presented on image 21.1.2. All images show the presence of the weather station mounted on the pole at a height of 5.7 meters. Link: <https://weather.sdgweather.com/station/BMR>

22. Paradise Mountain

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
PMT	Paradise Mountain	January_7_2022	2018/08/18	33.203193664550781	-116.929687500000	Operational

22.1. Aerial Imagery



22.1.1. Nadir RGB



22.1.2. Nadir CIR



22.1.3. North



21.1.4. East

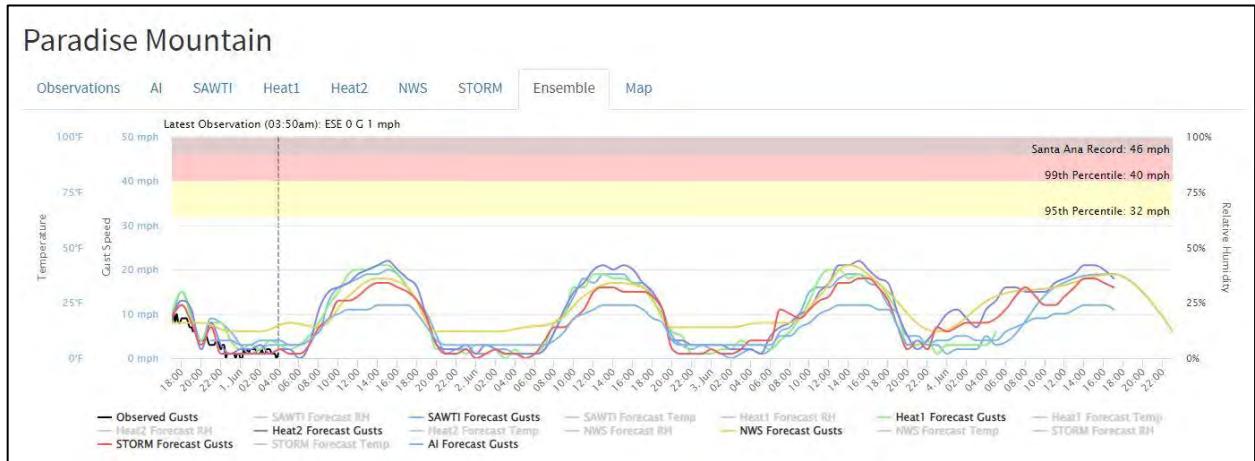


21.1.5. South



22.1.6. West

22.2. Station data



22.2.1. Data streamed from weather station PMT

22.3. Comment

The weather station is operational. Image 22.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is accurate, with an offset from the actual pole location of 2 meters. There is low vegetation around the pole base (image 22.1.1 and 22.1.2.). Available images are nadir and oblique in natural – RGB, and Near-Infrared wavelength band. Produced images are in natural color (as shown in images

22.1.1., 22.1.3., 22.1.4., 22.1.5). CIR is presented on image 22.1.2. All images show the presence of the weather station mounted on the pole at a height of 5.8 meters.

Link: <https://weather.sdgeweather.com/station/PMT>

23. Hellhole Canyon

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
HHC	Hellhole	January_7_2022	2012/11/03	33.224407	-116.92354	Operational

23.1. Aerial images



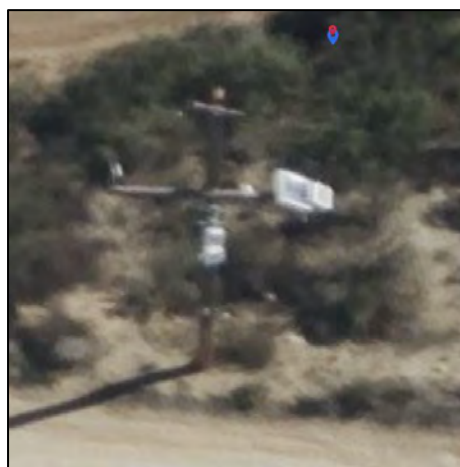
23.1.1. Nadir RGB



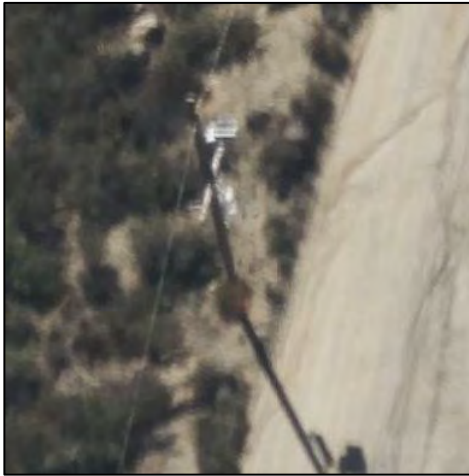
23.1.2. Nadir CIR



23.1.3. North



23.1.4. East

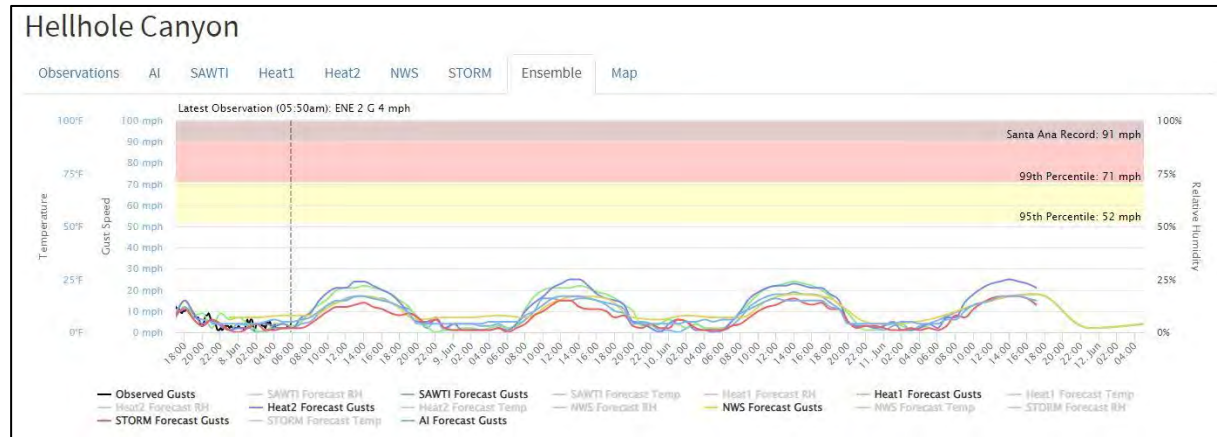


23.1.5. South



23.1.6. West

23.2. Station data



23.2.1. Data streamed from weather station HHC

23.3. Comment

The weather station is operational. Image 23.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is accurate. There is low vegetation around the pole base (image 23.1.1 and 23.1.2.). Available images are nadir in natural – RGB, and Near-Infrared wavelength band. Produced images are in natural color (as shown in image 23.1.1., 23.1.3., 23.1.4., 23.1.5. and 23.1.6). CIR is presented on image 23.1.2. All images show the presence of the weather station mounted on the pole.

Link: <https://weather.sdgweather.com/station/HHC>

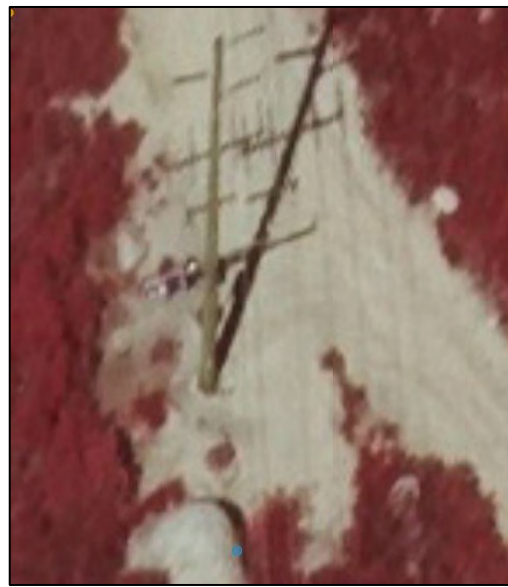
24. West Decanso

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
WDC	West Decanso	March_24_2022	2011/06/29	32.849521636962891	-116.629867553710	Operational

24.1. Aerial images

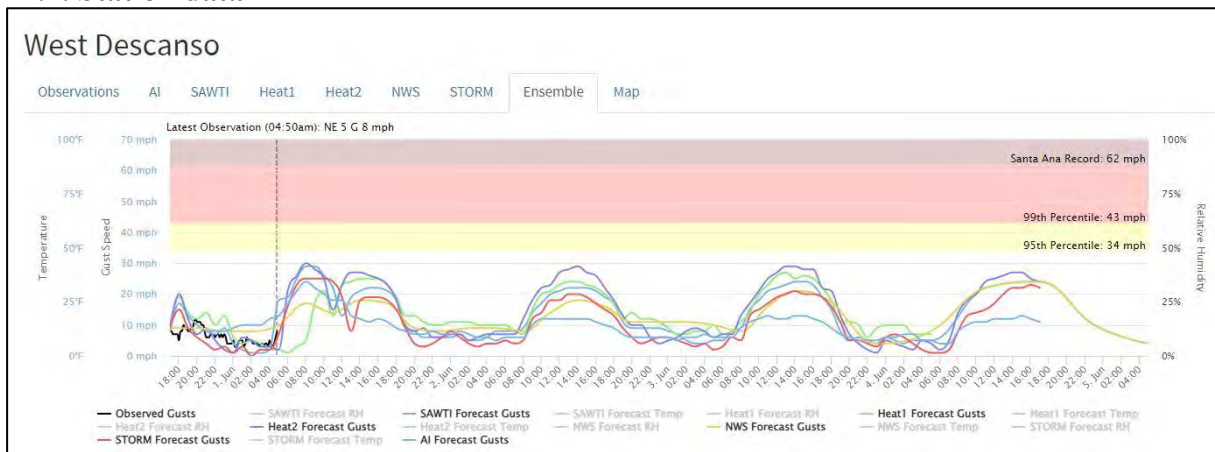


24.1.1. Nadir RGB



24.1.2. Nadir CIR

24.2. Station data



24.2.1. Data streamed from weather station WDC

24.3. Comment

The weather station is operational. Image 24.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is relatively accurate; it shows an offset from the actual pole location of 6 meters. There is no low vegetation around the pole base (image 24.1.1 and 24.1.2.). Available images are nadir in natural – RGB, and Near-Infrared wavelength band. Produced images are in natural color as shown in image 24.1.1. Color infrared (CIR) is presented on image 24.1.2. All images show the presence of the weather station mounted on the pole.

Link: <https://weather.sdgeweather.com/station/WDC>

25. Mussey Grade

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
MGR	Mussey Grade	January_3_2022	2010/08/14	32.986316680908203	-116.908691406250	Operational

25.1. Aerial images



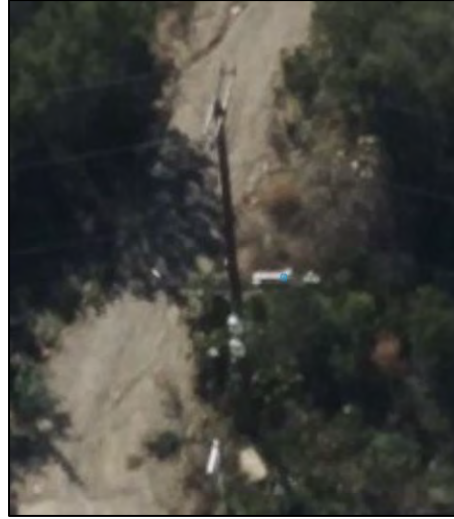
25.1.1. Nadir RGB



25.1.2. Nadir CIR

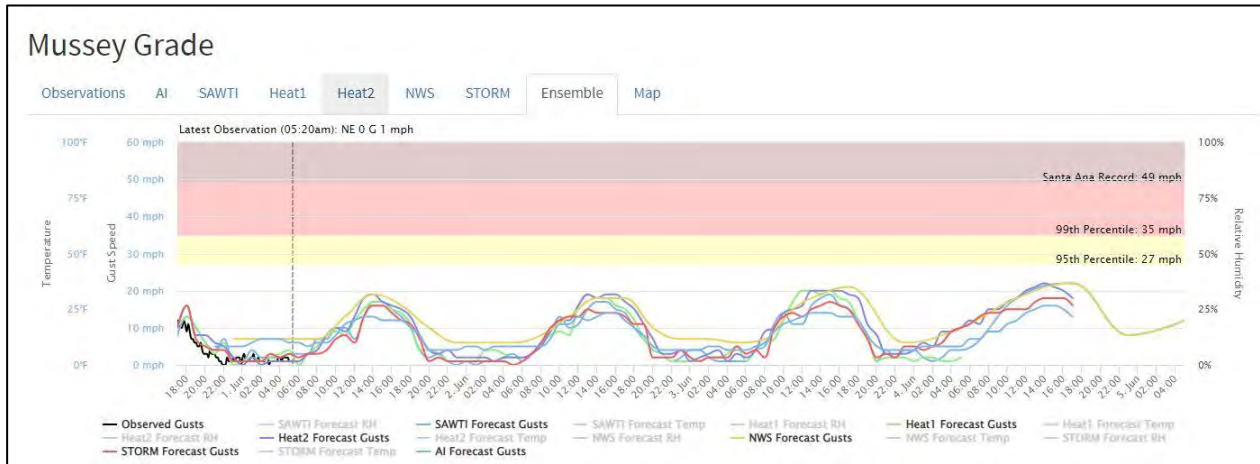


25.1.3. East



25.1.4. West

25.2. Station data



25.2.1. Data streamed from weather station MGR

25.3. Comment

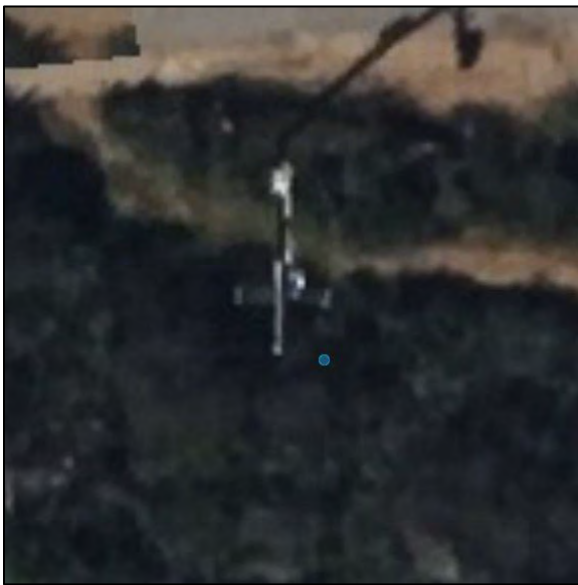
The weather station is operational. Image 25.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is accurate. There is low and high vegetation in the immediate proximity of the pole (image 25.1.1 and 25.1.2.). Available images are nadir in natural – RGB, and Near-Infrared wavelength band and oblique in RGB. Produced images are in natural color, as shown in images 25.1.1., 25.1.3., and 25.1.4. CIR is presented in image 25.1.2. All images show the presence of the weather station mounted on the pole at a height of 5.8 meters.

Link: <https://weather.sdgweather.com/station/MGR>

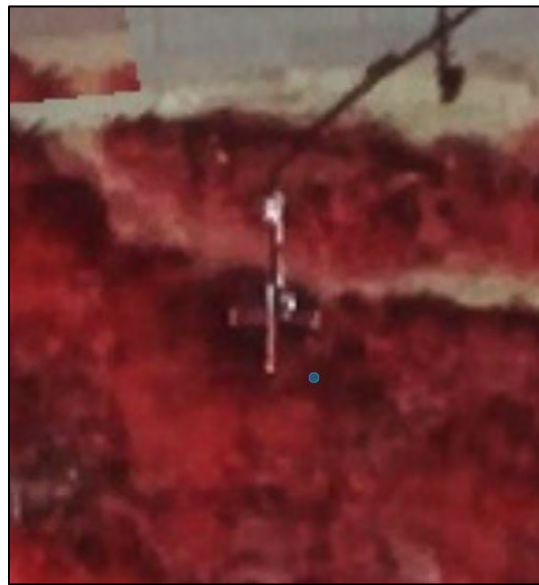
26. Deerhorn Valley

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
DHV	Deerhorn Valley	March_24_2022	2010/06/09	32.686950683593750	-116.762207031250	Operational

26.1. Aerial images

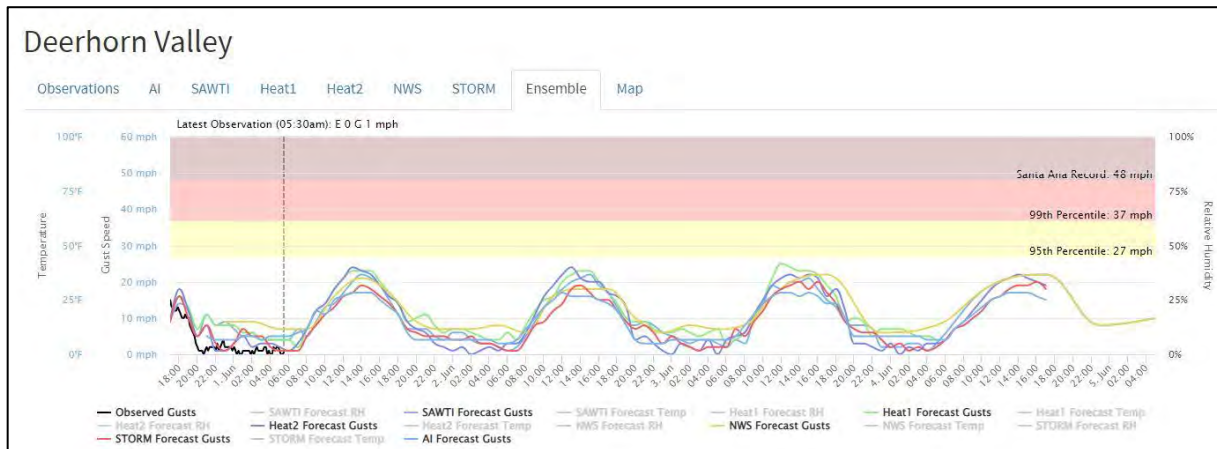


26.1.1. Nadir RGB



26.1.2. Nadir CIR

26.2. Station data



26.2.1. Data streamed from weather station DHV

26.3. Comment

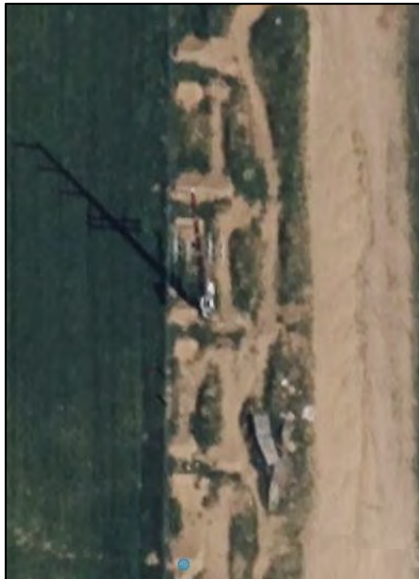
The weather station is operational. Image 26.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is accurate, with an offset from the actual pole location of 2 meters. There is high vegetation in immediate proximity of the pole (image 26.1.1 and 26.1.2). Available images are nadir in natural – RGB, and Near-Infrared wavelength band and oblique in RGB. The produced image in natural color is shown in image 26.1.1., while color infrared (CIR) is presented on image 26.1.2. Both images show the presence of the weather station mounted on the pole.

Link: <https://weather.sdgweather.com/station/DHV>

27. Creelman

Station id	Station name	Imagery Date	Installation date	Latitude	Longitude	Status
CLM	Creelman	March_24_2022	2010/08/14	33.015659332275391	-116.87088775634	Operational

27.1. Aerial images

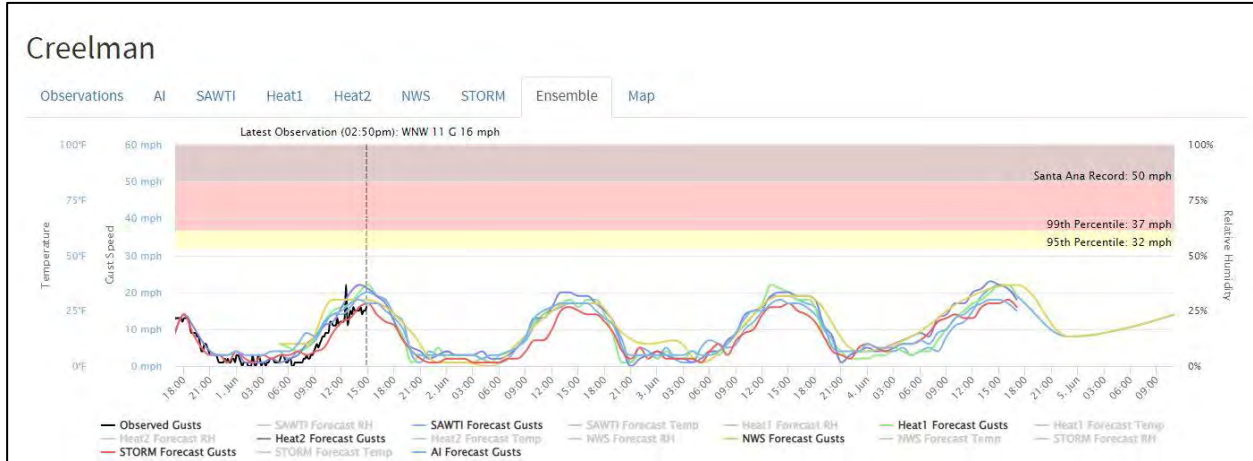


27.1.1. Nadir RGB



27.1.2. Nadir CIR

27.2. Station data



27.2.1. Data streamed from weather station CLM

27.3. Comment

The weather station is operational. Image 27.2.1 shows data streamed from the weather station in 10-minute intervals. The GIS data provided by SDG&E is inaccurate. The offset from the actual pole location is 18 meters. There are patches of vegetation in immediate proximity to the pole base (image 27.1.1 and 27.1.2.). Available images are nadir in natural – RGB, and Near-Infrared wavelength band. The produced image in natural color is shown as image 27.1.1, while color infrared (CIR) is presented in image 27.1.2. Both images show the presence of the weather station mounted on the pole.

Link: <https://weather.sdgeweather.com/station/CLM>



ANALYSIS REPORT

Date: June 8, 2022

Author: Nenad Surjanac, Senior Environmental Engineer and GIS Expert

RE: 7.3.2.4.1 – Cameras

Cameras are one of the situational awareness tools developed and used by SDG&E. Deployment of these units has been proven beneficial to system planning, emergency operations, and the safe implementation of Public Safety Power Shutoff – PSPS.¹

According to SDG&E's 2021 WMP compliance report, the number of camera installations planned for 2021 was 17. The number of actual installed cameras was 17, thus reaching 100%.

For methodology for review and the inspection of the work performed, the IE re relied on performing a data check through online access of the platform and checking the data provided by the cameras. Initial data provided by SDG&E cited 7 locations with installed cameras. These locations are:

- Mesa Grande
- Red Mountain
- Santiago Peak
- SMER
- Sky Oaks
- Volcan Mountain
- White Star

There are two types of cameras that can be found in these locations: Static and PTZ (Pan-Tilt-Zoom). Static cameras are fixed and usually observe in four directions, thus effectively performing as four cameras in these locations. PZT cameras are installed in pairs that observe in opposite directions (North-South, East-West).

By reviewing the available data, the IE found installed cameras on all reported locations.

Cameras record and update images in 1- minute intervals. All images are available in near real-time. SDG&E has strong relationships with academia in through shared research via the SDG&E Fire Science and Climate adaptation department. The camera monitoring system is a product of cooperation between SDG&E and the High Performance Wireless Research and Education network at UCSD. Their platform is freely accessible to public view of current and past data captured by these cameras.

Link: <http://hpwren.ucsd.edu/cameras/>

¹ Per SDGE 2021 WMP Update, page 183.



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During the IE's inspection period, the cameras located on Volcan Mountain had no feed to inspect (image 6). On June 5th 2022, this was reported to SDG&E. On June 6th, the location at Volcan Mountain had recorded images and current feed available (image 7) .

All locations reported in WMP 2021 had cameras installed and working. However, the number of 17 cameras does not agree with the number provided by SDG&E as a response on Data Request 15. In this spread sheet SDG&E numbered 35 cameras, on 7 locations. All of those cameras had feed and recorded images, except 1 camera (SMER Access/Outlook Static North).

The balance of this report records the specifics of the cameras verified with sample images and the accessible and confirmed url.

Mesa Grande

- Static – North, South, East, West

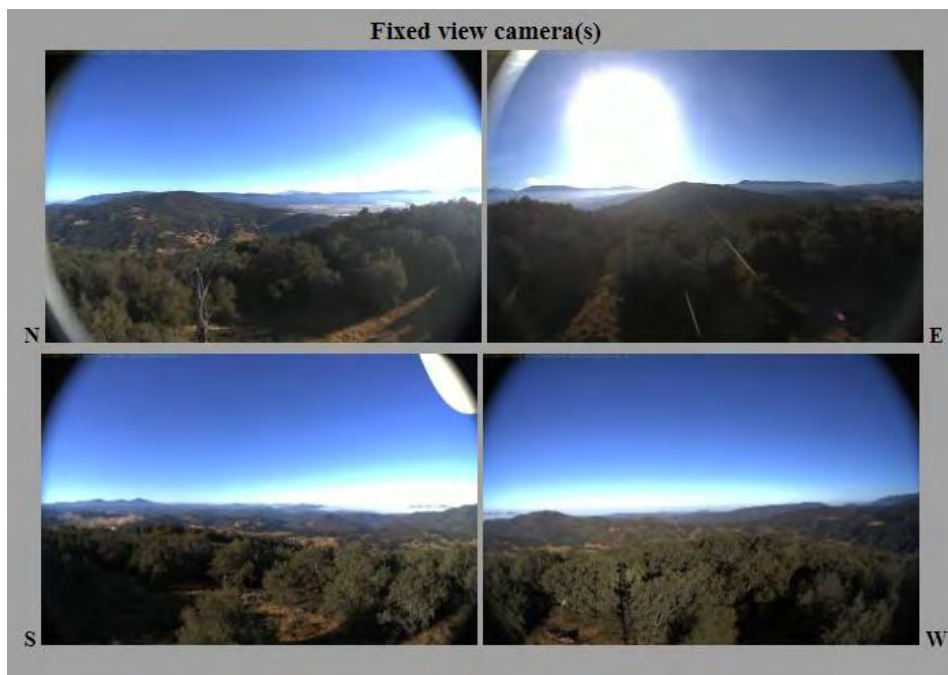


Image 1. Mesa Grande static cameras (source: <http://hpwren.ucsd.edu/cameras/>)



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Red Mountain

- Static – North, South, East, West
- PTZ – North, South

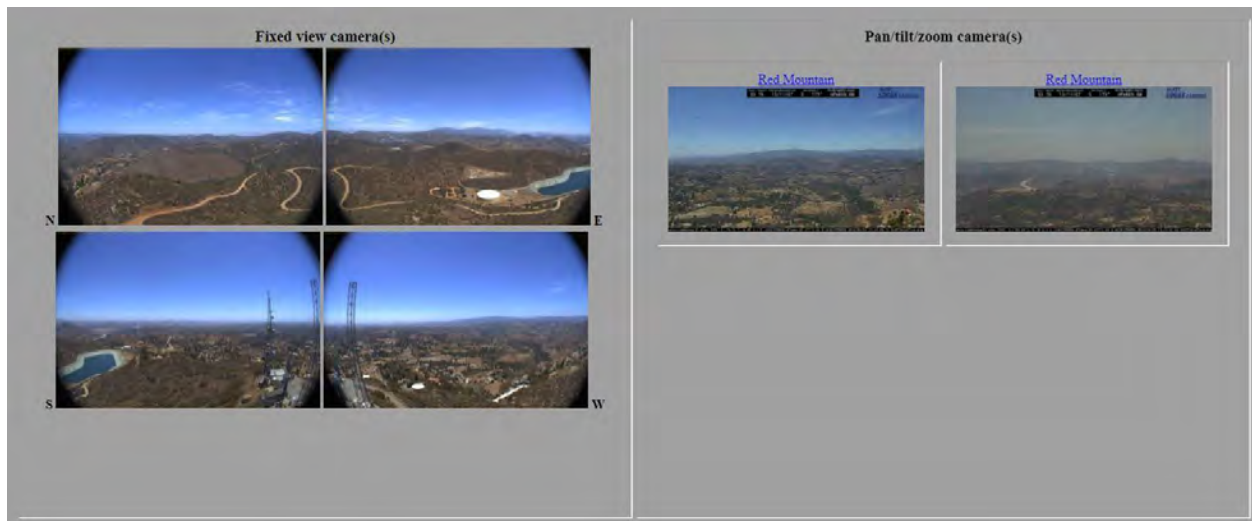


Image 2. Red Mountain, Static and PTZ cameras (*source: <http://hpwren.ucsd.edu/cameras/>*)

Santiago Peak

- Static – North, South, East, West
- PTZ – North, South

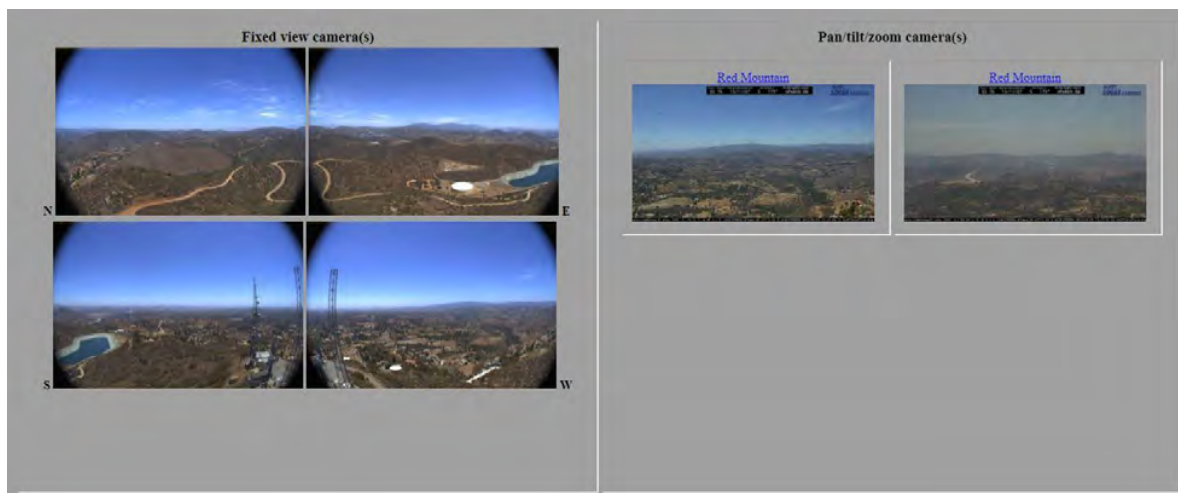


Image 3. Santiago Peak, Static and PTZ cameras (*source: <http://hpwren.ucsd.edu/cameras/>*)



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SMER – Santa Margarita Ecological Reserve

- Static – North, South, East, West

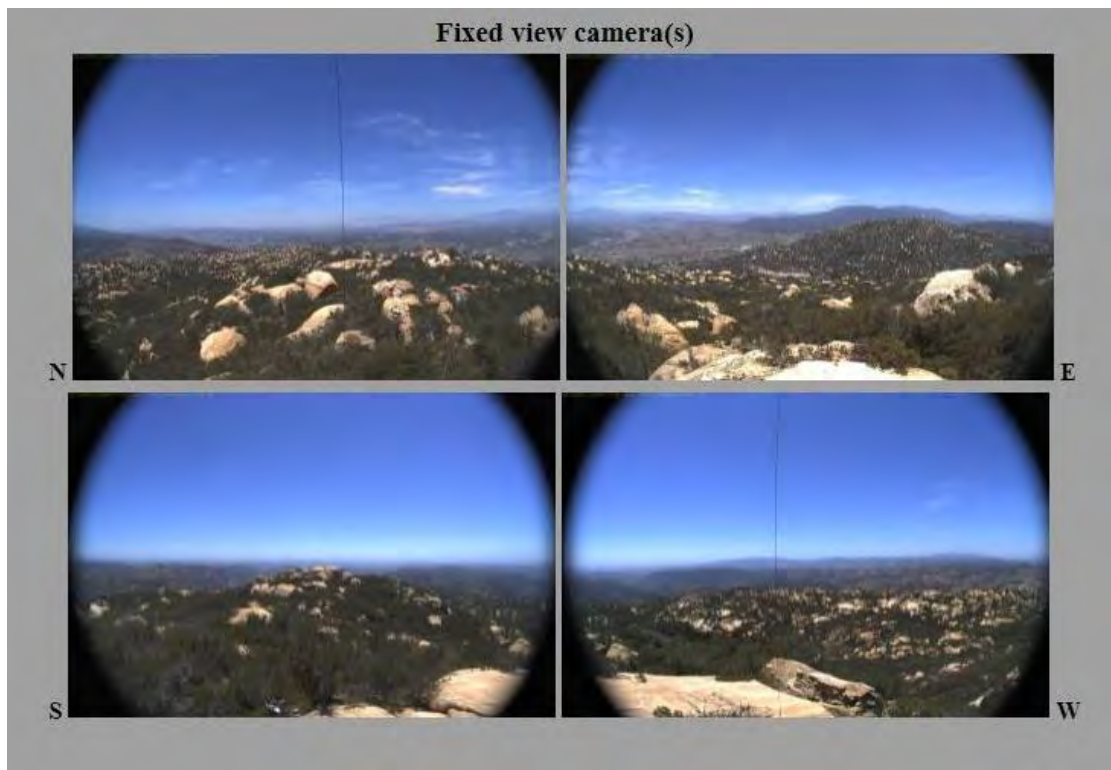


Image 4. Santa Margarita Ecological Reserve Static Cameras (*source: <http://hpwren.ucsd.edu/cameras/>*)



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Sky Oaks

- Static - North, South, East, West

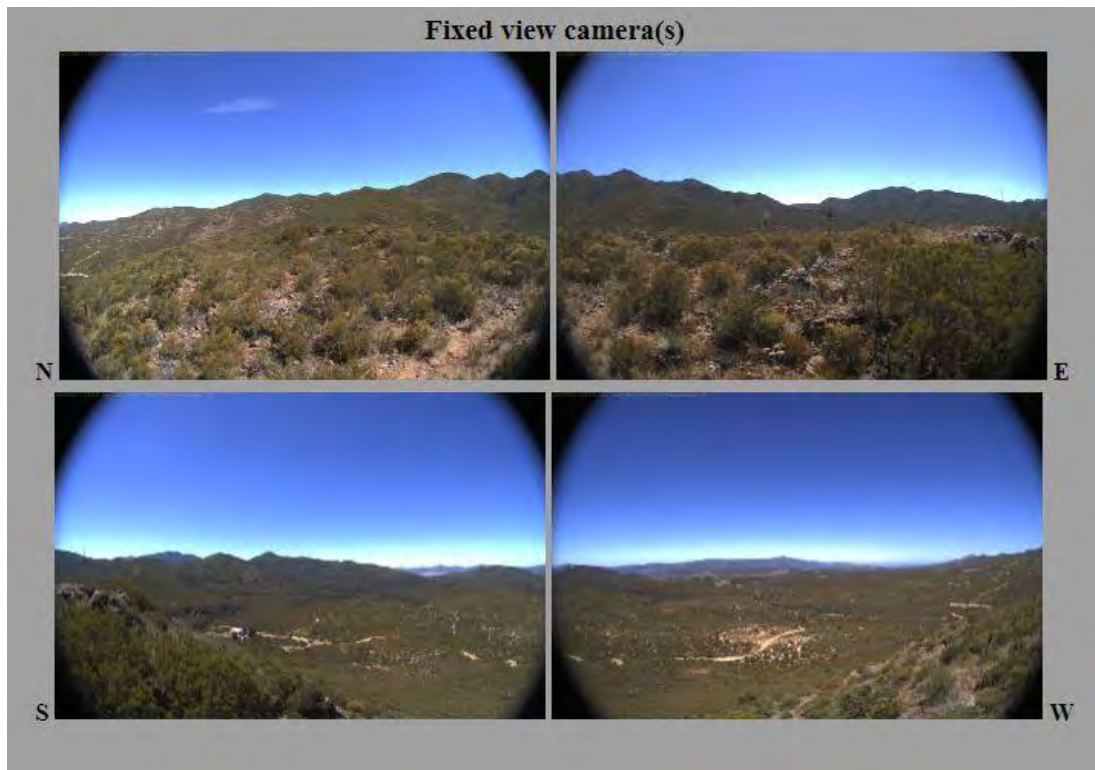


Image 5. Sky Oaks Static Cameras (*source: <http://hpwren.ucsd.edu/cameras/>*)

Volcan Mountain (first review)

- Static – North, South, East, West
- PTZ – North, South

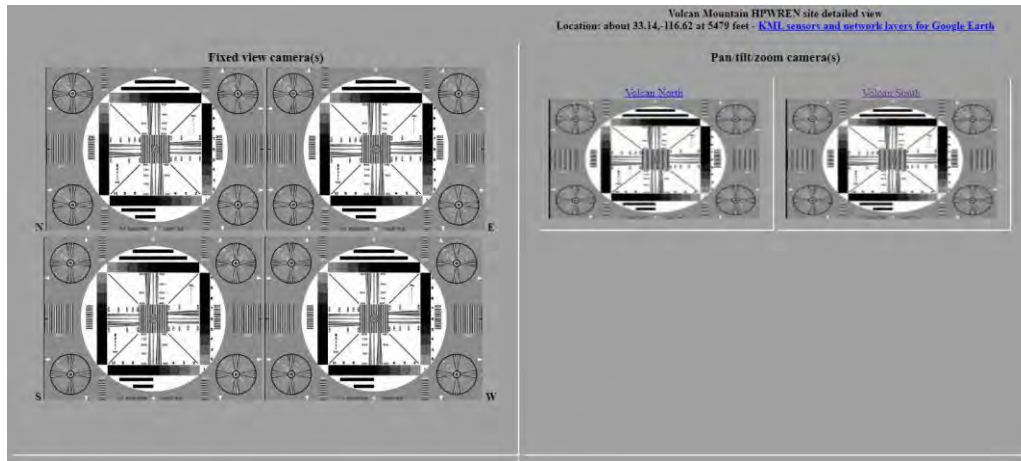


Image 6. Volcan Mountain Static and PTZ cameras without feed (*source: <http://hpwren.ucsd.edu/cameras/>*)

Volcan Mountain (second review)

- Static – North, South, East, West



Image 7. Volcan Mountain static cameras with feed (*source: <http://hpwren.ucsd.edu/cameras/>*)



ANALYSIS REPORT

White Star

- Static – North, South, East, West
- PTZ – North, South



Image 8. White star static and PTZ cameras (source: <http://hpwren.ucsd.edu/cameras/>)



ANALYSIS REPORT

Date: June 6, 2022

Author: Nenad Surjanac, Senior Environmental Engineer and GIS Expert

RE: 7.3.3.17.3 – Grid Hardening in Cleveland National Forest

In the 2021 WMP Update, SDG&E estimated that approximately 7.5 miles of distribution network have remained to be fire-hardened in the Cleveland National Forest (CNF). Concurrent with the preparation of the 2021 WMP Update, that part of the network was in active construction and scheduled to be finished in the first quarter of 2021^[1].

The IE requested and received from SDG&E data regarding grid hardening activities, which consisted of a GIS database initially provided, and an excel spreadsheet which was additionally requested.

SDG&E reported 80 locations for overhead (OH) distribution grid hardening. SDG&E confirmed that OH grid hardening activities typically include pole replacement (wood to steel) and reconductoring.

The process of sampling and verification usually consisted of a blind selection of points (poles) that have been reported by SDG&E as “completed” for a certain initiative number (WMP chapter number), which in the case of Cleveland National Forest was 7.3.3.17.3.

Each point has multiple information embedded in the GIS database, of which the two most important ones are GPS location (Longitude/Latitude) and Pole ID.

This information enabled field inspectors to locate the sampled poles, which is important because there were multiple work improvements done in the same area, but not all the work was performed on the same pole. Having an inspector in the field looking at the wrong pole may lead to the wrong conclusion. Because of this, precise information on position (up to a few meters of error) and Pole ID was mandatory, and in addition address of the pole would be supplied as well.

In the case of Cleveland National Forest, IE performed verification of precision of GPS location for initial sampling data in order to check the level of error. For this purpose, the IE relied on aerial orthorectified imagery collected by industrial precision photogrammetric equipment mounted on a manned plane. This imagery allowed inspection on levels of detail up to 20cm/pixel. The IE relied on two sets of images RGB (Red-Green-Blue) – natural color imagery and Color Infrared – CIR for enhanced contrast between vegetation and artificial surfaces and objects. Natural color RGB images are very similar to everyday digital images and rely on information visible by the naked eye. Color infrared (CIR) images represent false-color images where the combination of channels (colors) is different than that to which the human eye is accustomed.

^[1] SDG&E 2021 WMP Update, page 227.



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In this case, the usual red color is exchanged with the Near-Infra-Red (NIR) part of the light spectrum.

NIR is a portion of the light spectrum that is strongly emitted by healthy and active plants; dry vegetation, artificial surfaces, and materials have low emission in this part of the spectrum. By replacing the red color with NIR, the aerial analysis uses images that show healthy and active vegetation in an intensive red color. While RGB images were very useful for general navigation and feature recognition, CIR was of great help in the detection of poles and power lines.

During the process of evaluation of sampled points, the poles' locations provided by SDG&E had a very high discrepancy with the actual positions of the poles (image 2). Poles in sampled data were presented in locations up to 100 yards away from their actual locations. Even a much smaller error could potentially send a field inspector in a blind seek for poles in Cleveland National Forest. Because of this and since the sampled data has already needed to be verified IE decided to use the same approach already used for sampled data check for verification of data.

SDG&E provided 80 positions tagged as completed. IE sampled and tested for 19 (20%) poles (image 1) for the precision of location, out of all poles provided by SDG&E. The data was initially provided and reported in miles, which were later transferred in poles. Being able to fast go through all poles, having the ability to use high-resolution aerial images and verify the change between images from the end of 2018, and Spring 2022 IE could verify the change in poles and do it in a time and cost-efficient manner.

IE decided to use aerial intelligence because sending field inspectors with erroneous data would result in an inability to conclude whether or not SDG&E reached the set target or not, only after dispatching inspectors and wasting time.

Three (3) poles, P40427, P40429, and P40363 which were tested for precision showed a very high mismatch between the position of the presented work and the position of the actual poles. In Image 2 red diamonds are positions of work reported in DR15, while purple diamonds represent the actual position of poles. Both GPS locations were provided by SDG&E. This level of error in a forested area could potentially mean loss of time and inaccuracy of fieldwork. Images 3 and 4 show poles P40427 and P40429 in CIR taken in spring 2022. In image 3 pole P40427 is presented by a lower blue dot, while the red dot placed among high vegetation should present the location of P40363. The upper blue dot in image 3 represents pole P40426.

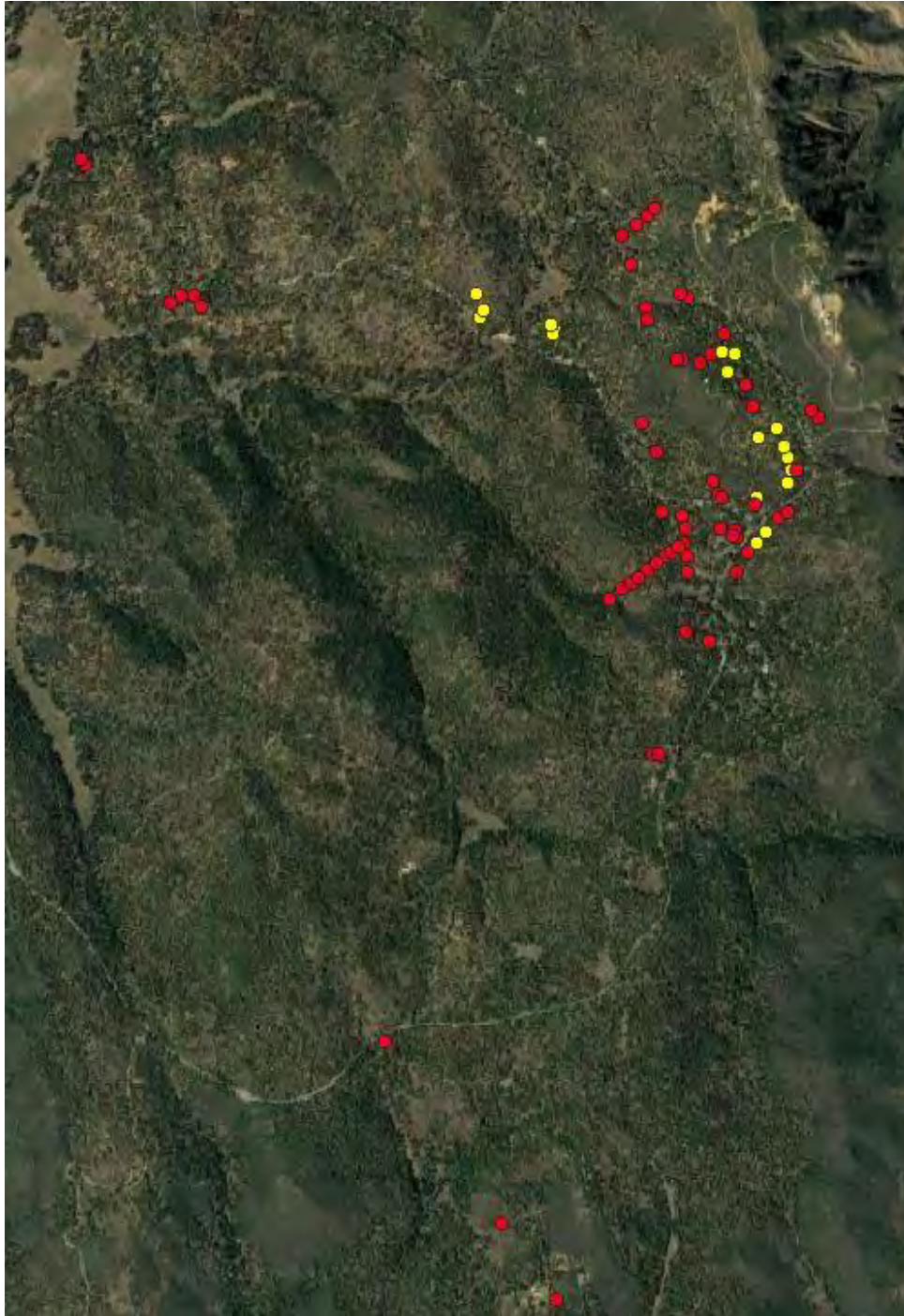


Image 1. Location of sampled points



Image 2. Mismatch of positions

Image 4 shows pole 40429 in the lower right corner of the image. Red dot by the manmade object (could be on private property) represents the location of pole where clearly there was no pole in the Spring of 2022.

The pole in the upper part of the image is pole P40428. The locations of poles and locations of reported work are clearly mismatched. The pole locations provided by SDG&E for this location is highly accurate, while the reported location of the work performed was not.



Image 3. CIR image of pole P40427 (lower blue dot)

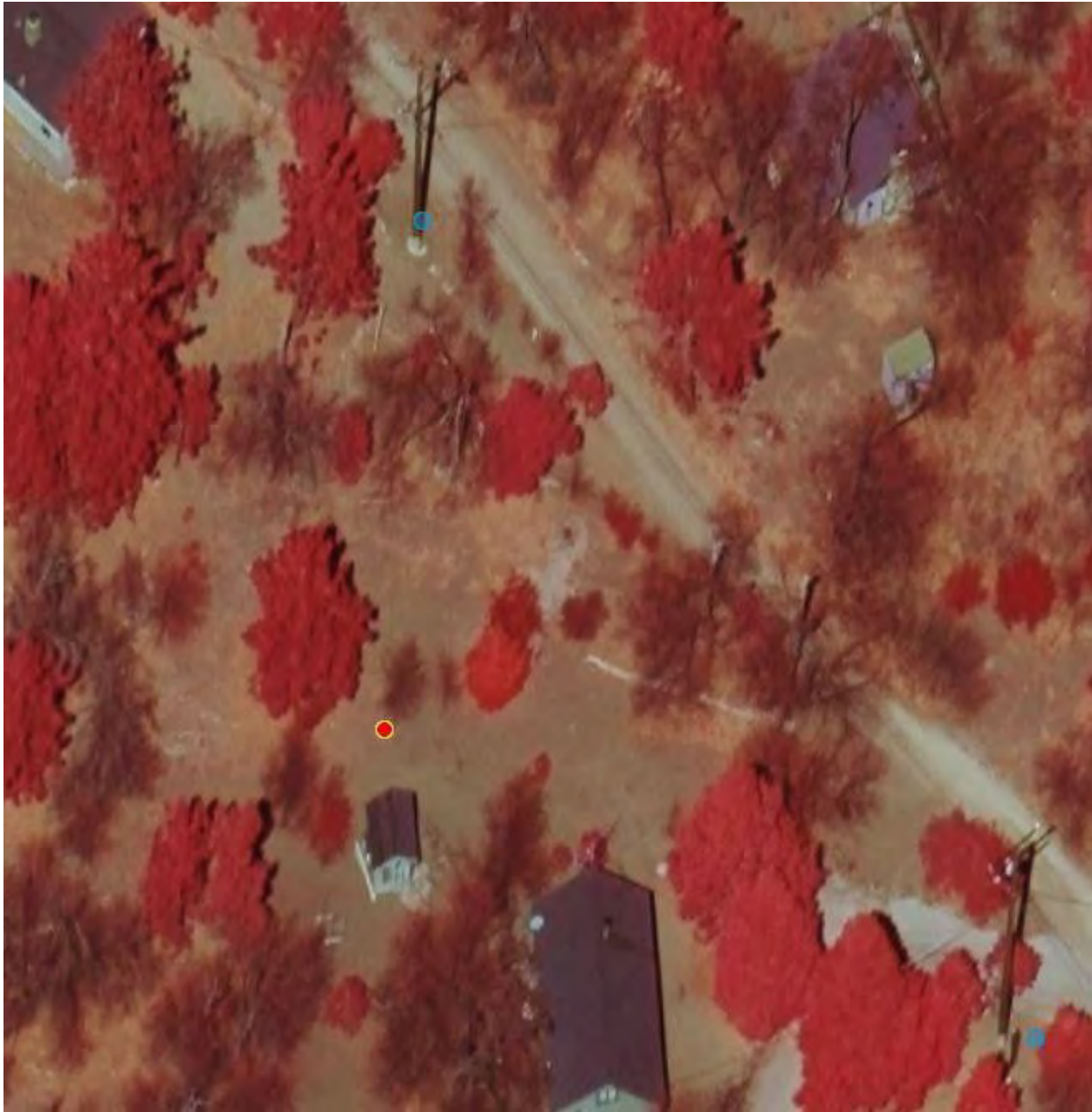


Image 4. CIR image of pole P40429 (lower right corner)

The next set of points of represented work consisted of six points - P40324, P40325, P40326, P40327, P260529, P40328. The location and spatial distribution of these points are shown in Image 5.

There was no mismatch of positions between reported work locations and pole locations. However, in these locations, there were no poles to locate. Neither in imagery from 2018 (images 6 and 7) nor in imagery from spring 2022 (image 8). However, image 8 shows the visible new line of the conductor (yellow line in image) with 2 new poles that can be connected with poles with no work reported (existing poles).

In image 9. Red circles point to two existing poles in the image from 2018. Image 10 in CIR shows those existing poles (red circles) with new poles (green circles) and new conductors between them. The pale blue line and points represent the poles and power lines which are not visible on maps.



Image 5. Positions of 6 sample poles - P40324, P40325, P40326, P40327, P260529, P40328

This test showed a mismatch between the data presented and those visible in the images. IE is aware of the fact that this can be a result of an error in GPS positioning in the field, but if the field inspector was sent to try to locate poles based on data provided, it may lead to erroneous data and/or conclusion there is no work done. Regarding the poles in image 7 even though there are some poles visible in the images around the locations those could not be directly tied to represented work. Points shown in



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Image 6, even though there are 2 new poles visible, could not be tied to the work presented due to the mismatch of locations.



Image 6. Yellow points representing the positions of poles – no poles visible



Image 7. Yellow points representing the positions of poles – no poles visible

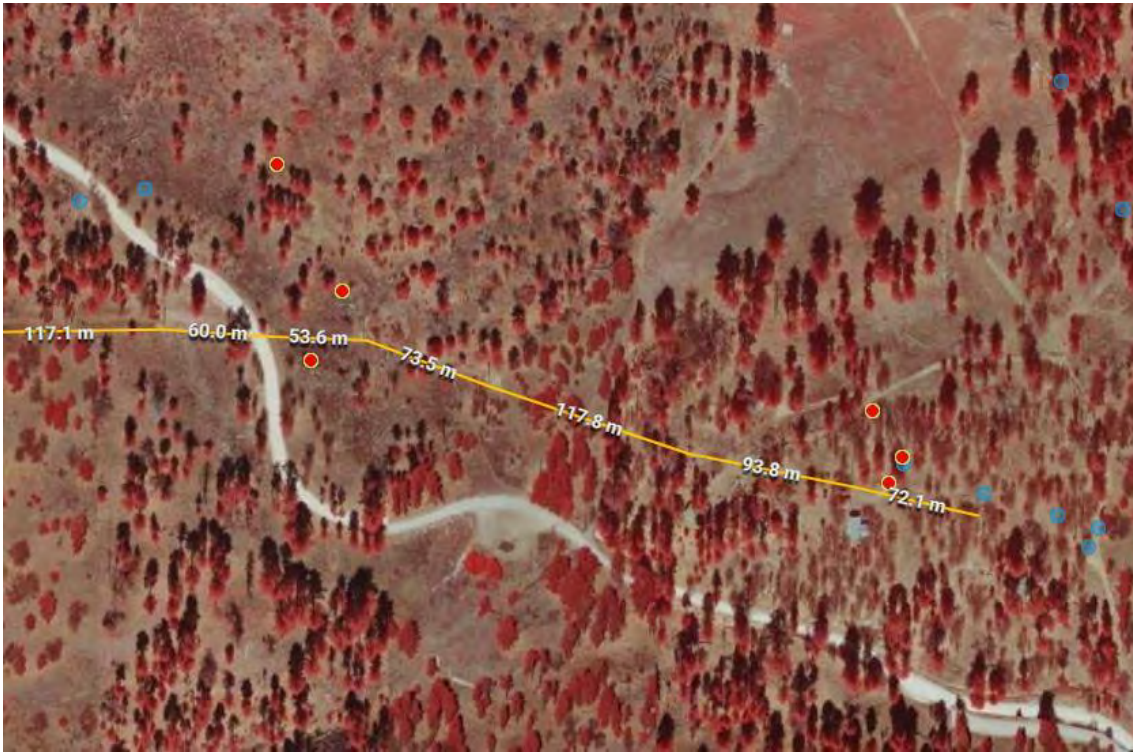


Image 8. Yellow line representing visible new conductor



Image 9. Existing poles presented by red circles



Image 10. Red circles representing existing poles, green circle representing new poles

In a third analytical approach, the IE sought to verify changes in poles and other grid hardening work by comparing poles and providing locations in the CNF with older images. Paired images 2 - 21 show these comparisons, by pairing the location of current poles with that same location in previous images.

Based on these image comparisons, it is possible to confirm the existence of new, larger poles in the identified locations within the CNF. In the sample of 10 locations, the IE can verify that all 10 had new poles installed.

In addition to the detection of new poles, aerial imagery also revealed considerable dead wood left in the forest. Image 22 shows a large tree (trunk and branches) lying dead under the powerlines. Deadwood is the potential source of fuel in the case of wildfire, such that the volume of the dead, decaying forest fuels on the floor of the Cleveland National Forest might prompt the interest of responsible forest management authorities.



Image 11A. Location of pole 40150_2018

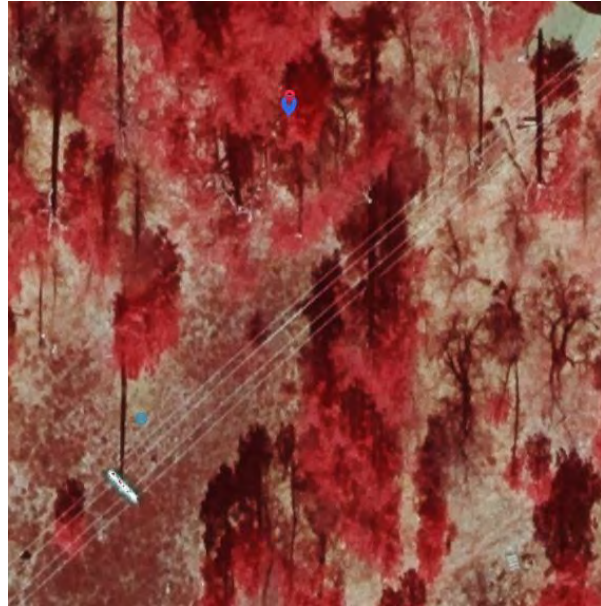


Image 11B. Location of pole 40150_2022



Image 12A. Pole 40151_2018



Image 12B. Pole 40151_2022



Image 13A. Pole 40368_2018

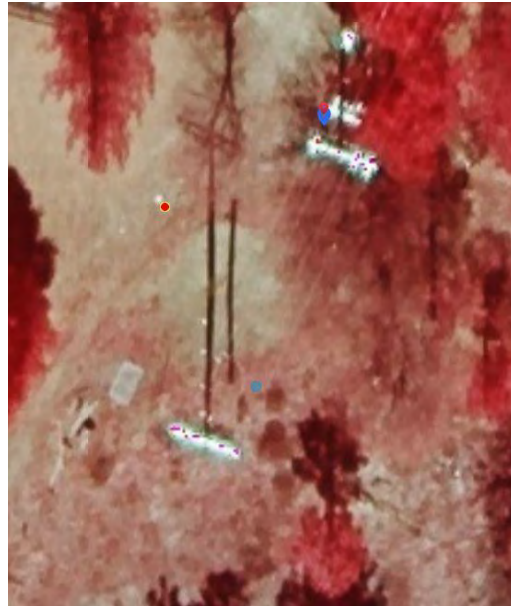


Image 13B. Pole 40368_2022

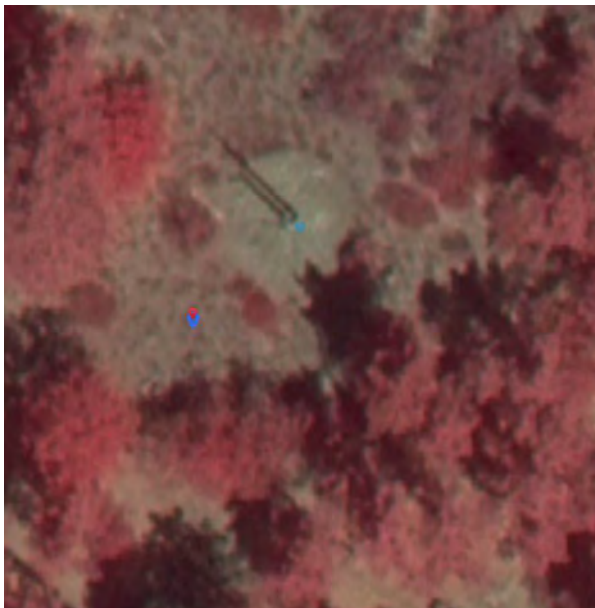


Image 14A. Pole 40370_2018

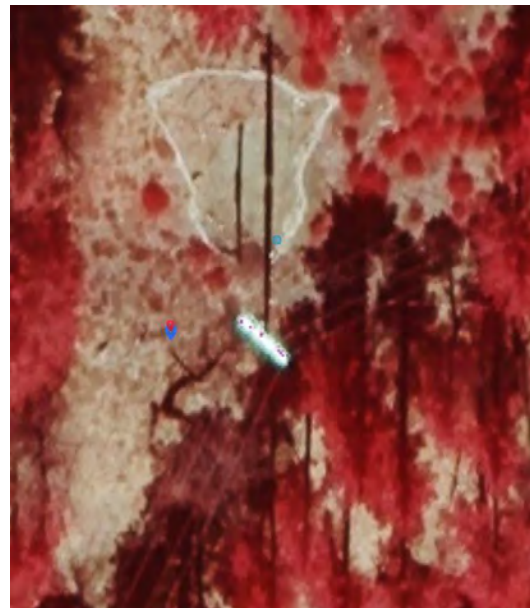


Image 14B. Pole 40370_2021

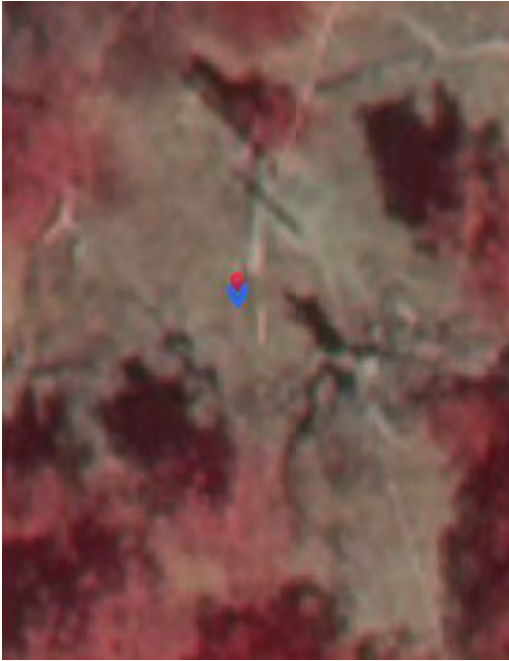


Image 15A. Pole 40374_2018

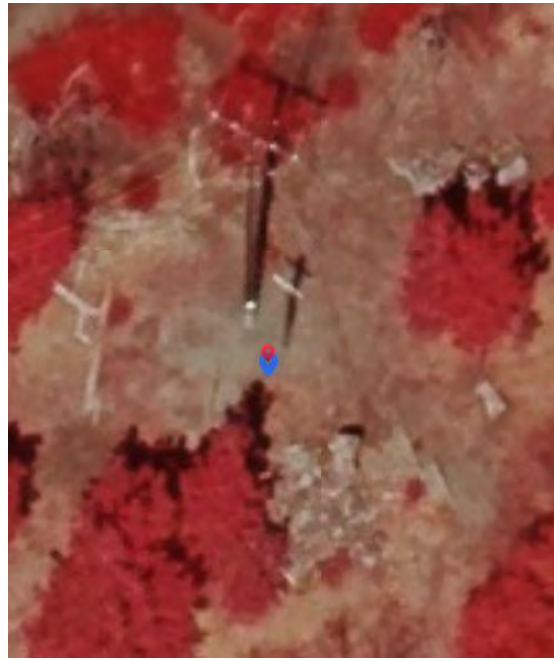


Image 15B. Pole 40374_2022



Image 16A. Location of pole 40376_2018

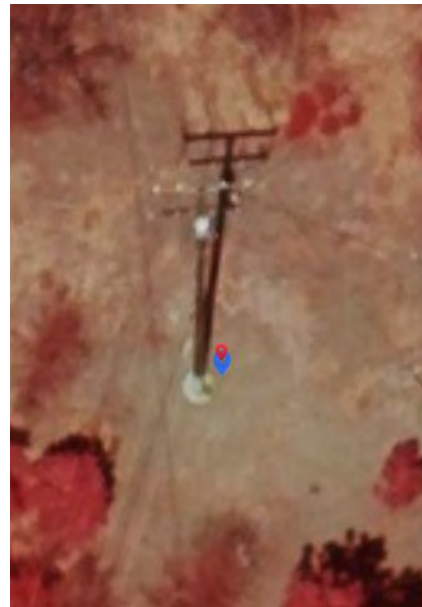


Image 16B. Location of pole 40376_2022

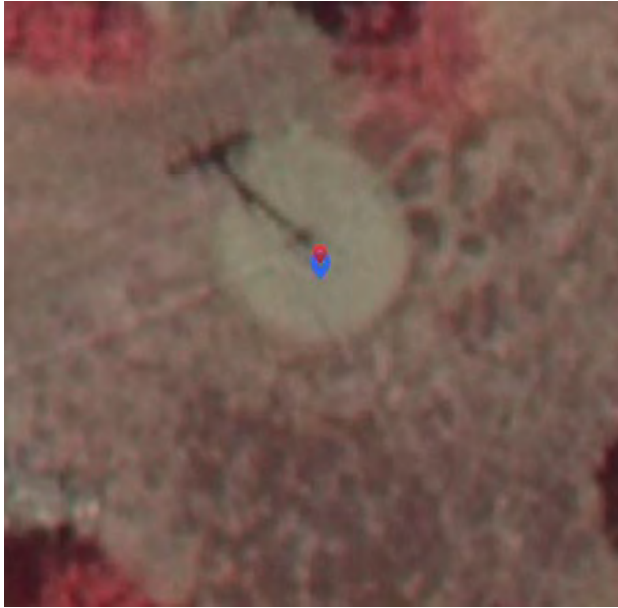


Image 17A. Location of pole 40382_2018

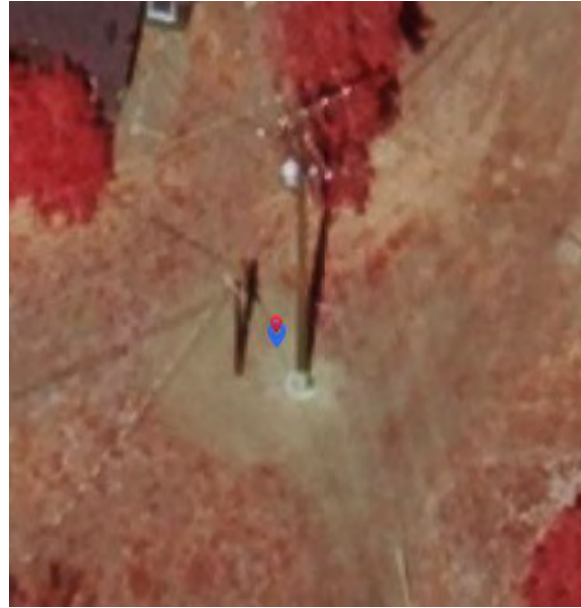


Image 17B. Location of pole 40382_2022

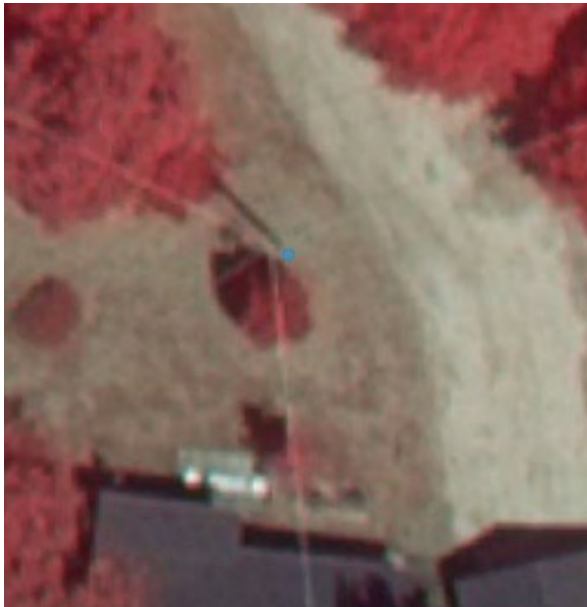


Image 18A. Location of pole 40383_2018



Image 18B. Location of pole 40383_2022

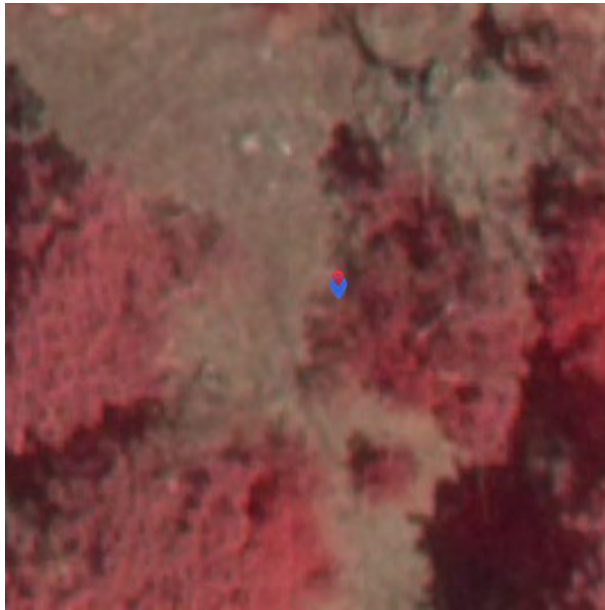


Image 19A. Pole 260526_2018

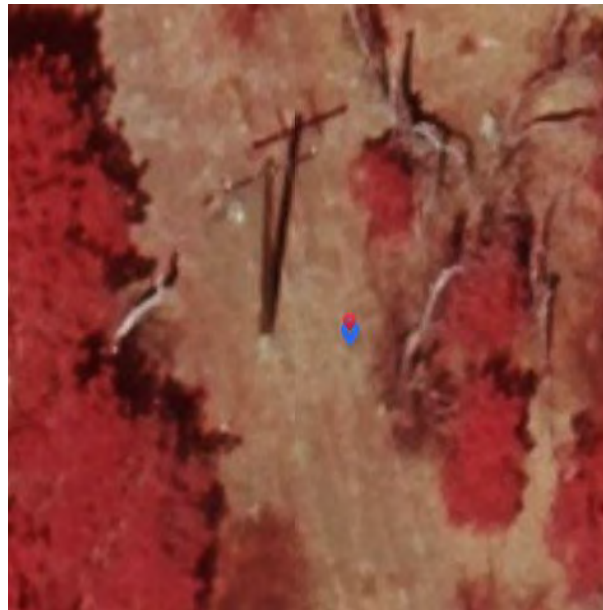


Image 19B. Pole 260526_2022



Image 20A. Pole 260527_2018

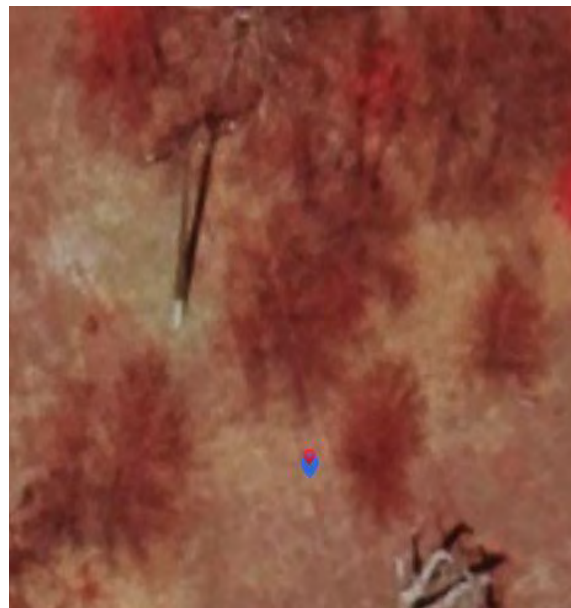


Image 20B. Pole 260527_2022



Image 21. Dead tree beneath the powerlines

Summary

For initiative 7.3.3.17.3 Cleveland National Forest, the IE sampled 19 points of the 80 points supplied by SDG&E.

Samples were distributed over the CNF areas showing a high density of reported work orders. The process of attempting to verify the samples resulted in creation of three categories of samples:

- The first category had a high mismatch between GPS locations of poles provided by SDG&E and the locations of reported work improvements also provided by SDG&E.
- The second category had a high mismatch between the reported work orders and the data observed from aerial images, as of Spring 2022.
- The third category of samples was compared with images from 2018. The results were presented as paired images years from the years 2018 vs. 2022.

Due to the high level of location discrepancy in 45% of the locations, aerial intelligence and analysis were the best options to conduct the IE verification process.



ANALYSIS REPORT

DATE: June 9, 2022

Author: Nenad Surjanac, Senior Environmental Engineer and GIS Expert

RE: 7.3.3.18.1. Distribution Communications Reliability Improvements

In a 2021, WMP SDG&E planned to improve Distribution Communications Reliability through employment of 10 base stations. The actual reported installation outcome was 10, therefore achieving 100%.

According to SDG&E, Distribution Communications Reliability Improvement projects should improve and expand the use of Falling Conductor Protection (FCP). This technology relies on high-speed and high-reliability wireless communication in order to de-energize downed power-lines before these contact the ground and potentially ignite a fire.

Based on locations provided by SDG&E, IE concludes that wireless network relies on using antennas mounted on towers or roofs. Even though there are places in the sample with 1 or 2 antennas (images 1 and 2), there are some locations that have multiple towers and some that show multiple antennas in single location.



Image 1. DCRI-000003 with 1 antenna



Image 2. DCRI - 000005 with multiple antenna



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The IE's first step was to identify the locations and confirm the existence of base stations (towers and antennas). To do this, the IE relied on high-resolution imagery acquired in the period March-April 2022.

The IE managed to verify the locations of eight towers and antennas. In two locations, however, DCRI- 00001 and DCRI-00009, in the locations provided through GPS (lat/long) there was nothing like a tower structure within the area 150 – 500 yards in diameter around the reported position (images 4 and 5). In images 4 and 5, the red circle indicates the location where base station should have been found.

Other than through locating the base stations, the IE did not see a possible way to verify the fulfillment of work performed for initiative 7.3.3.18.1. The IE chose all ten locations as a sample; of these, two could not be found, while one could not be confirmed as an antenna on the roof (image 6). The IE did notice the trend inaccuracy in the provided GPS locations for infrastructure. The IE also observed that two antennas share the same name – DCRI-000001 (Image 4 and Image 6).

The IE can confirm that 70% of the base station locations were populated by antennas. In order to confirm the installation or rent of these antennas, the IE would require the details of each installation, and information regarding the equipment specifications and/or details of rental contract.



Image 3. DCRI – 000006 Multiple towers with multiple antennas



Image 4. DCRI-000001, No base station

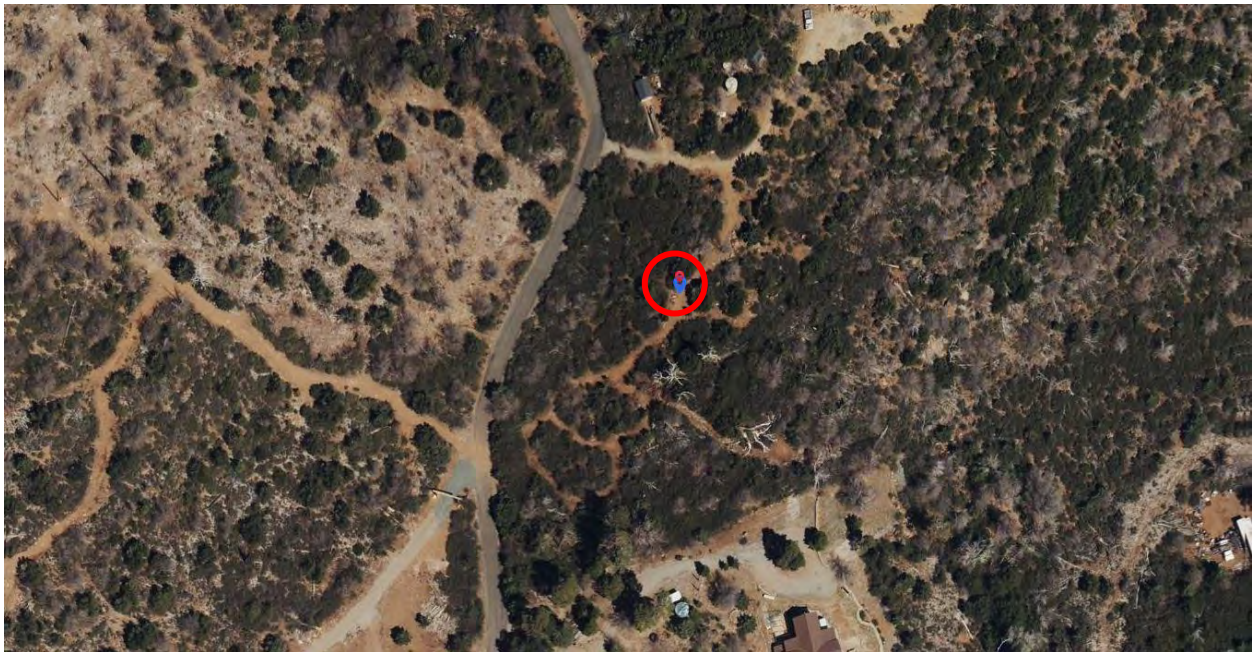


Image 5. DCRI-000009 No base station



Image 6. DCRI-000001, Red circle shows the only object resembling an antenna



Image 7. DCRI 000002, Base station with multiple antenna

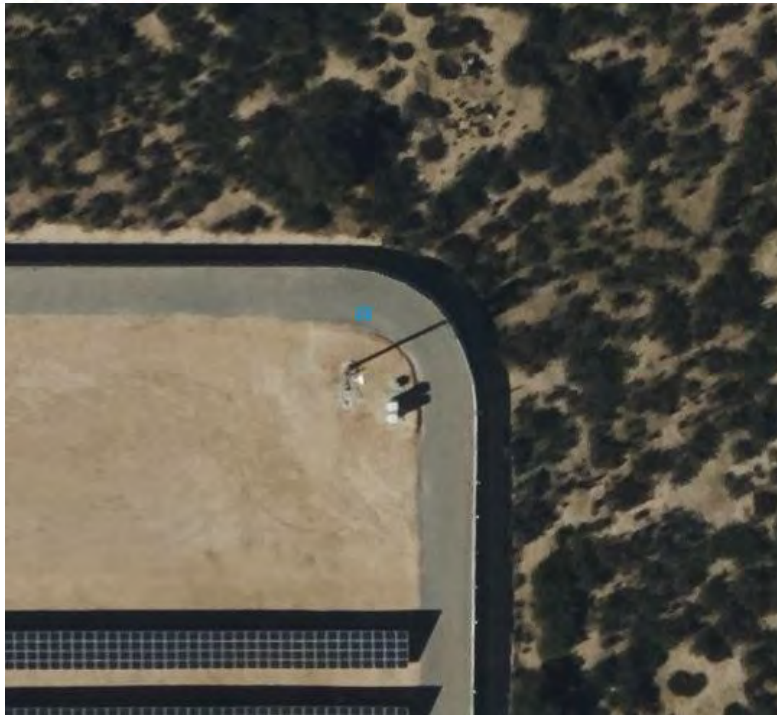


Image 8. DCRI 000007, Base station



Image 9. Base station with multiple antenna



Image 10. DCRI-000004 Base station with multiple antenna



ANALYSIS REPORT

Date: June 7, 2022

Author: Nenad Surjanac, Senior Environmental Engineer and GIS Expert

RE: 7.3.3.5. – Fuels Management and Reduction of “Slash” From Vegetation Management Activities

In 2021 SDG&E planned to complete expanded thinning of vegetation within a 50-foot radius on a total of 500 poles. Of the 500 planned poles, SDG&E reported actual work done on 463 poles.

In the 2021 WMP Compliance Report SDG&E reported that work on thinning had not begun until Q3.

After reviewing the data provided in the form of GIS data IE finds that in

- Q1 -- Fuel management shows 335 entries marked as completed, however those were completed between October 1st - December 11th 2020. These were excluded from the work performed in 2021.
- Q2 – has no entries regarding WMP initiative 7.3.5.5.
- Q3 – has no entries regarding WMP initiative 7.3.5.5.
- Q4 – has 203 entries with status “Complete” and comment of Quarterly progress of 203. Status “Planned” has 2 entries. Status “In progress” has 65 entries.

In all, the IE failed to find 463 locations for initiative 7.3.5.5, fuel management, in the data provided by SDG&E. Activities reported as “Planned” in Q4, if added to the work reported as Completed in Q4, still does not reach the 463 poles reported as Actual work done in SDG&E’s 2021 WMP Compliance Report.

The IE sought a minimum sample size of 29 for this initiative, per the Sampling Plan summarized in Table 2 of the Annual Report on Compliance. The actual total number of samples was 38. Locations were inspected by reviewing high resolution aerial images. Images were taken in the period from January to April 2022. Sampled locations were based in the areas with most intensive work reported (Map 1).

Aerial imagery is commonly described in terms of two factors: the color spectrum utilized and the angle at which the images are obtained. The images used in this analysis were taken using two different portions of the light spectrum, described as in RGB and CIR modes. RGB (Red-Green-Blue) is a natural color mode which captures images as they are seen with the naked eye. CIR (Color-Infra-Red) is a type of imagery in which the Red component in RGB is switched with the Near Infra-Red (NIR) portion of the light spectrum. The intensity of the NIR spectrum reflected from plants is very sensitive to the health status of the plants. Healthy and physiologically active plants tend to have high reflectance in NIR, while plants in poor health, dry plants, and artificial surfaces have very low NIR reflectance. When switched with RED in CIR modes, the level of NIR reflectance is directly proportional to the intensity of the RED color. The more intensive the red color in the image, the higher is the NIR reflectance and the healthier the vegetation. Using CIR imagery in this manner helps to determine the presence of vegetation in



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images, and in estimating the level of physiological activity in that vegetation. Poor health in plants, in combination with low humidity, high wind and high temperatures, can easily increase the availability of potential fire fuel. Therefore, in this analysis, CIR was used to look for the presence of vegetation around the poles and to look for remains of slash vegetation around the poles.

In the balance of this report, Images 1 – 31 are presented as pairs of RGB-CIR images taken of the same inspected locations. Most images, 27 of them, show clean clearance around the poles. In most cases, clearances appear to be mostly 30 - 40-foot clearance. However, several image-pairs caught the IE's attention due to the possible issues visible:

- Image 1 showed canopy of tree very close to the pole.
- Image 12 showed potential low vegetation growth in the base of the pole.
- Image 21 showed dead trunks and branches of trees no further than 12-15 feet from the pole.
- Image 30 showed canopies surrounding the pole in close proximity.
- Additional issues were noticed on images 32 – 35. On these images high level of inaccuracy of GPS positioning of poles were noticed.

In addition to aerial imagery, IE also used drone images provided by SDG&E under their drone inspection program. For this purpose, SDG&E secured approximately 20 images per pole.

IE tested the idea that these images would be an ideal source of information for high-detail inspection of the immediate environment of the pole. Images 36, 37, 38 show drone images of sampled poles.

Images 36 – 38 show clean base of the pole, with little to no needs for trimming of vegetation.

Observed trends

This analysis highlights several observations of note:

- First, a correlation is noticeable between the location of the poles and the accuracy of the provided pole locations. As long as poles are located near roads, accuracy is sufficient for pole detection.
- As soon as the pole location moves away from the road and recognizable landmarks, the accuracy of locational data drops dramatically.
- Second, many of the poles included in 7.3.5.5 fuels management work have mostly a low level of vegetation surrounding the pole.
- Although it is expected that high levels of vegetation presents more challenge to management, it is also observable that this challenge may not be adequately met, as high levels of accumulated vegetation are occasionally visible.

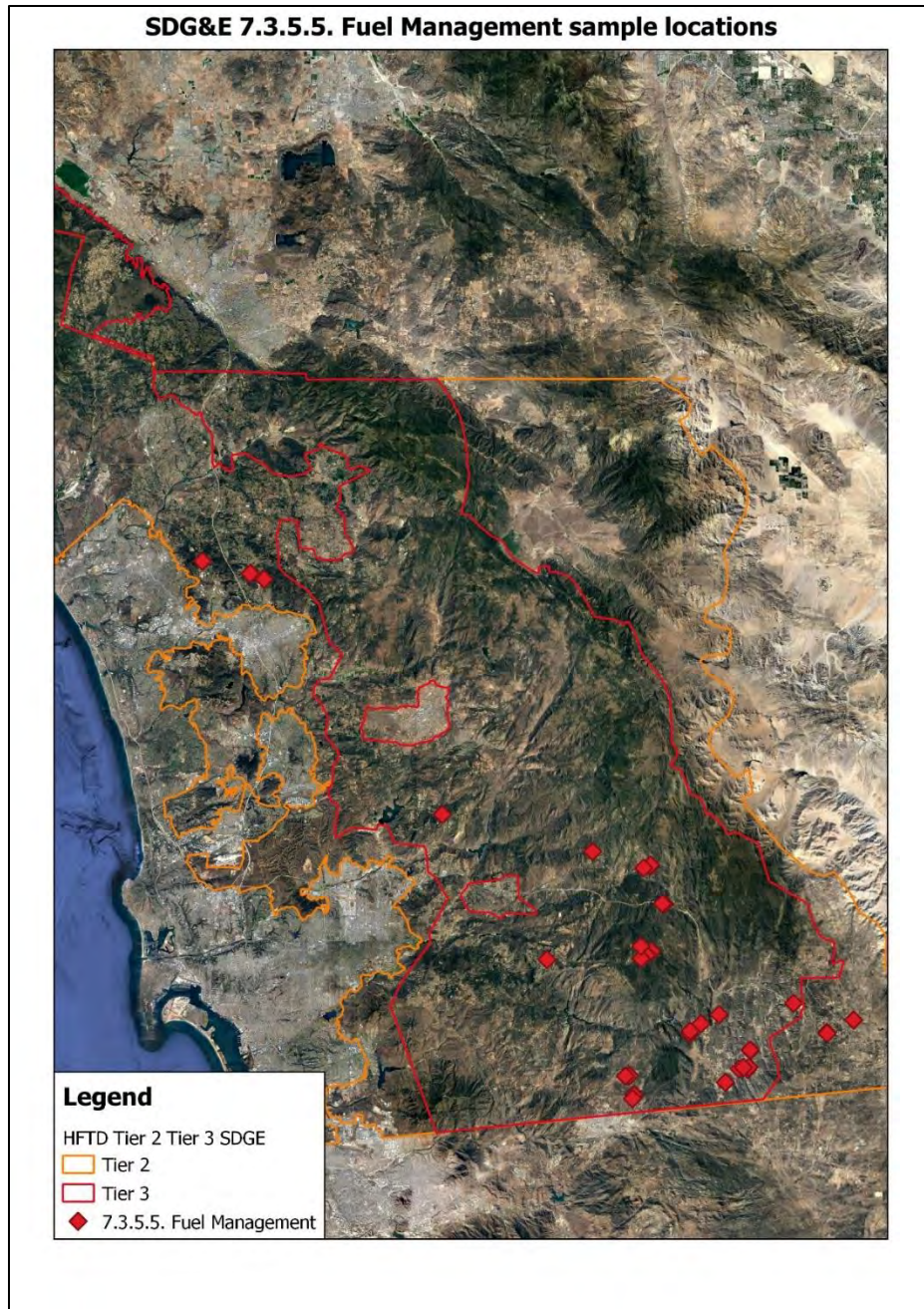


ANALYSIS REPORT

While evaluating the work performed in 7.3.5.5. initiative, IE observed situation with pole P612045 that may rise question about selection criteria for 7.3.5.5.

Please see the report on the observation below.

Based on selected samples IE can draw conclusion that on population of 203 poles for which IE received the data, SDG&E did sufficiently good work on 88%, but 12% of samples failed to meet the requirements. The sample showed there is a lot of room for improvement especially in providing the clearance in the proximity of high vegetation. Beside the fact that data provided by SDG&E (total number of poles in 7.3.5.5.) did not concur with the number reported in WMP, observation IE made on pole P612045 raise suspicion on vegetation inspection process.



Map 1. Sample locations

From the reported 203 locations, 38 samples were selected as shown in Table 1.



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Table 1.

#	ID	Latitude	Longitude
1	Q4-7355-11673	33.197216	-117.088921
2	Q4-7355-11678	32.685444	-116.282898
3	Q4-7355-11688	32.864975	-116.559151
4	Q4-7355-11689	32.865788	-116.559097
5	Q4-7355-11691	32.766018	-116.558052
6	Q4-7355-11726	32.670521	-116.506470
7	Q4-7355-11730	32.881489	-116.638382
8	Q4-7355-11731	32.705246	-116.364677
9	Q4-7355-11732	32.671505	-116.319305
10	Q4-7355-11735	32.670265	-116.319206
11	Q4-7355-11741	32.673866	-116.506073
12	Q4-7355-11742	32.629040	-116.428024
13	Q4-7355-11747	32.600597	-116.582504
14	Q4-7355-11748	32.600594	-116.583160
15	Q4-7355-11749	32.595974	-116.585060
16	Q4-7355-11757	32.924732	-116.843872
17	Q4-7355-11787	32.820663	-116.540009
18	Q4-7355-11790	32.631592	-116.426178
19	Q4-7355-11792	32.821106	-116.543129
20	Q4-7355-11799	32.762222	-116.564697
21	Q4-7355-11800	32.761757	-116.565102
22	Q4-7355-11818	32.757980	-116.572662
23	Q4-7355-11822	32.771881	-116.572876
24	Q4-7355-11834	32.692646	-116.466522
25	Q4-7355-11842	32.614372	-116.458496
26	Q4-7355-11845	32.629799	-116.439575
27	Q4-7355-11846	32.631390	-116.433662
28	Q4-7355-11855	32.622635	-116.589081
29	Q4-7355-11856	32.622124	-116.594757
30	Q4-7355-11861	32.862381	-116.568680
31	Q4-7355-11868	32.756905	-116.701210
32	Q4-7355-11744	32.650650	-116.424026

33	Q4-7355-11752	32.651683	-116.424407
34	Q4-7355-11804	32.682159	-116.491287
35	Q4-7355-11672	33.196388	-117.088043
36	Q4-7355-711567	33.217206	-117.172753
37	Q4-7355-115804	33.203211	-117.106038
38	Q4-7355-115803	33.202996	-117.107297



Image 1. Q4-7355-11673

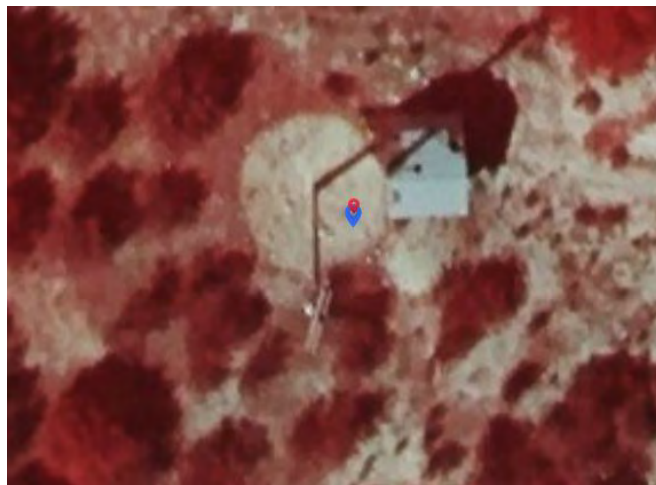
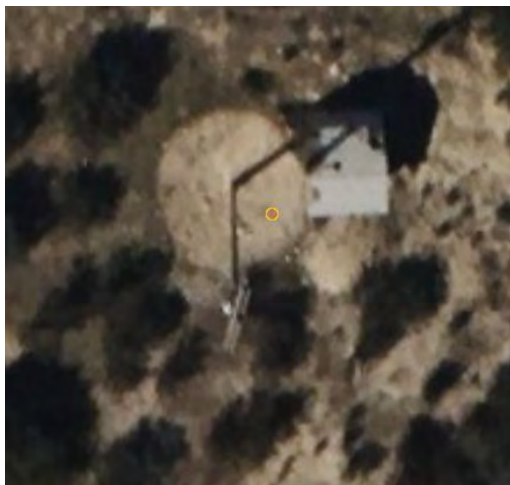


Image 2. Q4-7355-11678

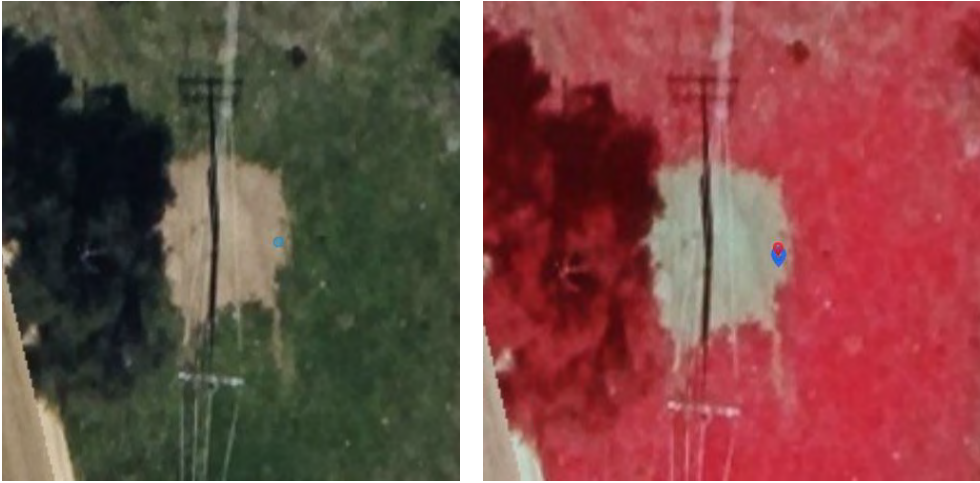


Image 3. Q4-7355-11688



Image 4. Q4-7355-11689



Image 5. Q4-7355-11691

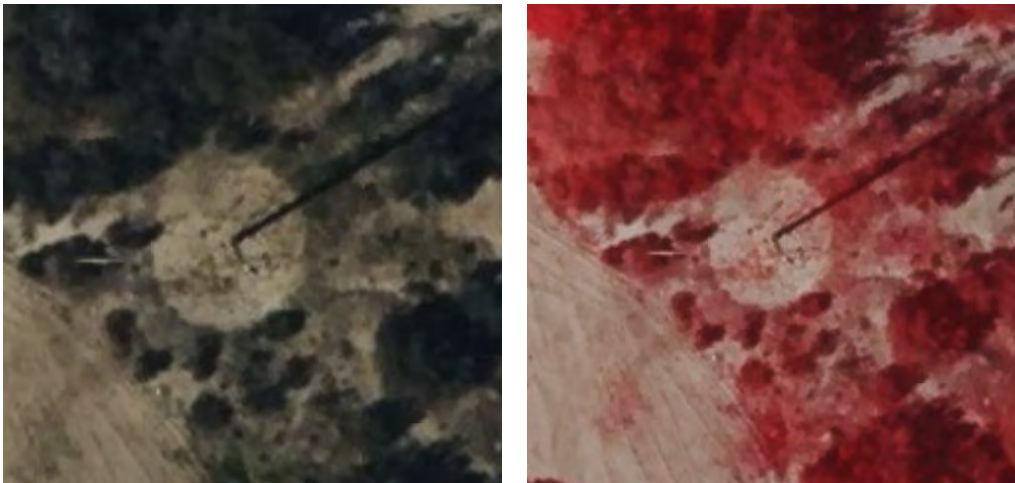


Image 6. Q4-7355-11726

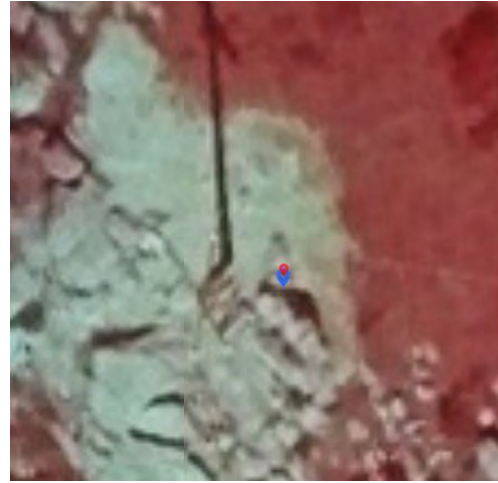
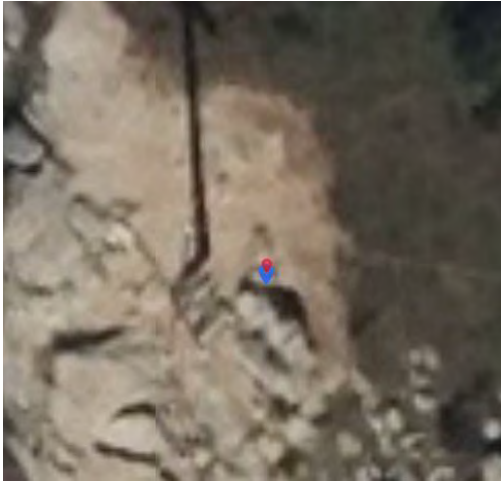


Image 7. Q4-7355-11730

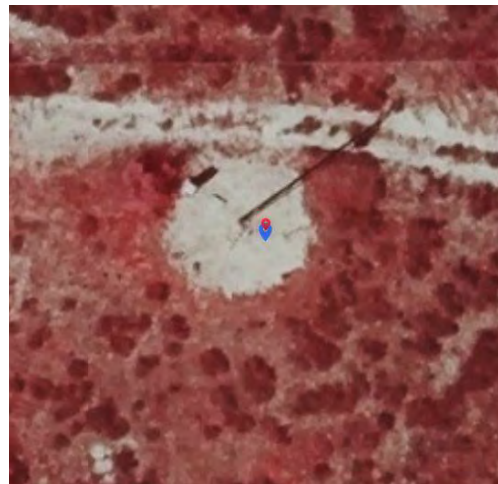


Image 8. Q4-7355-11731

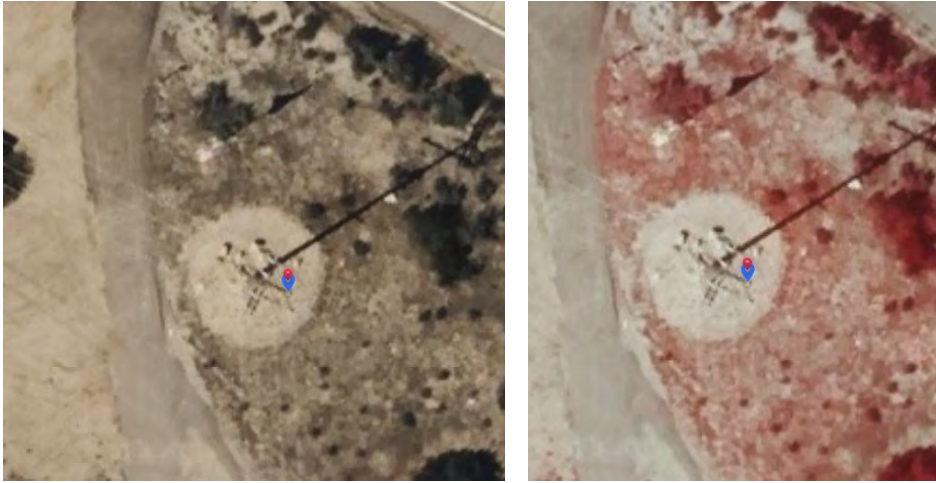


Image 9. Q4-7355-11732

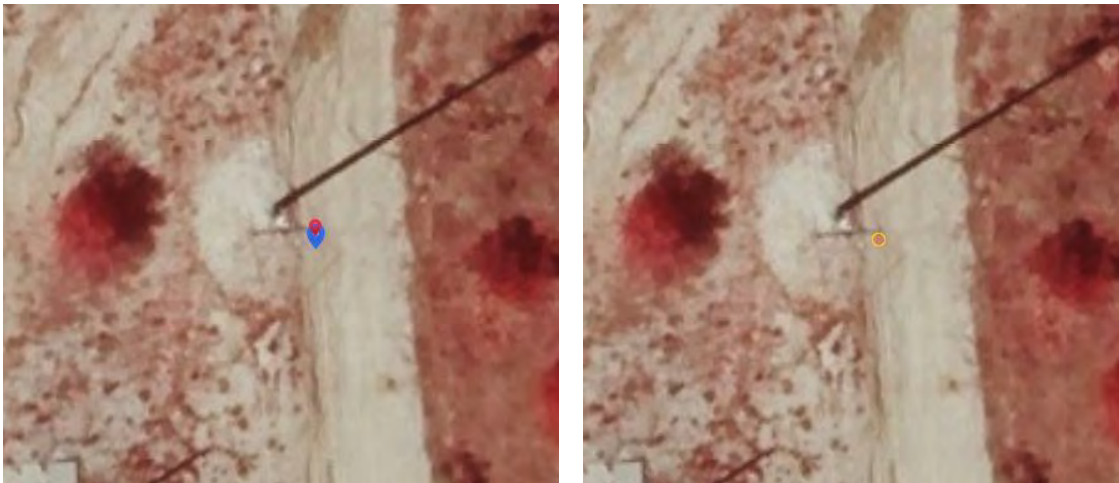


Image 10. Q4-7355-11735

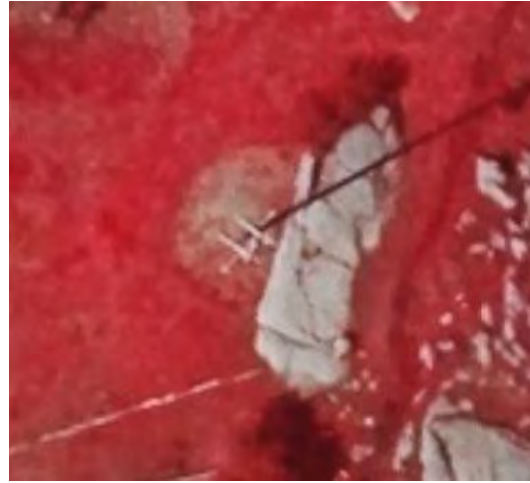
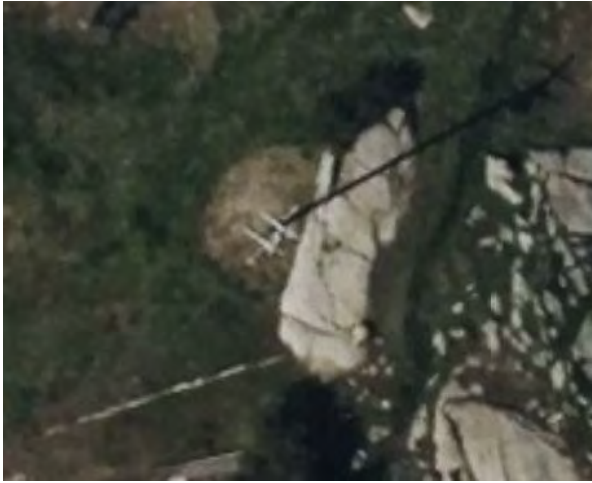


Image 11. Q4-7355-11741

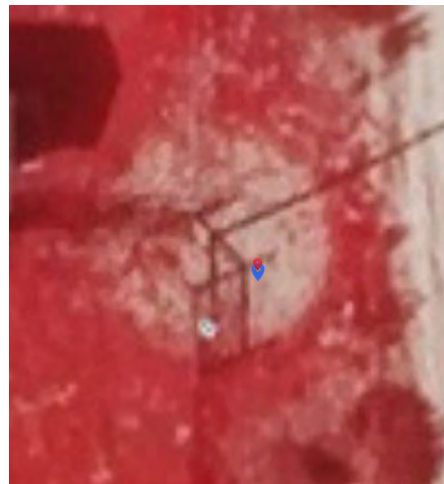


Image 12. Q4-7355-11742



Image 13. Q4-7355-11747



Image 14. Q4-7355-11748

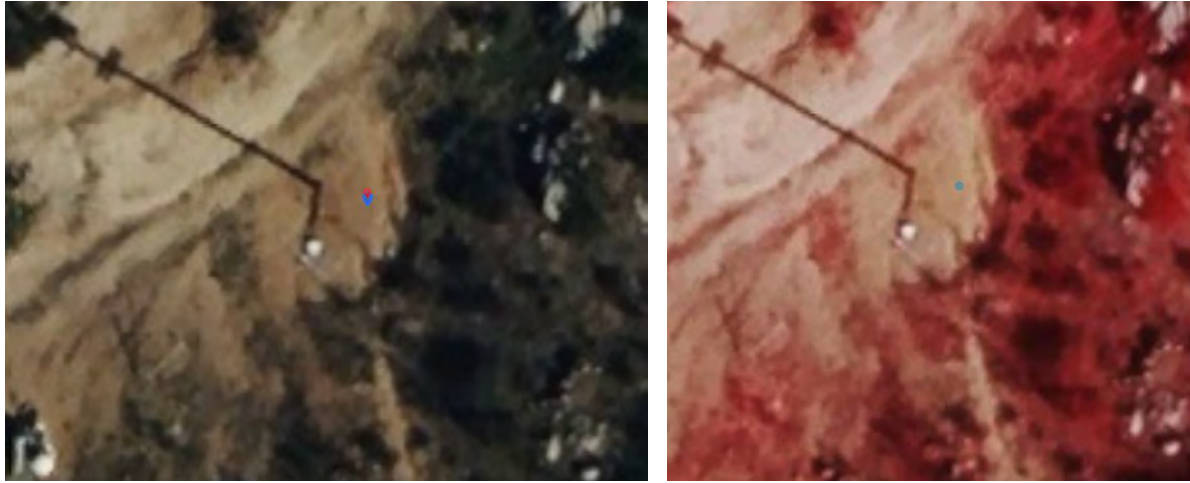


Image 15. Q4-7355-11749



Image 16. Q4-7355-11757



Image 17. Q4-7355-11787



Image 18. Q4-7355-11790



Image 19. Q4-7355-11792



Image 20. Q4-7355-11799

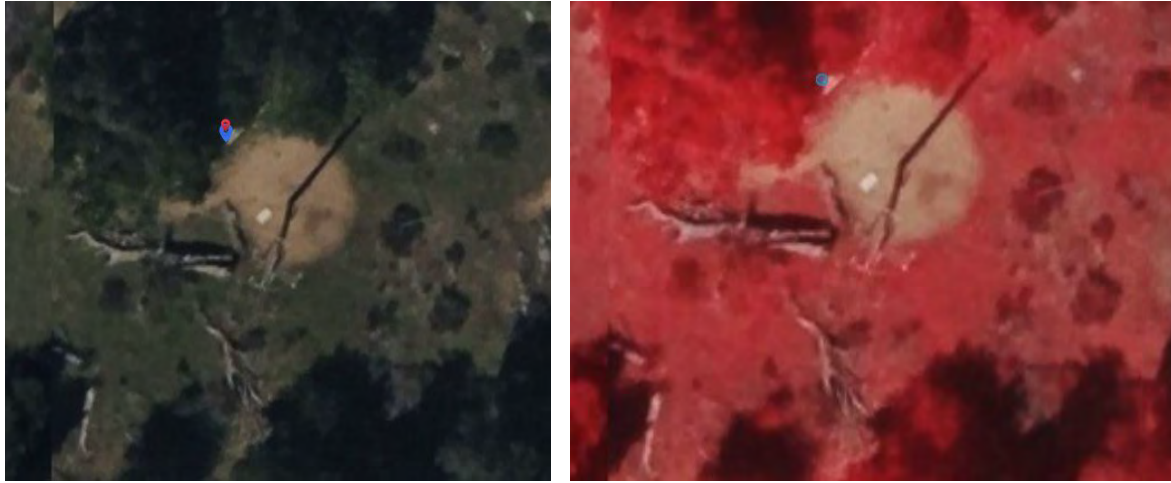


Image 21. Q4-7355-11800

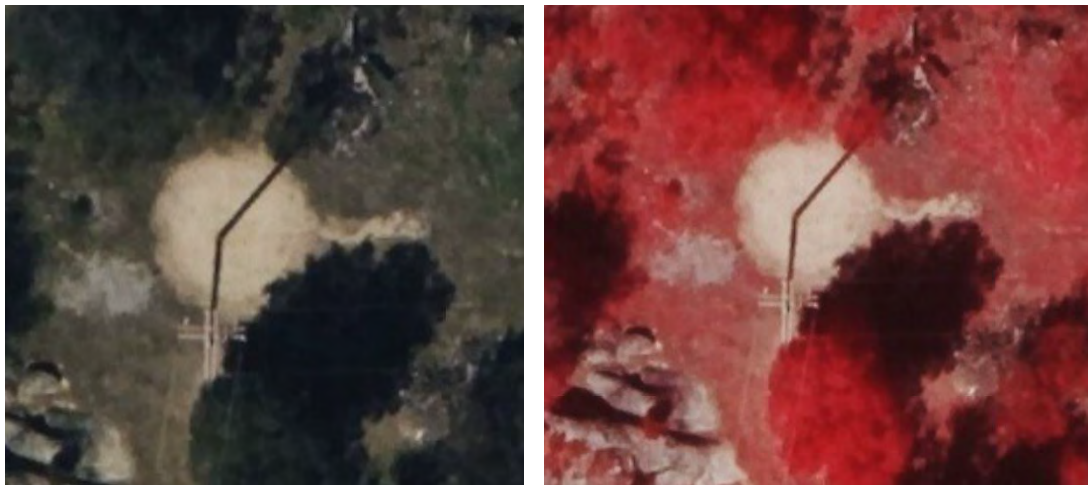


Image 22. Q4-7355-11818



Image 23. Q4-7355-11822

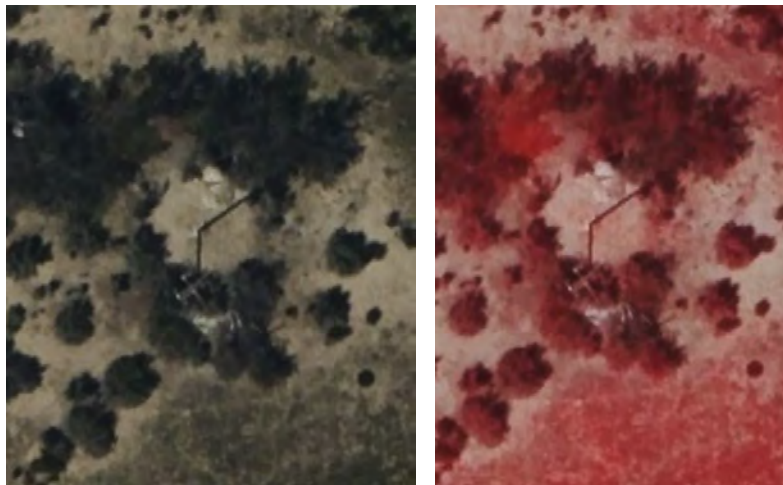


Image 24. Q4-7355-11834

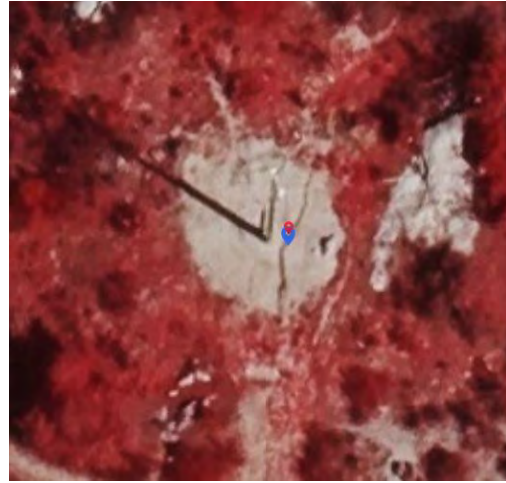
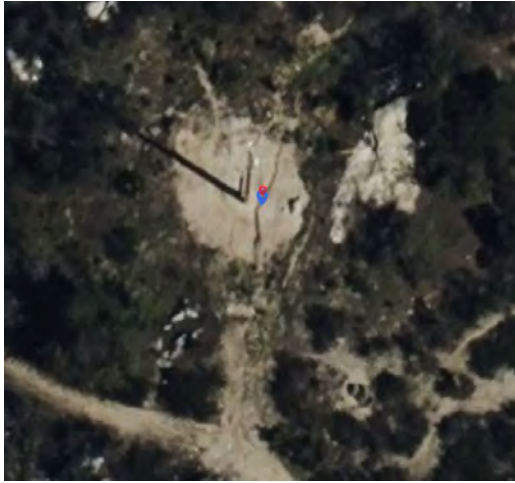


Image 25. Q4-7355-11842

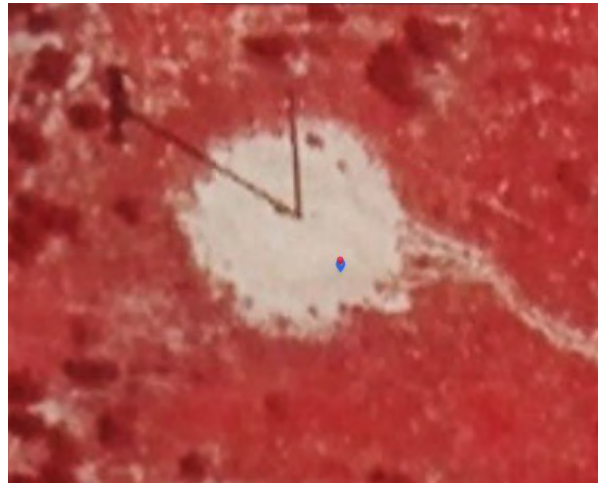


Image 26. Q4-7355-11845



Image 27. Q4-7355-11846



Image 28. Q4-7355-11855



Image 29. Q4-7355-11856

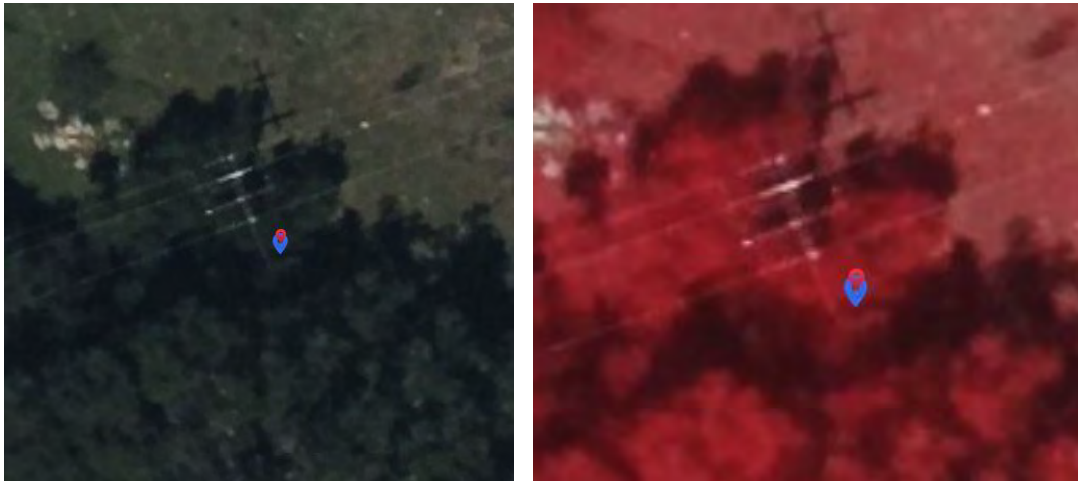


Image 30. Q4-7355-11861



Image 31. Q4-7355-11868

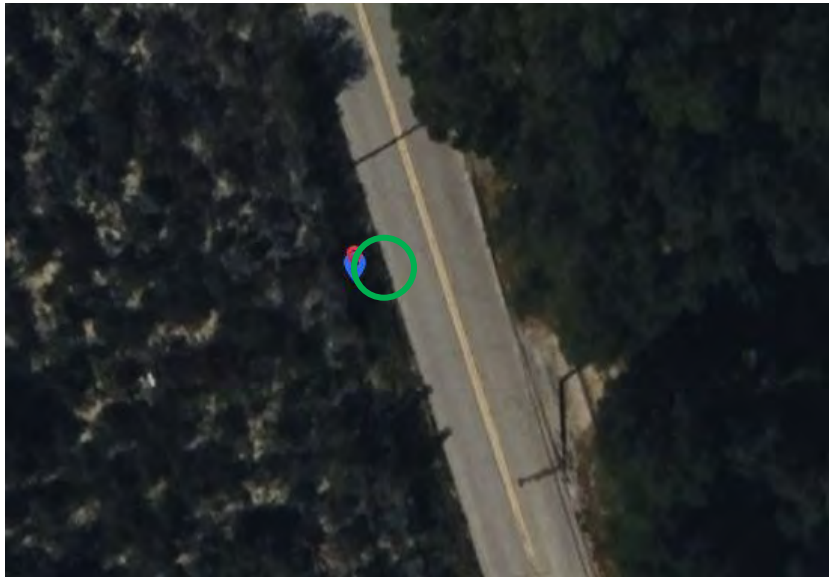


Image 32. Q4-7355-11744



Image 33. Q4-7355-11752



Image 34. Q4-7355-11804



Image 35. Q4-7355-11672



Image 36. Drone image of pole P711567



Image 37. Drone image of pole P115804



Image 38. Drone image of pole P115803

P612045 observation

During the evaluation of work performed under the initiative 7.3.5.5 – Fuel management, several connected poles were observed. The source of information was drone imagery provided by SDG&E. Drone imagery was collected as a part of aerial inspection of infrastructure.

Three poles that were observed (image 1):

- P115804, 33.203211181, -117.1060387031
- P612045, 33.2030883448, -117.1062870924
- P115803, 33.2029969348, -117.1072979326



Image 1. Locations of 3 observed poles – from left to right P115804, P612045, P115803

Poles P115804 and P115803 had trimming (7.3.5.20) and fuel management done (7.3.5.5). Although P115803 had been trimmed and base of pole kept clean, P115804, requires very little trimming (if any) and consequently very little fuel management activities. This was observed for fuel management activities. Poles were sampled blindly, and many of them that had fuel management activity had been surrounded only with low vegetation. Positive observation was that those poles had very well-defined clearance around the basis.

All that was the reason that draw attention of IE on pole P612045 (image 2). By reviewing all the vegetation management activities from Q1 to Q2, the only vegetation management that was performed was inspection on

vegetation 15 meters from the pole. There was no trimming, nor fuel management done nor planned for this pole.

The images 2, 3, 4, and 5 shows the high level of vegetation encroachment of pole and presence of high amount of dry vegetation around the pole base.

IE would consider this kind of vegetation presence around the pole to be a priority for trimming and cleaning, and it was obviously skipped while 2 closest poles had vegetation management work performed. This could raise a question on the vegetation inspection criteria and the criteria on selection of work to be done.

Also, IE find the drone imagery which was the source of this information extremely valuable for detailed inspection of poles and their immediate environment.



Image 2. Pole P612045



Image 3. Pole P612045



Image 4. Pole P612045



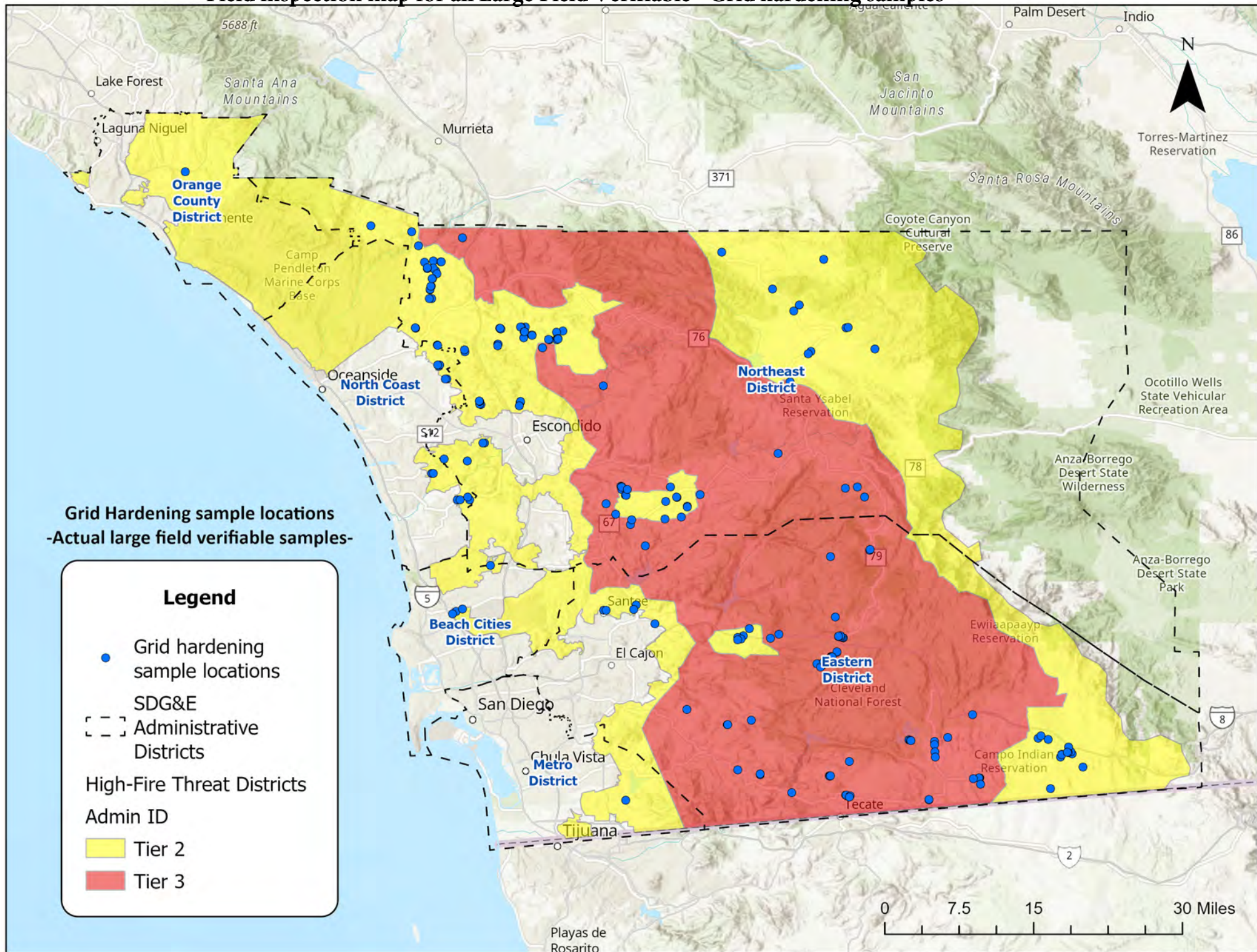
Image 5. Pole P612045

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

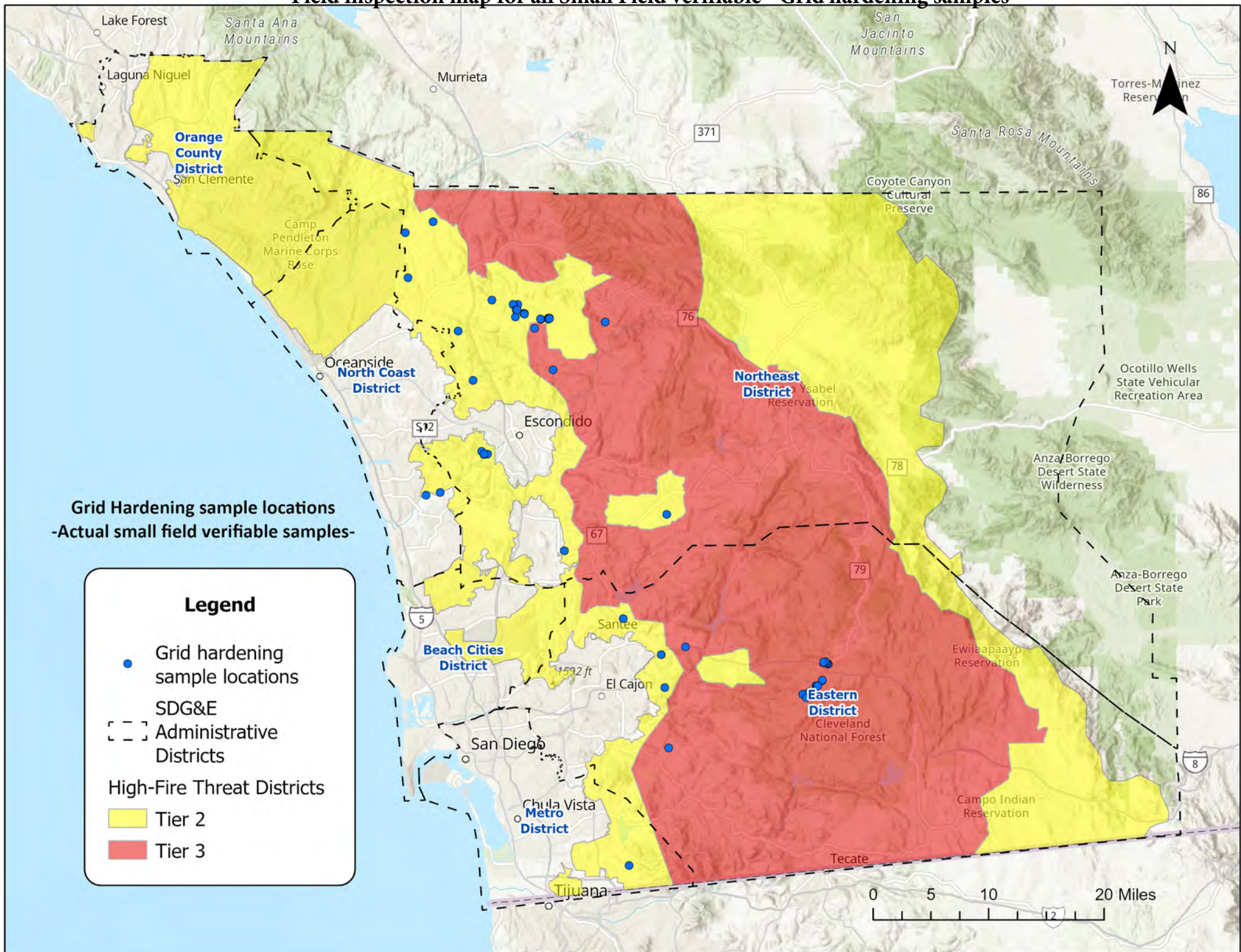
APPENDIX

Inspection Summary Maps

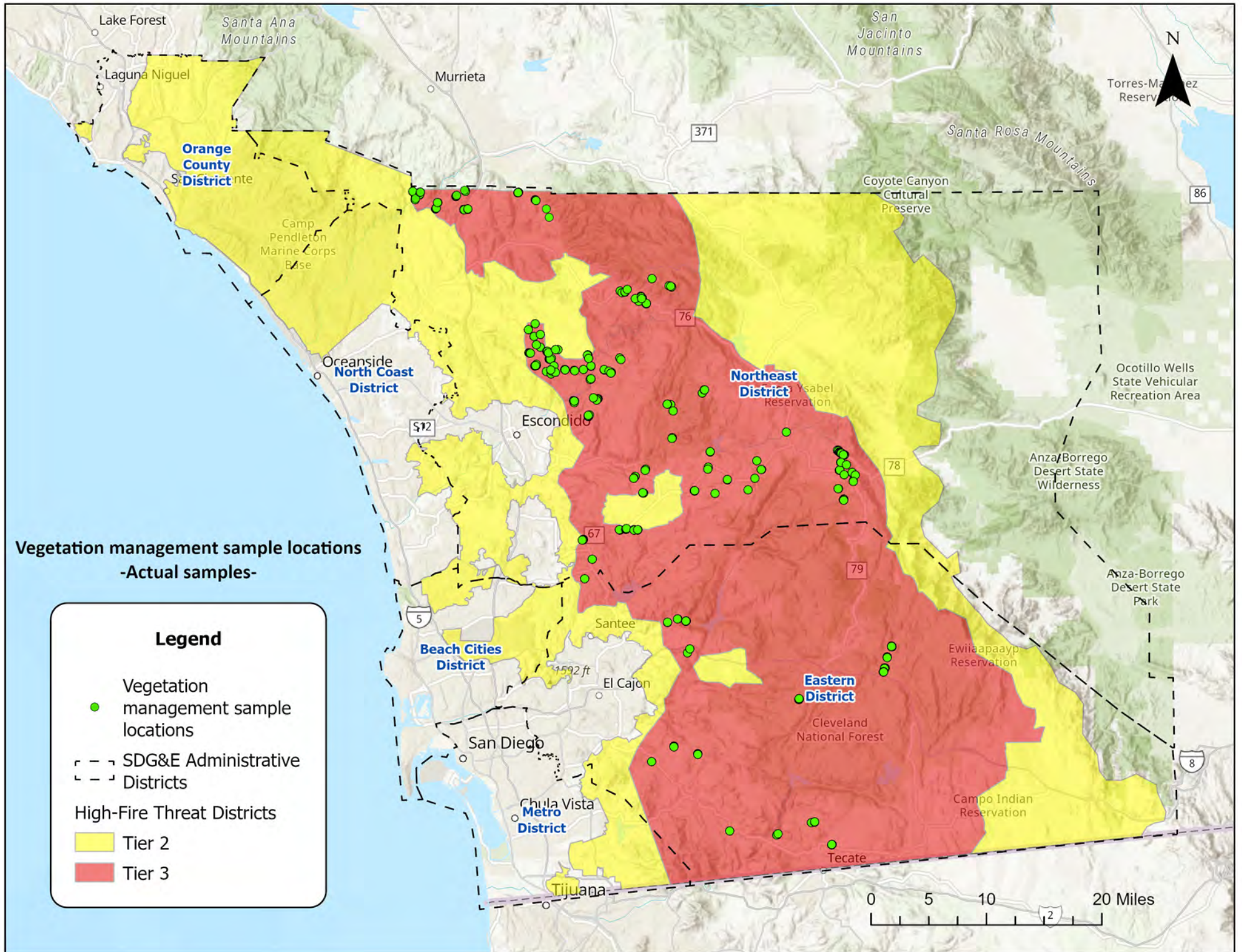
Field inspection map for all Large Field Verifiable - Grid hardening samples



Field inspection map for all Small Field verifiable - Grid hardening samples



Field inspection map for all vegetation management initiatives



FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR10 - 7.3.3.12

Miles to Poles

Initiative n	Initiative Name	Annual Target	Q1 Target	Q2 Target	Q3 Target	Q4 Target	Q1 Actual	Q2 Actual	Q3 Actual	Q4 Actual
7.3.3.3	Covered Conductor Installation	20	0	1	7	20	0	1.2	6.7	20.6
7.3.3.16	Undergrounding of electric lines and/or equipment	25	4	19	25	25	4.38	17.9	21.81	25.92
7.3.3.17.1	Distribution overhead system hardening	100	11	46	74	100	16.6	43.6	62.8	100.4
7.3.3.17.2	Transmission overhead system hardening	6.7	0	0.7	3.6	6.7	0	1.5	6.7	6.7
7.3.3.17.2	Transmission overhead system hardening - distribution underbuild	2.7	0	0	2.7	2.7	0	0	3.4	3.4
7.3.3.17.3	Cleveland National Forest distribution and transmission system hardening	6.8	2.5	6.8	6.8	6.8	2.8	6.5	6.5	6.86

Distribution avg span length of affected circuits(miles) Transmission avg span length of affected TL(miles)

0.044682 0.09114

Initiative number	Initiative Name	Annual Target	Q1 Target	Q2 Target	Q3 Target	Q4 Target	Q1 Actual	Q2 Actual	Q3 Actual	Q4 Actual
7.3.3.3	Covered Conductor Installation	448	0	22	157	448	0	27	150	461
7.3.3.16	Undergrounding of electric lines and/or equipment (poles removed)	560	90	425	560	560	98	401	488	580
7.3.3.17.1	Distribution overhead system hardening	2238	246	1029	1656	2238	372	976	1405	2247
7.3.3.17.2	Transmission overhead system hardening	74	0	8	39	74	0	16	74	74
7.3.3.17.2	Transmission overhead system hardening - distribution underbuild	60	0	0	60	60	0	0	76	76
7.3.3.17.3	Cleveland National Forest distribution and transmission system hardening	152	56	152	152	152	63	145	145	154

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.1

Sample Detailed Inspection Reports
(Distribution)

Notifictn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment
1A	100018985817	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/12/2021	ED.RAM.RAMO.L128.P101	ED:POLESEG:P817188	600038400
1A	100018985815	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/12/2021	ED.RAM.RAMO.L128.P101	ED:POLESEG:P817188	600030070
1A	100018984096	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/11/2021	ED.RAM.RAMO.L121.P135	ED:POLESEG:P819039	600020125
1A	100018985078	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/08/2021	ED.RAM.RAMO.L125.P116	ED:POLESEG:P116557	600022949
1A	100018987451	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/23/2021	ED.RAM.RAMO.L141.P109	ED:POLESEG:P202646	600017783
1A	100018980813	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/04/2021	ED.RAM.CREE.L113.P122	ED:POLESEG:P133509	600369663
1J	100019497906	I466 CIP Equip/Wires Loose -Temp Secured	03/04/2021		03/04/2021	ED.RAM.RAMO.L124.P107	ED:POLESEG:P310351	4000088313
1A	100018984592	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	03/04/2021	ED.RAM.RAMO.L124.P107	ED:POLESEG:P310351	600045174
1A	100018984587	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	03/04/2021	ED.RAM.RAMO.L124.P107	ED:POLESEG:P310351	600014618
1A	100018984587	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	03/04/2021	ED.RAM.RAMO.L124.P107	ED:POLESEG:P310351	600014618
1A	100018985562	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/19/2021	ED.RAM.RAMO.L127.P107	ED:POLESEG:P616259	600036828
1A	100018985556	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/19/2021	ED.RAM.RAMO.L127.P107	ED:POLESEG:P616259	600023618
1A	100018986401	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/17/2021	ED.RAM.RAMO.L130.P123	ED:POLESEG:P216158	600014138
1A	100018982230	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	01/07/2021	ED.NRE.LLAC.L112.P120	ED:POLESEG:P713002	600100817
1A	100018982226	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	01/07/2021	ED.NRE.LLAC.L112.P120	ED:POLESEG:P713002	600048718
1A	100018987259	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/08/2021	ED.RAM.RAMO.L140.P110	ED:POLESEG:P816545	600017473
1J	100019288719	I446 CIP Owned Pole or Stub Pole Damaged	01/13/2021		04/05/2021	ED.RAM.CREE.L102.P103	ED:POLESEG:P318081	4000488640
1A	100018982577	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	01/13/2021	ED.RAM.CREE.L102.P103	ED:POLESEG:P318081	600042530
1A	100018982575	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	01/13/2021	ED.RAM.CREE.L102.P103	ED:POLESEG:P318081	600023261
1A	100018982575	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	01/13/2021	ED.RAM.CREE.L102.P103	ED:POLESEG:P318081	600023261
1B	100019250101	I246 SDGE/Cust Pole or Stub Pole Dmged/B	01/13/2021	11/30/2021	01/22/2021	ED.RAM.CREE.L102.P103	ED:POLESEG:P318081	600023261
1B	100019655569	I246 SDGE/Cust Pole or Stub Pole Dmged/B	04/05/2021	12/31/2021	10/06/2021	ED.RAM.CREE.L102.P103	ED:POLESEG:P318081	600023261
1A	100018973488	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/10/2021	ED.NRE.MONS.L171.P103	ED:POLESEG:P710772	600112746
1A	100018973483	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/10/2021	ED.NRE.MONS.L171.P103	ED:POLESEG:P710772	600067960
1A	100018979731	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	01/28/2021	ED.RAM.CREE.L111.P109	ED:POLESEG:P711274	600030089
1A	100018986721	POLE 5Y-2 INTERVAL 01 - HFTD	01/01/2021	04/30/2021	02/03/2021	ED.RAM.RAMO.L135.P111	ED:POLESEG:P417209	600014283
1A	100019313890	POLE 5Y-2 INTERVAL 03	03/01/2021	06/30/2021	03/24/2021	ED.EST.ALPI.L122.P125	ED:POLESEG:P870163	600515719
1A	100019313888	POLE 5Y-2 INTERVAL 03	03/01/2021	06/30/2021	03/24/2021	ED.EST.ALPI.L122.P125	ED:POLESEG:P870163	600473778

POLE	TechIdentNo.	System status	User status	Coding	Coding code txt	Text	Cond. Code (Damage)
P111698	236-1824	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P111698	P111698	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P112746	P112746	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P116555	P116555	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P202646	P202646	NOCO ORAS	COMP	101	OHVI INSPECTION		R227
P208541	P208541	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P216335		NOPR	ACIP DCOMP	VJW	Verify CIP Work Pending		
P216335	972-299	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P216335	P216335	NOCO ORAS	COMP	101	OHVI INSPECTION		I234
P216335	P216335	NOCO ORAS	COMP	101	OHVI INSPECTION	100019497906	I466
P257550	972-648	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P257550	P257550	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P318896	P318896	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P413858	350-85	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P413858	P413858	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P415724	P415724	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P612068J		NOCO	WCMP DCOMP	VJW	Verify CIP Work Pending	100019655569	I246
P612068J	971-501	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P612068J	P612068J	NOCO ORAS	COMP	101	OHVI INSPECTION	100019250101	I246
P612068J	P612068J	NOCO ORAS	COMP	101	OHVI INSPECTION	100019288719	I446
P612068J	P612068J	NOCO	COMP CANC	118	OHVI TIER 2/QC FOLLOW-UP		
P612068J	P612068J	NOCO	COMP FLUP	118	OHVI TIER 2/QC FOLLOW-UP		
P619858	1023-492	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P619858	P619858	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P711430	P711430	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P717456J	P717456J	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P870163	355-409	NOCO ORAS	COMP	101	OHVI INSPECTION		D299
P870163	P870163	NOCO ORAS	COMP	101	OHVI INSPECTION		D299

Cond.Code DmgeTxt

No Repairs Needed

No Repairs Needed

No Repairs Needed

No Repairs Needed

Damaged Missing Warning Signs (Mr. Ouch)

No Repairs Needed

No Repairs Needed

Damaged/Missing High Volt Signs - 2-Man

CIP Equip/Wires Loose -Temp Secured

No Repairs Needed

No Repairs Needed

No Repairs Needed

No Repairs Needed

No Repairs Needed

No Repairs Needed

SDGE/Cust Pole or Stub Pole Dmged/Broken

No Repairs Needed

SDGE/Cust Pole or Stub Pole Dmged/Broken

CIP Owned Pole or Stub Pole Damaged, Bro

No Repairs Needed

No Repairs Needed

No Repairs Needed

No Repairs Needed

No Repairs Needed

No Repairs Needed

Notifictn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	POLE
1A	100019471895	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/06/2021	ED.NRE.LLAC.L122.P103	ED:POLESEG:P101036	600126812	P101038
1A	100019471889	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/06/2021	ED.NRE.LLAC.L122.P103	ED:POLESEG:P101036	600051460	P101038
1A	100019466387	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/12/2021	ED.EST.ALPI.L125.P102	ED:POLESEG:P109824	600464363	P109824
1A	100019585187	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/07/2021	ED.EST.ALPI.L118.P103	ED:POLESEG:P170922	601100435	P170922
1A	100019585185	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/07/2021	ED.EST.ALPI.L118.P103	ED:POLESEG:P170922	600467255	P170922
1A	100019738497	POLE 5Y-2 INTERVAL 06	06/01/2021	09/30/2021	06/17/2021	ED.NRC.MORR.L193.P119	ED:POLESEG:P208571	600168977	P208571
1A	100019586114	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/03/2021	ED.EST.JAMU.L102.P127	ED:POLESEG:P237484	600533729	P237485
1A	100019586112	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/03/2021	ED.EST.JAMU.L102.P127	ED:POLESEG:P237484	600477102	P237485
1A	100019582873	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/07/2021	ED.EST.ALPI.L104.P135	ED:POLESEG:P199354	600485763	P275743
1A	100019582873	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/07/2021	ED.EST.ALPI.L104.P135	ED:POLESEG:P199354	600485763	P275743
1A	100019582873	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/07/2021	ED.EST.ALPI.L104.P135	ED:POLESEG:P199354	600485763	P275743
1A	100019582873	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/07/2021	ED.EST.ALPI.L104.P135	ED:POLESEG:P199354	600485763	P275743
1A	100019582873	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/07/2021	ED.EST.ALPI.L104.P135	ED:POLESEG:P199354	600485763	P275743
1B	100019807194	I298 Other - Infraction - No Applicable	05/07/2021	11/30/2021	06/29/2021	ED.EST.ALPI.L104.P135	ED:POLESEG:P199354	600485763	P275743
1B	100019807195	I274 Guy Grounded	05/07/2021	11/30/2021	07/12/2021	ED.EST.ALPI.L104.P135	ED:POLESEG:P199354	600485763	P275743
1B	100019807196	I327 Vegetation Climbing Space Obstructi	05/07/2021	03/31/2022	07/22/2021	ED.EST.ALPI.L104.P135	ED:POLESEG:P199354	600485763	P275743
1A	100019587202	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/06/2021	ED.MTE.BLVD.L117.P101	ED:POLESEG:P41081	600592231	P41080
1A	100019469058	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	05/13/2021	ED.NRE.LLAC.L101.P117	ED:POLESEG:P413473	600821941	P413473
1A	100019469059	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	05/13/2021	ED.NRE.LLAC.L101.P117	ED:POLESEG:P413473	600821959	P413473
1A	100019469755	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	05/04/2021	ED.NRE.LLAC.L106.P117	ED:POLESEG:P513068	600064947	P513069
1A	100019471603	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/26/2021	ED.NRE.LLAC.L115.P107	ED:POLESEG:P615339	600095995	P615338
1A	100019471602	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/26/2021	ED.NRE.LLAC.L115.P107	ED:POLESEG:P615339	600095984	P615338
1A	100019471598	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/26/2021	ED.NRE.LLAC.L115.P107	ED:POLESEG:P615339	600079732	P615338
1A	100019470048	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	05/06/2021	ED.NRE.LLAC.L107.P114	ED:POLESEG:P414238	600105600	P618421
1A	100019470041	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	05/06/2021	ED.NRE.LLAC.L107.P114	ED:POLESEG:P414238	600056551	P618421
1A	100019470041	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	05/06/2021	ED.NRE.LLAC.L107.P114	ED:POLESEG:P414238	600056551	P618421
1A	100019590462	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/17/2021	ED.RAM.RAMO.L106.P112	ED:POLESEG:P719518	600025123	P719520
1A	100019467717	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/23/2021	ED.EST.ALPI.L147.P115	ED:POLESEG:P271404	600525929	P775413
1A	100019467718	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/23/2021	ED.EST.ALPI.L147.P115	ED:POLESEG:P271404	600525938	P775413
1A	100019467714	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/23/2021	ED.EST.ALPI.L147.P115	ED:POLESEG:P271404	600452119	P775413
1A	100019472801	POLE 5Y-2 INTERVAL 04	04/01/2021	07/31/2021	04/01/2021	ED.NRE.LLAC.L136.P104	ED:POLESEG:P815193	600068548	P815195
1A	100019586653	POLE 5Y-2 INTERVAL 05 - HFTD	05/01/2021	08/31/2021	05/24/2021	ED.EST.JAMU.L103.P132	ED:POLESEG:P876678	600456502	P977038

TechIdentNo.	System status	User status	Coding	Coding code txt	Text	Cond. Code (Damage)	Cond.Code DmgeTxt
353-618	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P101038	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P109824	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
355-163	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P170922	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P208571	NOCO ORAS	COMP	101	OHVI INSPECTION		R227	Damaged Missing Warning Signs (Mr. Ouch)
524-656	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P237485	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P275743	NOCO ORAS	COMP	101	OHVI INSPECTION		I201	Pole Steps Lower than 10ft
P275743	NOCO ORAS	COMP	101	OHVI INSPECTION		R220	Guy Buried
P275743	NOCO ORAS	COMP	101	OHVI INSPECTION	100019807196	I327	Vegetation Climbing Space Obstruction
P275743	NOCO ORAS	COMP	101	OHVI INSPECTION	100019807194	I298	Other - Infraction - No Applicable Code
P275743	NOCO ORAS	COMP	101	OHVI INSPECTION	100019807195	I274	Guy Grounded
P275743	NOCO	COMP CANC	120	TIER 3/QC FOLLOW-UP			
P275743	NOCO	COMP	120	TIER 3/QC FOLLOW-UP			
P275743	NOCO	COMP	108	OHVI FOLLOW-UP			
P41080	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
350-149	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P413473	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P513069	NOCO ORAS	COMP	101	OHVI INSPECTION		R227	Damaged Missing Warning Signs (Mr. Ouch)
1022-115	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
1022-115	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P615338	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
350-1021	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P618421	NOCO ORAS	COMP	101	OHVI INSPECTION		I234	Damaged/Missing High Volt Signs - 2-Man
P618421	NOCO ORAS	COMP	101	OHVI INSPECTION		I230	Damaged Ground Molding
P719520	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
357-1185	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P775413	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P775413	NOCO ORAS	COMP	101	OHVI INSPECTION		I236	Damaged/Missing High Volt Sign - 1-Man
P815195	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P977038	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed

Notifictn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	POLE
1A	100020096506	POLE 5Y-2 INTERVAL 08	#####	11/30/2021	08/23/2021	ED.EST.LOSC.L163.P110	ED:POLESEG:P134638	600505751	P134638
1A	100020096505	POLE 5Y-2 INTERVAL 08	#####	11/30/2021	08/23/2021	ED.EST.LOSC.L163.P110	ED:POLESEG:P134638	600457054	P134638
1A	100019923245	POLE 5Y-2 INTERVAL 07 - HFTD	#####	10/31/2021	07/07/2021	ED.EST.JAMU.L113.P126	ED:POLESEG:P274489	600484955	P134999
1A	100020263863	POLE 5Y-2 INTERVAL 09	#####	12/31/2021	09/13/2021	ED.MTE.DESC.L106.P103	ED:POLESEG:P176943	600588408	P176943
1A	100020263618	POLE 5Y-2 INTERVAL 09	#####	12/31/2021	09/21/2021	ED.MTE.DESC.L104.P105	ED:POLESEG:P40304	600597443	P40304
1A	100019927611	POLE 5Y-2 INTERVAL 07	#####	10/31/2021	07/07/2021	ED.MTE.BLVD.L102.P127	ED:POLESEG:P42209	600594217	P42211
1A	100019927933	POLE 5Y-2 INTERVAL 07	#####	10/31/2021	07/15/2021	ED.MTE.BLVD.L103.P102	ED:POLESEG:P117880	600592777	P42465
1A	100019928408	POLE 5Y-2 INTERVAL 07	#####	10/31/2021	07/14/2021	ED.MTE.BLVD.L103.P131	ED:POLESEG:P44319	600592132	P44319
1A	100019925124	POLE 5Y-2 INTERVAL 07	#####	10/31/2021	07/20/2021	ED.EST.JAMU.L121.P126	ED:POLESEG:P677653	601090778	P677654
1A	100019923392	POLE 5Y-2 INTERVAL 07 - HFTD	#####	10/31/2021	07/27/2021	ED.EST.JAMU.L114.P104	ED:POLESEG:P199342	600499370	P678090
1A	100019923376	POLE 5Y-2 INTERVAL 07 - HFTD	#####	10/31/2021	07/27/2021	ED.EST.JAMU.L114.P104	ED:POLESEG:P199342	600445746	P678090
1A	100019738487	POLE 5Y-2 INTERVAL 06	#####	09/30/2021	07/06/2021	ED.NRC.MORR.L171.P103	ED:POLESEG:P212484	600193409	P716679
1A	100019738472	POLE 5Y-2 INTERVAL 06	#####	09/30/2021	07/06/2021	ED.NRC.MORR.L171.P103	ED:POLESEG:P212484	600179695	P716679
1B	100020155512	I234 Damaged/Missing High Volt Signs - 2	#####	05/31/2022	08/31/2021	ED.NRC.MORR.L171.P103	ED:POLESEG:P212484	600179695	P716679
1A	100020264191	POLE 5Y-2 INTERVAL 09	#####	12/31/2021	09/16/2021	ED.MTE.DESC.L125.P141	ED:POLESEG:P258573	600599771	P874039
1A	100019926754	POLE 5Y-2 INTERVAL 07	#####	10/31/2021	07/08/2021	ED.EST.JAMU.L128.P117	ED:POLESEG:P877313	600474160	P877315J
1A	100019924481	POLE 5Y-2 INTERVAL 07 - HFTD	#####	10/31/2021	07/22/2021	ED.EST.JAMU.L117.P105	ED:POLESEG:P971412	600467662	P971412
1A	100020263769	POLE 5Y-2 INTERVAL 09	#####	12/31/2021	09/22/2021	ED.MTE.DESC.L105.P116	ED:POLESEG:Z173163	600606444	Z173162
1A	100020263764	POLE 5Y-2 INTERVAL 09	#####	12/31/2021	09/22/2021	ED.MTE.DESC.L105.P116	ED:POLESEG:Z173163	600588861	Z173162
1A	100020264411	POLE 5Y-2 INTERVAL 09	#####	12/31/2021	09/07/2021	ED.MTE.DESC.L130.P132	ED:POLESEG:P238745	600600673	Z571422

TechIdentNo.	System status	User status	Coding	Coding code txt	Text	Cond. Code (Damage)	Cond.Code DmgeTxt
1138-941	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P134638	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P134999	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P176943	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P40304	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P42211	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P42465	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P44319	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P677654	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
524-176	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P678090	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
233-1452	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P716679	NOCO ORAS	COMP	101	OHVI INSPECTION	100020155512	I234	Damaged/Missing High Volt Signs - 2-Man
P716679	NOCO ORAS	COMP	108	OHVI FOLLOW-UP		I234	Damaged/Missing High Volt Signs - 2-Man
P874039	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P877315J	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
P971412	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
442-328	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
Z173162	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
Z571422	NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed

Notifictn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	TechIdentNo.
1A	100020816333	POLE 5YR - OHVI Compliance Pathing Insp	#####	12/31/2021	12/20/2021	ED.EST.ALPI.L145.P117	ED:POLESEG:P247261	606209946	P107591
1A	100019532070	POLE 5YR - OHVI Compliance Pathing Insp	#####	12/31/2021	11/11/2021	ED.EST.ALPI.L153.P114	ED:POLESEG:Z205476	605772831	P205906
1A	100020487353	POLE 5YR - OHVI PATHING INSPECTION	#####	12/31/2021	10/22/2021	ED.RAM.WARN.L112.P140	ED:POLESEG:P218010	605836609	P224642
1A	100020700406	POLE 5YR - OHVI Compliance Pathing Insp	#####	12/31/2021	11/11/2021	ED.EST.GRAN.L144.P119	ED:POLESEG:P873067	606171343	P225407
1A	100020784383	POLE 5YR - OHVI PATHING INSPECTION	#####	12/31/2021	11/15/2021	ED.NRC.MORR.L173.P135	ED:POLESEG:P518629	606196963	P257774
1A	100020784382	POLE 5YR - OHVI PATHING INSPECTION	#####	12/31/2021	11/15/2021	ED.NRC.MORR.L173.P135	ED:POLESEG:P518629	606196960	P258324
1A	100020784381	POLE 5YR - OHVI PATHING INSPECTION	#####	12/31/2021	11/15/2021	ED.NRC.MORR.L173.P135	ED:POLESEG:P518629	606196959	P258326
1A	100020487358	POLE 5YR - OHVI PATHING INSPECTION	#####	12/31/2021	11/11/2021	ED.ORC.RAMV.L109.P112	ED:POLESEG:P26458	604853735	P260200
1J	100020799301	I438 CIP Not Transferred- Non-Immediate	#####		11/11/2021	ED.ORC.RAMV.L109.P112	ED:POLESEG:P26458	4000492812	P260200
1A	100020229501	POLE 5YR - OHVI PATHING INSPECTION	#####	12/31/2021	10/22/2021	ED.RAM.SANY.L103.P103	ED:POLESEG:P218743	605999207	P518939
1A	100020784387	POLE 5YR - OHVI PATHING INSPECTION	#####	12/31/2021	11/29/2021	ED.NRE.MONS.L110.P114	ED:POLESEG:P101992	600068285	P613814
1A	100020096065	POLE 5Y-2 INTERVAL 08	#####	11/30/2021	10/22/2021	ED.EST.JAMU.L137.P129	ED:POLESEG:P770722	600451593	P770722
1A	100020096067	POLE 5Y-2 INTERVAL 08	#####	11/30/2021	10/22/2021	ED.EST.JAMU.L137.P130	ED:POLESEG:P770725	600447680	P770726
1A	100020096067	POLE 5Y-2 INTERVAL 08	#####	11/30/2021	10/22/2021	ED.EST.JAMU.L137.P130	ED:POLESEG:P770725	600447680	P770726
1B	100020692788	R227 Damaged Missing Warning Signs (Mr.	#####	08/31/2022	10/22/2021	ED.EST.JAMU.L137.P130	ED:POLESEG:P770725	600447680	P770726
1B	100020692789	I234 Damaged/Missing High Volt Signs - 2	#####	08/31/2022	10/22/2021	ED.EST.JAMU.L137.P130	ED:POLESEG:P770725	600447680	P770726
1A	100020956015	POLE 5YR - OHVI Compliance Pathing Insp	#####	12/31/2021	12/13/2021	ED.NRE.SANM.L165.P101	ED:POLESEG:P198528	606239168	Z101769
1A	100020816331	POLE 5YR - OHVI Compliance Pathing Insp	#####	12/31/2021	11/16/2021	ED.RAM.SANY.L102.P124	ED:POLESEG:P17794	605335399	Z206030
1A	100020567094	POLE 5YR - OHVI Compliance Pathing Insp	#####	12/31/2021	10/18/2021	ED.EST.JAMU.L138.P118	ED:POLESEG:P101331	606124017	Z30376

System status	User status	Coding	Coding code txt	Text	Cond. Code (Damage)	Cond.Code DmgeTxt
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
NOCO ORAS	COMP	101	OHVI INSPECTION		R227	Damaged Missing Warning Signs (Mr. Ouch)
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
NOCO ORAS	COMP	101	OHVI INSPECTION	100020799301	I438	CIP Not Transferred- Non-Immediate
OSNO	ACIP DCMP	VJW	Verify CIP Work Pending			
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
NOCO ORAS	COMP	101	OHVI INSPECTION		R227	Damaged Missing Warning Signs (Mr. Ouch)
NOCO ORAS	COMP	101	OHVI INSPECTION	100020692789	I234	Damaged/Missing High Volt Signs - 2-Man
NOCO ORAS	COMP	101	OHVI INSPECTION	100020692788	R227	Damaged Missing Warning Signs (Mr. Ouch)
OSNO	NEW	108	OHVI FOLLOW-UP			
OSNO	NEW	108	OHVI FOLLOW-UP			
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed
NOCO ORAS	COMP	101	OHVI INSPECTION		D299	No Repairs Needed

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.2

Sample Detailed Inspection Reports
(Transmission)

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV	Component	Condition
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Assessment Required
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Trim For Inspection
1	Q1	616	Z12399	2/17/2021	LR	3	Guy Wire - Anchor	Mis-Aligned-Pulled
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Patrol Insp Required
2	Q1	679	Z510498	3/8/2021	LR	0	Stub Pole - Anchor Guy	Grounding Required
3	Q1	6945	Z181661	2/27/2021	LR	2	Footings (Complete)	Assessment Required
4	Q1	6945	Z181661	2/27/2021	LR	4	Cold End Cotter Key(s)	Missing
5	Q1	682	Z118014	2/8/2021	LR	3	Shoe Pin-Bolt	Loose
6	Q1	682	Z118099	1/29/2021	LR	4	Insulators-Post, NCI, 69kv, Long	Damaged
7	Q1	13811	Z312780	3/17/2021	LR	4	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
7	Q1	13811	Z312780	3/17/2021	LR	4	Hardware	Rust (Heavy)
7	Q1	13811	Z312780	3/17/2021	LR	4	Cross Arms	Cracked
7	Q1	13811	Z312780	3/17/2021	LR	4	Signs-High Voltage-At Top	Unreadable
8	Q1	682	Z118082	2/9/2021	LR	2	Pole Butt	Vandalism
9	Q1	23054	Z123178	1/4/2021	LR	3	Footings (Complete)	Earth - Covered With
9	Q1	23054	Z123178	1/4/2021	LR	3	Footings (Complete)	Assessment Required
10	Q1	23055	Z123512	1/7/2021	LR	4	Cold End Cotter Key(s)	Missing
11	Q1	23055	Z123210	1/6/2021	LR	3	Complete Tower	Bird Nest
12	Q1	6906	Z95919	3/15/2021	LR	0	Anchor Rod Ground Wire	Broken
13	Q1	6906	Z97150	3/18/2021	LR	0	Tieline Identification Tags	Unreadable
14	Q1	6930	Z181660	2/27/2021	LR	4	Insulators-Post, NCI, 69kv, Long	Damaged
15	Q1	6930	Z510521	3/4/2021	LR	2	Complete Steel Pole	Leaning-Tilted
1	Q2	690	Z21148	5/16/2021	LR	3	Anchor Rods	3 Guys-1Rod
1	Q2	690	Z21148	5/16/2021	LR	3	Guy Wire - OH	Rust (Heavy)
1	Q2	690	Z21148	5/16/2021	LR	3	Anchor Rods	Grounding Assessment Required
2	Q2	690	Z21183	5/14/2021	LR	3	Cold End Pin(s)	Installation Assessment Required
3	Q2	690	Z21111	5/24/2021	LR	2	Pole Butt	Trees Too Close
4	Q2	6952	Z92793	6/7/2021	LR	0	Tieline Identification Tags	Unreadable
4	Q2	6952	Z92793	6/7/2021	LR	0	Sign Warning (With Man)	Unreadable
4	Q2	6952	Z92793	6/7/2021	LR	0	Structure Number	Unreadable
5	Q2	694	Z317932	6/1/2021	LR	3	Anchor Rod Ground Wire	Installation-Improper
6	Q2	678	Z875085	6/9/2021	LR	3	Guy Wire - OH	Loose

7	Q2	13811	Z312833	4/5/2021	LR	3	Pole Top	Woodpecker Hole(S)
7	Q2	13811	Z312833	4/5/2021	LR	3	Insulators-Ceramic, Standard, 30K	Chipped
8	Q2	13811	Z312842	4/5/2021	LR	3	Anchor Rods	Patrol Insp Required
8	Q2	13811	Z312842	4/5/2021	LR	0	Tieline Identification Tags	Unreadable
8	Q2	13811	Z312842	4/5/2021	LR	3	Cross Arms	Cracked
8	Q2	13811	Z312842	4/5/2021	LR	3	Anchor Rods	Walking Path Required
9	Q2	616	Z12399	6/16/2021	LR	0	Jumper (Complete)	Other (Specify)
9	Q2	616	Z12399	6/16/2021	LR	2	Access Road	Other (Specify)
10	Q2	634	Z413551	6/3/2021	LR	2	Pole Butt	Trees Too Close
10	Q2	634	Z413551	6/3/2021	LR	2	Insulators-Post, NCI, 69kv, Long	Damaged
10	Q2	634	Z413551	6/3/2021	LR	2	Signs-High Voltage-At Top	Unreadable
10	Q2	634	Z413551	6/3/2021	LR	2	Anchor Rods	Bent
11	Q2	634	Z16580	6/7/2021	LR	4	Comm Cable	Clearance-Insufficient
11	Q2	634	Z16580	6/7/2021	LR	3	Footings (Complete)	Earth - Covered With
12	Q2	634	Z169411	6/10/2021	LR	2	Pole Butt	Trees Too Close
12	Q2	634	Z169411	6/10/2021	LR	2	Anchor Rods	Vegetation Overgrown
13	Q2	692	Z39491	5/27/2021	LR	0	Tieline Identification Tags	Unreadable
14	Q2	6952	Z92796	6/7/2021	LR	0	Sign Warning (With Man)	Unreadable
15	Q2	694	Z15171	6/1/2021	LR	3	Bolt(s)	Missing
15	Q2	694	Z15171	6/1/2021	LR	3	Signs-High Voltage-At Top	Unreadable
15	Q2	694	Z15171	6/1/2021	LR	3	Insulators-Ceramic, Post, 69kv	Loose
1	Q3	616	Z611221	7/27/2021	LR	3	Guy Wire - OH	Loose
1	Q3	616	Z611221	7/27/2021	LR	3	Anchor Rods	Grounding Assessment Required
2	Q3	23041	Z873107	8/20/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
3	Q3	6939	Z133522	7/20/2021	LR	2	Footings (Complete)	Other (Specify)
3	Q3	6939	Z133522	7/20/2021	LR	2	Ground Connection	Exposed
4	Q3	23041	Z971855	7/24/2021	LR	3	Cold End Cotter Key(s)	Backed Out-Off
5	Q3	23022	Z873093	8/24/2021	LR	3	Signs-High Voltage-At Top	Faded
5	Q3	23022	Z873093	8/24/2021	LR	3	Other(Specify)	Painting Assessment Required
6	Q3	23022	Z201922	8/26/2021	LR	4	Hot End Cotter Key(s)	Backed Out-Off
7	Q3	23022	Z201923	8/20/2021	LR	0	Sign Warning (With Man)	Unreadable
8	Q3	6912	Z29194	7/13/2021	LR	3	Shoe Pin-Bolt	Loose
9	Q3	6912	Z195309	7/19/2021	LR	3	Cold End Pin(s)	Backed Out-Off

9	Q3	6912	Z195309	7/19/2021	LR	3	Anchor Rods	Removal Assessment Required
9	Q3	6912	Z195309	7/19/2021	LR	3	Shoe Nut(s)	Missing
10	Q3	13822	Z576634	8/24/2021	LR	4	Other(Specify)	Bird Nest
11	Q3	13824	Z201093	9/23/2021	LR	0	Guy Wire Guards	Deterioration
12	Q3	13824	Z200646	9/17/2021	LR	3	Hot End Cotter Key(s)	Backed Out-Off
12	Q3	13824	Z200646	9/17/2021	LR	3	Cold End Cotter Key(s)	Backed Out-Off
13	Q3	23021	Z100990	8/20/2021	LR	4	Shield Wire (Complete)	Grounding Required
13	Q3	23021	Z100990	8/20/2021	LR	0	Sign Warning (With Man)	Unreadable
14	Q3	23041	Z971872	7/31/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
15	Q3	23041	Z873107	8/20/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
1	Q4	681	Z12889	11/19/2021	LR	0	Structure Number	Unreadable
1	Q4	681	Z12889	11/19/2021	LR	0	Tieline Identification Tags	Unreadable
1	Q4	681	Z12889	11/19/2021	LR	0	Sign Warning (With Man)	Unreadable
2	Q4	13824	Z200599	10/12/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
2	Q4	13824	Z200599	10/12/2021	LR	4	Hardware	Assessment Required
3	Q4	632	Z200643	10/6/2021	LR	0	Sign Warning (With Man)	Unreadable
4	Q4	686	Z215016	11/15/2021	LR	4	Cross Arms	Deterioration
4	Q4	686	Z215016	11/15/2021	LR	4	Complete Wood Pole	Leaning-Tilted
5	Q4	686	Z118260	11/12/2021	LR	2	Pole Top	Woodpecker Hole(S)
6	Q4	686	Z118293	11/4/2021	LR	2	Cold End Cotter Key(s)	Installation-Non Standard
7	Q4	686	Z118323	11/11/2021	LR	3	Pole Butt	Assessment Required
7	Q4	686	Z118323	11/11/2021	LR	3	Pole Top	Woodpecker Hole(S)
8	Q4	686	Z118337	12/14/2021	LR	2	Anchor Rods	Rust (Medium)
8	Q4	686	Z118337	12/14/2021	LR	2	Anchor Rods	Grounding Assessment Required
9	Q4	686	Z118331	12/14/2021	LR	2	Insulators-NCl, 69kv	Twisted
10	Q4	698	Z293941	10/18/2021	LR	3	Other(Specify)	Missing
11	Q4	13824	Z200600	10/1/2021	LR	0	Structure Number	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Tieline Identification Tags	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Sign Warning (With Man)	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Structure Number	Unreadable
13	Q4	686	Z118249	11/30/2021	LR	2	Pole Butt	Fire Damage
14	Q4	686	Z210751	11/18/2021	LR	3	Conductor (Complete)	Improper Sag
15	Q4	686	Z118258	11/13/2021	LR	2	Bolt(s)	Loose

CONDITIONCOMMENTS	GLOBALID	Tier
Old pole butt is exposed, hollow and deep.	{042549E5-9E75-453D-A383-5E822CD88E7D}	2
Need trees trimmed to inspect pole butt.	{4C93615B-5576-4F3C-B517-3894D9112428}	2
Tree branches are pulling on OH guy wire.	{75103777-AB1A-4A50-BD90-23CF2271C376}	2
Need trees trimmed to inspect pole butt.	{AB3AFF17-B40C-47A4-8C35-252D662907DC}	2
Missing connection. Completed.	{A328A537-B73C-4C1F-9271-BB64DB00533C}	2
No security nuts on footer bolts.	{299D3784-6DC0-4232-854E-194E495A7E42}	2
Top west, cold end cotter key is missing.	{EE35E0C2-B34A-4B10-A7ED-0DB21A2C48A8}	2
Bottom post, trunnion bolt might be a little loose.	{C1824884-1FC4-49EA-904D-FEAF8CA0B49C}	3
Middle phase, Cold end skirt is ripped.	{199361AB-43FC-40F8-9FD0-5AE6DCFDDDA4}	3
All hot end insulator shanks have heavy rust.	{8E72B1F2-D35B-464F-A2CA-78C7FC6F3DD4}	2
All hot end hardware has heavy rust.	{1A2DE957-1C22-441F-90F1-A14E3585EA20}	2
Wet portion of cross arm at pole is cracked.	{745BD7DA-0E34-4803-A070-D581F6DA80E9}	2
	{1B4607CB-B2E6-4B2B-94E8-FF74A28CC1C4}	2
Graffiti	{FDF2DA5B-4F2E-4994-830D-FC24EDC0FEA9}	3
C,D,& A leg footers need erosion barriers.	{E98D970E-3619-4902-AAF8-B144A58E34FF}	3
C,D,& A leg footers need erosion barriers.	{6E891796-C205-429E-9EE0-188FB6C9EBE8}	3
23055 Middle east cold end cotter key is missing.	{D620AE84-9B86-4A7A-89A8-511202E2DB8B}	3
23055 Top arm, nest	{7AC6F4AA-EC1E-4BB7-92D4-BAB20EA1720B}	3
fix ground leg conection	{A6CA4486-6EA5-4BC2-A0C2-CA4D131D8093}	2
install new stickers	{31C06379-E954-4C35-AC5A-B9FEAA245351}	2
TL6930 Hot ends of posts are damaged from suspension shoes rubbing.	{B14F8DD0-2E3B-4636-AC21-2A089E7AB1CE}	2
Pole is leaning to the east.	{B0BF2BD6-2591-4463-AE08-2EA78F636A0A}	2
West anchor rod has 3 guys to one anchor.	{FBF9EABE-DFCA-450E-B8B2-755F8DFE4F61}	2
Bottom west guy wire is rusted.	{E57525B3-36BB-40AB-A712-323131946223}	2
All anchor rods are improperly grounded.	{ECE9732F-7A17-4B99-A500-1C266D74A483}	2
South top polly, cold end end pin not fully in.	{1FB8FD25-24D7-410F-AAAB-88F3E44250C0}	2
Tree to close to pole butt.	{8C1BB419-EED4-4900-91B5-33B192564742}	2
install new stickers	{9B22646E-0992-4F8B-8D5B-260B8F5E4B18}	2
install new sign	{C189C960-E6AF-404E-B03F-C861838E69F2}	2
install new stickers	{3220D5CD-C9E4-4663-94A3-80638948455D}	2
	{9ABEA780-E4A9-42F0-AEE9-A3B510EB9388}	2
loose guys	{596C8164-3D55-47E7-8432-F183C15B46E3}	2

East pole top has a woodpecker hole on the north side.	{01357303-AFD5-4BD7-910B-A8862AA85344}	2
West phase, hot end insulator bells have chips.	{BA4EF144-6245-4625-99C0-0007D73A8BB3}	2
Need veg trimmed to inspect anchor rods.	{02DC2F44-2012-4D00-BD9F-1153EAD5595B}	2
	{ECC9ADF5-AB12-4605-B62B-B1215F6B4D63}	2
Northeast side of cross arm is cracked.	{FFEC7B47-676C-464D-875F-183AE3BD1E7E}	2
Need veg trimmed to inspect anchor rods.	{18FC06D9-AC3F-4270-BB11-599D0E47A9A2}	2
jumper looks close to down guy	{09D5D9C9-77FA-49DE-9616-385B089E7351}	2
when using sdge key to unlockthe gate it keeps turning and it wont open gate	{8EBF3D47-44DF-4A5C-A109-90E6F718307F}	2
Trees to close to pole butt.	{DE9DC6C8-5AC9-4D39-BDD9-60E6BE486D0D}	2
Bird chewed skirts on top post.	{22530128-1A32-476C-AFE3-7F8AE7FDC434}	2
Needs new high-voltage stickers.	{12BEA01E-B2F8-4B44-AFBE-832A1CEF395D}	2
Bottom anchor rod is bent.	{82F054E1-9E62-4BDD-8F0F-B8DBA3034E74}	2
Comm cable to the north is being vectored by trees, midspan.	{282D4861-B021-4498-9B04-45A9B75264DD}	2
Dirt and rocks up against footers.	{26B6326D-5AD2-42A2-8473-9B87A1F43275}	2
Tree to close to pole butt.	{34517484-BE11-4882-8A1C-12B135A123D8}	2
Veg overgrown at all anchor rods.	{1C2949EA-F953-4588-A50A-8C15E34706EF}	2
install new stickers	{109B6DD8-D2EA-46FF-BE04-D3A7A2468997}	2
install new signs	{EF7BCC9F-945F-4F5D-9DD6-B8F569EAC7D9}	2
no split bolt	{DB7964C4-D6B6-48A2-9102-60D4DEE2541A}	2
	{90A2B186-A258-48BF-A371-EF3A4DC47E84}	2
	{E25100CE-30F0-4AEC-B5A7-46E4907A9829}	2
All guy wires are loose.	{CFE8B87C-57F8-4F41-87CD-7F6A5B851E35}	2
Anchor rods are improperly grounded.	{D803CD9B-B364-416C-BF7E-54D66C80A5C7}	2
bottom phase cold end cotter key coming off	{EB187876-7B00-48A9-B2A4-3EF795CDB082}	2
Stub pole footer nuts need security nuts.	{AA9E5FA7-2085-4208-9883-B340C655E20B}	2
Stub pole ground rod connection is exposed.	{0F5BA6F6-0BBF-4308-B2B2-45A9FE233845}	2
cotter key on static not all the way in	{F7CEA31C-8E49-4911-9050-93AD4374191B}	2
yellow band faded	{00574480-E3BE-4605-A7B8-6D5DA81CCAA7}	2
paint is coming off	{01698CA3-A37F-41D0-B303-6D707AD56A73}	2
top and bottom hot end cotter key not in all the way	{5271B486-FD38-4290-BE7E-5B1F286AE5A8}	2
install new sign	{0DAEC75B-8FA4-4A20-9AF0-89BCA37BB78A}	2
Bottom post. Trunnion bolt is loose.	{49BA62D4-F046-4169-8AB1-9F4BE09FC5C0}	2
Bottom phase, south cold end NCI pin not seated.	{3830FEF5-2791-4AF5-938A-5CC241920F3A}	2

Old anchor rods near old pole butts. Removal required.	{5B76FC4E-4EA4-439E-906E-C9333A5435E4}	2
Top phase, south deadend shoe missing nut.	{6E4CA370-E102-41CB-897A-EB8C8B5588E0}	2
bird nest on middle arm	{BE426500-B61E-4D63-A6AE-F3F04672083C}	2
install three new guy guards	{EE6153AD-FF53-427C-B024-CC527B69430D}	2
middle phase cotter-key not in all the way	{935F75C6-88A7-47C0-85EE-B6ED903526D5}	2
cotte-key not in all the way top phase	{7CFF6E02-91BE-4B23-B6CF-42DD845086FA}	2
static wire not grounded	{C7E3B458-6DD1-41DC-A942-EC015191249B}	2
install new sign	{9CC628D9-8396-4EAF-B6DC-341D52914175}	2
cotter key not all the way in	{6DE60AA5-9077-436E-8D3C-693E9DC04CCD}	2
bottom phase cold end cotter key coming off	{EB187876-7B00-48A9-B2A4-3EF795CDB082}	2
install new stickers	{34CFD436-1876-4B58-A87E-9808792678F5}	2
install new stickers	{FC248B43-2C12-4E4B-92F3-02F1A618A7DA}	2
install new sign	{83908C44-E24F-41EC-8CB3-6D3C9025885D}	2
cotter key not in all the way	{54C99C48-B4DE-4796-A82F-BDE1B959EAF}	2
idle hardware shuckle	{950CFAA7-8587-431C-9AF6-DDE21F88F213}	2
install new sign	{0074AA98-0443-44EC-B6FF-DA5C3ACB7982}	2
Cross arms are weathered with cracking.	{A3E684A8-6739-45C1-BE54-37FF364B1BE6}	2
Pole is listing.	{8976987C-132E-41A8-AAE7-02CFD2F9ED4F}	2
Woodpecker hole at pole top.	{0CD8FF81-ECB9-424B-B654-B9A5023E0FBA}	2
Bottom east phase, cold end cotter key is not standard.	{94E905DF-F6C0-43C3-BE27-F528EBBD260D}	2
Old pole butts are exposed and hollow.	{D745582E-D869-4B8E-A7A2-B04DC3E30275}	2
Pole top has multiple woodpecker holes.	{43362A02-2CBF-4FD7-84B2-C739CFD7C494}	2
Light to medium rust.	{45C4742F-3848-4579-AB12-CEFB33C4B3B}	2
Improperly grounded.	{5078337A-3F43-4151-93CA-31247C8BB787}	2
Top post is twisted.	{8CBC86D7-45A3-47A7-AD97-C5DEB389455E}	2
Install missing access plates	{F1D1D5A7-E33C-424A-BC93-6948C25558A7}	2
install new stickers	{FE0AFAE0-1B6B-40EA-9BFA-214C5F6C69B3}	2
install new sign	{AA8C2CFA-D358-4AB6-8A07-D03B16CF1396}	3
install new sign	{DFD8518B-F6BB-49CF-BDF0-E8EBE14043BF}	3
install new stickers	{6655E9ED-85B9-4B73-99E1-78428784E4EA}	3
Pole butt has burn marks.	{3BB60FED-4553-4E29-B20A-9F4F40B83150}	2
West phase to the north is unevenly sagged.	{A7B21AD0-505F-4158-88F0-1B21C728653D}	2
Bottom posts, bottom bolt is loose.	{F874BD64-84C6-48E6-A801-8A0BE9570C40}	2

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV	Component	Condition
1	Q3	625	Z272941	7/27/2021	AIR	No findings	No findings	No findings
2	Q3	6912	Z100081	9/1/2021	AIR	No findings	No findings	No findings
3	Q3	13831	Z100480	8/25/2021	AIR	No findings	No findings	No findings
4	Q3	643	Z100612	8/17/2021	AIR	No findings	No findings	No findings
5	Q3	643	Z100670	8/17/2021	AIR	No findings	No findings	No findings
6	Q3	6910	Z100705	9/7/2021	AIR	No findings	No findings	No findings
7	Q3	23041	Z100990	9/7/2021	AIR	No findings	No findings	No findings
8	Q3	13831	Z101421	8/25/2021	AIR	No findings	No findings	No findings
9	Q3	13838	Z101625	8/25/2021	AIR	No findings	No findings	No findings
10	Q3	694	Z10200	8/4/2021	AIR	No findings	No findings	No findings
11	Q3	6917	Z103164	8/5/2021	AIR	No findings	No findings	No findings
12	Q3	6917	Z103656	8/5/2021	AIR	No findings	No findings	No findings
13	Q3	6917	Z104151	8/5/2021	AIR	No findings	No findings	No findings
14	Q3	698	Z10677	8/4/2021	AIR	No findings	No findings	No findings
15	Q3	13816	Z119836	8/25/2021	AIR	No findings	No findings	No findings
1	Q4	6958	Z100145	11/20/2021	AIR	No findings	No findings	No findings
2	Q4	6916	Z100978	10/23/2021	AIR	No findings	No findings	No findings
3	Q4	616	Z12397	11/20/2021	AIR	No findings	No findings	No findings
4	Q4	23001	Z193548	10/23/2021	AIR	No findings	No findings	No findings
5	Q4	692	Z21195	11/5/2021	AIR	No findings	No findings	No findings
6	Q4	697	Z229341	10/23/2021	AIR	No findings	No findings	No findings
7	Q4	690	Z29147	10/23/2021	AIR	No findings	No findings	No findings
8	Q4	6958	Z40983	11/20/2021	AIR	No findings	No findings	No findings
9	Q4	616	Z510538	11/20/2021	AIR	No findings	No findings	No findings
10	Q4	23011	Z710011	10/23/2021	AIR	No findings	No findings	No findings
11	Q4	23011	Z710025	10/23/2021	AIR	No findings	No findings	No findings
12	Q4	13810	Z92629	10/23/2021	AIR	No findings	No findings	No findings
13	Q4	6916	Z973035	10/23/2021	AIR	No findings	No findings	No findings
14	Q4	23011	Z718338	10/23/2021	AIR	No findings	No findings	No findings
15	Q4	13810	Z479570	10/23/2021	AIR	No findings	No findings	No findings

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV	Component	Condition
1	Q1	13811	Z312782	3/23/2021	M	4	Conductor (Complete)	Kite
2	Q1	23001	Z96441	3/5/2021	M	4	Insulators-Ceramic, Standard, 30K	Balloon-Mylar
3	Q1	23006	Z222386	3/23/2021	AFC	4	Ground Grid Taps	Assessment Required
3	Q1	23006	Z222386	3/23/2021	AFC	4	Shieldwire Attachment Point	Blackening
3	Q1	23006	Z222386	3/23/2021	AFC	4	Member (Steel Tower)	Blackening
3	Q1	23006	Z222386	3/23/2021	AFC	4	Damper (Complete)	Flashed
4	Q1	23021	Z971903	1/8/2021	M	4	Aerial Marker Sphere(s)	Other (Specify)
5	Q1	23030	Z322644	2/20/2021	M	3	Aerial Marker Sphere(s)	Broken
6	Q1	23041	Z873106	1/28/2021	AFC	5	Hardware	Flashed
7	Q1	23054	Z123440	1/29/2021	LCI	4	Hot End Cotter Key(s)	Assessment Required
8	Q1	23055	Z123614	1/29/2021	LCI	0	Complete Tower	Bird Nest
9	Q1	691	Z123384	3/25/2021	M	4	Cross Arms	Deterioration
9	Q1	691	Z123384	3/25/2021	M	4	Hot End Clevis Pin	Backed Out-Off
10	Q1	50003	Z125871	1/29/2021	LCI	0	Cold End Cotter Key(s)	Missing
11	Q1	616	Z611160	1/14/2021	M	5	Switch - Contacts	Not Fully Closed
11	Q1	616	Z611160	2/13/2021	M	4	Switch (Complete)	Maintenance Required
12	Q1	649	Z31724	2/12/2021	M	4	Switch (Complete)	Maintenance Required
12	Q1	649	Z31724	2/27/2021	M	4	Switch (Complete)	Out Of Adjustment
13	Q1	691	Z123385	3/25/2021	LFC	4	Anchor Rods	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Insulators-NCI, 69kv	Flashed
13	Q1	691	Z123385	3/25/2021	LFC	4	Preform	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Bond Wire	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Jumper (Complete)	Assessment Required
13	Q1	691	Z123385	3/25/2021	LFC	4	Hardware	Blackening
14	Q1	6926	Z12115	2/2/2021	M	4	Comm Cable	Installation-Improper
14	Q1	6926	Z12115	2/2/2021	M	4	Complete Wood Pole	Damaged
15	Q1	695	Z21292	3/30/2021	M	4	Area Around Structure	Walking Path Required
15	Q1	695	Z21292	1/12/2021	M	3	Guy Wire - Anchor	Broken
1	Q2	6945	Z181611	6/21/2021	M	3	Area Around Structure	Assessment Required
2	Q2	23006	Z222451	4/9/2021	AFC	4	Shieldwire Attachment Point	Blackening
3	Q2	6912	Z195309	5/26/2021	M	3	Shoe Nut(s)	Missing
4	Q2	690	Z21125	4/29/2021	M	4	Switch (Complete)	Maintenance Required
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire - Anchor	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Anchor Rods	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire Guards	Fire Damage
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire - Anchor	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Anchor Rods	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire Guards	Fire Damage
6	Q2	23006	Z222461	5/14/2021	M	4	Anti-Climb Barrier	Broken

7	Q2	23051	Z710007	6/10/2021	M	4	Hot End Pin(s)	Not Fully Closed
8	Q2	23030	Z811339	6/24/2021	M	4	Insulators-Ceramic, Standard, 30K	Washing Needed
9	Q2	23011	Z710026	5/24/2021	AFC	4	Conductor (Complete)	Flashed
9	Q2	23011	Z710026	5/24/2021	AFC	4	Hardware	Blackening
10	Q2	23030	Z322670	6/4/2021	M	4	Insulators-Ceramic, Standard, 40K	Assessment Required
11	Q2	23030	Z811342	6/24/2021	M	4	Insulators-NCI, 230kv	Washing Needed
12	Q2	23010	Z223664	4/19/2021	M	4	Anti-Climb Barrier	Broken
13	Q2	23006	Z222427	4/4/2021	AFC	4	Hardware	Blackening
13	Q2	23006	Z222427	4/4/2021	AFC	4	Shieldwire Attachment Point	Blackening
13	Q2	23006	Z222427	4/4/2021	AFC	4	Insulators-NCI, 230kv	Flashed
13	Q2	23006	Z222427	4/4/2021	AFC	4	Jumper (Complete)	Flashed
14	Q2	13844	Z100116	4/24/2021	AS	4	Aerial Marker Sphere(s)	Installation Required
15	Q2	13811	Z312787	5/28/2021	M	3	Insulators-Ceramic, Standard, 30K	Chipped
15	Q2	13811	Z312787	5/28/2021	M	3	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
1	Q3	6932	Z811341	9/27/2021	M	0	Bolt(s)	Loose
2	Q3	6932	Z818298	8/10/2021	M	3	Guy Wire - OH	Loose
3	Q3	691	Z415246	8/16/2021	M	3	Stub Pole - Steel	Rust (Heavy)
4	Q3	690	Z246503	9/1/2021	M	4	Comm Cable	Clearance-Insufficient
5	Q3	689	Z246949	8/29/2021	M	4	Conductor (Complete)	Balloon-Mylar
6	Q3	682	Z118213	8/16/2021	AS	4	Insulators-Post, NCI, 69kv, Long	Bird Nest
7	Q3	616	Z18112	8/20/2021	M	2	Anchor Rods	Assessment Required
7	Q3	616	Z18112	8/20/2021	M	3	Anchor Rods	Rust (Heavy)
8	Q3	50001	Z50047	7/12/2021	LFC	4	Insulators-Ceramic, Standard, 40K	Washing Needed
9	Q3	50001	Z50048	7/12/2021	LFC	4	Conductor (Complete)	Flashed
10	Q3	23051	Z619991	8/27/2021	M	4	Member (Steel Tower)	Foreign Object (Specify)
11	Q3	23040	Z284004	7/23/2021	M	3	Footings (Complete)	Assessment Required
11	Q3	23040	Z284004	7/30/2021	AS	4	Area Around Structure	Assessment Required
12	Q3	23030	Z811338	9/30/2021	M	4	Tower-Leg(s)	Assessment Required
13	Q3	13833	Z223158	9/10/2021	M	3	Member (Steel Tower)	Damaged
13	Q3	13833	Z223158	9/9/2021	M	4	Ground Grid Taps	Damaged
14	Q3	13831	Z101591	8/19/2021	M	4	Guy Wire - OH	Clearance-Insufficient
15	Q3	13816	Z223165	9/28/2021	M	0	Tipline Identification Tags	Other (Specify)
1	Q4	13835	Z322476	10/16/2021	M	4	Pole Butt	Vandalism
1	Q4	13835	Z322476	10/16/2021	M	4	Guy Wire - OH	Loose
2	Q4	13836	Z322484	12/10/2021	M	4	Complete Wood Pole	Woodpecker Hole(S)
3	Q4	23002	Z223660	10/9/2021	M	2	Ground Rod Bond Wire	Broken
4	Q4	23002	Z223674	10/21/2021	M	4	Insulators-NCI, 230kv	Assessment Required
5	Q4	23006	Z222416	10/6/2021	M	2	Ground Rod Bond Wire	Broken
5	Q4	23006	Z222416	10/6/2021	M	2	Ground Grid Taps	Exposed
6	Q4	23010	Z223676	10/6/2021	M	2	Ground Rod Bond Wire	Exposed
6	Q4	23010	Z223676	10/6/2021	M	2	Anti-Climb Barrier	Removal Required
7	Q4	23022	Z873093	12/7/2021	M	3	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
8	Q4	23030	Z322664	10/20/2021	M	3	Footings (Complete)	Damaged
9	Q4	23052	Z322247	10/21/2021	M	4	Insulators-NCI, 230kv	Assessment Required

10	Q4	50001	Z50019	10/19/2021	AS	4	Aerial Marker Sphere(s)	Broken
11	Q4	616	Z133531	10/9/2021	M	3	Anchor Rods	Assessment Required
12	Q4	634	Z413562	11/4/2021	M	3	Anchor Rods	Earth - Covered With
12	Q4	634	Z413562	11/4/2021	M	3	Anchor Rods	Rust (Heavy)
13	Q4	675	Z138139	10/14/2021	M	4	Complete Wood Pole	Woodpecker Hole(S)
14	Q4	6926	Z210656	10/3/2021	M	5	Pole Butt	Damaged
15	Q4	6906	Z97145	12/5/2021	LFC	4	Insulators-NCI, 69kv	Flashed
15	Q4	6906	Z97145	12/5/2021	LFC	4	Jumper (Complete)	Flashed
15	Q4	6906	Z97145	12/5/2021	LFC	4	Bond Wire	Blown
15	Q4	6906	Z97145	12/5/2021	LFN	4	Guy Wire - OH	Other (Specify)
15	Q4	6906	Z97145	12/6/2021	LFN	4	Comm Cable	Damaged

CONDITIONCOMMENTS	GLOBALID	Tier				
Kite on North phase 50 yds. NW of 3 pole structure	{8312590B-AEC0-456D-A00F-B461725D007C}	2				
Remove mylar balloon with insulator washer	{0F227692-EF26-4720-B657-792B0B2D1192}	2				
Evidence of ground fault.	{56E5CB49-D17A-47AB-B569-529831796E92}	2				
Shield wire hardware has blackening from ground fault.	{DCE0E4E9-9367-49F0-8C09-AA83DCAF3602}	2				
Middle east arm. Top of arm, south side. Evidence of mylar balloon contact.	{10FAEE69-E951-4401-B9B0-0DEED8A63D93}	2				
Top east, first south damper. Flash marks from mylar balloon contact.	{0B3EFA12-54CF-41DF-85CB-E684C7E2F6A4}	2				
Noise complaints from surrounding neighbors. No photos.	{DE818152-AC16-4704-BBC9-B37909D67761}	2				
First white marker ball to the east. Broken.	{AADFEF99-3E03-4C2C-9560-05AA33550480}	2				
top phase hot end hardware and bells are flasherd	{9CB6D3EA-9911-4A47-8BF1-C7570C793722}	2				
Climbing inspection by Bennett's crew - Top phase inside wire shoe cotter key on TL23054 and middle phase weights cotter key	{25EEEBF5-054E-4BD4-9463-AAAAF9F333E0}	3				
Climbing Inspection completed by Galla's crew - bird nest removed from tower	{06FC0AFE-0AFA-4A6C-8886-A0FB12D8505B}	3				
Cross arms look very crunchy.	{68B1F5B6-1E1F-4794-AA61-04DB401C3336}	2				
South west hot end shoe pin might be missing cotter key and or backed out. Looks suspect.	{1AB4F141-D5D8-4C9A-9A77-BEBF78865CAE}	2				
Climbing inspection completed by Galla's crew - missing cotter pin installed	{F5C953F3-EBC9-4FC0-81C8-AAAC87EB72BD}	2				
Switch 616-2 not fully closed per Troubleman	{12167D82-64C2-4686-9DB1-31DEF8619CFB}	2				
ETS reports that Switch 616-2 is difficult to open all the way and was drawing an arc. Switch would become increasingly difficult at the halfway point	{57E2E98C-6F72-4F3F-AD01-15139B42362A}	2				
ETS Ryan McGhen reports SWI 649-6 on pole Z31724 requires Lube and Adjustment	{1C9612AA-40E8-4E98-AB1C-A604F7AD6BF8}	2				
Troubleman says the switch is very hard to close like it is not lubricated.	{A1776935-3762-4C0E-824A-9ACAA0367102}	2				
Both anchor rods & preforms have blackening from fault.	{4ED12716-30C8-4CF6-9163-43E0CEBF6A1D}	2				
North west polly might be flashed.	{432F989C-E648-4D0F-93F7-0733AC2F12FC}	2				
Both anchor rods & preforms have blackening from fault.	{87F3A744-9A22-4C9C-B439-B7890DDA231D}	2				
Bond wire is burnt at north side of arm. Brace & DA hardware.	{A4023B65-D291-4A99-92A8-9F8549B28AC1}	2				
North jumper may have damage from fault.	{6EAF6C64-036F-478E-98AE-868D5C039D98}	2				
Hardware is burnt at north side of arm. Brace & DA. Also Downguy hardware.	{63BECF8F-6F57-4DF7-8560-BD277EE7BDD8}	2				
Fwd to JU. Level one 30 days. Loose lashing & com cable not attached	{D04B52D4-F8AB-4392-B3D2-84AF1C831A9F}	3				
Fwd to TE. Replace pole due to bus hitting it. Damage order 53-33837	{18F365FC-92D2-4FDA-8703-52E2BB8A5155}	3				
Fwd to Veg Mgmt. Clear poison oak from trail & anchor rod	{E0B1CB13-C551-4FB6-8355-2515F2EA6AB1}	2				
Communication down guy is broken	{24E6EE9A-3EAB-4887-9586-698F14160F07}	2				
FWD to Civil Engineering for assessment - water drainage appears to have started to enter at concrete backfill/soil interface. This has caused a small sinkhole (could inches in diameter that extends below grade several feet to meet drainage path.	{02930368-6137-42C9-97FE-09137BB43199}	2				
Shield wire hardware has blackening.	{96630ED5-50DC-457C-A31A-EF91DF49FFA9}	2				
TL6912 ~ Top phase, south deadend shoe. Nut missing.	{E8302315-9EC0-4683-97C3-225989BDF93B}	2				
	{14A94F82-9CCB-495E-B508-5BC81C30BEE4}	2				
Top guy wire at anchor rod has blackening from fire.	{8E9D4B50-0D21-44B2-A20F-152DC7159247}	3				
Top anchor rod has blackening from fire.	{54510EE0-2840-4625-A700-390D706FA4B3}	3				
Melted guy wure guard. Please replace at time of completion of other open conditions.	{7D40B24B-B024-4A3C-92B6-B5266460D948}	3				
Top guy wire at anchor rod has blackening from fire.	{8E9D4B50-0D21-44B2-A20F-152DC7159247}	3				
Top anchor rod has blackening from fire.	{54510EE0-2840-4625-A700-390D706FA4B3}	3				
Melted guy wure guard. Please replace at time of completion of other open conditions.	{7D40B24B-B024-4A3C-92B6-B5266460D948}	3				
	{64BBFBE2-0E85-4431-A9D1-9025347EF072}	2				

Middle phase, inside string, hot-end pin is not seated.	{50D16F1C-2A2D-4055-8BE2-6A05B302B604}	2				
Washing needed Mesa Fire	{79148422-B9BE-4B9C-907B-02075BB34FD8}	3				
Mylar balloon splatter on conductor at shoes.	{F0495F23-DB93-4927-9178-52921BDABDE2}	2				
Top phase hot end hardware has blackening.	{02252A23-9ED7-47D6-A7AB-CAB0EDE3955C}	2				
Assess replacing with NCI due to location	{33DD43A3-03E7-43F8-A899-DA73898D44F6}	2				
Washing needed - Mesa Fire	{74733B63-1179-4657-8EDF-487AE16619D1}	3				
	{6EF72E1B-8A38-4889-8DB2-B2DE25DB1F2A}	2				
Top phase, east cold end hardware has blackening from ground fault.	{B41946F9-19EB-4AF4-8121-251B60883E71}	2				
Shieldwire hardware has blackening from A phase ground fault.	{D2BF4C36-D795-48A1-97C3-A58D9F908061}	2				
Top south east NCI is flashed.	{1943550D-CODF-4D5E-B6BA-1E38C1A44F6A}	2				
Top east phase jumper has splatter marks from ground fault.	{FF2107B5-C7B4-49EE-9A16-037144EE35C4}	2				
Marker balls needed in span towards Z100117 for security flight operations. No photos.	{BBEC7D83-9E9C-4663-B776-865F0A1E1523}	2				
	{CCBF6F56-799F-438B-812B-16E6073D97FA}	2				
	{45FE7E22-485A-40E0-89A0-F514FBD44C26}	2				
C-Leg stub angle is missing a nut and bolt is backed out. Competed.	{928202B6-66B6-4E7A-AFEB-E4DFC6EAFD6A}	3				
West OH guy wires are loose.	{BD46DA73-7E8A-447A-B6E2-5C11E6398E4D}	3				
Rust on stub pole at top	{203A66F3-E2E1-48B3-8405-97B374404BC1}	2				
Fwd JU Level one 30 days; will also FWD Insp 75376 to JU Level one 30 days	{4A256B20-3CF6-4A69-B7D2-0FFB2BBF0A0B}	2				
	{D6D9F661-0026-44CA-B6BE-12010144A746}	2				
Bottom phase post has a bird nest.	{E67F6935-0A32-4072-959B-A44C07C08240}	2				
Top anchor rod will be re-buried at first rain.	{5ECBBAFC-357F-44CE-9FE3-2F912E979F7C}	2				
Top anchor rod has medium to heavy rust.	{07BDB850-1E5F-4C27-878D-B6B2F5EF2E6E}	2				
Smoke contamination from fire. No photos. Washing completed.	{5806924E-B81F-4F6F-BB00-A8DA42E4283E}	3				
Flash marks on C phase, south phase. Outside conductor, In between structure and first damper.	{FF4911FB-5528-4AF1-8412-D232AA850D72}	3				
Remove ropes hanging above barbwire on steel members	{6776F067-880E-4DDA-B8D1-9BFBAECBD3E2}	2				
Footer is damaged and rebar is exposed	{1D61B037-B90B-45E9-8802-AED89AEF27E5}	2				
Drill rig next to tower. On access road.	{3D3D0A55-17F3-4E5E-9A81-D2BAEAA97AF2}	2				
Install security nuts due to vandalism issues in this segment of line	{E86BFC97-5ADD-48C6-AB78-61C260D199AD}	2				
diagonal is damaged near footer	{BC5D20BD-600F-4DFD-88A4-AD87DAA9ECC3}	2				
	{9196D251-14DE-4EA3-A25A-6B86926BEC80}	2				
Comm cable down guy has insufficient clearance over road.	{E50DB9BE-EA82-4E8D-9AEC-FEE256D15022}	2				
Both TL tags were peeling off.	{61032ECA-AF83-41AD-A974-B60E2B5D88F4}	2				
Pole butt has been shot numerous times.	{9150C551-FECD-4E17-A773-105501783CE3}	2				
All guy wires are loose.	{B271B80D-03F6-4570-A8E1-94A4F795534D}	2				
Fwd to TE. Replace pole. Woodpecker holes & shell collasping at static wire dead end	{325FDB4E-E31A-43A6-B567-5E08D1CFCCA0}	2				
D leg ground grid wire broken.	{FA63CB44-27FB-467F-B9D2-6DA646FE19D7}	2				
TL 23002 has Ohio Brass NCIs	{E7E34D44-C053-46D8-AF72-63EF39CBE54B}	2				
C leg ground connected broken.	{3A71571A-52C7-44FB-BFB9-B622A447D43A}	2				
C leg ground rod is exposed.	{D06B5987-3A6E-450B-B854-F3CF5A688677}	2				
D leg ground wire exposed.	{52558375-B1A7-4DE1-9A56-43AD1E6E60BB}	2				
Barb wire needs removed and cleaned up.	{DFFC3D3C-4D9D-438C-A353-122AF431C871}	2				
assessment required	{D2B7FA7C-D1D6-4CD7-B50B-093D24230D68}	2				
B-leg footer is damaged.	{FFB03DDD-067F-4940-8734-B19096679E3E}	2				
TL 23052 & 23007 are Ohio Brass NCIs	{310402F6-BD15-4A78-908C-D4582AD99E7E}	2				

White marker ball broken between Z50019 -Z50018.	{027A0782-3204-4687-A735-A0F51A4FB3F8}	3
Anchor rods are currently in water.	{A5CDD06B-F285-43E5-B612-244AEA3981DF}	2
Top west anchor rod needs long term solution to keep from being buried.	{06B0DE30-B4A7-4849-88B6-0E44965D311D}	2
Top west anchor rod has medium to heavy rust.	{ADCD8BDD-CB8E-46D7-BC8D-FE691BE89D69}	2
Fwd to TE. Replace pole	{6BB9E36D-F490-4967-BBDB-49398A122036}	2
Car pole 10/3/21 around 2:00 AM Emergency pole replacement	{54962DBE-EEE3-45C8-99E2-B8494861670D}	2
flash insulator cold end on the east/north side due to mylars balloons flash	{357E2DF2-B7E2-4CC1-AD5C-6176A27F7042}	2
jumper have flash marks due to mylar balloons	{1B10C4E4-2C86-4745-BA69-47DE825599FD}	2
bond wire blond open due to mylar ballons fault	{FE4EB564-FDFD-486C-B284-27AD89EBBB2E}	2
down guys are rubbing hard on comunication some strand are open	{6C6559E5-B4D5-429B-A6CE-6B119A02ED95}	2
Fwd to JU. Comm. Cable approx 50' north of pole damaged. Loose lashing & burn. Level One 30 days	{E07E34DD-AC32-48DF-B6A3-932CB397A79F}	2

Patrol Code	Definition	Data request type
LCI	land Climbing Inspetion	Discretionary Inspection
AFC	aerial fault cause	Discretionary Inspection
AFN	aerial fault not cause	Discretionary Inspection
AS	aerial special	Discretionary Inspection
LFC	Land fault cause	Discretionary Inspection
LFN	land fault not cause	Discretionary Inspection
LS	Land Special	Discretionary Inspection
M	Misecellaneous	Discretionary Inspection
LR	Land Routine	Detailed Inspection
AIR	aerial infrared	Infrared Inspection
LIR	Land Infra Red	Infrared Inspection

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.4

Infrared Inspection Reports
(Distribution)

FACILITYID	Inspection Date	Results
P14884	13-Mar-21	D299 No Repairs Needed
P115974	27-Mar-21	D299 No Repairs Needed
P13206	20-Mar-21	D299 No Repairs Needed
P111328	30-Mar-21	D299 No Repairs Needed
P113094	27-Mar-21	D299 No Repairs Needed
P419386	20-Mar-21	D299 No Repairs Needed
P318551	6-Mar-21	D299 No Repairs Needed
P510457	20-Mar-21	D299 No Repairs Needed
P13308	20-Mar-21	D299 No Repairs Needed
P817680	27-Mar-21	D299 No Repairs Needed
P514250	30-Mar-21	D299 No Repairs Needed
P207969J	27-Mar-21	D299 No Repairs Needed
P104041	20-Mar-21	D299 No Repairs Needed
P312759	13-Mar-21	D299 No Repairs Needed
P249831	20-Mar-21	D299 No Repairs Needed

FACILITYID	Inspection Date	Results
P131243	2021-05-08	D299 No Repairs Needed
P816992	2021-06-15	D299 No Repairs Needed
P213472	2021-06-26	D299 No Repairs Needed
P216114	2021-06-19	D299 No Repairs Needed
P16165	2021-05-15	D299 No Repairs Needed
P810653	2021-05-15	D299 No Repairs Needed
P211708	2021-05-01	D299 No Repairs Needed
P810565	2021-06-15	D299 No Repairs Needed
P237697	2021-06-28	D299 No Repairs Needed
P102994	2021-06-15	D299 No Repairs Needed
P227479	2021-06-12	D299 No Repairs Needed
P510560	2021-05-15	D299 No Repairs Needed
P414682	2021-06-24	D299 No Repairs Needed
P116476	2021-06-24	D299 No Repairs Needed
P216777	2021-06-24	D299 No Repairs Needed

FACILITYID	Inspection Date	Results
P410682	8/2/2021	D299 No Repairs Needed
P106597	7/17/2021	D299 No Repairs Needed
P245135	8/3/2021	D299 No Repairs Needed
P815215	8/6/2021	D299 No Repairs Needed
P712609	8/3/2021	D299 No Repairs Needed
P515111	8/3/2021	D299 No Repairs Needed
P213315	8/3/2021	D299 No Repairs Needed
P200980	8/3/2021	D299 No Repairs Needed
P716692	7/21/2021	D299 No Repairs Needed
P711454	7/17/2021	D299 No Repairs Needed
P136314	8/6/2021	D299 No Repairs Needed
P811499	8/3/2021	D299 No Repairs Needed
P819075	8/3/2021	D299 No Repairs Needed
P478375	7/24/2021	D299 No Repairs Needed
P710605	7/17/2021	D299 No Repairs Needed

FACILITYID	Inspection Date	Results
P815461	10/4/2021	D299 No Repairs Needed
P115757	10/4/2021	D299 No Repairs Needed
P17077	10/19/2021	D299 No Repairs Needed
P245957	11/2/2021	D299 No Repairs Needed
P713029	10/29/2021	D299 No Repairs Needed
P376434	12/6/2021	D299 No Repairs Needed
P222544	12/6/2021	D299 No Repairs Needed
P44821	11/11/2021	D299 No Repairs Needed
P618668	10/29/2021	D299 No Repairs Needed
P107773	10/29/2021	D299 No Repairs Needed
P246955	11/15/2021	D299 No Repairs Needed
P186005	11/15/2021	D299 No Repairs Needed
P513916	10/29/2021	D299 No Repairs Needed
P117695	10/1/2021	D299 No Repairs Needed
P235973	12/13/2021	D299 No Repairs Needed

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.4 Infrared Inspection Reports (Transmission)

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV	Component	Condition
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Assessment Required
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Trim For Inspection
1	Q1	616	Z12399	2/17/2021	LR	3	Guy Wire - Anchor	Mis-Aligned-Pulled
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Patrol Insp Required
2	Q1	679	Z510498	3/8/2021	LR	0	Stub Pole - Anchor Guy	Grounding Required
3	Q1	6945	Z181661	2/27/2021	LR	2	Footings (Complete)	Assessment Required
4	Q1	6945	Z181661	2/27/2021	LR	4	Cold End Cotter Key(s)	Missing
5	Q1	682	Z118014	2/8/2021	LR	3	Shoe Pin-Bolt	Loose
6	Q1	682	Z118099	1/29/2021	LR	4	Insulators-Post, NCI, 69kv, Long	Damaged
7	Q1	13811	Z312780	3/17/2021	LR	4	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
7	Q1	13811	Z312780	3/17/2021	LR	4	Hardware	Rust (Heavy)
7	Q1	13811	Z312780	3/17/2021	LR	4	Cross Arms	Cracked
7	Q1	13811	Z312780	3/17/2021	LR	4	Signs-High Voltage-At Top	Unreadable
8	Q1	682	Z118082	2/9/2021	LR	2	Pole Butt	Vandalism
9	Q1	23054	Z123178	1/4/2021	LR	3	Footings (Complete)	Earth - Covered With
9	Q1	23054	Z123178	1/4/2021	LR	3	Footings (Complete)	Assessment Required
10	Q1	23055	Z123512	1/7/2021	LR	4	Cold End Cotter Key(s)	Missing
11	Q1	23055	Z123210	1/6/2021	LR	3	Complete Tower	Bird Nest
12	Q1	6906	Z95919	3/15/2021	LR	0	Anchor Rod Ground Wire	Broken
13	Q1	6906	Z97150	3/18/2021	LR	0	Tieline Identification Tags	Unreadable
14	Q1	6930	Z181660	2/27/2021	LR	4	Insulators-Post, NCI, 69kv, Long	Damaged
15	Q1	6930	Z510521	3/4/2021	LR	2	Complete Steel Pole	Leaning-Tilted
1	Q2	690	Z21148	5/16/2021	LR	3	Anchor Rods	3 Guys-1Rod
1	Q2	690	Z21148	5/16/2021	LR	3	Guy Wire - OH	Rust (Heavy)
1	Q2	690	Z21148	5/16/2021	LR	3	Anchor Rods	Grounding Assessment Required
2	Q2	690	Z21183	5/14/2021	LR	3	Cold End Pin(s)	Installation Assessment Required
3	Q2	690	Z21111	5/24/2021	LR	2	Pole Butt	Trees Too Close
4	Q2	6952	Z92793	6/7/2021	LR	0	Tieline Identification Tags	Unreadable
4	Q2	6952	Z92793	6/7/2021	LR	0	Sign Warning (With Man)	Unreadable
4	Q2	6952	Z92793	6/7/2021	LR	0	Structure Number	Unreadable
5	Q2	694	Z317932	6/1/2021	LR	3	Anchor Rod Ground Wire	Installation-Improper
6	Q2	678	Z875085	6/9/2021	LR	3	Guy Wire - OH	Loose
7	Q2	13811	Z312833	4/5/2021	LR	3	Pole Top	Woodpecker Hole(S)
7	Q2	13811	Z312833	4/5/2021	LR	3	Insulators-Ceramic, Standard, 30K	Chipped
8	Q2	13811	Z312842	4/5/2021	LR	3	Anchor Rods	Patrol Insp Required
8	Q2	13811	Z312842	4/5/2021	LR	0	Tieline Identification Tags	Unreadable
8	Q2	13811	Z312842	4/5/2021	LR	3	Cross Arms	Cracked
8	Q2	13811	Z312842	4/5/2021	LR	3	Anchor Rods	Walking Path Required
9	Q2	616	Z12399	6/16/2021	LR	0	Jumper (Complete)	Other (Specify)
9	Q2	616	Z12399	6/16/2021	LR	2	Access Road	Other (Specify)
10	Q2	634	Z413551	6/3/2021	LR	2	Pole Butt	Trees Too Close
10	Q2	634	Z413551	6/3/2021	LR	2	Insulators-Post, NCI, 69kv, Long	Damaged
10	Q2	634	Z413551	6/3/2021	LR	2	Signs-High Voltage-At Top	Unreadable
10	Q2	634	Z413551	6/3/2021	LR	2	Anchor Rods	Bent

11	Q2	634	Z16580	6/7/2021	LR	4	Comm Cable	Clearance-Insufficient
11	Q2	634	Z16580	6/7/2021	LR	3	Footings (Complete)	Earth - Covered With
12	Q2	634	Z169411	6/10/2021	LR	2	Pole Butt	Trees Too Close
12	Q2	634	Z169411	6/10/2021	LR	2	Anchor Rods	Vegetation Overgrown
13	Q2	692	Z39491	5/27/2021	LR	0	Tieline Identification Tags	Unreadable
14	Q2	6952	Z92796	6/7/2021	LR	0	Sign Warning (With Man)	Unreadable
15	Q2	694	Z15171	6/1/2021	LR	3	Bolt(s)	Missing
15	Q2	694	Z15171	6/1/2021	LR	3	Signs-High Voltage-At Top	Unreadable
15	Q2	694	Z15171	6/1/2021	LR	3	Insulators-Ceramic, Post, 69kv	Loose
1	Q3	616	Z611221	7/27/2021	LR	3	Guy Wire - OH	Loose
1	Q3	616	Z611221	7/27/2021	LR	3	Anchor Rods	Grounding Assessment Required
2	Q3	23041	Z873107	8/20/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
3	Q3	6939	Z133522	7/20/2021	LR	2	Footings (Complete)	Other (Specify)
3	Q3	6939	Z133522	7/20/2021	LR	2	Ground Connection	Exposed
4	Q3	23041	Z971855	7/24/2021	LR	3	Cold End Cotter Key(s)	Backed Out-Off
5	Q3	23022	Z873093	8/24/2021	LR	3	Signs-High Voltage-At Top	Faded
5	Q3	23022	Z873093	8/24/2021	LR	3	Other(Specify)	Painting Assessment Required
6	Q3	23022	Z201922	8/26/2021	LR	4	Hot End Cotter Key(s)	Backed Out-Off
7	Q3	23022	Z201923	8/20/2021	LR	0	Sign Warning (With Man)	Unreadable
8	Q3	6912	Z29194	7/13/2021	LR	3	Shoe Pin-Bolt	Loose
9	Q3	6912	Z195309	7/19/2021	LR	3	Cold End Pin(s)	Backed Out-Off
9	Q3	6912	Z195309	7/19/2021	LR	3	Anchor Rods	Removal Assessment Required
9	Q3	6912	Z195309	7/19/2021	LR	3	Shoe Nut(s)	Missing
10	Q3	13822	Z576634	8/24/2021	LR	4	Other(Specify)	Bird Nest
11	Q3	13824	Z201093	9/23/2021	LR	0	Guy Wire Guards	Deterioration
12	Q3	13824	Z200646	9/17/2021	LR	3	Hot End Cotter Key(s)	Backed Out-Off
12	Q3	13824	Z200646	9/17/2021	LR	3	Cold End Cotter Key(s)	Backed Out-Off
13	Q3	23021	Z100990	8/20/2021	LR	4	Shield Wire (Complete)	Grounding Required
13	Q3	23021	Z100990	8/20/2021	LR	0	Sign Warning (With Man)	Unreadable
14	Q3	23041	Z971872	7/31/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
15	Q3	23041	Z873107	8/20/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
1	Q4	681	Z12889	11/19/2021	LR	0	Structure Number	Unreadable
1	Q4	681	Z12889	11/19/2021	LR	0	Tieline Identification Tags	Unreadable
1	Q4	681	Z12889	11/19/2021	LR	0	Sign Warning (With Man)	Unreadable
2	Q4	13824	Z200599	10/12/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
2	Q4	13824	Z200599	10/12/2021	LR	4	Hardware	Assessment Required
3	Q4	632	Z200643	10/6/2021	LR	0	Sign Warning (With Man)	Unreadable
4	Q4	686	Z215016	11/15/2021	LR	4	Cross Arms	Deterioration
4	Q4	686	Z215016	11/15/2021	LR	4	Complete Wood Pole	Leaning-Tilted
5	Q4	686	Z118260	11/12/2021	LR	2	Pole Top	Woodpecker Hole(S)
6	Q4	686	Z118293	11/4/2021	LR	2	Cold End Cotter Key(s)	Installation-Non Standard
7	Q4	686	Z118323	11/11/2021	LR	3	Pole Butt	Assessment Required
7	Q4	686	Z118323	11/11/2021	LR	3	Pole Top	Woodpecker Hole(S)
8	Q4	686	Z118337	12/14/2021	LR	2	Anchor Rods	Rust (Medium)
8	Q4	686	Z118337	12/14/2021	LR	2	Anchor Rods	Grounding Assessment Required
9	Q4	686	Z118331	12/14/2021	LR	2	Insulators-NCI, 69kv	Twisted
10	Q4	698	Z293941	10/18/2021	LR	3	Other(Specify)	Missing

11	Q4	13824	Z200600	10/1/2021	LR	0	Structure Number	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Tieline Identification Tags	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Sign Warning (With Man)	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Structure Number	Unreadable
13	Q4	686	Z118249	11/30/2021	LR	2	Pole Butt	Fire Damage
14	Q4	686	Z210751	11/18/2021	LR	3	Conductor (Complete)	Improper Sag
15	Q4	686	Z118258	11/13/2021	LR	2	Bolt(s)	Loose

CONDITIONCOMMENTS	GLOBALID	Tier
Old pole butt is exposed, hollow and deep.	{042549E5-9E75-453D-A383-5E822CD88E7D}	2
Need trees trimmed to inspect pole butt.	{4C93615B-5576-4F3C-B517-3894D9112428}	2
Tree branches are pulling on OH guy wire.	{75103777-AB1A-4A50-BD90-23CF2271C376}	2
Need trees trimmed to inspect pole butt.	{AB3AFF17-B40C-47A4-8C35-252D662907DC}	2
Missing connection. Completed.	{A328A537-B73C-4C1F-9271-BB64DB00533C}	2
No security nuts on footer bolts.	{299D3784-6DC0-4232-854E-194E495A7E42}	2
Top west, cold end cotter key is missing.	{EE35E0C2-B34A-4B10-A7ED-0DB21A2C48A8}	2
Bottom post, trunnion bolt might be a little loose.	{C1824884-1FC4-49EA-904D-FEAF8CA0B49C}	3
Middle phase, Cold end skirt is ripped.	{199361AB-43FC-40F8-9FD0-5AE6DCFFDDA4}	3
All hot end insulator shanks have heavy rust.	{8E72B1F2-D35B-464F-A2CA-78C7FC6F3DD4}	2
All hot end hardware has heavy rust.	{1A2DE957-1C22-441F-90F1-A14E3585EA20}	2
Wet portion of cross arm at pole is cracked.	{745BD7DA-0E34-4803-A070-D581F6DA80E9}	2
	{1B4607CB-B2E6-4B2B-94E8-FF74A28CC1C4}	2
Graffiti	{FDF2DA5B-4F2E-4994-830D-FC24EDCOFEA9}	3
C,D,& A leg footers need erosion barriers.	{E98D970E-3619-4902-AAF8-B144A58E34FF}	3
C,D,& A leg footers need erosion barriers.	{6E891796-C205-429E-9EE0-188FB6C9EBE8}	3
23055 Middle east cold end cotter key is missing.	{D620AE84-9B86-4A7A-89A8-51120E2DB8B}	3
23055 Top arm, nest	{7AC6F4AA-EC1E-4BB7-92D4-BAB20EA1720B}	3
fix ground leg conection	{A6CA4486-6EA5-4BC2-A0C2-CA4D131D8093}	2
install new stickers	{31C06379-E954-4C35-AC5A-B9FEAA245351}	2
TL6930 Hot ends of posts are damaged from suspension shoes rubbing.	{B14F8DD0-2E3B-4636-AC21-2A089E7AB1CE}	2
Pole is leaning to the east.	{BOBF2BD6-2591-4463-AE08-2EA78F636A0A}	2
West anchor rod has 3 guys to one anchor.	{FBF9EABE-DFCA-450E-B8B2-755F8DFE4F61}	2
Bottom west guy wire is rusted.	{E57525B3-36BB-40AB-A712-323131946223}	2
All anchor rods are improperly grounded.	{ECE9732F-7A17-4B99-A500-1C266D74A483}	2
South top polly, cold end end pin not fully in.	{1FB8FD25-24D7-410F-AAAB-88F3E44250C0}	2
Tree to close to pole butt.	{8C1BB419-EED4-4900-91B5-33B192564742}	2
install new stickers	{9B22646E-0992-4F8B-8D5B-260B8F5E4B18}	2
install new sign	{C189C960-E6AF-404E-B03F-C861838E69F2}	2
install new stickers	{3220D5CD-C9E4-4663-94A3-80638948455D}	2
	{9ABEA780-E4A9-42F0-AEE9-A3B510EB9388}	2
loose guys	{596C8164-3D55-47E7-8432-F183C15B46E3}	2
East pole top has a woodpecker hole on the north side.	{01357303-AFD5-4BD7-910B-A8862AA85344}	2
West phase, hot end insulator bells have chips.	{BA4EF144-6245-4625-99C0-0007D73A8BB3}	2
Need veg trimmed to inspect anchor rods.	{02DC2F44-2012-4D00-BD9F-1153EAD5595B}	2
	{ECC9ADF5-AB12-4605-B62B-B1215F6B4D63}	2
Northeast side of cross arm is cracked.	{FFEC7B47-676C-464D-875F-183AE3BD1E7E}	2
Need veg trimmed to inspect anchor rods.	{18FC06D9-AC3F-4270-BB11-599D0E47A9A2}	2
jumper looks close to down guy	{09D5D9C9-77FA-49DE-9616-385B089E7351}	2
when using sdge key to unlockthe gate it keeps turning and it wont open gate	{8EBF3D47-44DF-4A5C-A109-90E6F718307F}	2
Trees to close to pole butt.	{DE9DC6C8-5AC9-4D39-BDD9-60E6BE486D0D}	2
Bird chewed skirts on top post.	{22530128-1A32-476C-AFE3-7F8AE7FDC434}	2
Needs new high-voltage stickers.	{12BEA01E-B2F8-4B44-AFBE-832A1CEF395D}	2
Bottom anchor rod is bent.	{82F054E1-9E62-4BDD-8F0F-B8DBA3034E74}	2

Comm cable to the north is being vectored by trees, midspan.	{282D4861-B021-4498-9B04-45A9B75264DD}	2
Dirt and rocks up against footers.	{26B6326D-5AD2-42A2-8473-9B87A1F43275}	2
Tree to close to pole butt.	{34517484-BE11-4882-8A1C-12B135A123D8}	2
Veg overgrown at all anchor rods.	{1C2949EA-F953-4588-A50A-8C15E34706EF}	2
install new stickers	{109B6DD8-D2EA-46FF-BE04-D3A7A2468997}	2
install new signs	{EF7BCC9F-945F-4F5D-9DD6-B8F569EAC7D9}	2
no split bolt	{DB7964C4-D6B6-48A2-9102-60D4DEE2541A}	2
	{90A2B186-A258-48BF-A371-EF3A4DC47E84}	2
	{E25100CE-30F0-4AEC-B5A7-46E4907A9829}	2
All guy wires are loose.	{CFE8B87C-57F8-4F41-87CD-7F6A5B851E35}	2
Anchor rods are improperly grounded.	{D803CD9B-B364-416C-BF7E-54D66C80A5C7}	2
bottom phase cold end cotter key coming off	{EB187876-7B00-48A9-B2A4-3EF795CDB082}	2
Stub pole footer nuts need security nuts.	{AA9E5FA7-2085-4208-9883-B340C655E20B}	2
Stub pole ground rod connection is exposed.	{0F5BA6F6-0BBF-4308-B2B2-45A9FE233845}	2
cotter key on static not all the way in	{F7CEA31C-8E49-4911-9050-93AD4374191B}	2
yellow band faded	{00574480-E3BE-4605-A7B8-6D5DA81CCAA7}	2
paint is coming off	{01698CA3-A37F-41D0-B303-6D707AD56A73}	2
top and bottom hot end cotter key not in all the way	{5271B486-FD38-4290-BE7E-5B1F286AE5A8}	2
install new sign	{0DAEC75B-8FA4-4A20-9AF0-89BCA37BB78A}	2
Bottom post. Trunnion bolt is loose.	{49BA62D4-F046-4169-8AB1-9F4BE09FC5C0}	2
Bottom phase, south cold end NCI pin not seated.	{3830FEF5-2791-4AF5-938A-5CC241920F3A}	2
Old anchor rods near old pole butts. Removal required.	{5B76FC4E-4EA4-439E-906E-C9333A5435E4}	2
Top phase, south deadend shoe missing nut.	{6E4CA370-E102-41CB-897A-EB8C8B5588E0}	2
bird nest on middle arm	{BE426500-B61E-4D63-A6AE-F3F04672083C}	2
install three new guy guards	{EE6153AD-FF53-427C-B024-CC527B69430D}	2
middle phase cotter-key not in all the way	{935F75C6-88A7-47C0-85EE-B6ED903526D5}	2
cotte-key not in all the way top phase	{7CFF6E02-91BE-4B23-B6CF-42DD845086FA}	2
static wire not grounded	{C7E3B458-6DD1-41DC-A942-EC015191249B}	2
install new sign	{9CC628D9-8396-4EAF-B6DC-341D52914175}	2
cotter key not all the way in	{6DE60AA5-9077-436E-8D3C-693E9DC04CCD}	2
bottom phase cold end cotter key coming off	{EB187876-7B00-48A9-B2A4-3EF795CDB082}	2
install new stickers	{34CFD436-1876-4B58-A87E-9808792678F5}	2
install new stickers	{FC248B43-2C12-4E4B-92F3-02F1A618A7DA}	2
install new sign	{83908C44-E24F-41EC-8CB3-6D3C9025885D}	2
cotter key not in all the way	{54C99C48-B4DE-4796-A82F-BDE1B959EAF}	2
idle hardware shuckle	{950CFAA7-8587-431C-9AF6-DDE21F88F213}	2
install new sign	{0074AA98-0443-44EC-B6FF-DA5C3ACB7982}	2
Cross arms are weathered with cracking.	{A3E684A8-6739-45C1-BE54-37FF364B1BE6}	2
Pole is listing.	{8976987C-132E-41A8-AAE7-02CFD2F9ED4F}	2
Woodpecker hole at pole top.	{OCD8FF81-ECB9-424B-B654-B9A5023E0FBA}	2
Bottom east phase, cold end cotter key is not standard.	{94E905DF-F6C0-43C3-BE27-F528EBBD260D}	2
Old pole butts are exposed and hollow.	{D745582E-D869-4B8E-A7A2-B04DC3E30275}	2
Pole top has multiple woodpecker holes.	{43362A02-2CBF-4FD7-84B2-C739CFD7C494}	2
Light to medium rust.	{45C4742F-3848-4579-AB12-CEFB33C4B3B}	2
Improperly grounded.	{5078337A-3F43-4151-93CA-31247C8BB787}	2
Top post is twisted.	{8CBC86D7-45A3-47A7-AD97-C5DEB389455E}	2
Install missing access plates	{F1D1D5A7-E33C-424A-BC93-6948C25558A7}	2

install new stickers	{FE0AFAE0-1B6B-40EA-9BFA-214C5F6C69B3}	2
install new sign	{AA8C2CFA-D358-4AB6-8A07-D03B16CF1396}	3
install new sign	{DFD8518B-F6BB-49CF-BDF0-E8EBE14043BF}	3
install new stickers	{6655E9ED-85B9-4B73-99E1-78428784E4EA}	3
Pole butt has burn marks.	{3BB60FED-4553-4E29-B20A-9F4F40B83150}	2
West phase to the north is unevenly sagged.	{A7B21AD0-505F-4158-88F0-1B21C728653D}	2
Bottom posts, bottom bolt is loose.	{F874BD64-84C6-48E6-A801-8A0BE9570C40}	2

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV
1	Q3	625	Z272941	7/27/2021	AIR	No findings
2	Q3	6912	Z100081	9/1/2021	AIR	No findings
3	Q3	13831	Z100480	8/25/2021	AIR	No findings
4	Q3	643	Z100612	8/17/2021	AIR	No findings
5	Q3	643	Z100670	8/17/2021	AIR	No findings
6	Q3	6910	Z100705	9/7/2021	AIR	No findings
7	Q3	23041	Z100990	9/7/2021	AIR	No findings
8	Q3	13831	Z101421	8/25/2021	AIR	No findings
9	Q3	13838	Z101625	8/25/2021	AIR	No findings
10	Q3	694	Z10200	8/4/2021	AIR	No findings
11	Q3	6917	Z103164	8/5/2021	AIR	No findings
12	Q3	6917	Z103656	8/5/2021	AIR	No findings
13	Q3	6917	Z104151	8/5/2021	AIR	No findings
14	Q3	698	Z10677	8/4/2021	AIR	No findings
15	Q3	13816	Z119836	8/25/2021	AIR	No findings
1	Q4	6958	Z100145	11/20/2021	AIR	No findings
2	Q4	6916	Z100978	10/23/2021	AIR	No findings
3	Q4	616	Z12397	11/20/2021	AIR	No findings
4	Q4	23001	Z193548	10/23/2021	AIR	No findings
5	Q4	692	Z21195	11/5/2021	AIR	No findings
6	Q4	697	Z229341	10/23/2021	AIR	No findings
7	Q4	690	Z29147	10/23/2021	AIR	No findings
8	Q4	6958	Z40983	11/20/2021	AIR	No findings
9	Q4	616	Z510538	11/20/2021	AIR	No findings
10	Q4	23011	Z710011	10/23/2021	AIR	No findings
11	Q4	23011	Z710025	10/23/2021	AIR	No findings
12	Q4	13810	Z92629	10/23/2021	AIR	No findings
13	Q4	6916	Z973035	10/23/2021	AIR	No findings
14	Q4	23011	Z718338	10/23/2021	AIR	No findings
15	Q4	13810	Z479570	10/23/2021	AIR	No findings

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV	Component	Condition
1	Q1	13811	Z312782	3/23/2021	M	4	Conductor (Complete)	Kite
2	Q1	23001	Z96441	3/5/2021	M	4	Insulators-Ceramic, Standard, 30K	Balloon-Mylar
3	Q1	23006	Z222386	3/23/2021	AFC	4	Ground Grid Taps	Assessment Required
3	Q1	23006	Z222386	3/23/2021	AFC	4	Shieldwire Attachment Point	Blackening
3	Q1	23006	Z222386	3/23/2021	AFC	4	Member (Steel Tower)	Blackening
3	Q1	23006	Z222386	3/23/2021	AFC	4	Damper (Complete)	Flashed
4	Q1	23021	Z971903	1/8/2021	M	4	Aerial Marker Sphere(s)	Other (Specify)
5	Q1	23030	Z322644	2/20/2021	M	3	Aerial Marker Sphere(s)	Broken
6	Q1	23041	Z873106	1/28/2021	AFC	5	Hardware	Flashed
7	Q1	23054	Z123440	1/29/2021	LCI	4	Hot End Cotter Key(s)	Assessment Required
8	Q1	23055	Z123614	1/29/2021	LCI	0	Complete Tower	Bird Nest
9	Q1	691	Z123384	3/25/2021	M	4	Cross Arms	Deterioration
9	Q1	691	Z123384	3/25/2021	M	4	Hot End Clevis Pin	Backed Out-Off
10	Q1	50003	Z125871	1/29/2021	LCI	0	Cold End Cotter Key(s)	Missing
11	Q1	616	Z611160	1/14/2021	M	5	Switch - Contacts	Not Fully Closed
11	Q1	616	Z611160	2/13/2021	M	4	Switch (Complete)	Maintenance Required
12	Q1	649	Z31724	2/12/2021	M	4	Switch (Complete)	Maintenance Required
12	Q1	649	Z31724	2/27/2021	M	4	Switch (Complete)	Out Of Adjustment
13	Q1	691	Z123385	3/25/2021	LFC	4	Anchor Rods	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Insulators-NCI, 69kv	Flashed
13	Q1	691	Z123385	3/25/2021	LFC	4	Preform	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Bond Wire	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Jumper (Complete)	Assessment Required
13	Q1	691	Z123385	3/25/2021	LFC	4	Hardware	Blackening
14	Q1	6926	Z12115	2/2/2021	M	4	Comm Cable	Installation-Improper
14	Q1	6926	Z12115	2/2/2021	M	4	Complete Wood Pole	Damaged
15	Q1	695	Z21292	3/30/2021	M	4	Area Around Structure	Walking Path Required
15	Q1	695	Z21292	1/12/2021	M	3	Guy Wire - Anchor	Broken
1	Q2	6945	Z181611	6/21/2021	M	3	Area Around Structure	Assessment Required
2	Q2	23006	Z222451	4/9/2021	AFC	4	Shieldwire Attachment Point	Blackening
3	Q2	6912	Z195309	5/26/2021	M	3	Shoe Nut(s)	Missing
4	Q2	690	Z21125	4/29/2021	M	4	Switch (Complete)	Maintenance Required
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire - Anchor	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Anchor Rods	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire Guards	Fire Damage
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire - Anchor	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Anchor Rods	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire Guards	Fire Damage
6	Q2	23006	Z222461	5/14/2021	M	4	Anti-Climb Barrier	Broken

7	Q2	23051	Z710007	6/10/2021	M	4	Hot End Pin(s)	Not Fully Closed
8	Q2	23030	Z811339	6/24/2021	M	4	Insulators-Ceramic, Standard, 30K	Washing Needed
9	Q2	23011	Z710026	5/24/2021	AFC	4	Conductor (Complete)	Flashed
9	Q2	23011	Z710026	5/24/2021	AFC	4	Hardware	Blackening
10	Q2	23030	Z322670	6/4/2021	M	4	Insulators-Ceramic, Standard, 40K	Assessment Required
11	Q2	23030	Z811342	6/24/2021	M	4	Insulators-NCI, 230kv	Washing Needed
12	Q2	23010	Z223664	4/19/2021	M	4	Anti-Climb Barrier	Broken
13	Q2	23006	Z222427	4/4/2021	AFC	4	Hardware	Blackening
13	Q2	23006	Z222427	4/4/2021	AFC	4	Shieldwire Attachment Point	Blackening
13	Q2	23006	Z222427	4/4/2021	AFC	4	Insulators-NCI, 230kv	Flashed
13	Q2	23006	Z222427	4/4/2021	AFC	4	Jumper (Complete)	Flashed
14	Q2	13844	Z100116	4/24/2021	AS	4	Aerial Marker Sphere(s)	Installation Required
15	Q2	13811	Z312787	5/28/2021	M	3	Insulators-Ceramic, Standard, 30K	Chipped
15	Q2	13811	Z312787	5/28/2021	M	3	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
1	Q3	6932	Z811341	9/27/2021	M	0	Bolt(s)	Loose
2	Q3	6932	Z818298	8/10/2021	M	3	Guy Wire - OH	Loose
3	Q3	691	Z415246	8/16/2021	M	3	Stub Pole - Steel	Rust (Heavy)
4	Q3	690	Z246503	9/1/2021	M	4	Comm Cable	Clearance-Insufficient
5	Q3	689	Z246949	8/29/2021	M	4	Conductor (Complete)	Balloon-Mylar
6	Q3	682	Z118213	8/16/2021	AS	4	Insulators-Post, NCI, 69kv, Long	Bird Nest
7	Q3	616	Z18112	8/20/2021	M	2	Anchor Rods	Assessment Required
7	Q3	616	Z18112	8/20/2021	M	3	Anchor Rods	Rust (Heavy)
8	Q3	50001	Z50047	7/12/2021	LFC	4	Insulators-Ceramic, Standard, 40K	Washing Needed
9	Q3	50001	Z50048	7/12/2021	LFC	4	Conductor (Complete)	Flashed
10	Q3	23051	Z619991	8/27/2021	M	4	Member (Steel Tower)	Foreign Object (Specify)
11	Q3	23040	Z284004	7/23/2021	M	3	Footings (Complete)	Assessment Required
11	Q3	23040	Z284004	7/30/2021	AS	4	Area Around Structure	Assessment Required
12	Q3	23030	Z811338	9/30/2021	M	4	Tower-Leg(s)	Assessment Required
13	Q3	13833	Z223158	9/10/2021	M	3	Member (Steel Tower)	Damaged
13	Q3	13833	Z223158	9/9/2021	M	4	Ground Grid Taps	Damaged
14	Q3	13831	Z101591	8/19/2021	M	4	Guy Wire - OH	Clearance-Insufficient
15	Q3	13816	Z223165	9/28/2021	M	0	Tipline Identification Tags	Other (Specify)
1	Q4	13835	Z322476	10/16/2021	M	4	Pole Butt	Vandalism
1	Q4	13835	Z322476	10/16/2021	M	4	Guy Wire - OH	Loose
2	Q4	13836	Z322484	12/10/2021	M	4	Complete Wood Pole	Woodpecker Hole(S)
3	Q4	23002	Z223660	10/9/2021	M	2	Ground Rod Bond Wire	Broken
4	Q4	23002	Z223674	10/21/2021	M	4	Insulators-NCI, 230kv	Assessment Required
5	Q4	23006	Z222416	10/6/2021	M	2	Ground Rod Bond Wire	Broken
5	Q4	23006	Z222416	10/6/2021	M	2	Ground Grid Taps	Exposed
6	Q4	23010	Z223676	10/6/2021	M	2	Ground Rod Bond Wire	Exposed
6	Q4	23010	Z223676	10/6/2021	M	2	Anti-Climb Barrier	Removal Required
7	Q4	23022	Z873093	12/7/2021	M	3	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
8	Q4	23030	Z322664	10/20/2021	M	3	Footings (Complete)	Damaged
9	Q4	23052	Z322247	10/21/2021	M	4	Insulators-NCI, 230kv	Assessment Required

10	Q4	50001	Z50019	10/19/2021	AS	4	Aerial Marker Sphere(s)	Broken
11	Q4	616	Z133531	10/9/2021	M	3	Anchor Rods	Assessment Required
12	Q4	634	Z413562	11/4/2021	M	3	Anchor Rods	Earth - Covered With
12	Q4	634	Z413562	11/4/2021	M	3	Anchor Rods	Rust (Heavy)
13	Q4	675	Z138139	10/14/2021	M	4	Complete Wood Pole	Woodpecker Hole(S)
14	Q4	6926	Z210656	10/3/2021	M	5	Pole Butt	Damaged
15	Q4	6906	Z97145	12/5/2021	LFC	4	Insulators-NCI, 69kv	Flashed
15	Q4	6906	Z97145	12/5/2021	LFC	4	Jumper (Complete)	Flashed
15	Q4	6906	Z97145	12/5/2021	LFC	4	Bond Wire	Blown
15	Q4	6906	Z97145	12/5/2021	LFN	4	Guy Wire - OH	Other (Specify)
15	Q4	6906	Z97145	12/6/2021	LFN	4	Comm Cable	Damaged

CONDITIONCOMMENTS	GLOBALID	Tier				
Kite on North phase 50 yds. NW of 3 pole structure	{8312590B-AECO-456D-A00F-B461725D007C}	2				
Remove mylar balloon with insulator washer	{0F227692-EF26-4720-B657-792B0B2D1192}	2				
Evidence of ground fault.	{56E5CB49-D17A-47AB-B569-529831796E92}	2				
Shield wire hardware has blackening from ground fault.	{DCE0E4E9-9367-49F0-8C09-AA83DCAF3602}	2				
Middle east arm. Top of arm, south side. Evidence of mylar balloon contact.	{10FAEE69-E951-4401-B9B0-0DEED8A63D93}	2				
Top east, first south damper. Flash marks from mylar balloon contact.	{0B3EFA12-54CF-41DF-85CB-E684C7E2F6A4}	2				
Noise complaints from surrounding neighbors. No photos.	{DE818152-AC16-4704-BBC9-B37909D67761}	2				
First white marker ball to the east. Broken.	{AADFEF99-3E03-4C2C-9560-05AA33550480}	2				
top phase hot end hardware and bells are flasherd	{9CB6D3EA-9911-4A47-8BF1-C7570C793722}	2				
Climbing inspection by Bennett's crew - Top phase inside wire shoe cotter key on TL23054 and middle phase weights cotter key	{25EEEBF5-054E-4BD4-9463-AAAAF9F333E0}	3				
Climbing Inspection completed by Galla's crew - bird nest removed from tower	{06FC0AFE-0AFA-4A6C-8886-A0FB12D8505B}	3				
Cross arms look very crunchy.	{68B1F5B6-1E1F-4794-AA61-04DB401C3336}	2				
South west hot end shoe pin might be missing cotter key and or backed out. Looks	{1AB4F141-D5D8-4C9A-9A77-BEBF78865CAE}	2				
Climbing inspection completed by Galla's crew - missing cotter pin installed	{F5C953F3-EBC9-4FC0-81C8-AAAC87EB72BD}	2				
Switch 616-2 not fully closed per Troubleman	{12167D82-64C2-4686-9DB1-31DEF8619CFB}	2				
ETS reports that Switch 616-2 is difficult to open all the way and was drawing an arc. Switch would become increasingly difficult at the halfway point	{57E2E98C-6F72-4F3F-AD01-15139B42362A}	2				
ETS Ryan McGhen reports SWI 649-6 on pole Z31724 requires Lube and Adjustment	{1C9612AA-40E8-4E98-AB1C-A604F7AD6BF8}	2				
Troubleman says the switch is very hard to close like it is not lubricated.	{A1776935-3762-4C0E-824A-9ACAA0367102}	2				
Both anchor rods & preforms have blackening from fault.	{4ED12716-30C8-4CF6-9163-43E0CEBF6A1D}	2				
North west polly might be flashed.	{432F989C-E648-4D0F-93F7-0733AC2F12FC}	2				
Both anchor rods & preforms have blackening from fault.	{87F3A744-9A22-4C9C-B439-B7890DDA231D}	2				
Bond wire is burnt at north side of arm. Brace & DA hardware.	{A4023B65-D291-4A99-92A8-9F8549B28AC1}	2				
North jumper may have damage from fault.	{6EAF6C64-036F-478E-98AE-868D5C039D98}	2				
Hardware is burnt at north side of arm. Brace & DA. Also Downguy hardware.	{63BECF8F-6F57-4DF7-8560-BD277EE7BDD8}	2				
Fwd to JU. Level one 30 days. Loose lashing & com cable not attached	{D04B52D4-F8AB-4392-B3D2-84AF1C831A9F}	3				
Fwd to TE. Replace pole due to bus hitting it. Damage order 53-33837	{18F365FC-92D2-4FDA-8703-52E2BB8A5155}	3				
Fwd to Veg Mgmt. Clear poison oak from trail & anchor rod	{E0B1CB13-C551-4FB6-8355-2515F2EA6AB1}	2				
Communication down guy is broken	{24E6EE9A-3EAB-4887-9586-698F14160F07}	2				
FWD to Civil Engineering for assessment - water drainage appears to have started to enter at concrete backfill/soil interface. This has caused a small sinkhole (could inches in diameter that extends below grade several feet to meet drainage path.	{02930368-6137-42C9-97FE-09137BB43199}	2				
Shield wire hardware has blackening.	{96630ED5-50DC-457C-A31A-EF91DF49FFA9}	2				
TL6912 ~ Top phase, south deadend shoe. Nut missing.	{E8302315-9EC0-4683-97C3-225989BDF93B}	2				
	{14A94F82-9CCB-495E-B508-5BC81C30BEE4}	2				
Top guy wire at anchor rod has blackening from fire.	{8E9D4B50-0D21-44B2-A20F-152DC7159247}	3				
Top anchor rod has blackening from fire.	{54510EE0-2840-4625-A700-390D706FA4B3}	3				
Melted guy wure guard. Please replace at time of completion of other open conditions.	{7D40B24B-B024-4A3C-92B6-B5266460D948}	3				
Top guy wire at anchor rod has blackening from fire.	{8E9D4B50-0D21-44B2-A20F-152DC7159247}	3				
Top anchor rod has blackening from fire.	{54510EE0-2840-4625-A700-390D706FA4B3}	3				
Melted guy wure guard. Please replace at time of completion of other open conditions.	{7D40B24B-B024-4A3C-92B6-B5266460D948}	3				
	{64BBFBE2-0E85-4431-A9D1-9025347EF072}	2				

Middle phase, inside string, hot-end pin is not seated.	{50D16F1C-2A2D-4055-8BE2-6A05B302B604}	2			
Washing needed Mesa Fire	{79148422-B9BE-4B9C-907B-02075BB34FD8}	3			
Mylar balloon splatter on conductor at shoes.	{F0495F23-DB93-4927-9178-52921BDABDE2}	2			
Top phase hot end hardware has blackening.	{02252A23-9ED7-47D6-A7AB-CAB0EDE3955C}	2			
Assess replacing with NCI due to location	{33DD43A3-03E7-43F8-A899-DA73898D44F6}	2			
Washing needed - Mesa Fire	{74733B63-1179-4657-8EDF-487AE16619D1}	3			
	{6EF72E1B-8A38-4889-8DB2-B2DE25DB1F2A}	2			
Top phase, east cold end hardware has blackening from ground fault.	{B41946F9-19EB-4AF4-8121-251B60883E71}	2			
Shieldwire hardware has blackening from A phase ground fault.	{D2BF4C36-D795-48A1-97C3-A58D9F908061}	2			
Top south east NCI is flashed.	{1943550D-CODF-4D5E-B6BA-1E38C1A44F6A}	2			
Top east phase jumper has splatter marks from ground fault.	{FF2107B5-C7B4-49EE-9A16-037144EE35C4}	2			
Marker balls needed in span towards Z100117 for security flight operations. No photos.	{BBEC7D83-9E9C-4663-B776-865F0A1E1523}	2			
	{CCBF6F56-799F-438B-812B-16E6073D97FA}	2			
	{45FE7E22-485A-40E0-89A0-F514FBD44C26}	2			
C-Leg stub angle is missing a nut and bolt is backed out. Competed.	{928202B6-66B6-4E7A-AFEB-E4DFC6EAFD6A}	3			
West OH guy wires are loose.	{BD46DA73-7E8A-447A-B6E2-5C11E6398E4D}	3			
Rust on stub pole at top	{203A66F3-E2E1-48B3-8405-97B374404BC1}	2			
Fwd JU Level one 30 days; will also FWD Insp 75376 to JU Level one 30 days	{4A256B20-3CF6-4A69-B7D2-OFFB2BBF0A0B}	2			
	{D6D9F661-0026-44CA-B6BE-12010144A746}	2			
Bottom phase post has a bird nest.	{E67F6935-0A32-4072-959B-A44C07C08240}	2			
Top anchor rod will be re-buried at first rain.	{5ECBBAFC-357F-44CE-9FE3-2F912E979F7C}	2			
Top anchor rod has medium to heavy rust.	{07BDB850-1E5F-4C27-878D-B6B2F5EF2E6E}	2			
Smoke contamination from fire. No photos. Washing completed.	{5806924E-B81F-4F6F-BB00-A8DA42E4283E}	3			
Flash marks on C phase, south phase. Outside conductor, In between structure and first damper.	{FF4911FB-5528-4AF1-8412-D232AA850D72}	3			
Remove ropes hanging above barbwire on steel members	{6776F067-880E-4DDA-B8D1-9BFBAECBD3E2}	2			
Footer is damaged and rebar is exposed	{1D61B037-B90B-45E9-8802-AED89AEF27E5}	2			
Drill rig next to tower. On access road.	{3D3D0A55-17F3-4E5E-9A81-D2BAEAA97AF2}	2			
Install security nuts due to vandalism issues in this segment of line	{E86BFC97-5ADD-48C6-AB78-61C260D199AD}	2			
diagonal is damaged near footer	{BC5D20BD-600F-4DFD-88A4-AD87DAA9ECC3}	2			
	{9196D251-14DE-4EA3-A25A-6B86926BEC80}	2			
Comm cable down guy has insufficient clearance over road.	{E50DB9BE-EA82-4E8D-9AEC-FEE256D15022}	2			
Both TL tags were peeling off.	{61032ECA-AF83-41AD-A974-B60E2B5D88F4}	2			
Pole butt has been shot numerous times.	{9150C551-FECD-4E17-A773-105501783CE3}	2			
All guy wires are loose.	{B271B80D-03F6-4570-A8E1-94A4F795534D}	2			
Fwd to TE. Replace pole. Woodpecker holes & shell collasping at static wire dead end	{325FDB4E-E31A-43A6-B567-5E08D1CFCCA0}	2			
D leg ground grid wire broken.	{FA63CB44-27FB-467F-B9D2-6DA646FE19D7}	2			
TL 23002 has Ohio Brass NCIs	{E7E34D44-C053-46D8-AF72-63EF39CBE54B}	2			
C leg ground connected broken.	{3A71571A-52C7-44FB-BFB9-B622A447D43A}	2			
C leg ground rod is exposed.	{D06B5987-3A6E-450B-B854-F3CF5A688677}	2			
D leg ground wire exposed.	{52558375-B1A7-4DE1-9A56-43AD1E6E60BB}	2			
Barb wire needs removed and cleaned up.	{DFFC3D3C-4D9D-438C-A353-122AF431C871}	2			
assessment required	{D2B7FA7C-D1D6-4CD7-B50B-093D24230D68}	2			
B-leg footer is damaged.	{FFB03DDD-067F-4940-8734-B19096679E3E}	2			
TL 23052 & 23007 are Ohio Brass NCIs	{310402F6-BD15-4A78-908C-D4582AD99E7E}	2			

White marker ball broken between Z50019 -Z50018.	{027A0782-3204-4687-A735-A0F51A4FB3F8}	3
Anchor rods are currently in water.	{A5CDD06B-F285-43E5-B612-244AEA3981DF}	2
Top west anchor rod needs long term solution to keep from being buried.	{06B0DE30-B4A7-4849-88B6-0E44965D311D}	2
Top west anchor rod has medium to heavy rust.	{ADCD8BDD-CB8E-46D7-BC8D-FE691BE89D69}	2
Fwd to TE. Replace pole	{6BB9E36D-F490-4967-BBDB-49398A122036}	2
Car pole 10/3/21 around 2:00 AM Emergency pole replacement	{54962DBE-EEE3-45C8-99E2-B8494861670D}	2
flash insulator cold end on the east/north side due to mylars balloons flash	{357E2DF2-B7E2-4CC1-AD5C-6176A27F7042}	2
jumper have flash marks due to mylar balloons	{1B10C4E4-2C86-4745-BA69-47DE825599FD}	2
bond wire blond open due to mylar ballons fault	{FE4EB564-FDFD-486C-B284-27AD89EBBB2E}	2
down guys are rubing hard on comunication some strand are open	{6C6559E5-B4D5-429B-A6CE-6B119A02ED95}	2
Fwd to JU. Comm. Cable approx 50' north of pole damaged. Loose lashing & burn. Level One 30 days	{E07E34DD-AC32-48DF-B6A3-932CB397A79F}	2

Patrol Code	Definition
LCI	land Climbing Inspetion
AFC	aerial fault cause
AFN	aerial fault not cause
AS	aerial special
LFC	Land fault cause
LFN	land fault not cause
LS	Land Special
M	Misecellaneous
LR	Land Routine
AIR	aerial infrared
LIR	Land Infra Red

Data request type	WMP Initiative
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Detailed Inspection	7.3.4.2
Infrared Inspection	7.3.4.5
Infrared Inspection	7.3.4.5

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.4 Infrared Inspection Reports (Transmission)

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV	Component	Condition
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Assessment Required
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Trim For Inspection
1	Q1	616	Z12399	2/17/2021	LR	3	Guy Wire - Anchor	Mis-Aligned-Pulled
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Patrol Insp Required
2	Q1	679	Z510498	3/8/2021	LR	0	Stub Pole - Anchor Guy	Grounding Required
3	Q1	6945	Z181661	2/27/2021	LR	2	Footings (Complete)	Assessment Required
4	Q1	6945	Z181661	2/27/2021	LR	4	Cold End Cotter Key(s)	Missing
5	Q1	682	Z118014	2/8/2021	LR	3	Shoe Pin-Bolt	Loose
6	Q1	682	Z118099	1/29/2021	LR	4	Insulators-Post, NCI, 69kv, Long	Damaged
7	Q1	13811	Z312780	3/17/2021	LR	4	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
7	Q1	13811	Z312780	3/17/2021	LR	4	Hardware	Rust (Heavy)
7	Q1	13811	Z312780	3/17/2021	LR	4	Cross Arms	Cracked
7	Q1	13811	Z312780	3/17/2021	LR	4	Signs-High Voltage-At Top	Unreadable
8	Q1	682	Z118082	2/9/2021	LR	2	Pole Butt	Vandalism
9	Q1	23054	Z123178	1/4/2021	LR	3	Footings (Complete)	Earth - Covered With
9	Q1	23054	Z123178	1/4/2021	LR	3	Footings (Complete)	Assessment Required
10	Q1	23055	Z123512	1/7/2021	LR	4	Cold End Cotter Key(s)	Missing
11	Q1	23055	Z123210	1/6/2021	LR	3	Complete Tower	Bird Nest
12	Q1	6906	Z95919	3/15/2021	LR	0	Anchor Rod Ground Wire	Broken
13	Q1	6906	Z97150	3/18/2021	LR	0	Tieline Identification Tags	Unreadable
14	Q1	6930	Z181660	2/27/2021	LR	4	Insulators-Post, NCI, 69kv, Long	Damaged
15	Q1	6930	Z510521	3/4/2021	LR	2	Complete Steel Pole	Leaning-Tilted
1	Q2	690	Z21148	5/16/2021	LR	3	Anchor Rods	3 Guys-1Rod
1	Q2	690	Z21148	5/16/2021	LR	3	Guy Wire - OH	Rust (Heavy)
1	Q2	690	Z21148	5/16/2021	LR	3	Anchor Rods	Grounding Assessment Required
2	Q2	690	Z21183	5/14/2021	LR	3	Cold End Pin(s)	Installation Assessment Required
3	Q2	690	Z21111	5/24/2021	LR	2	Pole Butt	Trees Too Close
4	Q2	6952	Z92793	6/7/2021	LR	0	Tieline Identification Tags	Unreadable
4	Q2	6952	Z92793	6/7/2021	LR	0	Sign Warning (With Man)	Unreadable
4	Q2	6952	Z92793	6/7/2021	LR	0	Structure Number	Unreadable
5	Q2	694	Z317932	6/1/2021	LR	3	Anchor Rod Ground Wire	Installation-Improper
6	Q2	678	Z875085	6/9/2021	LR	3	Guy Wire - OH	Loose
7	Q2	13811	Z312833	4/5/2021	LR	3	Pole Top	Woodpecker Hole(S)
7	Q2	13811	Z312833	4/5/2021	LR	3	Insulators-Ceramic, Standard, 30K	Chipped
8	Q2	13811	Z312842	4/5/2021	LR	3	Anchor Rods	Patrol Insp Required
8	Q2	13811	Z312842	4/5/2021	LR	0	Tieline Identification Tags	Unreadable
8	Q2	13811	Z312842	4/5/2021	LR	3	Cross Arms	Cracked
8	Q2	13811	Z312842	4/5/2021	LR	3	Anchor Rods	Walking Path Required
9	Q2	616	Z12399	6/16/2021	LR	0	Jumper (Complete)	Other (Specify)
9	Q2	616	Z12399	6/16/2021	LR	2	Access Road	Other (Specify)
10	Q2	634	Z413551	6/3/2021	LR	2	Pole Butt	Trees Too Close
10	Q2	634	Z413551	6/3/2021	LR	2	Insulators-Post, NCI, 69kv, Long	Damaged
10	Q2	634	Z413551	6/3/2021	LR	2	Signs-High Voltage-At Top	Unreadable
10	Q2	634	Z413551	6/3/2021	LR	2	Anchor Rods	Bent

11	Q2	634	Z16580	6/7/2021	LR	4	Comm Cable	Clearance-Insufficient
11	Q2	634	Z16580	6/7/2021	LR	3	Footings (Complete)	Earth - Covered With
12	Q2	634	Z169411	6/10/2021	LR	2	Pole Butt	Trees Too Close
12	Q2	634	Z169411	6/10/2021	LR	2	Anchor Rods	Vegetation Overgrown
13	Q2	692	Z39491	5/27/2021	LR	0	Tieline Identification Tags	Unreadable
14	Q2	6952	Z92796	6/7/2021	LR	0	Sign Warning (With Man)	Unreadable
15	Q2	694	Z15171	6/1/2021	LR	3	Bolt(s)	Missing
15	Q2	694	Z15171	6/1/2021	LR	3	Signs-High Voltage-At Top	Unreadable
15	Q2	694	Z15171	6/1/2021	LR	3	Insulators-Ceramic, Post, 69kv	Loose
1	Q3	616	Z611221	7/27/2021	LR	3	Guy Wire - OH	Loose
1	Q3	616	Z611221	7/27/2021	LR	3	Anchor Rods	Grounding Assessment Required
2	Q3	23041	Z873107	8/20/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
3	Q3	6939	Z133522	7/20/2021	LR	2	Footings (Complete)	Other (Specify)
3	Q3	6939	Z133522	7/20/2021	LR	2	Ground Connection	Exposed
4	Q3	23041	Z971855	7/24/2021	LR	3	Cold End Cotter Key(s)	Backed Out-Off
5	Q3	23022	Z873093	8/24/2021	LR	3	Signs-High Voltage-At Top	Faded
5	Q3	23022	Z873093	8/24/2021	LR	3	Other(Specify)	Painting Assessment Required
6	Q3	23022	Z201922	8/26/2021	LR	4	Hot End Cotter Key(s)	Backed Out-Off
7	Q3	23022	Z201923	8/20/2021	LR	0	Sign Warning (With Man)	Unreadable
8	Q3	6912	Z29194	7/13/2021	LR	3	Shoe Pin-Bolt	Loose
9	Q3	6912	Z195309	7/19/2021	LR	3	Cold End Pin(s)	Backed Out-Off
9	Q3	6912	Z195309	7/19/2021	LR	3	Anchor Rods	Removal Assessment Required
9	Q3	6912	Z195309	7/19/2021	LR	3	Shoe Nut(s)	Missing
10	Q3	13822	Z576634	8/24/2021	LR	4	Other(Specify)	Bird Nest
11	Q3	13824	Z201093	9/23/2021	LR	0	Guy Wire Guards	Deterioration
12	Q3	13824	Z200646	9/17/2021	LR	3	Hot End Cotter Key(s)	Backed Out-Off
12	Q3	13824	Z200646	9/17/2021	LR	3	Cold End Cotter Key(s)	Backed Out-Off
13	Q3	23021	Z100990	8/20/2021	LR	4	Shield Wire (Complete)	Grounding Required
13	Q3	23021	Z100990	8/20/2021	LR	0	Sign Warning (With Man)	Unreadable
14	Q3	23041	Z971872	7/31/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
15	Q3	23041	Z873107	8/20/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
1	Q4	681	Z12889	11/19/2021	LR	0	Structure Number	Unreadable
1	Q4	681	Z12889	11/19/2021	LR	0	Tieline Identification Tags	Unreadable
1	Q4	681	Z12889	11/19/2021	LR	0	Sign Warning (With Man)	Unreadable
2	Q4	13824	Z200599	10/12/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
2	Q4	13824	Z200599	10/12/2021	LR	4	Hardware	Assessment Required
3	Q4	632	Z200643	10/6/2021	LR	0	Sign Warning (With Man)	Unreadable
4	Q4	686	Z215016	11/15/2021	LR	4	Cross Arms	Deterioration
4	Q4	686	Z215016	11/15/2021	LR	4	Complete Wood Pole	Leaning-Tilted
5	Q4	686	Z118260	11/12/2021	LR	2	Pole Top	Woodpecker Hole(S)
6	Q4	686	Z118293	11/4/2021	LR	2	Cold End Cotter Key(s)	Installation-Non Standard
7	Q4	686	Z118323	11/11/2021	LR	3	Pole Butt	Assessment Required
7	Q4	686	Z118323	11/11/2021	LR	3	Pole Top	Woodpecker Hole(S)
8	Q4	686	Z118337	12/14/2021	LR	2	Anchor Rods	Rust (Medium)
8	Q4	686	Z118337	12/14/2021	LR	2	Anchor Rods	Grounding Assessment Required
9	Q4	686	Z118331	12/14/2021	LR	2	Insulators-NCI, 69kv	Twisted
10	Q4	698	Z293941	10/18/2021	LR	3	Other(Specify)	Missing

11	Q4	13824	Z200600	10/1/2021	LR	0	Structure Number	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Tipline Identification Tags	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Sign Warning (With Man)	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Structure Number	Unreadable
13	Q4	686	Z118249	11/30/2021	LR	2	Pole Butt	Fire Damage
14	Q4	686	Z210751	11/18/2021	LR	3	Conductor (Complete)	Improper Sag
15	Q4	686	Z118258	11/13/2021	LR	2	Bolt(s)	Loose

CONDITIONCOMMENTS	GLOBALID	Tier
Old pole butt is exposed, hollow and deep.	{042549E5-9E75-453D-A383-5E822CD88E7D}	2
Need trees trimmed to inspect pole butt.	{4C93615B-5576-4F3C-B517-3894D9112428}	2
Tree branches are pulling on OH guy wire.	{75103777-AB1A-4A50-BD90-23CF2271C376}	2
Need trees trimmed to inspect pole butt.	{AB3AFF17-B40C-47A4-8C35-252D662907DC}	2
Missing connection. Completed.	{A328A537-B73C-4C1F-9271-BB64DB00533C}	2
No security nuts on footer bolts.	{299D3784-6DC0-4232-854E-194E495A7E42}	2
Top west, cold end cotter key is missing.	{EE35E0C2-B34A-4B10-A7ED-0DB21A2C48A8}	2
Bottom post, trunnion bolt might be a little loose.	{C1824884-1FC4-49EA-904D-FEAF8CA0B49C}	3
Middle phase, Cold end skirt is ripped.	{199361AB-43FC-40F8-9FD0-5AE6DCFFDDA4}	3
All hot end insulator shanks have heavy rust.	{8E72B1F2-D35B-464F-A2CA-78C7FC6F3DD4}	2
All hot end hardware has heavy rust.	{1A2DE957-1C22-441F-90F1-A14E3585EA20}	2
Wet portion of cross arm at pole is cracked.	{745BD7DA-0E34-4803-A070-D581F6DA80E9}	2
	{1B4607CB-B2E6-4B2B-94E8-FF74A28CC1C4}	2
Graffiti	{FDF2DA5B-4F2E-4994-830D-FC24EDCOFEA9}	3
C,D,& A leg footers need erosion barriers.	{E98D970E-3619-4902-AAF8-B144A58E34FF}	3
C,D,& A leg footers need erosion barriers.	{6E891796-C205-429E-9EE0-188FB6C9EBE8}	3
23055 Middle east cold end cotter key is missing.	{D620AE84-9B86-4A7A-89A8-51120E2DB8B}	3
23055 Top arm, nest	{7AC6F4AA-EC1E-4BB7-92D4-BAB20EA1720B}	3
fix ground leg conection	{A6CA4486-6EA5-4BC2-A0C2-CA4D131D8093}	2
install new stickers	{31C06379-E954-4C35-AC5A-B9FEAA245351}	2
TL6930 Hot ends of posts are damaged from suspension shoes rubbing.	{B14F8DD0-2E3B-4636-AC21-2A089E7AB1CE}	2
Pole is leaning to the east.	{BOBF2BD6-2591-4463-AE08-2EA78F636A0A}	2
West anchor rod has 3 guys to one anchor.	{FBF9EABE-DFCA-450E-B8B2-755F8DFE4F61}	2
Bottom west guy wire is rusted.	{E57525B3-36BB-40AB-A712-323131946223}	2
All anchor rods are improperly grounded.	{ECE9732F-7A17-4B99-A500-1C266D74A483}	2
South top polly, cold end end pin not fully in.	{1FB8FD25-24D7-410F-AAAB-88F3E44250C0}	2
Tree to close to pole butt.	{8C1BB419-EED4-4900-91B5-33B192564742}	2
install new stickers	{9B22646E-0992-4F8B-8D5B-260B8F5E4B18}	2
install new sign	{C189C960-E6AF-404E-B03F-C861838E69F2}	2
install new stickers	{3220D5CD-C9E4-4663-94A3-80638948455D}	2
	{9ABEA780-E4A9-42F0-AEE9-A3B510EB9388}	2
loose guys	{596C8164-3D55-47E7-8432-F183C15B46E3}	2
East pole top has a woodpecker hole on the north side.	{01357303-AFD5-4BD7-910B-A8862AA85344}	2
West phase, hot end insulator bells have chips.	{BA4EF144-6245-4625-99C0-0007D73A8BB3}	2
Need veg trimmed to inspect anchor rods.	{02DC2F44-2012-4D00-BD9F-1153EAD5595B}	2
	{ECC9ADF5-AB12-4605-B62B-B1215F6B4D63}	2
Northeast side of cross arm is cracked.	{FFEC7B47-676C-464D-875F-183AE3BD1E7E}	2
Need veg trimmed to inspect anchor rods.	{18FC06D9-AC3F-4270-BB11-599D0E47A9A2}	2
jumper looks close to down guy	{09D5D9C9-77FA-49DE-9616-385B089E7351}	2
when using sdge key to unlockthe gate it keeps turning and it wont open gate	{8EBF3D47-44DF-4A5C-A109-90E6F718307F}	2
Trees to close to pole butt.	{DE9DC6C8-5AC9-4D39-BDD9-60E6BE486D0D}	2
Bird chewed skirts on top post.	{22530128-1A32-476C-AFE3-7F8AE7FDC434}	2
Needs new high-voltage stickers.	{12BEA01E-B2F8-4B44-AFBE-832A1CEF395D}	2
Bottom anchor rod is bent.	{82F054E1-9E62-4BDD-8F0F-B8DBA3034E74}	2

Comm cable to the north is being vectored by trees, midspan.	{282D4861-B021-4498-9B04-45A9B75264DD}	2
Dirt and rocks up against footers.	{26B6326D-5AD2-42A2-8473-9B87A1F43275}	2
Tree to close to pole butt.	{34517484-BE11-4882-8A1C-12B135A123D8}	2
Veg overgrown at all anchor rods.	{1C2949EA-F953-4588-A50A-8C15E34706EF}	2
install new stickers	{109B6DD8-D2EA-46FF-BE04-D3A7A2468997}	2
install new signs	{EF7BCC9F-945F-4F5D-9DD6-B8F569EAC7D9}	2
no split bolt	{DB7964C4-D6B6-48A2-9102-60D4DEE2541A}	2
	{90A2B186-A258-48BF-A371-EF3A4DC47E84}	2
	{E25100CE-30F0-4AEC-B5A7-46E4907A9829}	2
All guy wires are loose.	{CFE8B87C-57F8-4F41-87CD-7F6A5B851E35}	2
Anchor rods are improperly grounded.	{D803CD9B-B364-416C-BF7E-54D66C80A5C7}	2
bottom phase cold end cotter key coming off	{EB187876-7B00-48A9-B2A4-3EF795CDB082}	2
Stub pole footer nuts need security nuts.	{AA9E5FA7-2085-4208-9883-B340C655E20B}	2
Stub pole ground rod connection is exposed.	{0F5BA6F6-0BBF-4308-B2B2-45A9FE233845}	2
cotter key on static not all the way in	{F7CEA31C-8E49-4911-9050-93AD4374191B}	2
yellow band faded	{00574480-E3BE-4605-A7B8-6D5DA81CCAA7}	2
paint is coming off	{01698CA3-A37F-41D0-B303-6D707AD56A73}	2
top and bottom hot end cotter key not in all the way	{5271B486-FD38-4290-BE7E-5B1F286AE5A8}	2
install new sign	{0DAEC75B-8FA4-4A20-9AF0-89BCA37BB78A}	2
Bottom post. Trunnion bolt is loose.	{49BA62D4-F046-4169-8AB1-9F4BE09FC5C0}	2
Bottom phase, south cold end NCI pin not seated.	{3830FEF5-2791-4AF5-938A-5CC241920F3A}	2
Old anchor rods near old pole butts. Removal required.	{5B76FC4E-4EA4-439E-906E-C9333A5435E4}	2
Top phase, south deadend shoe missing nut.	{6E4CA370-E102-41CB-897A-EB8C8B5588E0}	2
bird nest on middle arm	{BE426500-B61E-4D63-A6AE-F3F04672083C}	2
install three new guy guards	{EE6153AD-FF53-427C-B024-CC527B69430D}	2
middle phase cotter-key not in all the way	{935F75C6-88A7-47C0-85EE-B6ED903526D5}	2
cotte-key not in all the way top phase	{7CFF6E02-91BE-4B23-B6CF-42DD845086FA}	2
static wire not grounded	{C7E3B458-6DD1-41DC-A942-EC015191249B}	2
install new sign	{9CC628D9-8396-4EAF-B6DC-341D52914175}	2
cotter key not all the way in	{6DE60AA5-9077-436E-8D3C-693E9DC04CCD}	2
bottom phase cold end cotter key coming off	{EB187876-7B00-48A9-B2A4-3EF795CDB082}	2
install new stickers	{34CFD436-1876-4B58-A87E-9808792678F5}	2
install new stickers	{FC248B43-2C12-4E4B-92F3-02F1A618A7DA}	2
install new sign	{83908C44-E24F-41EC-8CB3-6D3C9025885D}	2
cotter key not in all the way	{54C99C48-B4DE-4796-A82F-BDE1B959EAF}	2
idle hardware shuckle	{950CFAA7-8587-431C-9AF6-DDE21F88F213}	2
install new sign	{0074AA98-0443-44EC-B6FF-DA5C3ACB7982}	2
Cross arms are weathered with cracking.	{A3E684A8-6739-45C1-BE54-37FF364B1BE6}	2
Pole is listing.	{8976987C-132E-41A8-AAE7-02CFD2F9ED4F}	2
Woodpecker hole at pole top.	{OCD8FF81-ECB9-424B-B654-B9A5023E0FBA}	2
Bottom east phase, cold end cotter key is not standard.	{94E905DF-F6C0-43C3-BE27-F528EBBD260D}	2
Old pole butts are exposed and hollow.	{D745582E-D869-4B8E-A7A2-B04DC3E30275}	2
Pole top has multiple woodpecker holes.	{43362A02-2CBF-4FD7-84B2-C739CFD7C494}	2
Light to medium rust.	{45C4742F-3848-4579-AB12-CEFB33C4B3B}	2
Improperly grounded.	{5078337A-3F43-4151-93CA-31247C8BB787}	2
Top post is twisted.	{8CBC86D7-45A3-47A7-AD97-C5DEB389455E}	2
Install missing access plates	{F1D1D5A7-E33C-424A-BC93-6948C25558A7}	2

install new stickers	{FE0AFAE0-1B6B-40EA-9BFA-214C5F6C69B3}	2
install new sign	{AA8C2CFA-D358-4AB6-8A07-D03B16CF1396}	3
install new sign	{DFD8518B-F6BB-49CF-BDF0-E8EBE14043BF}	3
install new stickers	{6655E9ED-85B9-4B73-99E1-78428784E4EA}	3
Pole butt has burn marks.	{3BB60FED-4553-4E29-B20A-9F4F40B83150}	2
West phase to the north is unevenly sagged.	{A7B21AD0-505F-4158-88F0-1B21C728653D}	2
Bottom posts, bottom bolt is loose.	{F874BD64-84C6-48E6-A801-8A0BE9570C40}	2

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV
1	Q3	625	Z272941	7/27/2021	AIR	No findings
2	Q3	6912	Z100081	9/1/2021	AIR	No findings
3	Q3	13831	Z100480	8/25/2021	AIR	No findings
4	Q3	643	Z100612	8/17/2021	AIR	No findings
5	Q3	643	Z100670	8/17/2021	AIR	No findings
6	Q3	6910	Z100705	9/7/2021	AIR	No findings
7	Q3	23041	Z100990	9/7/2021	AIR	No findings
8	Q3	13831	Z101421	8/25/2021	AIR	No findings
9	Q3	13838	Z101625	8/25/2021	AIR	No findings
10	Q3	694	Z10200	8/4/2021	AIR	No findings
11	Q3	6917	Z103164	8/5/2021	AIR	No findings
12	Q3	6917	Z103656	8/5/2021	AIR	No findings
13	Q3	6917	Z104151	8/5/2021	AIR	No findings
14	Q3	698	Z10677	8/4/2021	AIR	No findings
15	Q3	13816	Z119836	8/25/2021	AIR	No findings
1	Q4	6958	Z100145	11/20/2021	AIR	No findings
2	Q4	6916	Z100978	10/23/2021	AIR	No findings
3	Q4	616	Z12397	11/20/2021	AIR	No findings
4	Q4	23001	Z193548	10/23/2021	AIR	No findings
5	Q4	692	Z21195	11/5/2021	AIR	No findings
6	Q4	697	Z229341	10/23/2021	AIR	No findings
7	Q4	690	Z29147	10/23/2021	AIR	No findings
8	Q4	6958	Z40983	11/20/2021	AIR	No findings
9	Q4	616	Z510538	11/20/2021	AIR	No findings
10	Q4	23011	Z710011	10/23/2021	AIR	No findings
11	Q4	23011	Z710025	10/23/2021	AIR	No findings
12	Q4	13810	Z92629	10/23/2021	AIR	No findings
13	Q4	6916	Z973035	10/23/2021	AIR	No findings
14	Q4	23011	Z718338	10/23/2021	AIR	No findings
15	Q4	13810	Z479570	10/23/2021	AIR	No findings

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV	Component	Condition
1	Q1	13811	Z312782	3/23/2021	M	4	Conductor (Complete)	Kite
2	Q1	23001	Z96441	3/5/2021	M	4	Insulators-Ceramic, Standard, 30K	Balloon-Mylar
3	Q1	23006	Z222386	3/23/2021	AFC	4	Ground Grid Taps	Assessment Required
3	Q1	23006	Z222386	3/23/2021	AFC	4	Shieldwire Attachment Point	Blackening
3	Q1	23006	Z222386	3/23/2021	AFC	4	Member (Steel Tower)	Blackening
3	Q1	23006	Z222386	3/23/2021	AFC	4	Damper (Complete)	Flashed
4	Q1	23021	Z971903	1/8/2021	M	4	Aerial Marker Sphere(s)	Other (Specify)
5	Q1	23030	Z322644	2/20/2021	M	3	Aerial Marker Sphere(s)	Broken
6	Q1	23041	Z873106	1/28/2021	AFC	5	Hardware	Flashed
7	Q1	23054	Z123440	1/29/2021	LCI	4	Hot End Cotter Key(s)	Assessment Required
8	Q1	23055	Z123614	1/29/2021	LCI	0	Complete Tower	Bird Nest
9	Q1	691	Z123384	3/25/2021	M	4	Cross Arms	Deterioration
9	Q1	691	Z123384	3/25/2021	M	4	Hot End Clevis Pin	Backed Out-Off
10	Q1	50003	Z125871	1/29/2021	LCI	0	Cold End Cotter Key(s)	Missing
11	Q1	616	Z611160	1/14/2021	M	5	Switch - Contacts	Not Fully Closed
11	Q1	616	Z611160	2/13/2021	M	4	Switch (Complete)	Maintenance Required
12	Q1	649	Z31724	2/12/2021	M	4	Switch (Complete)	Maintenance Required
12	Q1	649	Z31724	2/27/2021	M	4	Switch (Complete)	Out Of Adjustment
13	Q1	691	Z123385	3/25/2021	LFC	4	Anchor Rods	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Insulators-NCI, 69kv	Flashed
13	Q1	691	Z123385	3/25/2021	LFC	4	Preform	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Bond Wire	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Jumper (Complete)	Assessment Required
13	Q1	691	Z123385	3/25/2021	LFC	4	Hardware	Blackening
14	Q1	6926	Z12115	2/2/2021	M	4	Comm Cable	Installation-Improper
14	Q1	6926	Z12115	2/2/2021	M	4	Complete Wood Pole	Damaged
15	Q1	695	Z21292	3/30/2021	M	4	Area Around Structure	Walking Path Required
15	Q1	695	Z21292	1/12/2021	M	3	Guy Wire - Anchor	Broken
1	Q2	6945	Z181611	6/21/2021	M	3	Area Around Structure	Assessment Required
2	Q2	23006	Z222451	4/9/2021	AFC	4	Shieldwire Attachment Point	Blackening
3	Q2	6912	Z195309	5/26/2021	M	3	Shoe Nut(s)	Missing
4	Q2	690	Z21125	4/29/2021	M	4	Switch (Complete)	Maintenance Required
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire - Anchor	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Anchor Rods	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire Guards	Fire Damage
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire - Anchor	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Anchor Rods	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire Guards	Fire Damage
6	Q2	23006	Z222461	5/14/2021	M	4	Anti-Climb Barrier	Broken

7	Q2	23051	Z710007	6/10/2021	M	4	Hot End Pin(s)	Not Fully Closed
8	Q2	23030	Z811339	6/24/2021	M	4	Insulators-Ceramic, Standard, 30K	Washing Needed
9	Q2	23011	Z710026	5/24/2021	AFC	4	Conductor (Complete)	Flashed
9	Q2	23011	Z710026	5/24/2021	AFC	4	Hardware	Blackening
10	Q2	23030	Z322670	6/4/2021	M	4	Insulators-Ceramic, Standard, 40K	Assessment Required
11	Q2	23030	Z811342	6/24/2021	M	4	Insulators-NCI, 230kv	Washing Needed
12	Q2	23010	Z223664	4/19/2021	M	4	Anti-Climb Barrier	Broken
13	Q2	23006	Z222427	4/4/2021	AFC	4	Hardware	Blackening
13	Q2	23006	Z222427	4/4/2021	AFC	4	Shieldwire Attachment Point	Blackening
13	Q2	23006	Z222427	4/4/2021	AFC	4	Insulators-NCI, 230kv	Flashed
13	Q2	23006	Z222427	4/4/2021	AFC	4	Jumper (Complete)	Flashed
14	Q2	13844	Z100116	4/24/2021	AS	4	Aerial Marker Sphere(s)	Installation Required
15	Q2	13811	Z312787	5/28/2021	M	3	Insulators-Ceramic, Standard, 30K	Chipped
15	Q2	13811	Z312787	5/28/2021	M	3	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
1	Q3	6932	Z811341	9/27/2021	M	0	Bolt(s)	Loose
2	Q3	6932	Z818298	8/10/2021	M	3	Guy Wire - OH	Loose
3	Q3	691	Z415246	8/16/2021	M	3	Stub Pole - Steel	Rust (Heavy)
4	Q3	690	Z246503	9/1/2021	M	4	Comm Cable	Clearance-Insufficient
5	Q3	689	Z246949	8/29/2021	M	4	Conductor (Complete)	Balloon-Mylar
6	Q3	682	Z118213	8/16/2021	AS	4	Insulators-Post, NCI, 69kv, Long	Bird Nest
7	Q3	616	Z18112	8/20/2021	M	2	Anchor Rods	Assessment Required
7	Q3	616	Z18112	8/20/2021	M	3	Anchor Rods	Rust (Heavy)
8	Q3	50001	Z50047	7/12/2021	LFC	4	Insulators-Ceramic, Standard, 40K	Washing Needed
9	Q3	50001	Z50048	7/12/2021	LFC	4	Conductor (Complete)	Flashed
10	Q3	23051	Z619991	8/27/2021	M	4	Member (Steel Tower)	Foreign Object (Specify)
11	Q3	23040	Z284004	7/23/2021	M	3	Footings (Complete)	Assessment Required
11	Q3	23040	Z284004	7/30/2021	AS	4	Area Around Structure	Assessment Required
12	Q3	23030	Z811338	9/30/2021	M	4	Tower-Leg(s)	Assessment Required
13	Q3	13833	Z223158	9/10/2021	M	3	Member (Steel Tower)	Damaged
13	Q3	13833	Z223158	9/9/2021	M	4	Ground Grid Taps	Damaged
14	Q3	13831	Z101591	8/19/2021	M	4	Guy Wire - OH	Clearance-Insufficient
15	Q3	13816	Z223165	9/28/2021	M	0	Tipline Identification Tags	Other (Specify)
1	Q4	13835	Z322476	10/16/2021	M	4	Pole Butt	Vandalism
1	Q4	13835	Z322476	10/16/2021	M	4	Guy Wire - OH	Loose
2	Q4	13836	Z322484	12/10/2021	M	4	Complete Wood Pole	Woodpecker Hole(S)
3	Q4	23002	Z223660	10/9/2021	M	2	Ground Rod Bond Wire	Broken
4	Q4	23002	Z223674	10/21/2021	M	4	Insulators-NCI, 230kv	Assessment Required
5	Q4	23006	Z222416	10/6/2021	M	2	Ground Rod Bond Wire	Broken
5	Q4	23006	Z222416	10/6/2021	M	2	Ground Grid Taps	Exposed
6	Q4	23010	Z223676	10/6/2021	M	2	Ground Rod Bond Wire	Exposed
6	Q4	23010	Z223676	10/6/2021	M	2	Anti-Climb Barrier	Removal Required
7	Q4	23022	Z873093	12/7/2021	M	3	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
8	Q4	23030	Z322664	10/20/2021	M	3	Footings (Complete)	Damaged
9	Q4	23052	Z322247	10/21/2021	M	4	Insulators-NCI, 230kv	Assessment Required

10	Q4	50001	Z50019	10/19/2021	AS	4	Aerial Marker Sphere(s)	Broken
11	Q4	616	Z133531	10/9/2021	M	3	Anchor Rods	Assessment Required
12	Q4	634	Z413562	11/4/2021	M	3	Anchor Rods	Earth - Covered With
12	Q4	634	Z413562	11/4/2021	M	3	Anchor Rods	Rust (Heavy)
13	Q4	675	Z138139	10/14/2021	M	4	Complete Wood Pole	Woodpecker Hole(S)
14	Q4	6926	Z210656	10/3/2021	M	5	Pole Butt	Damaged
15	Q4	6906	Z97145	12/5/2021	LFC	4	Insulators-NCI, 69kv	Flashed
15	Q4	6906	Z97145	12/5/2021	LFC	4	Jumper (Complete)	Flashed
15	Q4	6906	Z97145	12/5/2021	LFC	4	Bond Wire	Blown
15	Q4	6906	Z97145	12/5/2021	LFN	4	Guy Wire - OH	Other (Specify)
15	Q4	6906	Z97145	12/6/2021	LFN	4	Comm Cable	Damaged

CONDITIONCOMMENTS	GLOBALID	Tier				
Kite on North phase 50 yds. NW of 3 pole structure	{8312590B-AECO-456D-A00F-B461725D007C}	2				
Remove mylar balloon with insulator washer	{0F227692-EF26-4720-B657-792B0B2D1192}	2				
Evidence of ground fault.	{56E5CB49-D17A-47AB-B569-529831796E92}	2				
Shield wire hardware has blackening from ground fault.	{DCE0E4E9-9367-49F0-8C09-AA83DCAF3602}	2				
Middle east arm. Top of arm, south side. Evidence of mylar balloon contact.	{10FAEE69-E951-4401-B9B0-0DEED8A63D93}	2				
Top east, first south damper. Flash marks from mylar balloon contact.	{0B3EFA12-54CF-41DF-85CB-E684C7E2F6A4}	2				
Noise complaints from surrounding neighbors. No photos.	{DE818152-AC16-4704-BBC9-B37909D67761}	2				
First white marker ball to the east. Broken.	{AADFEF99-3E03-4C2C-9560-05AA33550480}	2				
top phase hot end hardware and bells are flasherd	{9CB6D3EA-9911-4A47-8BF1-C7570C793722}	2				
Climbing inspection by Bennett's crew - Top phase inside wire shoe cotter key on TL23054 and middle phase weights cotter key	{25EEEBF5-054E-4BD4-9463-AAAAF9F333E0}	3				
Climbing Inspection completed by Galla's crew - bird nest removed from tower	{06FC0AFE-0AFA-4A6C-8886-A0FB12D8505B}	3				
Cross arms look very crunchy.	{68B1F5B6-1E1F-4794-AA61-04DB401C3336}	2				
South west hot end shoe pin might be missing cotter key and or backed out. Looks	{1AB4F141-D5D8-4C9A-9A77-BEBF78865CAE}	2				
Climbing inspection completed by Galla's crew - missing cotter pin installed	{F5C953F3-EBC9-4FC0-81C8-AAAC87EB72BD}	2				
Switch 616-2 not fully closed per Troubleman	{12167D82-64C2-4686-9DB1-31DEF8619CFB}	2				
ETS reports that Switch 616-2 is difficult to open all the way and was drawing an arc. Switch would become increasingly difficult at the halfway point	{57E2E98C-6F72-4F3F-AD01-15139B42362A}	2				
ETS Ryan McGhen reports SWI 649-6 on pole Z31724 requires Lube and Adjustment	{1C9612AA-40E8-4E98-AB1C-A604F7AD6BF8}	2				
Troubleman says the switch is very hard to close like it is not lubricated.	{A1776935-3762-4C0E-824A-9ACAA0367102}	2				
Both anchor rods & preforms have blackening from fault.	{4ED12716-30C8-4CF6-9163-43E0CEBF6A1D}	2				
North west polly might be flashed.	{432F989C-E648-4D0F-93F7-0733AC2F12FC}	2				
Both anchor rods & preforms have blackening from fault.	{87F3A744-9A22-4C9C-B439-B7890DDA231D}	2				
Bond wire is burnt at north side of arm. Brace & DA hardware.	{A4023B65-D291-4A99-92A8-9F8549B28AC1}	2				
North jumper may have damage from fault.	{6EAF6C64-036F-478E-98AE-868D5C039D98}	2				
Hardware is burnt at north side of arm. Brace & DA. Also Downguy hardware.	{63BECF8F-6F57-4DF7-8560-BD277EE7BDD8}	2				
Fwd to JU. Level one 30 days. Loose lashing & com cable not attached	{D04B52D4-F8AB-4392-B3D2-84AF1C831A9F}	3				
Fwd to TE. Replace pole due to bus hitting it. Damage order 53-33837	{18F365FC-92D2-4FDA-8703-52E2BB8A5155}	3				
Fwd to Veg Mgmt. Clear poison oak from trail & anchor rod	{E0B1CB13-C551-4FB6-8355-2515F2EA6AB1}	2				
Communication down guy is broken	{24E6EE9A-3EAB-4887-9586-698F14160F07}	2				
FWD to Civil Engineering for assessment - water drainage appears to have started to enter at concrete backfill/soil interface. This has caused a small sinkhole (could inches in diameter that extends below grade several feet to meet drainage path.	{02930368-6137-42C9-97FE-09137BB43199}	2				
Shield wire hardware has blackening.	{96630ED5-50DC-457C-A31A-EF91DF49FFA9}	2				
TL6912 ~ Top phase, south deadend shoe. Nut missing.	{E8302315-9EC0-4683-97C3-225989BDF93B}	2				
	{14A94F82-9CCB-495E-B508-5BC81C30BEE4}	2				
Top guy wire at anchor rod has blackening from fire.	{8E9D4B50-0D21-44B2-A20F-152DC7159247}	3				
Top anchor rod has blackening from fire.	{54510EE0-2840-4625-A700-390D706FA4B3}	3				
Melted guy wure guard. Please replace at time of completion of other open conditions.	{7D40B24B-B024-4A3C-92B6-B5266460D948}	3				
Top guy wire at anchor rod has blackening from fire.	{8E9D4B50-0D21-44B2-A20F-152DC7159247}	3				
Top anchor rod has blackening from fire.	{54510EE0-2840-4625-A700-390D706FA4B3}	3				
Melted guy wure guard. Please replace at time of completion of other open conditions.	{7D40B24B-B024-4A3C-92B6-B5266460D948}	3				
	{64BBFBE2-0E85-4431-A9D1-9025347EF072}	2				

Middle phase, inside string, hot-end pin is not seated.	{50D16F1C-2A2D-4055-8BE2-6A05B302B604}	2			
Washing needed Mesa Fire	{79148422-B9BE-4B9C-907B-02075BB34FD8}	3			
Mylar balloon splatter on conductor at shoes.	{F0495F23-DB93-4927-9178-52921BDABDE2}	2			
Top phase hot end hardware has blackening.	{02252A23-9ED7-47D6-A7AB-CAB0EDE3955C}	2			
Assess replacing with NCI due to location	{33DD43A3-03E7-43F8-A899-DA73898D44F6}	2			
Washing needed - Mesa Fire	{74733B63-1179-4657-8EDF-487AE16619D1}	3			
	{6EF72E1B-8A38-4889-8DB2-B2DE25DB1F2A}	2			
Top phase, east cold end hardware has blackening from ground fault.	{B41946F9-19EB-4AF4-8121-251B60883E71}	2			
Shieldwire hardware has blackening from A phase ground fault.	{D2BF4C36-D795-48A1-97C3-A58D9F908061}	2			
Top south east NCI is flashed.	{1943550D-CODF-4D5E-B6BA-1E38C1A44F6A}	2			
Top east phase jumper has splatter marks from ground fault.	{FF2107B5-C7B4-49EE-9A16-037144EE35C4}	2			
Marker balls needed in span towards Z100117 for security flight operations. No photos.	{BBEC7D83-9E9C-4663-B776-865F0A1E1523}	2			
	{CCBF6F56-799F-438B-812B-16E6073D97FA}	2			
	{45FE7E22-485A-40E0-89A0-F514FBD44C26}	2			
C-Leg stub angle is missing a nut and bolt is backed out. Competed.	{928202B6-66B6-4E7A-AFEB-E4DFC6EAFD6A}	3			
West OH guy wires are loose.	{BD46DA73-7E8A-447A-B6E2-5C11E6398E4D}	3			
Rust on stub pole at top	{203A66F3-E2E1-48B3-8405-97B374404BC1}	2			
Fwd JU Level one 30 days; will also FWD Insp 75376 to JU Level one 30 days	{4A256B20-3CF6-4A69-B7D2-OFFB2BBF0A0B}	2			
	{D6D9F661-0026-44CA-B6BE-12010144A746}	2			
Bottom phase post has a bird nest.	{E67F6935-0A32-4072-959B-A44C07C08240}	2			
Top anchor rod will be re-buried at first rain.	{5ECBBAFC-357F-44CE-9FE3-2F912E979F7C}	2			
Top anchor rod has medium to heavy rust.	{07BDB850-1E5F-4C27-878D-B6B2F5EF2E6E}	2			
Smoke contamination from fire. No photos. Washing completed.	{5806924E-B81F-4F6F-BB00-A8DA42E4283E}	3			
Flash marks on C phase, south phase. Outside conductor, In between structure and first damper.	{FF4911FB-5528-4AF1-8412-D232AA850D72}	3			
Remove ropes hanging above barbwire on steel members	{6776F067-880E-4DDA-B8D1-9BFBAECBD3E2}	2			
Footer is damaged and rebar is exposed	{1D61B037-B90B-45E9-8802-AED89AEF27E5}	2			
Drill rig next to tower. On access road.	{3D3D0A55-17F3-4E5E-9A81-D2BAEAA97AF2}	2			
Install security nuts due to vandalism issues in this segment of line	{E86BFC97-5ADD-48C6-AB78-61C260D199AD}	2			
diagonal is damaged near footer	{BC5D20BD-600F-4DFD-88A4-AD87DAA9ECC3}	2			
	{9196D251-14DE-4EA3-A25A-6B86926BEC80}	2			
Comm cable down guy has insufficient clearance over road.	{E50DB9BE-EA82-4E8D-9AEC-FEE256D15022}	2			
Both TL tags were peeling off.	{61032ECA-AF83-41AD-A974-B60E2B5D88F4}	2			
Pole butt has been shot numerous times.	{9150C551-FECD-4E17-A773-105501783CE3}	2			
All guy wires are loose.	{B271B80D-03F6-4570-A8E1-94A4F795534D}	2			
Fwd to TE. Replace pole. Woodpecker holes & shell collasping at static wire dead end	{325FDB4E-E31A-43A6-B567-5E08D1CFCCA0}	2			
D leg ground grid wire broken.	{FA63CB44-27FB-467F-B9D2-6DA646FE19D7}	2			
TL 23002 has Ohio Brass NCIs	{E7E34D44-C053-46D8-AF72-63EF39CBE54B}	2			
C leg ground connected broken.	{3A71571A-52C7-44FB-BFB9-B622A447D43A}	2			
C leg ground rod is exposed.	{D06B5987-3A6E-450B-B854-F3CF5A688677}	2			
D leg ground wire exposed.	{52558375-B1A7-4DE1-9A56-43AD1E6E60BB}	2			
Barb wire needs removed and cleaned up.	{DFFC3D3C-4D9D-438C-A353-122AF431C871}	2			
assessment required	{D2B7FA7C-D1D6-4CD7-B50B-093D24230D68}	2			
B-leg footer is damaged.	{FFB03DDD-067F-4940-8734-B19096679E3E}	2			
TL 23052 & 23007 are Ohio Brass NCIs	{310402F6-BD15-4A78-908C-D4582AD99E7E}	2			

White marker ball broken between Z50019 -Z50018.	{027A0782-3204-4687-A735-A0F51A4FB3F8}	3
Anchor rods are currently in water.	{A5CDD06B-F285-43E5-B612-244AEA3981DF}	2
Top west anchor rod needs long term solution to keep from being buried.	{06B0DE30-B4A7-4849-88B6-0E44965D311D}	2
Top west anchor rod has medium to heavy rust.	{ADCD8BDD-CB8E-46D7-BC8D-FE691BE89D69}	2
Fwd to TE. Replace pole	{6BB9E36D-F490-4967-BBDB-49398A122036}	2
Car pole 10/3/21 around 2:00 AM Emergency pole replacement	{54962DBE-EEE3-45C8-99E2-B8494861670D}	2
flash insulator cold end on the east/north side due to mylars balloons flash	{357E2DF2-B7E2-4CC1-AD5C-6176A27F7042}	2
jumper have flash marks due to mylar balloons	{1B10C4E4-2C86-4745-BA69-47DE825599FD}	2
bond wire blond open due to mylar ballons fault	{FE4EB564-FDFD-486C-B284-27AD89EBBB2E}	2
down guys are rubing hard on comunication some strand are open	{6C6559E5-B4D5-429B-A6CE-6B119A02ED95}	2
Fwd to JU. Comm. Cable approx 50' north of pole damaged. Loose lashing & burn. Level One 30 days	{E07E34DD-AC32-48DF-B6A3-932CB397A79F}	2

Patrol Code	Definition
LCI	land Climbing Inspetion
AFC	aerial fault cause
AFN	aerial fault not cause
AS	aerial special
LFC	Land fault cause
LFN	land fault not cause
LS	Land Special
M	Misecellaneous
LR	Land Routine
AIR	aerial infrared
LIR	Land Infra Red

Data request type	WMP Initiative
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
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Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Detailed Inspection	7.3.4.2
Infrared Inspection	7.3.4.5
Infrared Inspection	7.3.4.5

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.6
Intrusive Pole Inspections
Sample Reports

Notifcctn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	TechIdentNo.	System status	User status	Coding	Coding code txt	Text	Cond. Code (Damage)	Cond.Code DmgeTxt
1W	100018547776	POIN 10Y-1 DESCANSO	01/01/2020	10/30/2020	11/30/2021	ED.MTE.DESC.L133.P117	ED-POLESEG:P176544	600594445	P130593	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019783352	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	12/17/2021	ED.EST.GRAN.L146.P123	ED-POLESEG:P177254	600447224	P177254	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020432467	Special Project	08/26/2021	08/31/2022	10/08/2021	ED.NRE.ESCO.L102.P101	ED-POLESEG:P210932	600085854	P210932	NOCO	COMP	SIP	Special Intrusive – Int Proj Req	100020622136	I679	Restoration Recommended, Spec Reject
1W	100020546503	POIN 10Y-2 CARLTON HILLS	01/01/2021	10/31/2021	10/14/2021	ED.EST.CARL.L143.P103	ED-POLESEG:P237927	602001678	P248565	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019784788	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	12/20/2021	ED.EST.GRAN.L126.P102	ED-POLESEG:P471526	600481310	P471529	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019393340	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	11/16/2021	ED.EST.LOSC.L162.P105	ED-POLESEG:P574923	600458420	P574923	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392390	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	12/01/2021	ED.EST.LOSC.L146.P132	ED-POLESEG:P575192	600459679	P575190	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019393409	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	12/20/2021	ED.EST.LOSC.L162.P134	ED-POLESEG:P871989	600457867	P771962	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019168235	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	12/03/2021	ED.EST.ALPI.L105.P153	ED-POLESEG:P775219	600484089	P775219	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392509	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	10/07/2021	ED.EST.LOSC.L147.P120	ED-POLESEG:P173720	600449994	P871285	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392504	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	12/21/2021	ED.EST.LOSC.L147.P119	ED-POLESEG:P772229	600449724	P872966	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020546350	POIN 10Y-2 CARLTON HILLS	01/01/2021	10/31/2021	10/18/2021	ED.EST.CARL.L142.P109	ED-POLESEG:P873898	600445539	P873898	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020595770	SPECIAL PROJECT	10/02/2021	12/31/2021	10/19/2021	ED.MTE.BARR.L106.P142	ED-POLESEG:P775354	600594909	P877678	NOCO	COMP	SIP	Special Intrusive – Int Proj Req	100020693133	I679	Restoration Recommended, Spec Reject
1W	100019392553	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	10/06/2021	ED.EST.LOSC.L147.P128	ED-POLESEG:P872565	600452345	P878903	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020124991	POIN 10Y-2 SANTEE	01/01/2021	10/31/2021	12/30/2021	ED.EST.SANT.L152.P111	ED-POLESEG:P473430	600485847	P970074	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed

Notifictn type	Notification	Description	Req_start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	TechIdentNo.	System status	User status	Coding	Coding code txt	Text	Cond. Code (Damage)	Cond.Code DmgeTxt
1W	100019162806	POIN 10Y-2 JAMUL	01/01/2021	10/31/2021	01/25/2021	ED.EST.JAMU.L148.P108	ED-POLESEG:P109796	600486375	P109796	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019164611	POIN 10Y-2 JAMUL	01/01/2021	10/31/2021	01/26/2021	ED.EST.JAMU.L137.P135	ED-POLESEG:P166575	600447173	P166575	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019163118	POIN 10Y-2 JAMUL	01/01/2021	10/31/2021	01/20/2021	ED.EST.JAMU.L102.P108	ED-POLESEG:P113018	600469003	P274788	NOCO	COMP	RV	Routine Visual		R699	No Repairs Needed
1W	100019169789	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	02/26/2021	ED.EST.ALPI.L147.P111	ED-POLESEG:P278057	600453046	P278057	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019169090	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	03/29/2021	ED.EST.ALPI.L132.P108	ED-POLESEG:P774390	600451815	P372766	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019167866	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	03/09/2021	ED.EST.ALPI.L122.P115	ED-POLESEG:P872511	600482571	P378569	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019169532	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	02/16/2021	ED.EST.ALPI.L141.P116	ED-POLESEG:P770270	600451214	P775469	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019163005	POIN 10Y-2 JAMUL	01/01/2021	10/31/2021	01/11/2021	ED.EST.JAMU.L101.P102	ED-POLESEG:P775853	600471985	P775856	NOCO	COMP	RV	Routine Visual		R699	No Repairs Needed
1W	100019163161	POIN 10Y-2 JAMUL	01/01/2021	10/31/2021	01/25/2021	ED.EST.JAMU.L102.P119	ED-POLESEG:P274766	600459030	P776021	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019393883	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	03/09/2021	ED.EST.LOSC.L144.P114	ED-POLESEG:P75921	600468929	P870409	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019169183	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	03/09/2021	ED.EST.ALPI.L133.P105	ED-POLESEG:P870766	600478768	P870564	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019167685	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	02/22/2021	ED.EST.ALPI.L113.P108	ED-POLESEG:P874534	600449459	P874534	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019169373	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	02/22/2021	ED.EST.ALPI.L136.P114	ED-POLESEG:P873810	600458381	P874593	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019163072	POIN 10Y-2 JAMUL	01/01/2021	10/31/2021	01/11/2021	ED.EST.JAMU.L101.P122	ED-POLESEG:P475581	600455270	P878021	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019169862	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	03/19/2021	ED.EST.ALPI.L148.P114	ED-POLESEG:P75936	600466118	P972569	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed

Notifictn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	TechIdentNo.	System status	User status	Coding	Coding code txt	Text	Cond. Code (Damage)	Cond.Code DmgeTxt
1W	100018547558	POIN 10Y-1 DESCANSO	01/01/2020	10/30/2020	05/19/2021	ED.MTE.DESC.L130.P148	ED:POLESEG:P775284	600600183	P775284	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019167506	POIN 10Y-2 ALPINE	01/01/2021	10/31/2021	04/06/2021	ED.EST.ALPI.L154.P108	ED:POLESEG:P176484	600453170	P375421	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019391585	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/01/2021	ED.EST.LOSC.L130.P117	ED:POLESEG:P876183	600487552	P572040	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019391962	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/08/2021	ED.EST.LOSC.L139.P101	ED:POLESEG:P373926	600480247	P373926	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392027	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/08/2021	ED.EST.LOSC.L141.P105	ED:POLESEG:P970810	600483559	P276504	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392369	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/15/2021	ED.EST.LOSC.L146.P124	ED:POLESEG:P370331	600487739	P370331	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392427	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/27/2021	ED.EST.LOSC.L147.P103	ED:POLESEG:P879039	600456133	P175437	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392789	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/13/2021	ED.EST.LOSC.L151.P109	ED:POLESEG:P378630	600466069	P165003	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392850	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/14/2021	ED.EST.LOSC.L153.P107	ED:POLESEG:P161934	600464052	P166625	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392925	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/12/2021	ED.EST.LOSC.L154.P108	ED:POLESEG:P196204	600467341	P196198	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019392970	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/27/2021	ED.EST.LOSC.L155.P116	ED:POLESEG:P172931	600457602	P172931	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019393423	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	04/27/2021	ED.EST.LOSC.L162.P141	ED:POLESEG:P875424	600458564	P875818	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019782981	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	06/24/2021	ED.EST.GRAN.L127.P124	ED:POLESEG:P777477	600458190	P777477	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019784812	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	06/23/2021	ED.EST.GRAN.L127.P102	ED:POLESEG:P571391	600457153	P571394	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019785423	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	06/23/2021	ED.EST.GRAN.L142.P110	ED:POLESEG:P873593	600471018	P873594	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed

Notifictn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	TechIdntNo.	System status	User status	Coding	Coding code txt	Text	Cond. Code (Damage)	Cond.Code DmgeTxt
1W	100019392481	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	09/24/2021	ED.EST.LOSC.L147.P115	ED:POLESEG:P574646	600452484	P574645	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019395249	POIN 10Y-2 LOS COCHES	01/01/2021	10/31/2021	07/28/2021	ED.EST.LOSC.L157.P118	ED:POLESEG:P571661J	600485333	P571661J	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019783342	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	07/26/2021	ED.EST.GRAN.L146.P119	ED:POLESEG:P878018	600488905	P878017	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019785685	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	08/25/2021	ED.EST.GRAN.L144.P103	ED:POLESEG:P874538	600471033	P874538	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019785710	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	07/07/2021	ED.EST.GRAN.L144.P112	ED:POLESEG:P572180	600473865	P572180	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019785756	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	07/03/2021	ED.EST.GRAN.L144.P126	ED:POLESEG:P278055	600484418	P278054	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019785870	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	07/16/2021	ED.EST.GRAN.L145.P132	ED:POLESEG:P275018	600464702	P275018	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100019785879	POIN 10Y-2 GRANITE	01/01/2021	10/31/2021	07/26/2021	ED.EST.GRAN.L146.P131	ED:POLESEG:P199400	600450875	P160114	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020125069	POIN 10Y-2 SANTEE	01/01/2021	10/31/2021	09/24/2021	ED.EST.SANT.L154.P152	ED:POLESEG:P276092	600447293	P374766J	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020125087	POIN 10Y-2 SANTEE	01/01/2021	10/31/2021	09/15/2021	ED.EST.SANT.L155.P115	ED:POLESEG:P175181	600489955	P576681J	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020125456	POIN 10Y-2 SANTEE	01/01/2021	10/31/2021	09/29/2021	ED.EST.SANT.L153.P101	ED:POLESEG:P477016	600491119	P772267	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020125632	POIN 10Y-2 SANTEE	01/01/2021	10/31/2021	09/15/2021	ED.EST.SANT.L154.P136	ED:POLESEG:P571553	600446355	P571552	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020125733	POIN 10Y-2 SANTEE	01/01/2021	10/31/2021	09/22/2021	ED.EST.SANT.L155.P109	ED:POLESEG:P778939	600448736	P875622	NOCO	COMP	RI	Routine Intrusive		R699	No Repairs Needed
1W	100020293388	CIP POIN Special Inspection	07/30/2021	07/31/2022	08/18/2021	ED.EST.CARL.L143.P110	ED:POLESEG:P134866	600469745	P134866	NOCO	COMP	SIE	Special Intrusive – Ext Req		R699	No Repairs Needed
1W	100020432514	Special Project	08/26/2021	08/31/2022	09/27/2021	ED.NRE.MONS.L136.P109	ED:POLESEG:P614205I	600063420	P714202	NOCO	COMP	SIP	Special Intrusive – Int Proj Req		R699	No Repairs Needed

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.9.1
HFTD Tier 3 Inspection Reports

Notifictn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	POLE	TechIdentNo.	System status	User status	Coding
1A	100019017564	QC POLE 3Y-2 BARR	#####	04/16/2021	01/04/2021	ED.MTE.BARR.L110.P130	ED:POLESEG:P101667	600597364	P101667	P101667	NOCO ORAS	COMP	119
1B	100019219764	INCP Inspection Incomplete	#####	11/30/2021	01/08/2021	ED.MTE.BARR.L110.P130	ED:POLESEG:P101667	600597364	P101667	P101667	NOCO	COMP	120
1J	100019423955	I446 CIP Owned Pole or Stub Pole Damaged	#####		04/29/2021	ED.RAM.CREE.L143.P107	ED:POLESEG:P137666J	4000488838	P137668J	P137668J	NOCO	WCMP DCMP VJW	
1A	100019018211	QC POLE 3Y-2 CREELMAN	#####	04/16/2021	02/04/2021	ED.RAM.CREE.L143.P107	ED:POLESEG:P137666J	600017064	P137668J	P137668J	NOCO ORAS	COMP	119
1A	100019018211	QC POLE 3Y-2 CREELMAN	#####	04/16/2021	02/04/2021	ED.RAM.CREE.L143.P107	ED:POLESEG:P137666J	600017064	P137668J	P137668J	NOCO ORAS	COMP	119
1B	100019365179	I246 SDGE/Cust Pole or Stub Pole Dmged/B	#####	08/31/2021	02/22/2021	ED.RAM.CREE.L143.P107	ED:POLESEG:P137666J	600017064	P137668J	P137668J	NOCO	COMP CANC	120
1B	100019788023	I246 SDGE/Cust Pole or Stub Pole Dmged/B	#####	10/31/2021	09/29/2021	ED.RAM.CREE.L143.P107	ED:POLESEG:P137666J	600017064	P137668J	P137668J	NOCO	COMP FLUP	120
1A	100019033291	QC POLE 3Y-2 SANTA YSABEL	#####	04/16/2021	03/10/2021	ED.RAM.SANY.L120.P137	ED:POLESEG:P214108	600037135	P214108	222-511	NOCO ORAS	COMP	119
1A	100019033287	QC POLE 3Y-2 SANTA YSABEL	#####	04/16/2021	03/10/2021	ED.RAM.SANY.L120.P137	ED:POLESEG:P214108	600024469	P214108	P214108	NOCO ORAS	COMP	119
1A	100019033778	QC POLE 3Y-2	#####	04/16/2021	03/09/2021	ED.RAM.SANY.L102.P117	ED:POLESEG:P417893	604180776	P258023	P258023	NOCO ORAS	COMP	119
1A	100019023860	QC POLE 3Y-2 LOS COCHES	#####	04/16/2021	01/08/2021	ED.EST.LOSC.L146.P123	ED:POLESEG:P370068	600458556	P370069	P370069	NOCO ORAS	COMP	119
1A	100019027964	QC POLE 3Y-2 RAMO	#####	04/16/2021	01/19/2021	ED.RAM.RAMO.L134.P126	ED:POLESEG:P113841	600028348	P410394	P410394	NOCO ORAS	COMP	119
1A	100019035191	QC POLE 3Y-2 WARNERS	#####	04/16/2021	02/22/2021	ED.RAM.WARN.L105.P123	ED:POLESEG:P311406	600013245	P415323	P415323	NOCO ORAS	COMP	119
1A	100019011495	QC POLE 3Y-2 BARR	#####	04/16/2021	01/14/2021	ED.MTE.BARR.L101.P122	ED:POLESEG:P43983	600588945	P43984	P43984	NOCO ORAS	COMP	119
1A	100019019098	QC POLE 3Y-2 CREELMAN	#####	04/16/2021	01/28/2021	ED.RAM.CREE.L118.P106	ED:POLESEG:P100053	600014597	P510144	P510144	NOCO ORAS	COMP	119
1A	100019035016	QC POLE 3Y - 2	#####	04/16/2021	03/16/2021	ED.RAM.WARN.L104.P135	ED:POLESEG:P716996	600015199	P716995	P716995	NOCO ORAS	COMP	119
1A	100019016522	QC POLE 3Y-2 BARR	#####	04/16/2021	01/12/2021	ED.MTE.BARR.L108.P121	ED:POLESEG:P873411	600604938	P778895	67-99	NOCO ORAS	COMP	119
1A	100019016503	QC POLE 3Y-2 BARR	#####	04/16/2021	01/12/2021	ED.MTE.BARR.L108.P121	ED:POLESEG:P873411	600589969	P778895	P778895	NOCO ORAS	COMP	119
1A	100019016523	QC POLE 3Y-2 BARR	#####	04/16/2021	01/12/2021	ED.MTE.BARR.L108.P121	ED:POLESEG:P873411	600604939	P778895	P778895	NOCO ORAS	COMP	119
1A	100019017202	QC POLE 3Y-2 BARR	#####	04/16/2021	01/11/2021	ED.MTE.BARR.L109.P128	ED:POLESEG:P372354	600605309	P878523	67-714	NOCO ORAS	COMP	119
1A	100019017200	QC POLE 3Y-2 BARR	#####	04/16/2021	01/11/2021	ED.MTE.BARR.L109.P128	ED:POLESEG:P372354	600592748	P878523	P878523	NOCO ORAS	COMP	119
1A	100019015950	QC POLE 3Y-2 BARR	#####	04/16/2021	01/11/2021	ED.MTE.BARR.L102.P126	ED:POLESEG:P874067	600588207	P971758	P971758	NOCO ORAS	COMP	119
1A	100019015324	QC POLE 3Y-2 BARR	#####	04/16/2021	01/12/2021	ED.MTE.BARR.L108.P103	ED:POLESEG:Z571477	600604895	Z105011	157-206	NOCO ORAS	COMP	119
1A	100019015325	QC POLE 3Y-2 BARR	#####	04/16/2021	01/12/2021	ED.MTE.BARR.L108.P103	ED:POLESEG:Z571477	601073341	Z105011	157-207R	NOCO ORAS	COMP	119
1A	100019015320	QC POLE 3Y-2 BARR	#####	04/16/2021	01/12/2021	ED.MTE.BARR.L108.P103	ED:POLESEG:Z571477	600589667	Z105011	Z105011	NOCO ORAS	COMP	119
1A	100019028774	QC POLE 3Y-2 RINCON	#####	04/16/2021	01/08/2021	ED.NRE.RINC.L105.P117	ED:POLESEG:Z118053	600071907	Z118055	Z118055	NOCO ORAS	COMP	119

Notifictn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	POLE	TechIdentNo.	System status	User status	Coding
1A	100019025083	QC POLE 3Y - 2	#####	04/16/2021	04/05/2021	ED.NRE.PALA.L109.P126	ED:POLESEG:P236680	600083833	P138672	P138672	NOCO ORAS	COMP	119
1A	100019029769	QC POLE 3Y-2 RINC	#####	04/16/2021	04/01/2021	ED.NRE.RINC.L102.P137	ED:POLESEG:P219012	600049664	P219019	P219019	NOCO ORAS	COMP	119
1B	100019646801	I246 SDGE/Cust Pole or Stub Pole Dmged/B	#####	10/31/2021	09/30/2021	ED.NRE.RINC.L102.P137	ED:POLESEG:P219012	600049664	P219019	P219019	NOCO	COMP FLUP	120
1A	100019029867	QC POLE 3Y-2 RINCON	#####	04/16/2021	04/01/2021	ED.NRE.RINC.L103.P132	ED:POLESEG:P510369	600069700	P227657	P227657	NOCO ORAS	COMP	119
1A	100019029899	QC POLE 3Y-2 RINCON	#####	04/16/2021	04/01/2021	ED.NRE.RINC.L103.P132	ED:POLESEG:P510369	601369433	P248477	P248477	NOCO ORAS	COMP	119
1A	100019017655	QC POLE 3Y-2 BARR	#####	04/16/2021	04/02/2021	ED.MTE.BARR.L111.P132	ED:POLESEG:P258106	603999456	P258107	P258107	NOCO ORAS	COMP	119
1A	100019017653	QC POLE 3Y-2 BARR	#####	04/16/2021	04/02/2021	ED.MTE.BARR.L111.P132	ED:POLESEG:P258106	600598269	P278742	P278742	NOCO ORAS	COMP	119
1A	100019029138	QC POLE 3Y - 2	#####	04/16/2021	04/01/2021	ED.NRE.RINC.L106.P107	ED:POLESEG:P218420	600072254	P511931	P511931	NOCO ORAS	COMP	119
1A	100019029771	QC POLE 3Y-2 RINC	#####	04/16/2021	04/01/2021	ED.NRE.RINC.L102.P137	ED:POLESEG:P219012	600078149	P518380	P518380	NOCO ORAS	COMP	119
1A	100019022292	QC POLE 3Y-2 FELICITA	#####	04/16/2021	04/07/2021	ED.NRE.FELI.L166.P109	ED:POLESEG:P612463	600083440	P612465	P612465	NOCO ORAS	COMP	119
1A	100019010785	QC POLE 3Y - 2	#####	04/16/2021	04/05/2021	ED.NRE.AVOC.L120.P102	ED:POLESEG:P715555	600140125	P715555	521-536	NOCO ORAS	COMP	119
1A	100019010780	QC POLE 3Y - 2	#####	04/16/2021	04/05/2021	ED.NRE.AVOC.L120.P102	ED:POLESEG:P715555	600080001	P715555	P715555	NOCO ORAS	COMP	119
1A	100019022325	QC POLE 3Y-2 FELICITA	#####	04/16/2021	04/07/2021	ED.NRE.FELI.L166.P110	ED:POLESEG:P716903	604389955	P716903	175-2007	NOCO ORAS	COMP	119
1A	100019022326	QC POLE 3Y-2 FELICITA	#####	04/16/2021	04/07/2021	ED.NRE.FELI.L166.P110	ED:POLESEG:P716903	604389956	P716903	175-2007	NOCO ORAS	COMP	119
1A	100019022327	QC POLE 3Y-2 FELICITA	#####	04/16/2021	04/07/2021	ED.NRE.FELI.L166.P110	ED:POLESEG:P716903	604389957	P716903	175-2007	NOCO ORAS	COMP	119
1A	100019022308	QC POLE 3Y-2 FELICITA	#####	04/16/2021	04/07/2021	ED.NRE.FELI.L166.P110	ED:POLESEG:P716903	600083875	P716903	P716903	NOCO ORAS	COMP	119
1A	100019010787	QC POLE 3Y - 2	#####	04/16/2021	04/05/2021	ED.NRE.AVOC.L120.P102	ED:POLESEG:P715555	600140508	P717955	521-557	NOCO ORAS	COMP	119
1A	100019010784	QC POLE 3Y - 2	#####	04/16/2021	04/05/2021	ED.NRE.AVOC.L120.P102	ED:POLESEG:P715555	600080640	P717955	P717955	NOCO ORAS	COMP	119
1A	100019034252	QC POLE 3Y-2 VALLEY CENTER	#####	04/16/2021	04/09/2021	ED.NRE.VCTR.L134.P123	ED:POLESEG:P518557	600090732	P811031	P811031	NOCO ORAS	COMP	119
1A	100019022421	QC POLE 3Y - 2	#####	04/16/2021	04/13/2021	ED.NRE.FELI.L178.P119	ED:POLESEG:P510605	600087864	P813264	P813264	NOCO ORAS	COMP	119
1A	100019025027	QC POLE 3Y - 2	#####	04/16/2021	04/01/2021	ED.NRE.PALA.L104.P117	ED:POLESEG:P131209	600053184	P816288	P816288	NOCO ORAS	COMP	119

Notifictn type	Notification	Description	Req. start	Required End	Reference date	Functional Location	Description of FLOC	Equipment	POLE	TechIdentNo.	System status	User status	Coding
1A	100020761617	QC POLE 3Y-3 VALLEY CENTER	#####	04/16/2022	12/13/2021	ED.NRE.VCTR.L133.P110	ED:POLESEG:P107248	600061412	P107247	P107247	NOCO ORAS	COMP	119
1A	100020777807	QC POLE 3Y-3 JAMUL	#####	04/16/2022	12/27/2021	ED.EST.JAMU.L126.P105	ED:POLESEG:P174217	600531192	P170750	1090-93G2	NOCO ORAS	COMP	119
1A	100020777802	QC POLE 3Y-3 JAMUL	#####	04/16/2022	12/27/2021	ED.EST.JAMU.L126.P105	ED:POLESEG:P174217	600478856	P170750	P170750	NOCO ORAS	COMP	119
1A	100020778992	QC POLE 3Y - 3 LOS COCHES	#####	04/16/2022	12/02/2021	ED.EST.LOSC.L145.P114	ED:POLESEG:P477062	600474390	P174151	P174151	NOCO ORAS	COMP	119
1A	100020772234	QC POLE 3Y-3 DESCANSO	#####	04/16/2022	12/21/2021	ED.MTE.DESC.L136.P126	ED:POLESEG:P376507	600591252	P175474	P175474	NOCO ORAS	COMP	119
1A	100020766972	QC POLE 3Y-3 BARRETT	#####	04/16/2022	12/22/2021	ED.MTE.BARR.L104.P130	ED:POLESEG:P130527	600595283	P176293	P176293	NOCO ORAS	COMP	119
1A	100020766507	QC POLE 3Y - 3 ALPINE	#####	04/16/2022	12/07/2021	ED.EST.ALPI.L155.P114	ED:POLESEG:P474491	600480205	P177067	P177067	NOCO ORAS	COMP	119
1A	100020763003	QC POLE 3Y-3 VALLEY CENTER	#####	04/16/2022	12/15/2021	ED.NRE.VCTR.L118.P104	ED:POLESEG:P107526	600047766	P203049	P203049	NOCO ORAS	COMP	119
1A	100020772019	QC POLE 3Y-3 DESCANSO	#####	04/16/2022	12/21/2021	ED.MTE.DESC.L136.P108	ED:POLESEG:P772673	600591240	P277314	P277314	NOCO ORAS	COMP	119
1A	100020766894	QC POLE 3Y-3 BARRETT	#####	04/16/2022	12/22/2021	ED.MTE.BARR.L104.P111	ED:POLESEG:P44074	600595522	P44073	P44073	NOCO ORAS	COMP	119
1A	100020761804	QC POLE 3Y-3 VALLEY CENTER	#####	04/16/2022	12/16/2021	ED.NRE.VCTR.L133.P137	ED:POLESEG:P615317	600063943	P713598J	P713598J	NOCO ORAS	COMP	119
1A	100020767307	QC POLE 3Y-3 BARRETT	#####	04/16/2022	12/22/2021	ED.MTE.BARR.L104.P121	ED:POLESEG:P108859	600594965	P778708	P778708	NOCO ORAS	COMP	119
1A	100020766175	QC POLE 3Y - 3 ALPINE	#####	04/16/2022	12/08/2021	ED.EST.ALPI.L153.P125	ED:POLESEG:P177062	600471998	P878445J	P878445J	NOCO ORAS	COMP	119
1A	100020765637	QC POLE 3Y - 3 ALPINE	#####	04/16/2022	12/09/2021	ED.EST.ALPI.L112.P135	ED:POLESEG:P971160	600505905	P971162	356-196	NOCO ORAS	COMP	119
1A	100020765636	QC POLE 3Y - 3 ALPINE	#####	04/16/2022	12/09/2021	ED.EST.ALPI.L112.P135	ED:POLESEG:P971160	600452710	P971162	P971162	NOCO ORAS	COMP	119
1A	100020771318	QC POLE 3Y-3 DESCANSO	#####	04/16/2022	12/17/2021	ED.MTE.DESC.L122.P116	ED:POLESEG:P674670	600594524	P971184	P971184	NOCO ORAS	COMP	119
1A	100020772010	QC POLE 3Y-3 DESCANSO	#####	04/16/2022	12/21/2021	ED.MTE.DESC.L136.P106	ED:POLESEG:P972947J	600606726	P972946J	358-86	NOCO ORAS	COMP	119
1A	100020772007	QC POLE 3Y-3 DESCANSO	#####	04/16/2022	12/21/2021	ED.MTE.DESC.L136.P106	ED:POLESEG:P972947J	600591007	P972946J	P972946J	NOCO ORAS	COMP	119

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.10

Patrol Inspections of Distribution Electric
Lines and Equipment

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV	Component	Condition
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Assessment Required
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Trim For Inspection
1	Q1	616	Z12399	2/17/2021	LR	3	Guy Wire - Anchor	Mis-Aligned-Pulled
1	Q1	616	Z12399	2/17/2021	LR	3	Pole Butt	Patrol Insp Required
2	Q1	679	Z510498	3/8/2021	LR	0	Stub Pole - Anchor Guy	Grounding Required
3	Q1	6945	Z181661	2/27/2021	LR	2	Footings (Complete)	Assessment Required
4	Q1	6945	Z181661	2/27/2021	LR	4	Cold End Cotter Key(s)	Missing
5	Q1	682	Z118014	2/8/2021	LR	3	Shoe Pin-Bolt	Loose
6	Q1	682	Z118099	1/29/2021	LR	4	Insulators-Post, NCI, 69kv, Long	Damaged
7	Q1	13811	Z312780	3/17/2021	LR	4	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
7	Q1	13811	Z312780	3/17/2021	LR	4	Hardware	Rust (Heavy)
7	Q1	13811	Z312780	3/17/2021	LR	4	Cross Arms	Cracked
7	Q1	13811	Z312780	3/17/2021	LR	4	Signs-High Voltage-At Top	Unreadable
8	Q1	682	Z118082	2/9/2021	LR	2	Pole Butt	Vandalism
9	Q1	23054	Z123178	1/4/2021	LR	3	Footings (Complete)	Earth - Covered With
9	Q1	23054	Z123178	1/4/2021	LR	3	Footings (Complete)	Assessment Required
10	Q1	23055	Z123512	1/7/2021	LR	4	Cold End Cotter Key(s)	Missing
11	Q1	23055	Z123210	1/6/2021	LR	3	Complete Tower	Bird Nest
12	Q1	6906	Z95919	3/15/2021	LR	0	Anchor Rod Ground Wire	Broken
13	Q1	6906	Z97150	3/18/2021	LR	0	Tieline Identification Tags	Unreadable
14	Q1	6930	Z181660	2/27/2021	LR	4	Insulators-Post, NCI, 69kv, Long	Damaged
15	Q1	6930	Z510521	3/4/2021	LR	2	Complete Steel Pole	Leaning-Tilted
1	Q2	690	Z21148	5/16/2021	LR	3	Anchor Rods	3 Guys-1Rod
1	Q2	690	Z21148	5/16/2021	LR	3	Guy Wire - OH	Rust (Heavy)
1	Q2	690	Z21148	5/16/2021	LR	3	Anchor Rods	Grounding Assessment Required
2	Q2	690	Z21183	5/14/2021	LR	3	Cold End Pin(s)	Installation Assessment Required
3	Q2	690	Z21111	5/24/2021	LR	2	Pole Butt	Trees Too Close
4	Q2	6952	Z92793	6/7/2021	LR	0	Tieline Identification Tags	Unreadable
4	Q2	6952	Z92793	6/7/2021	LR	0	Sign Warning (With Man)	Unreadable
4	Q2	6952	Z92793	6/7/2021	LR	0	Structure Number	Unreadable
5	Q2	694	Z317932	6/1/2021	LR	3	Anchor Rod Ground Wire	Installation-Improper
6	Q2	678	Z875085	6/9/2021	LR	3	Guy Wire - OH	Loose
7	Q2	13811	Z312833	4/5/2021	LR	3	Pole Top	Woodpecker Hole(S)
7	Q2	13811	Z312833	4/5/2021	LR	3	Insulators-Ceramic, Standard, 30K	Chipped
8	Q2	13811	Z312842	4/5/2021	LR	3	Anchor Rods	Patrol Insp Required
8	Q2	13811	Z312842	4/5/2021	LR	0	Tieline Identification Tags	Unreadable
8	Q2	13811	Z312842	4/5/2021	LR	3	Cross Arms	Cracked
8	Q2	13811	Z312842	4/5/2021	LR	3	Anchor Rods	Walking Path Required
9	Q2	616	Z12399	6/16/2021	LR	0	Jumper (Complete)	Other (Specify)
9	Q2	616	Z12399	6/16/2021	LR	2	Access Road	Other (Specify)
10	Q2	634	Z413551	6/3/2021	LR	2	Pole Butt	Trees Too Close
10	Q2	634	Z413551	6/3/2021	LR	2	Insulators-Post, NCI, 69kv, Long	Damaged
10	Q2	634	Z413551	6/3/2021	LR	2	Signs-High Voltage-At Top	Unreadable

10	Q2	634	Z413551	6/3/2021	LR	2	Anchor Rods	Bent
11	Q2	634	Z16580	6/7/2021	LR	4	Comm Cable	Clearance-Insufficient
11	Q2	634	Z16580	6/7/2021	LR	3	Footings (Complete)	Earth - Covered With
12	Q2	634	Z169411	6/10/2021	LR	2	Pole Butt	Trees Too Close
12	Q2	634	Z169411	6/10/2021	LR	2	Anchor Rods	Vegetation Overgrown
13	Q2	692	Z39491	5/27/2021	LR	0	Tieline Identification Tags	Unreadable
14	Q2	6952	Z92796	6/7/2021	LR	0	Sign Warning (With Man)	Unreadable
15	Q2	694	Z15171	6/1/2021	LR	3	Bolt(s)	Missing
15	Q2	694	Z15171	6/1/2021	LR	3	Signs-High Voltage-At Top	Unreadable
15	Q2	694	Z15171	6/1/2021	LR	3	Insulators-Ceramic, Post, 69kv	Loose
1	Q3	616	Z611221	7/27/2021	LR	3	Guy Wire - OH	Loose
1	Q3	616	Z611221	7/27/2021	LR	3	Anchor Rods	Grounding Assessment Required
2	Q3	23041	Z873107	8/20/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
3	Q3	6939	Z133522	7/20/2021	LR	2	Footings (Complete)	Other (Specify)
3	Q3	6939	Z133522	7/20/2021	LR	2	Ground Connection	Exposed
4	Q3	23041	Z971855	7/24/2021	LR	3	Cold End Cotter Key(s)	Backed Out-Off
5	Q3	23022	Z873093	8/24/2021	LR	3	Signs-High Voltage-At Top	Faded
5	Q3	23022	Z873093	8/24/2021	LR	3	Other(Specify)	Painting Assessment Required
6	Q3	23022	Z201922	8/26/2021	LR	4	Hot End Cotter Key(s)	Backed Out-Off
7	Q3	23022	Z201923	8/20/2021	LR	0	Sign Warning (With Man)	Unreadable
8	Q3	6912	Z29194	7/13/2021	LR	3	Shoe Pin-Bolt	Loose
9	Q3	6912	Z195309	7/19/2021	LR	3	Cold End Pin(s)	Backed Out-Off
9	Q3	6912	Z195309	7/19/2021	LR	3	Anchor Rods	Removal Assessment Required
9	Q3	6912	Z195309	7/19/2021	LR	3	Shoe Nut(s)	Missing
10	Q3	13822	Z576634	8/24/2021	LR	4	Other(Specify)	Bird Nest
11	Q3	13824	Z201093	9/23/2021	LR	0	Guy Wire Guards	Deterioration
12	Q3	13824	Z200646	9/17/2021	LR	3	Hot End Cotter Key(s)	Backed Out-Off
12	Q3	13824	Z200646	9/17/2021	LR	3	Cold End Cotter Key(s)	Backed Out-Off
13	Q3	23021	Z100990	8/20/2021	LR	4	Shield Wire (Complete)	Grounding Required
13	Q3	23021	Z100990	8/20/2021	LR	0	Sign Warning (With Man)	Unreadable
14	Q3	23041	Z971872	7/31/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
15	Q3	23041	Z873107	8/20/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
1	Q4	681	Z12889	11/19/2021	LR	0	Structure Number	Unreadable
1	Q4	681	Z12889	11/19/2021	LR	0	Tieline Identification Tags	Unreadable
1	Q4	681	Z12889	11/19/2021	LR	0	Sign Warning (With Man)	Unreadable
2	Q4	13824	Z200599	10/12/2021	LR	4	Cold End Cotter Key(s)	Backed Out-Off
2	Q4	13824	Z200599	10/12/2021	LR	4	Hardware	Assessment Required
3	Q4	632	Z200643	10/6/2021	LR	0	Sign Warning (With Man)	Unreadable
4	Q4	686	Z215016	11/15/2021	LR	4	Cross Arms	Deterioration
4	Q4	686	Z215016	11/15/2021	LR	4	Complete Wood Pole	Leaning-Tilted
5	Q4	686	Z118260	11/12/2021	LR	2	Pole Top	Woodpecker Hole(S)
6	Q4	686	Z118293	11/4/2021	LR	2	Cold End Cotter Key(s)	Installation-Non Standard
7	Q4	686	Z118323	11/11/2021	LR	3	Pole Butt	Assessment Required
7	Q4	686	Z118323	11/11/2021	LR	3	Pole Top	Woodpecker Hole(S)
8	Q4	686	Z118337	12/14/2021	LR	2	Anchor Rods	Rust (Medium)
8	Q4	686	Z118337	12/14/2021	LR	2	Anchor Rods	Grounding Assessment Required

9	Q4	686	Z118331	12/14/2021	LR	2	Insulators-NCI, 69kv	Twisted
10	Q4	698	Z293941	10/18/2021	LR	3	Other(Specify)	Missing
11	Q4	13824	Z200600	10/1/2021	LR	0	Structure Number	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Tieline Identification Tags	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Sign Warning (With Man)	Unreadable
12	Q4	681	Z12877	11/13/2021	LR	0	Structure Number	Unreadable
13	Q4	686	Z118249	11/30/2021	LR	2	Pole Butt	Fire Damage
14	Q4	686	Z210751	11/18/2021	LR	3	Conductor (Complete)	Improper Sag
15	Q4	686	Z118258	11/13/2021	LR	2	Bolt(s)	Loose

CONDITIONCOMMENTS	GLOBALID	Tier
Old pole butt is exposed, hollow and deep.	{042549E5-9E75-453D-A383-5E822CD88E7D}	2
Need trees trimmed to inspect pole butt.	{4C93615B-5576-4F3C-B517-3894D9112428}	2
Tree branches are pulling on OH guy wire.	{75103777-AB1A-4A50-BD90-23CF2271C376}	2
Need trees trimmed to inspect pole butt.	{AB3AFF17-B40C-47A4-8C35-252D662907DC}	2
Missing connection. Completed.	{A328A537-B73C-4C1F-9271-BB64DB00533C}	2
No security nuts on footer bolts.	{299D3784-6DC0-4232-854E-194E495A7E42}	2
Top west, cold end cotter key is missing.	{EE35E0C2-B34A-4B10-A7ED-0DB21A2C48A8}	2
Bottom post, trunnion bolt might be a little loose.	{C1824884-1FC4-49EA-904D-FEAF8CA0B49C}	3
Middle phase, Cold end skirt is ripped.	{199361AB-43FC-40F8-9FD0-5AE6DCFD44}	3
All hot end insulator shanks have heavy rust.	{8E72B1F2-D35B-464F-A2CA-78C7FC6F3DD4}	2
All hot end hardware has heavy rust.	{1A2DE957-1C22-441F-90F1-A14E3585EA20}	2
Wet portion of cross arm at pole is cracked.	{745BD7DA-0E34-4803-A070-D581F6DA80E9}	2
	{1B4607CB-B2E6-4B2B-94E8-FF74A28CC1C4}	2
Graffiti	{FDF2DA5B-4F2E-4994-830D-FC24EDC0FEA9}	3
C,D,& A leg footers need erosion barriers.	{E98D970E-3619-4902-AAF8-B144A58E34FF}	3
C,D,& A leg footers need erosion barriers.	{6E891796-C205-429E-9EE0-188FB6C9EBE8}	3
23055 Middle east cold end cotter key is missing.	{D620AE84-9B86-4A7A-89A8-511202E2DB8B}	3
23055 Top arm, nest	{7AC6F4AA-EC1E-4BB7-92D4-BAB20EA1720B}	3
fix ground leg conection	{A6CA4486-6EA5-4BC2-A0C2-CA4D131D8093}	2
install new stickers	{31C06379-E954-4C35-AC5A-B9FEAA245351}	2
TL6930 Hot ends of posts are damaged from suspension shoes rubbing.	{B14F8DD0-2E3B-4636-AC21-2A089E7AB1CE}	2
Pole is leaning to the east.	{B0BF2BD6-2591-4463-AE08-2EA78F636A0A}	2
West anchor rod has 3 guys to one anchor.	{FBF9EABE-DFCA-450E-B8B2-755F8DFE4F61}	2
Bottom west guy wire is rusted.	{E57525B3-36BB-40AB-A712-323131946223}	2
All anchor rods are improperly grounded.	{ECE9732F-7A17-4B99-A500-1C266D74A483}	2
South top polly, cold end end pin not fully in.	{1FB8FD25-24D7-410F-AAAB-88F3E44250C0}	2
Tree to close to pole butt.	{8C1BB419-EED4-4900-91B5-33B192564742}	2
install new stickers	{9B22646E-0992-4F8B-8D5B-260B8F5E4B18}	2
install new sign	{C189C960-E6AF-404E-B03F-C861838E69F2}	2
install new stickers	{3220D5CD-C9E4-4663-94A3-80638948455D}	2
	{9ABEA780-E4A9-42F0-AEE9-A3B510EB9388}	2
loose guys	{596C8164-3D55-47E7-8432-F183C15B46E3}	2
East pole top has a woodpecker hole on the north side.	{01357303-AFD5-4BD7-910B-A8862AA85344}	2
West phase, hot end insulator bells have chips.	{BA4EF144-6245-4625-99C0-0007D73A8BB3}	2
Need veg trimmed to inspect anchor rods.	{02DC2F44-2012-4D00-BD9F-1153EAD5595B}	2
	{ECC9ADF5-AB12-4605-B62B-B1215F6B4D63}	2
Northeast side of cross arm is cracked.	{FFEC7B47-676C-464D-875F-183AE3BD1E7E}	2
Need veg trimmed to inspect anchor rods.	{18FC06D9-AC3F-4270-BB11-599D0E47A9A2}	2
jumper looks close to down guy	{09D5D9C9-77FA-49DE-9616-385B089E7351}	2
when using sdge key to unlockthe gate it keeps turning and it wont open gate	{8EBF3D47-44DF-4A5C-A109-90E6F718307F}	2
Trees to close to pole butt.	{DE9DC6C8-5AC9-4D39-BDD9-60E6BE486D0D}	2
Bird chewed skirts on top post.	{22530128-1A32-476C-AFE3-7F8AE7FDC434}	2
Needs new high-voltage stickers.	{12BEA01E-B2F8-4B44-AFBE-832A1CEF395D}	2

Bottom anchor rod is bent.	{82F054E1-9E62-4BDD-8F0F-B8DBA3034E74}	2
Comm cable to the north is being vectored by trees, midspan.	{282D4861-B021-4498-9B04-45A9B75264DD}	2
Dirt and rocks up against footers.	{26B6326D-5AD2-42A2-8473-9B87A1F43275}	2
Tree to close to pole butt.	{34517484-BE11-4882-8A1C-12B135A123D8}	2
Veg overgrown at all anchor rods.	{1C2949EA-F953-4588-A50A-8C15E34706EF}	2
install new stickers	{109B6DD8-D2EA-46FF-BE04-D3A7A2468997}	2
install new signs	{EF7BCC9F-945F-4F5D-9DD6-B8F569EAC7D9}	2
no split bolt	{DB7964C4-D6B6-48A2-9102-60D4DEE2541A}	2
	{90A2B186-A258-48BF-A371-EF3A4DC47E84}	2
	{E25100CE-30F0-4AEC-B5A7-46E4907A9829}	2
All guy wires are loose.	{CFE8B87C-57F8-4F41-87CD-7F6A5B851E35}	2
Anchor rods are improperly grounded.	{D803CD9B-B364-416C-BF7E-54D66C80A5C7}	2
bottom phase cold end cotter key coming off	{EB187876-7B00-48A9-B2A4-3EF795CDB082}	2
Stub pole footer nuts need security nuts.	{AA9E5FA7-2085-4208-9883-B340C655E20B}	2
Stub pole ground rod connection is exposed.	{0F5BA6F6-0BBF-4308-B2B2-45A9FE233845}	2
cotter key on static not all the way in	{F7CEA31C-8E49-4911-9050-93AD4374191B}	2
yellow band faded	{00574480-E3BE-4605-A7B8-6D5DA81CCAA7}	2
paint is coming off	{01698CA3-A37F-41D0-B303-6D707AD56A73}	2
top and bottom hot end cotter key not in all the way	{5271B486-FD38-4290-BE7E-5B1F286AE5A8}	2
install new sign	{0DAEC75B-8FA4-4A20-9AF0-89BCA37BB78A}	2
Bottom post. Trunnion bolt is loose.	{49BA62D4-F046-4169-8AB1-9F4BE09FC5C0}	2
Bottom phase, south cold end NCI pin not seated.	{3830FEF5-2791-4AF5-938A-5CC241920F3A}	2
Old anchor rods near old pole butts. Removal required.	{5B76FC4E-4EA4-439E-906E-C9333A5435E4}	2
Top phase, south deadend shoe missing nut.	{6E4CA370-E102-41CB-897A-EB8C8B5588E0}	2
bird nest on middle arm	{BE426500-B61E-4D63-A6AE-F3F04672083C}	2
install three new guy guards	{EE6153AD-FF53-427C-B024-CC527B69430D}	2
middle phase cotter-key not in all the way	{935F75C6-88A7-47C0-85EE-B6ED903526D5}	2
cotte-key not in all the way top phase	{7CFF6E02-91BE-4B23-B6CF-42DD845086FA}	2
static wire not grounded	{C7E3B458-6DD1-41DC-A942-EC015191249B}	2
install new sign	{9CC628D9-8396-4EAF-B6DC-341D52914175}	2
cotter key not all the way in	{6DE60AA5-9077-436E-8D3C-693E9DC04CCD}	2
bottom phase cold end cotter key coming off	{EB187876-7B00-48A9-B2A4-3EF795CDB082}	2
install new stickers	{34CFD436-1876-4B58-A87E-9808792678F5}	2
install new stickers	{FC248B43-2C12-4E4B-92F3-02F1A618A7DA}	2
install new sign	{83908C44-E24F-41EC-8CB3-6D3C9025885D}	2
cotter key not in all the way	{54C99C48-B4DE-4796-A82F-BDE1B959EAF}	2
idle hardware shuckle	{950CFAA7-8587-431C-9AF6-DDE21F88F213}	2
install new sign	{0074AA98-0443-44EC-B6FF-DA5C3ACB7982}	2
Cross arms are weathered with cracking.	{A3E684A8-6739-45C1-BE54-37FF364B1BE6}	2
Pole is listing.	{8976987C-132E-41A8-AAE7-02CFD2F9ED4F}	2
Woodpecker hole at pole top.	{0CD8FF81-ECB9-424B-B654-B9A5023E0FBA}	2
Bottom east phase, cold end cotter key is not standard.	{94E905DF-F6C0-43C3-BE27-F528EBBD260D}	2
Old pole butts are exposed and hollow.	{D745582E-D869-4B8E-A7A2-B04DC3E30275}	2
Pole top has multiple woodpecker holes.	{43362A02-2CBF-4FD7-84B2-C739CFD7C494}	2
Light to medium rust.	{45C4742F-3848-4579-AB12-CEFB33C4B3B}	2
Improperly grounded.	{5078337A-3F43-4151-93CA-31247C8BB787}	2

Top post is twisted.	{8CBC86D7-45A3-47A7-AD97-C5DEB389455E}	2
Install missing access plates	{F1D1D5A7-E33C-424A-BC93-6948C25558A7}	2
install new stickers	{FE0AFAE0-1B6B-40EA-9BFA-214C5F6C69B3}	2
install new sign	{AA8C2CFA-D358-4AB6-8A07-D03B16CF1396}	3
install new sign	{DFD8518B-F6BB-49CF-BDF0-E8EBE14043BF}	3
install new stickers	{6655E9ED-85B9-4B73-99E1-78428784E4EA}	3
Pole butt has burn marks.	{3BB60FED-4553-4E29-B20A-9F4F40B83150}	2
West phase to the north is unevenly sagged.	{A7B21AD0-505F-4158-88F0-1B21C728653D}	2
Bottom posts, bottom bolt is loose.	{F874BD64-84C6-48E6-A801-8A0BE9570C40}	2

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV
1	Q3	625	Z272941	7/27/2021	AIR	No findings
2	Q3	6912	Z100081	9/1/2021	AIR	No findings
3	Q3	13831	Z100480	8/25/2021	AIR	No findings
4	Q3	643	Z100612	8/17/2021	AIR	No findings
5	Q3	643	Z100670	8/17/2021	AIR	No findings
6	Q3	6910	Z100705	9/7/2021	AIR	No findings
7	Q3	23041	Z100990	9/7/2021	AIR	No findings
8	Q3	13831	Z101421	8/25/2021	AIR	No findings
9	Q3	13838	Z101625	8/25/2021	AIR	No findings
10	Q3	694	Z10200	8/4/2021	AIR	No findings
11	Q3	6917	Z103164	8/5/2021	AIR	No findings
12	Q3	6917	Z103656	8/5/2021	AIR	No findings
13	Q3	6917	Z104151	8/5/2021	AIR	No findings
14	Q3	698	Z10677	8/4/2021	AIR	No findings
15	Q3	13816	Z119836	8/25/2021	AIR	No findings
1	Q4	6958	Z100145	11/20/2021	AIR	No findings
2	Q4	6916	Z100978	10/23/2021	AIR	No findings
3	Q4	616	Z12397	11/20/2021	AIR	No findings
4	Q4	23001	Z193548	10/23/2021	AIR	No findings
5	Q4	692	Z21195	11/5/2021	AIR	No findings
6	Q4	697	Z229341	10/23/2021	AIR	No findings
7	Q4	690	Z29147	10/23/2021	AIR	No findings
8	Q4	6958	Z40983	11/20/2021	AIR	No findings
9	Q4	616	Z510538	11/20/2021	AIR	No findings
10	Q4	23011	Z710011	10/23/2021	AIR	No findings
11	Q4	23011	Z710025	10/23/2021	AIR	No findings
12	Q4	13810	Z92629	10/23/2021	AIR	No findings
13	Q4	6916	Z973035	10/23/2021	AIR	No findings
14	Q4	23011	Z718338	10/23/2021	AIR	No findings
15	Q4	13810	Z479570	10/23/2021	AIR	No findings

Requirement	Qtr	TIE_LINE	FACILITYID	INSPECTION_DATE2	INSPECTIONTYPE	SEV	Component	Condition
1	Q1	13811	Z312782	3/23/2021	M	4	Conductor (Complete)	Kite
2	Q1	23001	Z96441	3/5/2021	M	4	Insulators-Ceramic, Standard, 30K	Balloon-Mylar
3	Q1	23006	Z222386	3/23/2021	AFC	4	Ground Grid Taps	Assessment Required
3	Q1	23006	Z222386	3/23/2021	AFC	4	Shieldwire Attachment Point	Blackening
3	Q1	23006	Z222386	3/23/2021	AFC	4	Member (Steel Tower)	Blackening
3	Q1	23006	Z222386	3/23/2021	AFC	4	Damper (Complete)	Flashed
4	Q1	23021	Z971903	1/8/2021	M	4	Aerial Marker Sphere(s)	Other (Specify)
5	Q1	23030	Z322644	2/20/2021	M	3	Aerial Marker Sphere(s)	Broken
6	Q1	23041	Z873106	1/28/2021	AFC	5	Hardware	Flashed
7	Q1	23054	Z123440	1/29/2021	LCI	4	Hot End Cotter Key(s)	Assessment Required
8	Q1	23055	Z123614	1/29/2021	LCI	0	Complete Tower	Bird Nest
9	Q1	691	Z123384	3/25/2021	M	4	Cross Arms	Deterioration
9	Q1	691	Z123384	3/25/2021	M	4	Hot End Clevis Pin	Backed Out-Off
10	Q1	50003	Z125871	1/29/2021	LCI	0	Cold End Cotter Key(s)	Missing
11	Q1	616	Z611160	1/14/2021	M	5	Switch - Contacts	Not Fully Closed
11	Q1	616	Z611160	2/13/2021	M	4	Switch (Complete)	Maintenance Required
12	Q1	649	Z31724	2/12/2021	M	4	Switch (Complete)	Maintenance Required
12	Q1	649	Z31724	2/27/2021	M	4	Switch (Complete)	Out Of Adjustment
13	Q1	691	Z123385	3/25/2021	LFC	4	Anchor Rods	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Insulators-NCI, 69kv	Flashed
13	Q1	691	Z123385	3/25/2021	LFC	4	Preform	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Bond Wire	Blackening
13	Q1	691	Z123385	3/25/2021	LFC	4	Jumper (Complete)	Assessment Required
13	Q1	691	Z123385	3/25/2021	LFC	4	Hardware	Blackening
14	Q1	6926	Z12115	2/2/2021	M	4	Comm Cable	Installation-Improper
14	Q1	6926	Z12115	2/2/2021	M	4	Complete Wood Pole	Damaged
15	Q1	695	Z21292	3/30/2021	M	4	Area Around Structure	Walking Path Required
15	Q1	695	Z21292	1/12/2021	M	3	Guy Wire - Anchor	Broken
1	Q2	6945	Z181611	6/21/2021	M	3	Area Around Structure	Assessment Required
2	Q2	23006	Z222451	4/9/2021	AFC	4	Shieldwire Attachment Point	Blackening
3	Q2	6912	Z195309	5/26/2021	M	3	Shoe Nut(s)	Missing
4	Q2	690	Z21125	4/29/2021	M	4	Switch (Complete)	Maintenance Required
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire - Anchor	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Anchor Rods	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire Guards	Fire Damage
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire - Anchor	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Anchor Rods	Blackening
5	Q2	683	Z416158	6/16/2021	M	4	Guy Wire Guards	Fire Damage
6	Q2	23006	Z222461	5/14/2021	M	4	Anti-Climb Barrier	Broken
7	Q2	23051	Z710007	6/10/2021	M	4	Hot End Pin(s)	Not Fully Closed
8	Q2	23030	Z811339	6/24/2021	M	4	Insulators-Ceramic, Standard, 30K	Washing Needed
9	Q2	23011	Z710026	5/24/2021	AFC	4	Conductor (Complete)	Flashed

9	Q2	23011	Z710026	5/24/2021	AFC	4	Hardware	Blackening
10	Q2	23030	Z322670	6/4/2021	M	4	Insulators-Ceramic, Standard, 40K	Assessment Required
11	Q2	23030	Z811342	6/24/2021	M	4	Insulators-NCI, 230kv	Washing Needed
12	Q2	23010	Z223664	4/19/2021	M	4	Anti-Climb Barrier	Broken
13	Q2	23006	Z222427	4/4/2021	AFC	4	Hardware	Blackening
13	Q2	23006	Z222427	4/4/2021	AFC	4	Shieldwire Attachment Point	Blackening
13	Q2	23006	Z222427	4/4/2021	AFC	4	Insulators-NCI, 230kv	Flashed
13	Q2	23006	Z222427	4/4/2021	AFC	4	Jumper (Complete)	Flashed
14	Q2	13844	Z100116	4/24/2021	AS	4	Aerial Marker Sphere(s)	Installation Required
15	Q2	13811	Z312787	5/28/2021	M	3	Insulators-Ceramic, Standard, 30K	Chipped
15	Q2	13811	Z312787	5/28/2021	M	3	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
1	Q3	6932	Z811341	9/27/2021	M	0	Bolt(s)	Loose
2	Q3	6932	Z818298	8/10/2021	M	3	Guy Wire - OH	Loose
3	Q3	691	Z415246	8/16/2021	M	3	Stub Pole - Steel	Rust (Heavy)
4	Q3	690	Z246503	9/1/2021	M	4	Comm Cable	Clearance-Insufficient
5	Q3	689	Z246949	8/29/2021	M	4	Conductor (Complete)	Balloon-Mylar
6	Q3	682	Z118213	8/16/2021	AS	4	Insulators-Post, NCI, 69kv, Long	Bird Nest
7	Q3	616	Z18112	8/20/2021	M	2	Anchor Rods	Assessment Required
7	Q3	616	Z18112	8/20/2021	M	3	Anchor Rods	Rust (Heavy)
8	Q3	50001	Z50047	7/12/2021	LFC	4	Insulators-Ceramic, Standard, 40K	Washing Needed
9	Q3	50001	Z50048	7/12/2021	LFC	4	Conductor (Complete)	Flashed
10	Q3	23051	Z619991	8/27/2021	M	4	Member (Steel Tower)	Foreign Object (Specify)
11	Q3	23040	Z284004	7/23/2021	M	3	Footings (Complete)	Assessment Required
11	Q3	23040	Z284004	7/30/2021	AS	4	Area Around Structure	Assessment Required
12	Q3	23030	Z811338	9/30/2021	M	4	Tower-Leg(s)	Assessment Required
13	Q3	13833	Z223158	9/10/2021	M	3	Member (Steel Tower)	Damaged
13	Q3	13833	Z223158	9/9/2021	M	4	Ground Grid Taps	Damaged
14	Q3	13831	Z101591	8/19/2021	M	4	Guy Wire - OH	Clearance-Insufficient
15	Q3	13816	Z223165	9/28/2021	M	0	Tipline Identification Tags	Other (Specify)
1	Q4	13835	Z322476	10/16/2021	M	4	Pole Butt	Vandalism
1	Q4	13835	Z322476	10/16/2021	M	4	Guy Wire - OH	Loose
2	Q4	13836	Z322484	12/10/2021	M	4	Complete Wood Pole	Woodpecker Hole(S)
3	Q4	23002	Z223660	10/9/2021	M	2	Ground Rod Bond Wire	Broken
4	Q4	23002	Z223674	10/21/2021	M	4	Insulators-NCI, 230kv	Assessment Required
5	Q4	23006	Z222416	10/6/2021	M	2	Ground Rod Bond Wire	Broken
5	Q4	23006	Z222416	10/6/2021	M	2	Ground Grid Taps	Exposed
6	Q4	23010	Z223676	10/6/2021	M	2	Ground Rod Bond Wire	Exposed
6	Q4	23010	Z223676	10/6/2021	M	2	Anti-Climb Barrier	Removal Required
7	Q4	23022	Z873093	12/7/2021	M	3	Insulators-Ceramic, Standard, 30K	Rust (Heavy)
8	Q4	23030	Z322664	10/20/2021	M	3	Footings (Complete)	Damaged
9	Q4	23052	Z322247	10/21/2021	M	4	Insulators-NCI, 230kv	Assessment Required
10	Q4	50001	Z50019	10/19/2021	AS	4	Aerial Marker Sphere(s)	Broken
11	Q4	616	Z133531	10/9/2021	M	3	Anchor Rods	Assessment Required
12	Q4	634	Z413562	11/4/2021	M	3	Anchor Rods	Earth - Covered With
12	Q4	634	Z413562	11/4/2021	M	3	Anchor Rods	Rust (Heavy)

13	Q4	675	Z138139	10/14/2021	M	4	Complete Wood Pole	Woodpecker Hole(S)
14	Q4	6926	Z210656	10/3/2021	M	5	Pole Butt	Damaged
15	Q4	6906	Z97145	12/5/2021	LFC	4	Insulators-NCl, 69kv	Flashed
15	Q4	6906	Z97145	12/5/2021	LFC	4	Jumper (Complete)	Flashed
15	Q4	6906	Z97145	12/5/2021	LFC	4	Bond Wire	Blown
15	Q4	6906	Z97145	12/5/2021	LFN	4	Guy Wire - OH	Other (Specify)
15	Q4	6906	Z97145	12/6/2021	LFN	4	Comm Cable	Damaged

CONDITIONCOMMENTS	GLOBALID	Tier				
Kite on North phase 50 yds. NW of 3 pole structure	{8312590B-AEC0-456D-A00F-B461725D007C}	2				
Remove mylar balloon with insulator washer	{0F227692-EF26-4720-B657-792B0B2D1192}	2				
Evidence of ground fault.	{56E5CB49-D17A-47AB-B569-529831796E92}	2				
Shield wire hardware has blackening from ground fault.	{DCE0E4E9-9367-49F0-8C09-AA83DCAF3602}	2				
Middle east arm. Top of arm, south side. Evidence of mylar balloon contact.	{10FAEE69-E951-4401-B9B0-0DEED8A63D93}	2				
Top east, first south damper. Flash marks from mylar balloon contact.	{0B3EFA12-54CF-41DF-85CB-E684C7E2F6A4}	2				
Noise complaints from surrounding neighbors. No photos.	{DE818152-AC16-4704-BBC9-B37909D67761}	2				
First white marker ball to the east. Broken.	{AADFEF99-3E03-4C2C-9560-05AA33550480}	2				
top phase hot end hardware and bells are flasherd	{9CB6D3EA-9911-4A47-8BF1-C7570C793722}	2				
Climbing inspection by Bennett's crew - Top phase inside wire shoe cotter key on TL23054 and middle phase weights cotter key	{25EEEBF5-054E-4BD4-9463-AAAAF9F333E0}	3				
Climbing Inspection completed by Galla's crew - bird nest removed from tower	{06FC0AFE-0AFA-4A6C-8886-A0FB12D8505B}	3				
Cross arms look very crunchy.	{68B1F5B6-1E1F-4794-AA61-04DB401C3336}	2				
South west hot end shoe pin might be missing cotter key and or backed out. Looks suspect.	{1AB4F141-D5D8-4C9A-9A77-BEBF78865CAE}	2				
Climbing inspection completed by Galla's crew - missing cotter pin installed	{F5C953F3-EBC9-4FC0-81C8-AAAC87EB72BD}	2				
Switch 616-2 not fully closed per Troubleman	{12167D82-64C2-4686-9DB1-31DEF8619CFB}	2				
ETS reports that Switch 616-2 is difficult to open all the way and was drawing an arc. Switch would become increasingly difficult at the halfway point	{57E2E98C-6F72-4F3F-AD01-15139B42362A}	2				
ETS Ryan McGhen reports SWI 649-6 on pole Z31724 requires Lube and Adjustment	{1C9612AA-40E8-4E98-AB1C-A604F7AD6BF8}	2				
Troubleman says the switch is very hard to close like it is not lubricated.	{A1776935-3762-4C0E-824A-9ACAA0367102}	2				
Both anchor rods & preforms have blackening from fault.	{4ED12716-30C8-4CF6-9163-43E0CEBF6A1D}	2				
North west polly might be flashed.	{432F989C-E648-4D0F-93F7-0733AC2F12FC}	2				
Both anchor rods & preforms have blackening from fault.	{87F3A744-9A22-4C9C-B439-B7890DDA231D}	2				
Bond wire is burnt at north side of arm. Brace & DA hardware.	{A4023B65-D291-4A99-92A8-9F8549B28AC1}	2				
North jumper may have damage from fault.	{6EAF6C64-036F-478E-98AE-868D5C039D98}	2				
Hardware is burnt at north side of arm. Brace & DA. Also Downguy hardware.	{63BECF8F-6F57-4DF7-8560-BD277EE7BDD8}	2				
Fwd to JU. Level one 30 days. Loose lashing & com cable not attached	{D04B52D4-F8AB-4392-B3D2-84AF1C831A9F}	3				
Fwd to TE. Replace pole due to bus hitting it. Damage order 53-33837	{18F365FC-92D2-4FDA-8703-52E2BB8A5155}	3				
Fwd to Veg Mgmt. Clear poison oak from trail & anchor rod	{E0B1CB13-C551-4FB6-8355-2515F2EA6AB1}	2				
Communication down guy is broken	{24E6EE9A-3EAB-4887-9586-698F14160F07}	2				
FWD to Civil Engineering for assessment - water drainage appears to have started to enter at concrete backfill/soil interface. This has caused a small sinkhole (could inches in diameter that extends below grade several feet to meet drainage path.	{02930368-6137-42C9-97FE-09137BB43199}	2				
Shield wire hardware has blackening.	{96630ED5-50DC-457C-A31A-EF91DF49FFA9}	2				
TL6912 ~ Top phase, south deadend shoe. Nut missing.	{E8302315-9EC0-4683-97C3-225989BDF93B}	2				
	{14A94F82-9CCB-495E-B508-5BC81C30BEE4}	2				
Top guy wire at anchor rod has blackening from fire.	{8E9D4B50-0D21-44B2-A20F-152DC7159247}	3				
Top anchor rod has blackening from fire.	{54510EE0-2840-4625-A700-390D706FA4B3}	3				
Melted guy wure guard. Please replace at time of completion of other open conditions.	{7D40B24B-B024-4A3C-92B6-B5266460D948}	3				
Top guy wire at anchor rod has blackening from fire.	{8E9D4B50-0D21-44B2-A20F-152DC7159247}	3				
Top anchor rod has blackening from fire.	{54510EE0-2840-4625-A700-390D706FA4B3}	3				
Melted guy wure guard. Please replace at time of completion of other open conditions.	{7D40B24B-B024-4A3C-92B6-B5266460D948}	3				
	{64BBFBE2-0E85-4431-A9D1-9025347EF072}	2				
Middle phase, inside string, hot-end pin is not seated.	{50D16F1C-2A2D-4055-8BE2-6A05B302B604}	2				
Washing needed Mesa Fire	{79148422-B9BE-4B9C-907B-02075BB34FD8}	3				
Mylar balloon splatter on conductor at shoes.	{F0495F23-DB93-4927-9178-52921BDABDE2}	2				

Top phase hot end hardware has blackening.	{02252A23-9ED7-47D6-A7AB-CAB0EDE3955C}	2				
Assess replacing with NCI due to location	{33DD43A3-03E7-43F8-A899-DA73898D44F6}	2				
Washing needed - Mesa Fire	{74733B63-1179-4657-8EDF-487AE16619D1}	3				
	{6EF72E1B-8A38-4889-8DB2-B2DE25DB1F2A}	2				
Top phase, east cold end hardware has blackening from ground fault.	{B41946F9-19EB-4AF4-8121-251B60883E71}	2				
Shieldwire hardware has blackening from A phase ground fault.	{D2BF4C36-D795-48A1-97C3-A58D9F908061}	2				
Top south east NCI is flashed.	{1943550D-C0DF-4D5E-B6BA-1E38C1A44F6A}	2				
Top east phase jumper has splatter marks from ground fault.	{FF2107B5-C7B4-49EE-9A16-037144EE35C4}	2				
Marker balls needed in span towards Z100117 for security flight operations. No photos.	{BBEC7D83-9E9C-4663-B776-865F0A1E1523}	2				
	{CCBF6F56-799F-438B-812B-16E6073D97FA}	2				
	{45FE7E22-485A-40E0-89A0-F514FBD44C26}	2				
C-Leg stub angle is missing a nut and bolt is backed out. Competed.	{928202B6-66B6-4E7A-AFEB-E4DFC6EAFD6A}	3				
West OH guy wires are loose.	{BD46DA73-7E8A-447A-B6E2-5C11E6398E4D}	3				
Rust on stub pole at top	{203A66F3-E2E1-48B3-8405-97B374404BC1}	2				
Fwd JU Level one 30 days; will also FWD Insp 75376 to JU Level one 30 days	{4A256B20-3CF6-4A69-B7D2-0FFB2BBF0A0B}	2				
	{D6D9F661-0026-44CA-B6BE-12010144A746}	2				
Bottom phase post has a bird nest.	{E67F6935-0A32-4072-959B-A44C07C08240}	2				
Top anchor rod will be re-buried at first rain.	{5ECBBAFC-357F-44CE-9FE3-2F912E979F7C}	2				
Top anchor rod has medium to heavy rust.	{07BDB850-1E5F-4C27-878D-B6B2F5EF2E6E}	2				
Smoke contamination from fire. No photos. Washing completed.	{5806924E-B81F-4F6F-BB00-A8DA42E4283E}	3				
Flash marks on C phase, south phase. Outside conductor, In between structure and first damper.	{FF4911FB-5528-4AF1-8412-D232AA850D72}	3				
Remove ropes hanging above barbwire on steel members	{6776F067-880E-4DDA-B8D1-9BFBAECBD3E2}	2				
Footer is damaged and rebar is exposed	{1D61B037-B90B-45E9-8802-AED89AEF27E5}	2				
Drill rig next to tower. On access road.	{3D3D0A55-17F3-4E5E-9A81-D2BAEAA97AF2}	2				
Install security nuts due to vandalism issues in this segment of line	{E86BFC97-5ADD-48C6-AB78-61C260D199AD}	2				
diagonal is damaged near footer	{BC5D20BD-600F-4DFD-88A4-AD87DAA9ECC3}	2				
	{9196D251-14DE-4EA3-A25A-6B86926BEC80}	2				
Comm cable down guy has insufficient clearance over road.	{E50DB9BE-EA82-4E8D-9AEC-FEE256D15022}	2				
Both TL tags were peeling off.	{61032ECA-AF83-41AD-A974-B60E2B5D88F4}	2				
Pole butt has been shot numerous times.	{9150C551-FECD-4E17-A773-105501783CE3}	2				
All guy wires are loose.	{B271B80D-03F6-4570-A8E1-94A4F795534D}	2				
Fwd to TE. Replace pole. Woodpecker holes & shell collasping at static wire dead end	{325FDB4E-E31A-43A6-B567-5E08D1CFCCA0}	2				
D leg ground grid wire broken.	{FA63CB44-27FB-467F-B9D2-6DA646FE19D7}	2				
TL 23002 has Ohio Brass NCIs	{E7E34D44-C053-46D8-AF72-63EF39CBE54B}	2				
C leg ground connected broken.	{3A71571A-52C7-44FB-BFB9-B622A447D43A}	2				
C leg ground rod is exposed.	{D06B5987-3A6E-450B-B854-F3CF5A688677}	2				
D leg ground wire exposed.	{52558375-B1A7-4DE1-9A56-43AD1E6E60BB}	2				
Barb wire needs removed and cleaned up.	{DFFC3D3C-4D9D-438C-A353-122AF431C871}	2				
assessment required	{D2B7FA7C-D1D6-4CD7-B50B-093D24230D68}	2				
B-leg footer is damaged.	{FFB03DDD-067F-4940-8734-B19096679E3E}	2				
TL 23052 & 23007 are Ohio Brass NCIs	{310402F6-BD15-4A78-908C-D4582AD99E7E}	2				
White marker ball broken between Z50019 -Z50018.	{027A0782-3204-4687-A735-A0F51A4FB3F8}	3				
Anchor rods are currently in water.	{A5CDD06B-F285-43E5-B612-244AEA3981DF}	2				
Top west anchor rod needs long term solution to keep from being buried.	{06B0DE30-B4A7-4849-88B6-0E44965D311D}	2				
Top west anchor rod has medium to heavy rust.	{ADCD8BDD-CB8E-46D7-BC8D-FE691BE89D69}	2				

Fwd to TE. Replace pole	{6BB9E36D-F490-4967-BBDB-49398A122036}	2
Car pole 10/3/21 around 2:00 AM Emergency pole replacement	{54962DBE-EEE3-45C8-99E2-B8494861670D}	2
flash insulator cold end on the east/north side due to mylars balloons flash	{357E2DF2-B7E2-4CC1-AD5C-6176A27F7042}	2
jumper have flash marks due to mylar balloons	{1B10C4E4-2C86-4745-BA69-47DE825599FD}	2
bond wire blond open due to mylar ballons fault	{FE4EB564-FDFD-486C-B284-27AD89EBB2E}	2
down guys are rubbing hard on comunication some strand are open	{6C6559E5-B4D5-429B-A6CE-6B119A02ED95}	2
Fwd to JU. Comm. Cable approx 50' north of pole damaged. Loose lashing & burn. Level One 30 days	{E07E34DD-AC32-48DF-B6A3-932CB397A79F}	2

Patrol Code	Definition
LCI	land Climbing Inspetion
AFC	aerial fault cause
AFN	aerial fault not cause
AS	aerial special
LFC	Land fault cause
LFN	land fault not cause
LS	Land Special
M	Misecellaneous
LR	Land Routine
AIR	aerial infrared
LIR	Land Infra Red

Data request type	WMP Initiative
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Discretionary Inspection	7.3.4.10
Detailed Inspection	7.3.4.2
Infrared Inspection	7.3.4.5
Infrared Inspection	7.3.4.5

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.11

Transmission Patrol Inspection Reports

Notifictn type	Notification	Notif.date	Req. start	Required End	Description	Description	POLE	Functional Loc.	Description	User status	Reference date
1D	100019126921	#####	#####	04/30/2021	ED:STD:MAP:16635-118250	16635-118250	P31606	ED.CMT.MAPS.3334	PATROL Y1 INTERVAL 01	COMP	01/20/2021
1D	100019128380	#####	#####	04/30/2021	ED:STD:MAP:16905-119280	16905-119280	P192422	ED.EST.MAPS.3916	PATROL Y1 INTERVAL 01	COMP	02/22/2021
1D	100019128903	#####	#####	04/30/2021	ED:STD:MAP:15945-121280	15945-121280	P135223	ED.NRE.MAPS.4384	PATROL Y1 INTERVAL 01	COMP	02/24/2021
1D	100019129435	#####	#####	04/30/2021	ED:STD:MAP:16200-120790	16200-120790	P515289	ED.NRE.MAPS.6578	PATROL Y1 INTERVAL 01	COMP	02/05/2021
1D	100019129521	#####	#####	04/30/2021	ED:STD:MAP:16305-120580	16305-120580	P116716	ED.NRE.MAPS.7461	PATROL Y1 INTERVAL 01	COMP	02/16/2021
1D	100019129700	#####	#####	04/30/2021	ED:STD:MAP:17010-119980	17010-119980	P611710	ED.RAM.MAPS.2622	PATROL Y1 INTERVAL 01	COMP	01/23/2021
1D	100019129938	#####	#####	04/30/2021	ED:STD:MAP:17145-121140	17145-121140	P115333J	ED.RAM.MAPS.3008	PATROL Y1 INTERVAL 01	COMP	02/20/2021
1D	100019130142	#####	#####	04/30/2021	ED:STD:MAP:17250-120840	17250-120840	P216512	ED.RAM.MAPS.3214	PATROL Y1 INTERVAL 01	COMP	02/04/2021
1D	100019130507	#####	#####	04/30/2021	ED:STD:MAP:17460-120150	17460-120150	P717494	ED.RAM.MAPS.3632	PATROL Y1 INTERVAL 01	COMP	02/12/2021
1D	100019130609	#####	#####	04/30/2021	ED:STD:MAP:17550-119960	17550-119960	P615844	ED.RAM.MAPS.3796	PATROL Y1 INTERVAL 01	COMP	02/27/2021
1D	100019130648	#####	#####	04/30/2021	ED:STD:MAP:17580-120110	17580-120110	P131135	ED.RAM.MAPS.3859	PATROL Y1 INTERVAL 01	COMP	03/03/2021
1D	100019130721	#####	#####	04/30/2021	ED:STD:MAP:17625-120160	17625-120160	P713057	ED.RAM.MAPS.3992	PATROL Y1 INTERVAL 01	COMP	03/04/2021
1D	100019309111	#####	#####	05/31/2021	ED:STD:MAP:17520-120620	17520-120620	Z118273	ED.RAM.MAPS.3770	PATROL Y1 INTERVAL 02	COMP	02/08/2021
1D	100019309361	#####	#####	05/31/2021	ED:STD:MAP:16740-118930	16740-118930	P104803	ED.EST.MAPS.3247	PATROL Y1 INTERVAL 02	COMP	03/15/2021
1D	100019430369	#####	#####	06/30/2021	ED:STD:MAP:17250-118620	17250-118620	P130344	ED.MTE.MAPS.1273	PATROL Y1 INTERVAL 03	COMP	03/16/2021

Coding	Coding code txt	Reported by	System status	Main WorkCtr	POLE
199	Patrol Inspection	DBAUERS	NOCO	EDU_CMT	P31606
199	Patrol Inspection	JMDEUEL	NOCO	EDU_EST	P192422
199	Patrol Inspection	CMARTIN3	NOCO	EDU_NRE	P135223
199	Patrol Inspection	JMCKEOWN	NOCO	EDU_NRE	P515289
199	Patrol Inspection	JMCKEOWN	NOCO	EDU_NRE	P116716
199	Patrol Inspection	TDPEARCE	NOCO	EDU_RAM	P611710
199	Patrol Inspection	SWHEELOC	NOCO	EDU_RAM	P115333J
199	Patrol Inspection	SWHEELOC	NOCO	EDU_RAM	P216512
199	Patrol Inspection	SWHEELOC	NOCO	EDU_RAM	P717494
199	Patrol Inspection	SWHEELOC	NOCO	EDU_RAM	P615844
199	Patrol Inspection	SWHEELOC	NOCO	EDU_RAM	P131135
199	Patrol Inspection	JJLAWS	NOCO	EDU_RAM	P713057
199	Patrol Inspection	SWHEELOC	NOCO	EDU_RAM	Z118273
199	Patrol Inspection	DBURRELL	NOCO	EDU_EST	P104803
199	Patrol Inspection	RBRANSOM	NOCO	EDU_MTE	P130344

Notifictn type	Notification	Notif.date	Req. start	Required End	Description	Description	POLE	Functional Loc.	Description	User status	Reference date
1D	100019307881	#####	#####	05/31/2021	ED:STD:MAP:16485-120430	16485-120430	P112262	ED.NRE.MAPS.8542	PATROL Y1 INTERVAL 02	COMP	05/10/2021
1D	100019309424	#####	#####	05/31/2021	ED:STD:MAP:16800-118740	16800-118740	P771743	ED.EST.MAPS.3453	PATROL Y1 INTERVAL 02	COMP	04/22/2021
1D	100019309470	#####	#####	05/31/2021	ED:STD:MAP:16830-118780	16830-118780	P672613	ED.EST.MAPS.3580	PATROL Y1 INTERVAL 02	COMP	04/20/2021
1D	100019310487	#####	#####	05/31/2021	ED:STD:MAP:16230-120580	16230-120580	P116218	ED.NRE.MAPS.6820	PATROL Y1 INTERVAL 02	COMP	05/11/2021
1D	100019310664	#####	#####	05/31/2021	ED:STD:MAP:16410-121000	16410-121000	P18658	ED.NRE.MAPS.8234	PATROL Y1 INTERVAL 02	COMP	05/03/2021
1D	100019310785	#####	#####	05/31/2021	ED:STD:MAP:16470-120940	16470-120940	P211142	ED.NRE.MAPS.8512	PATROL Y1 INTERVAL 02	COMP	05/26/2021
1D	100019431395	#####	#####	06/30/2021	ED:STD:MAP:16590-119340	16590-119340	P872297	ED.EST.MAPS.2641	PATROL Y1 INTERVAL 03	COMP	05/25/2021
1D	100019431736	#####	#####	06/30/2021	ED:STD:MAP:16485-120120	16485-120120	P815684	ED.NRE.MAPS.8527	PATROL Y1 INTERVAL 03	COMP	05/14/2021
1D	100019431835	#####	#####	06/30/2021	ED:STD:MAP:17205-119110	17205-119110	P870041	ED.EST.MAPS.4699	PATROL Y1 INTERVAL 03	COMP	04/13/2021
1D	100019431970	#####	#####	06/30/2021	ED:STD:MAP:16665-119330	16665-119330	P72679	ED.EST.MAPS.2976	PATROL Y1 INTERVAL 03	COMP	04/21/2021
1D	100019432217	#####	#####	06/30/2021	ED:STD:MAP:16395-120750	16395-120750	P616236	ED.NRE.MAPS.8133	PATROL Y1 INTERVAL 03	COMP	05/14/2021
1D	100019432428	#####	#####	06/30/2021	ED:STD:MAP:15585-120860	15585-120860	P710472	ED.NRE.MAPS.2306	PATROL Y1 INTERVAL 03	COMP	05/17/2021
1D	100019578004	#####	#####	07/31/2021	ED:STD:MAP:16860-119510	16860-119510	P470403	ED.EST.MAPS.3750	PATROL Y1 INTERVAL 04	COMP	06/22/2021
1D	100019578461	#####	#####	07/31/2021	ED:STD:MAP:17085-118890	17085-118890	P871169	ED.EST.MAPS.4397	PATROL Y1 INTERVAL 04	COMP	05/06/2021
1D	100019578654	#####	#####	07/31/2021	ED:STD:MAP:18180-118780	18180-118780	P40597	ED.MTE.MAPS.2932	PATROL Y1 INTERVAL 04	COMP	04/06/2021

Coding	Coding code txt	Reported by	System status	Main WorkCtr
199	Patrol Inspection	JDAVIS1	NOCO	EDU_NRE
199	Patrol Inspection	RSTROH	NOCO	EDU_EST
199	Patrol Inspection	RSTROH	NOCO	EDU_EST
199	Patrol Inspection	JDAVIS1	NOCO	EDU_NRE
199	Patrol Inspection	BSCHELHO	NOCO	EDU_NRE
199	Patrol Inspection	JDAVIS1	NOCO	EDU_NRE
199	Patrol Inspection	RSTROH	NOCO	EDU_EST
199	Patrol Inspection	BSCHELHO	NOCO	EDU_NRE
199	Patrol Inspection	SMACKLEY	NOCO	EDU_EST
199	Patrol Inspection	MPFERGER	NOCO	EDU_EST
199	Patrol Inspection	JDAVIS1	NOCO	EDU_NRE
199	Patrol Inspection	JDAVIS1	NOCO	EDU_NRE
199	Patrol Inspection	RSTROH	NOCO	EDU_EST
199	Patrol Inspection	RBRANSOM	NOCO	EDU_EST
199	Patrol Inspection	KWELDY	NOCO	EDU_MTE

Notifictn type	Notification	Req. start	Required En	Reference date	Description	Description	POLE	Functional Loc.	Description	User status	Reference date	Coding
1D	100020083874	07/01/2021	#####	07/11/2021	ED:STD:MAP:15705-121010	15705-121010	P316997	ED.NRE.MAPS.2748	PATROL Y1 INTERVAL 07	COMP	07/11/2021	199
1D	100020083876	07/01/2021	#####	07/11/2021	ED:STD:MAP:15705-121030	15705-121030	P253661	ED.NRE.MAPS.2750	PATROL Y1 INTERVAL 07	COMP	07/11/2021	199
1D	100019577114	04/01/2021	#####	07/02/2021	ED:STD:MAP:15780-121240	15780-121240	P101689	ED.NRE.MAPS.3146	PATROL Y1 INTERVAL 04	COMP	07/02/2021	199
1D	100019578915	04/01/2021	#####	07/11/2021	ED:STD:MAP:16020-121240	16020-121240	P614552	ED.NRE.MAPS.5062	PATROL Y1 INTERVAL 04	COMP	07/11/2021	199
1D	100019727750	05/01/2021	#####	08/07/2021	ED:STD:MAP:16335-120660	16335-120660	P114628	ED.NRE.MAPS.7730	PATROL Y1 INTERVAL 05	COMP	08/07/2021	199
1D	100019727756	05/01/2021	#####	08/06/2021	ED:STD:MAP:16335-120720	16335-120720	P519484	ED.NRE.MAPS.7736	PATROL Y1 INTERVAL 05	COMP	08/06/2021	199
1D	100019727841	05/01/2021	#####	08/06/2021	ED:STD:MAP:16410-120690	16410-120690	P617485	ED.NRE.MAPS.8205	PATROL Y1 INTERVAL 05	COMP	08/06/2021	199
1D	100019727848	05/01/2021	#####	08/06/2021	ED:STD:MAP:16440-120670	16440-120670	P36019	ED.NRE.MAPS.8350	PATROL Y1 INTERVAL 05	COMP	08/06/2021	199
1D	100020251747	08/01/2021	#####	08/11/2021	ED:STD:MAP:16830-119960	16830-119960	P130844	ED.RAM.MAPS.2157	PATROL Y1 INTERVAL 08	COMP	08/11/2021	199
1D	100020251768	08/01/2021	#####	08/15/2021	ED:STD:MAP:16845-119890	16845-119890	P713416	ED.RAM.MAPS.2184	PATROL Y1 INTERVAL 08	COMP	08/15/2021	199
1D	100020251799	08/01/2021	#####	08/15/2021	ED:STD:MAP:16860-119880	16860-119880	P711274	ED.RAM.MAPS.2226	PATROL Y1 INTERVAL 08	COMP	08/15/2021	199
1D	100020252134	08/01/2021	#####	08/06/2021	ED:STD:MAP:17115-120040	17115-120040	P102608	ED.RAM.MAPS.2919	PATROL Y1 INTERVAL 08	COMP	08/06/2021	199
1D	100020410902	09/01/2021	#####	09/20/2021	ED:STD:MAP:17520-119310	17520-119310	P778979	ED.MTE.MAPS.1775	PATROL Y1 INTERVAL 09	COMP	09/20/2021	199
1D	100020251124	08/01/2021	#####	08/09/2021	ED:STD:MAP:17580-119250	17580-119250	P172856	ED.MTE.MAPS.1931	PATROL Y1 INTERVAL 08	COMP	08/09/2021	199
1D	100020251229	08/01/2021	#####	08/03/2021	ED:STD:MAP:17850-119230	17850-119230	P870700	ED.MTE.MAPS.2359	PATROL Y1 INTERVAL 08	COMP	08/03/2021	199

Coding code txt	Reported bSystem sta	Main WorkCtr	Text	Cond. Code	Cond.Code	DmgeTxt
Patrol Inspection	JDAVIS1	NOCO	EDU_NRE			
Patrol Inspection	JDAVIS1	NOCO	EDU_NRE			
Patrol Inspection	JDAVIS1	NOCO	EDU_NRE			
Patrol Inspection	JDAVIS1	NOCO	EDU_NRE			
Patrol Inspection	JDAVIS1	NOCO	EDU_NRE			
Patrol Inspection	BSCHELHO	NOCO	EDU_NRE			
Patrol Inspection	JDAVIS1	NOCO	EDU_NRE			
Patrol Inspection	JDAVIS1	NOCO	EDU_NRE			
Patrol Inspection	TDPEARCE	NOCO	EDU_RAM			
Patrol Inspection	TDPEARCE	NOCO	EDU_RAM	100020361165	I207	SDGE Leaning Pole or Potential Overload
Patrol Inspection	TDPEARCE	NOCO	EDU_RAM			
Patrol Inspection	JDAVIS1	NOCO	EDU_RAM			
Patrol Inspection	RMCGHEN	NOCO	EDU_MTE			
Patrol Inspection	RMCGHEN	NOCO	EDU_MTE			
Patrol Inspection	RMCGHEN	NOCO	EDU_MTE			

Notifictn type	Notification	Notif.date	Req. start	Required End	Description	Description	POLE	Functional Loc.	Description	User status	Reference date	Coding	Coding code txt	Reported by
1D	100020548732	#####	#####	12/31/2021	ED:STD:MAP:14790-121910	14790-121910	P128447	ED.ORC.MAPS.2175	PATROL Y1 INTERVAL 10	COMP	10/06/2021	199	Patrol Inspection	CDMACIAS
1D	100020251564	#####	#####	11/30/2021	ED:STD:MAP:15855-120450	15855-120450	P112693	ED.NRC.MAPS.4199	PATROL Y1 INTERVAL 08	COMP	10/13/2021	199	Patrol Inspection	BWILLIS
1D	100020251565	#####	#####	11/30/2021	ED:STD:MAP:15870-120430	15870-120430	P19391	ED.NRC.MAPS.4231	PATROL Y1 INTERVAL 08	COMP	10/13/2021	199	Patrol Inspection	BWILLIS
1D	100020252263	#####	#####	11/30/2021	ED:STD:MAP:16290-118170	16290-118170	P84779	ED.CMT.MAPS.2450	PATROL Y1 INTERVAL 08	COMP	11/15/2021	199	Patrol Inspection	CBRANDON
1D	100020252293	#####	#####	11/30/2021	ED:STD:MAP:16320-118130	16320-118130	P170504	ED.CMT.MAPS.2575	PATROL Y1 INTERVAL 08	COMP	11/15/2021	199	Patrol Inspection	CBRANDON
1D	100020250786	#####	#####	11/30/2021	ED:STD:MAP:16425-118300	16425-118300	P226024	ED.CMT.MAPS.2889	PATROL Y1 INTERVAL 08	COMP	11/12/2021	199	Patrol Inspection	CBRANDON
1D	100020250787	#####	#####	11/30/2021	ED:STD:MAP:16425-118330	16425-118330	P831254	ED.CMT.MAPS.2890	PATROL Y1 INTERVAL 08	COMP	11/12/2021	199	Patrol Inspection	IBLAS
1D	100020411224	#####	#####	12/31/2021	ED:STD:MAP:17265-119200	17265-119200	P174620	ED.MTE.MAPS.1295	PATROL Y1 INTERVAL 09	COMP	10/01/2021	199	Patrol Inspection	WRSTANLE
1D	100020411247	#####	#####	12/31/2021	ED:STD:MAP:17325-119200	17325-119200	P673012	ED.MTE.MAPS.1398	PATROL Y1 INTERVAL 09	COMP	10/01/2021	199	Patrol Inspection	WRSTANLE
1D	100020411253	#####	#####	12/31/2021	ED:STD:MAP:17340-119210	17340-119210	P33595	ED.MTE.MAPS.1432	PATROL Y1 INTERVAL 09	COMP	10/01/2021	199	Patrol Inspection	WRSTANLE
1D	100020411255	#####	#####	12/31/2021	ED:STD:MAP:17355-119220	17355-119220	P273921	ED.MTE.MAPS.1459	PATROL Y1 INTERVAL 09	COMP	10/01/2021	199	Patrol Inspection	WRSTANLE
1D	100020411262	#####	#####	12/31/2021	ED:STD:MAP:17370-119250	17370-119250	P771958	ED.MTE.MAPS.1496	PATROL Y1 INTERVAL 09	COMP	10/01/2021	199	Patrol Inspection	WRSTANLE
1D	100020411306	#####	#####	12/31/2021	ED:STD:MAP:17655-119770	17655-119770	P277586	ED.MTE.MAPS.2039	PATROL Y1 INTERVAL 09	COMP	10/01/2021	199	Patrol Inspection	WRSTANLE
1D	100020411308	#####	#####	12/31/2021	ED:STD:MAP:17655-119790	17655-119790	P166077	ED.MTE.MAPS.2041	PATROL Y1 INTERVAL 09	COMP	10/01/2021	199	Patrol Inspection	WRSTANLE
1D	100020411345	#####	#####	12/31/2021	ED:STD:MAP:17685-119760	17685-119760	P273593	ED.MTE.MAPS.2115	PATROL Y1 INTERVAL 09	COMP	10/01/2021	199	Patrol Inspection	WRSTANLE

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.5.2 Tree Inventory Sample

YEAR_QUA	OBJECTID	GLOBALID	CREATIONI	DATECREATED	DATEMODIFIED	LASTUSER	ACTIVITY	ACTIVITYBY	ACTIVITYDATE	FACILITYID	WORKORDERID	CONDITION	NEARESTTL	LINECLEARANCE	DBH	TREEHEIGHT	OWO	SPECIES
2021-Q1	15404671	{03B8CBAC	VM2D	12/1/2013 10:28	3/22/2021 15:40	ISANCHE2	PI	ISANCHE2	3/22/2021 15:40	RK332	1225863268	PIC	NONE	20.0 to 30.0 ft	3.0 to 7.9 in	0.0 to 5.0 f	N	Cep
2021-Q1	15288130	{27229F2F	VM2D	12/1/2013 12:46	1/22/2021 12:09		PI	TBRODBEC	1/22/2021 12:09	DS1196	1225682464	PIC		10.0 to 11.9 ft	18.0 to 23.9 in	15.1 to 20.1	N	Avo
2021-Q1	15260724	{E5114EA4	AGuerre1	1/23/2016 10:14	1/11/2021 15:15		PI	jagarci3	1/11/2021 15:15	GQ3352	1225670219	PIP		6.0 to 7.9 ft	8.0 to 12.9 in	20.1 to 30.1	N	Pepca
2021-Q1	15337763	{4EF14B6A	VM2D	12/1/2013 15:09	2/16/2021 9:55		PI	klamb	2/16/2021 9:55	JR855	1225774275	PIC		8.0 to 9.9 ft	8.0 to 12.9 in	20.1 to 30.1	N	Fic
2021-Q1	15422041	{E2238294	EAGUILA	3/29/2021 15:15	3/29/2021 15:15	EAGUILA	PI	EAGUILA	3/29/2021 15:15	HQ146	1225911878	PIC	NONE	10.0 to 11.9 ft	18.0 to 23.9 in	20.1 to 30.1	Y	Oli
2021-Q1	15303938	{695F0A52	VM2D	12/1/2013 5:20	2/1/2021 15:53		PI	jvaldez3	2/1/2021 15:53	FK4005	1225774340	PIC		12.0 to 14.9 ft	8.0 to 12.9 in	15.1 to 20.1	N	Loc
2021-Q1	15256844	{6794E7FB	rjgallow	1/5/2018 12:56	1/6/2021 11:06		PI	STHIELKI	1/6/2021 11:07	OZ796	1225696544	PIP		4.1 to 5.9 ft	13.0 to 17.9 in	20.1 to 30.1	N	Pine
2021-Q1	15370831	{D79A86A1	VM2D	12/1/2013 10:28	3/4/2021 10:07		PI	ERuiz5	3/4/2021 10:07	AQ7225	1225863254	PIC		10.0 to 11.9 ft	13.0 to 17.9 in	20.1 to 30.1	N	Avo
2021-Q1	15365703	{DC68E2E1	LZaragoz	3/8/2014 12:32	3/2/2021 8:52		PI	itamburr	3/2/2021 8:52	AX6787	1225766024	PIP		20.0 to 30.0 ft	13.0 to 17.9 in	40.1 to 50.1	N	PIFn
2021-Q1	15332832	{31AB1F96	itamburr	2/15/2021 16:05	2/15/2021 16:08		PI	itamburr	2/15/2021 16:08	KA555	1225762011	PIP		4.1 to 5.9 ft	8.0 to 12.9 in	20.1 to 30.1	Y	Jac
2021-Q1	15388482	{DD7F23DC	VM2D	12/1/2013 13:28	3/15/2021 14:56	JPAULS1	PI	JPAULS1	3/15/2021 14:56	SU460	1225885520	PIP	NONE	8.0 to 9.9 ft	13.0 to 17.9 in	15.1 to 20.1	N	Pepca
2021-Q1	15425632	{0817A7F7	VM2D	12/1/2013 13:28	3/30/2021 14:59	JPAULS1	PI	JPAULS1	3/30/2021 14:59	ST5724	1225885522	PIC	NONE	8.0 to 9.9 ft	8.0 to 12.9 in	30.1 to 40.1	N	PIFe
2021-Q1	15407240	{9DF382A6	MKRUSE	3/23/2021 12:52	3/23/2021 12:52	MKRUSE	PI	MKRUSE	3/23/2021 12:52	DW1250	1225879411	PIC	NONE	15.0 to 19.9 ft	3.0 to 7.9 in	5.1 to 15.0	Y	PIFe
2021-Q1	15249903	{7A2655CE	VM2D	12/1/2013 6:56	1/5/2021 12:07		PI	NFelise	1/5/2021 12:07	FE388	1225536262	PIC		12.0 to 14.9 ft	3.0 to 7.9 in	15.1 to 20.1	N	Euc
2021-Q1	15303955	{D68F860D	VM2D	12/1/2013 16:38	1/29/2021 11:34		PI	STHIELKI	1/29/2021 11:34	EM1404	1225726702	PIP		2.1 to 4.0 ft	8.0 to 12.9 in	30.1 to 40.1	N	PIFe
2021-Q2	15546252	{ECC04867	VM2D	12/1/2013 7:39	5/24/2021 15:39	RFORKNER	PI	RFORKNER	5/24/2021 15:39	EX4925	1225913576	PIC	NONE	10.0 to 11.9 ft	24.0 to 35.9 in	20.1 to 30.1	N	Oak
2021-Q2	15500486	{0E01045C	VM2D	12/1/2013 6:32	4/27/2021 15:52	JPAULS1	PI	JPAULS1	4/27/2021 15:52	GW1007	1225912310	PIP	NONE	6.0 to 7.9 ft	42.0 to 47.9 in	20.1 to 30.1	N	Oak
2021-Q2	15537831	{836FCA01	VM2D	12/1/2013 10:32	5/19/2021 17:24	JVALDEZ3	PI	JVALDEZ3	5/19/2021 17:24	FB1667	1225913840	PIC	NONE	6.0 to 7.9 ft	24.0 to 35.9 in	20.1 to 30.1	N	Oak
2021-Q2	15632673	{B08C32A6	bweinric	6/4/2019 10:49	6/30/2021 13:13	ITAMBURR	PI	ITAMBURR	6/30/2021 13:13	OS7663	1225914658	PIP	NONE	0.0 to 2.0 ft	24.0 to 35.9 in	20.1 to 30.1	N	Pepca
2021-Q2	15453713	{AD320417	STHIELKI	4/13/2021 14:05	4/13/2021 14:05	STHIELKI	PI	STHIELKI	4/13/2021 14:05	ES9951	1225912691	PIC	NONE	8.0 to 9.9 ft	8.0 to 12.9 in	5.1 to 15.0	Y	Oak
2021-Q2	15458544	{11E6A187	VM2D	12/1/2013 6:32	4/14/2021 11:35	JPAULS1	PI	JPAULS1	4/14/2021 11:35	UY2178	1225912304	PIC	NONE	20.0 to 30.0 ft	3.0 to 7.9 in	0.0 to 5.0 f	N	Cep
2021-Q2	15626829	{FFAF0ECA	VM2D	12/1/2013 16:40	6/29/2021 12:50	ISANCHE2	PI	ISANCHE2	6/29/2021 12:50	ED4565	1225915279	PIC	NONE	10.0 to 11.9 ft	13.0 to 17.9 in	20.1 to 30.1	N	Pepca
2021-Q2	15507087	{3B2927C8	BJVASQUE	5/7/2021 10:21	5/7/2021 10:21	BJVASQUE	PI	BJVASQUE	5/7/2021 10:21	AH8140	1225912292	PIC	NONE	10.0 to 11.9 ft	13.0 to 17.9 in	20.1 to 30.1	Y	Oak
2021-Q2	15613297	{AEC0D647	mrmullen	6/28/2016 13:37	6/22/2021 14:56	RSBOAZ	PI	RSBOAZ	6/22/2021 14:56	AJ2920	1225915112	PIP	668	12.0 to 14.9 ft	18.0 to 23.9 in	15.1 to 20.1	N	Euc
2021-Q2	15622982	{13C1E099	VM2D	12/1/2013 16:40	6/28/2021 12:39	ISANCHE2	PI	ISANCHE2	6/28/2021 12:39	RK1069	1225915279	PIC	NONE	15.0 to 19.9 ft	13.0 to 17.9 in	20.1 to 30.1	N	Tam
2021-Q2	15537722	{0739AF12	CMJohns1	5/4/2016 10:56	5/19/2021 12:17	KBURCH	PI	KBURCH	5/19/2021 12:17	EO1163	1225913839	PIC	634	12.0 to 14.9 ft	8.0 to 12.9 in	20.1 to 30.1	N	Euc
2021-Q2	15517334	{5E068D4F	VM2D	12/1/2013 9:21	5/11/2021 10:01	KLAMB	PI	KLAMB	5/11/2021 10:01	FX19245	1225913880	PIC	600	12.0 to 14.9 ft	3.0 to 7.9 in	15.1 to 20.1	N	CarWo
2021-Q2	15586727	{81C6BCF5	VM2D	12/1/2013 11:47	6/9/2021 13:22	ZDHOHL	PI	ZDHOHL	6/9/2021 13:22	KZ2717	1225914531	PIP	NONE	8.0 to 9.9 ft	13.0 to 17.9 in	20.1 to 30.1	N	Loc
2021-Q2	15554663	{D9ED452A	VM2D	12/1/2013 17:23	5/26/2021 15:48	ERUIZ5	PI	ERUIZ5	5/26/2021 15:48	UB2214	1225913792	DEL	NONE	100.1 ft +	3.0 to 7.9 in	0.0 to 5.0 f	N	Cep
2021-Q2	15555734	{C565F9E0	itamburr	4/30/2020 11:13	5/27/2021 9:59	SMCGIRR	PI	SMCGIRR	5/27/2021 9:59	KA24	1225913549	GRP	NONE	12.0 to 14.9 ft	24.0 to 35.9 in	40.1 to 50.1	N	Euc
2021-Q3	15708146	{111527E7	VM2D	12/1/2013 9:38	8/2/2021 12:18	ISANCHE2	PI	ISANCHE2	8/2/2021 12:18	UF796	1225916816	PIP	NONE	10.0 to 11.9 ft	18.0 to 23.9 in	30.1 to 40.1	N	Cot
2021-Q3	15671215	{D1209418	ESCHROED	7/16/2021 9:26	7/16/2021 9:26	ESCHROED	PI	ESCHROED	7/16/2021 9:26	XO79	1225916039	PIC	NONE	12.0 to 14.9 ft	8.0 to 12.9 in	15.1 to 20.1	Y	PIFe
2021-Q3	15726034	{2A73449E	VM2D	12/1/2013 9:38	8/9/2021 11:41	ISANCHE2	PI	ISANCHE2	8/9/2021 11:41	QJ3598	1225916808	PIP	NONE	8.0 to 9.9 ft	18.0 to 23.9 in	5.1 to 15.0	N	Euc
2021-Q3	15843345	{D4E4CDFE	VM2D	12/1/2013 15:02	9/28/2021 17:03	OHIRST	PI	OHIRST	9/28/2021 17:03	PS2007	1225917978	PIC	NONE	8.0 to 9.9 ft	36.0 to 41.9 in	50.1 to 60.1	N	Oak
2021-Q3	15695815	{00118F33	wcshober	12/3/2018 13:37	7/27/2021 10:55	BBRIGHT	PI	BBRIGHT	7/27/2021 10:55	OY1244	1225916371	PIC	NONE	12.0 to 14.9 ft	0.0 to 2.9 in	20.1 to 30.1	N	BrBam
2021-Q3	15798107	{D2693FAB	VM2D	12/1/2013 15:35	9/9/2021 10:55	BANDERS1	PI	BANDERS1	9/9/2021 10:55	GA5066	1225917710	PIC	NONE	10.0 to 11.9 ft	3.0 to 7.9 in	15.1 to 20.1	N	Oak
2021-Q3	15651261	{CDB5BAEE	VM2D	12/1/2013 15:08	7/9/2021 10:54	OHIRST	PI	OHIRST	7/9/2021 10:54	RK1215	1225915796	PIC	NONE	10.0 to 11.9 ft	13.0 to 17.9 in	15.1 to 20.1	N	Fic
2021-Q3	15698942	{1A42B21C	VM2D	12/1/2013 7:45	7/28/2021 12:11	BMONTALV	PI	BMONTALV	7/28/2021 12:11	GG1721	1225916307	PIC	NONE	10.0 to 11.9 ft	13.0 to 17.9 in	20.1 to 30.1	N	Pepca
2021-Q3	15823193	{E4030B98	VM2D	12/1/2013 7:08	9/20/2021 11:09	JVALDEZ3	PI	JVALDEZ3	9/20/2021 11:09	TF1038	1225918126	PIC	NONE	10.0 to 11.9 ft	13.0 to 17.9 in	20.1 to 30.1	N	Oak
2021-Q3	15814883	{F31F157E	VM2D	12/1/2013 13:49	9/16/2021 14:51	SADAMS1	PI	SADAMS1	9/16/2021 14:51	AY5053	1225918234	PIP	NONE	6.0 to 7.9 ft	24.0 to 35.9 in	20.1 to 30.1	N	Euc
2021-Q3	15696655	{39BE53F8	AMACAULE	7/27/2021 14:28	7/27/2021 14:28	AMACAULE	PI	AMACAULE	7/27/2021 14:28	AP7896	1225915554	PIC	NONE	6.0 to 7.9 ft	8.0 to 12.9 in	15.1 to 20.1	Y	PIFe
2021-Q3	15732209	{3A71B630	VM2D	12/1/2013 9:38	8/11/2021 13:42	AHEREDIA	PI	AHEREDIA	8/11/2021 13:42	ED7737	1225916810	PIC	NONE	15.0 to 19.9 ft	8.0 to 12.9 in	15.1 to 20.1	N	Avo
2021-Q3	15646971	{CCE4DA25	VM2D	12/1/2013 5:08	7/6/2021 10:53	AROSSI	PI	AROSSI	7/6/2021 10:53	UG151	1225914634	PIC	681	12.0 to 14.9 ft	24.0 to 35.9 in	15.1 to 20.1	N	PIDt
2021-Q3	15738050	{8650F0BC	VM2D	12/1/2013 10:40	8/12/2021 9:38	ISANCHE2	PI	ISANCHE2	8/12/2021 9:38	FN1333	1225917235	PIC	NONE	8.0 to 9.9 ft	18.0 to 23.9 in	50.1 to 60.1	N	Fir
2021-Q3	15633871	{392D42CC	jide	6/13/2018 15:04	7/1/2021 12:46	BWANAMAK	PI	BWANAMAK	7/1/2021 12:46	PH833	1225914353	PIC	NONE	10.0 to 11.9 ft	3.0 to 7.9 in	20.1 to 30.1	N	Syc
2021-Q4	15913808	{373D713E	PKruse	10/30/2020 11:58	11/1/2021 14:11	SADAMS1	PI	SADAMS1	11/1/2021 14:11	LN630	1225919742	PIC	NONE	12.0 to 14.9 ft	18.0 to 23.9 in	30.1 to 40.1	N	Euc
2021-Q4	16003660	{993F34E9	rjgallow	12/31/2019 8:45	12/13/2021 12:14	AGABEL	PI	AGABEL	12/13/2021 12:14	OZ1963	1225920953	PIC	NONE	12.0 to 14.9 ft	8.0 to 12.9 in	40.1 to 50.1	N	Euc
2021-Q4	15989657	{4AEEAF9C	EPEAK	12/4/2018 8:00	12/7/2021 13:06	JEHTESHA	PI	JEHTESHA	12/7/2021 13:06	RE1490	1225920580	PIC	NONE	8.0 to 9.9 ft	8.0 to 12.9 in	20.1 to 30.1	N	PIFe
2021-Q4	16024076	{4EABDBCA	eruiz5	12/23/2020 11:04	12/21/2021 8:13	OHIRST	PI	OHIRST	12/21/2021 8:13	PJ6058	1225921206	PIP	NONE	8.0 to 9.9 ft	3.0 to 7.9 in	15.1 to 20.1	N	Euc

2021-Q4	15935343 {BFFA69E4-VM2D	12/1/2013 11:05	11/11/2021 12:52	BANDERS1	PI	BANDERS1	11/11/2021 12:52	FQ7702	1225919994	PIC	NONE	8.0 to 9.9 ft	18.0 to 23.9 in	15.1 to 20.1 N	Oli
2021-Q4	15958878 {3EF57EFF-zdhohl	10/30/2020 8:47	11/22/2021 8:50	BWANAMAK	PI	BWANAMAK	11/22/2021 8:50	NC572	1225920342	PIC	NONE	10.0 to 11.9 ft	18.0 to 23.9 in	15.1 to 20.1 N	Avo
2021-Q4	16030575 {2C51E0B6-MAPerez6	12/8/2015 14:25	12/22/2021 16:16	AHEREDIA	PI	AHEREDIA	12/22/2021 16:16	AX6931	1225921517	PIP	NONE	6.0 to 7.9 ft	18.0 to 23.9 in	15.1 to 20.1 N	Euc
2021-Q4	15936993 {5E1497D1-VM2D	12/1/2013 13:29	11/11/2021 10:21	APFLEEGER	PI	APFLEEGER	11/11/2021 10:21	AW4639	1225920075	PIP	NONE	6.0 to 7.9 ft	18.0 to 23.9 in	20.1 to 30.1 N	Pepca
2021-Q4	15906474 {70E044FD-VM2D	12/1/2013 11:49	10/27/2021 15:00	AROSSI	PI	AROSSI	10/27/2021 15:00	RO709	1225919920	PIP	NONE	6.0 to 7.9 ft	0.0 to 2.9 in	15.1 to 20.1 N	BrBam
2021-Q4	15979616 {49F17E23-SCLAPSAD	12/1/2021 13:51	12/1/2021 13:51	SCLAPSAD	PI	SCLAPSAD	12/1/2021 13:51	XO913	1225920945	PIP	NONE	0.0 to 2.0 ft	13.0 to 17.9 in	20.1 to 30.1 Y	Oth
2021-Q4	15869260 {086A5BA9-VM2D	12/1/2013 5:29	10/11/2021 12:17	MVILAS	PI	MVILAS	10/11/2021 12:17	RY2197	1225918930	PIP	NONE	8.0 to 9.9 ft	24.0 to 35.9 in	40.1 to 50.1 N	Syc
2021-Q4	15995751 {4990627B-VM2D	12/1/2013 6:56	12/1/2021 10:34	MCEDGAR	PI	MCEDGAR	12/1/2021 10:34	BJ1051	1225921011	PIC	NONE	10.0 to 11.9 ft	8.0 to 12.9 in	20.1 to 30.1 N	Pit
2021-Q4	16050312 {68FD3E36-RMITCHE1	12/22/2020 11:12	12/27/2021 13:02	STHIELKI	PI	STHIELKI	12/27/2021 13:02	OI1712	1225921848	PIP	NONE	2.1 to 4.0 ft	13.0 to 17.9 in	20.1 to 30.1 N	PIFn
2021-Q4	15947170 {9C63EF0C-VM2D	12/1/2013 11:59	11/16/2021 12:32	BHADLEY1	PI	BHADLEY1	11/16/2021 12:32	RY342	1225919912	PIC	NONE	10.0 to 11.9 ft	3.0 to 7.9 in	20.1 to 30.1 N	Pine
2021-Q4	15968341 {C98D8748-VM2D	12/1/2013 9:57	11/26/2021 11:37	CWALKER	PI	CWALKER	11/26/2021 11:37	QW3093	1225920225	PIC	NONE	10.0 to 11.9 ft	18.0 to 23.9 in	20.1 to 30.1 N	Oli

		NUMBER	NUMBERO	NUMBERO														
CLMBLIFTIND	GROWTHRATE	OFUNITS	FTRUNKS	FSTEMS	CHBACKIND	ESA	INVENTORY	POLEID1	POLEID2	HRFA	INSPECTIONDATE	TRIMDATE	HFTD_TIER	CIRCUIT	TIELINE	GPS_X	GPS_Y	
Climb	SLOW	10	1	1	Primary Distribution	N	Y	P617453	P412305	N	3/22/2021 15:40			2	1039 NONE	-117.1016748	33.17201517	
Climb	FAST	1	3	1	Primary Distribution	N	Y	P712432	P512741	N	1/22/2021 12:09				599 NONE			
Lift	MED	1	1	1	Primary Distribution		Y	P716987	P716986	N	1/11/2021 15:15	4/10/2018 15:13			859 NONE			
Lift	MED	1	2	1	Primary Distribution	N	Y	P677085	P574833	N	2/16/2021 9:55	5/18/2018 6:55			86 NONE			
Lift	MED	1	4	1	Primary Distribution	N	Y	P73696	P73697	N	3/29/2021 15:15		NA		396 NONE			
Lift	VFST	1	1	1	Primary Distribution	N	Y	P110889	P812296	Y	2/1/2021 15:53	6/9/2020 15:43			221 NONE			
Lift	MED	1	3	1	Primary Distribution	N	Y	P670843	P670844	N	1/6/2021 11:06	5/22/2020 14:27			400 NONE			
Lift	MED	1	2	1	Primary Distribution	N	Y	P712232	P712233	N	3/4/2021 10:07	6/29/2016 14:06			454 NONE			
Climb	FAST	1	1	0	Primary Distribution		Y	P614236	P614237	N	3/2/2021 8:52	7/14/2020 11:49			504 NONE			
Lift	FAST	1	1	0	Primary Distribution	N	Y	P19269	P19270	N	2/15/2021 16:08	5/11/2018 12:39			821 NONE			
Lift	FAST	1	3	1	Primary Distribution	N	Y	P118780	P215933	N	3/15/2021 14:56	7/28/2020 15:56	2		231 NONE	-117.260384	33.324123	
Lift	SLOW	2	1	1	Primary Distribution	N	Y	P812972	P166105	N	3/30/2021 14:59	7/14/2020 6:59	2		231 NONE	-117.2492948	33.31943267	
Both	SLOW	1	1	1	Primary Distribution	N	Y	P113588	P113587	Y	3/23/2021 12:52			3	971 NONE	-116.8707983	33.017498	
Lift	FAST	1	1	1	Primary Distribution	N	Y	P209419	P14219	N	1/5/2021 12:07	5/13/2020 15:51			307 NONE			
Lift	FAST	1	1	0	Primary Distribution	N	Y	P74251	P76766	N	1/29/2021 11:34	5/4/2019 12:36			74 NONE			
Lift	MED	1	3	1	Primary Distribution	N	Y	P415288	P415287	N	5/24/2021 15:39	8/20/2020 16:00	2		908 NONE	-117.0277088	33.26763933	
Lift	FAST	1	5	1	Primary Distribution	N	Y	P516249	P713373	Y	4/27/2021 15:52	12/29/2020 15:05	3		1021 NONE	-117.0427437	33.227766	
Lift	SLOW	1	3	1	Primary Distribution	N	Y	P716462	P716463	N	5/19/2021 17:24	7/2/2013 0:00	2		175 NONE	-117.0187793	33.02731667	
Lift	SLOW	1	5	1	SSC Secondary	N	Y	P816813	P814079	N	6/30/2021 13:13	8/15/2019 13:59	2		520 NONE			
Lift	SLOW	1	1	1	Primary Distribution	N	Y	P815503	P815504	Y	4/13/2021 14:05			3	176 NONE	-116.985659	33.01864967	
Climb	SLOW	6	1	1	Primary Distribution	N	Y	P818939	P818671	Y	4/14/2021 11:35			3	1021 NONE			
Climb	MED	1	1	1	Primary Distribution	N	Y	P410349	P410348	N	6/29/2021 12:50	9/22/2020 15:10	2		350 NONE	-117.0950622	33.304759	
Climb	SLOW	1	2	1	Primary Distribution	N	Y	P414873	P413751	N	5/7/2021 10:21			2	230 NONE	-117.1705257	33.33656167	
Lift	VFST	1	3	1	Primary Distribution	N	Y	Z96075	Z203844	N	6/22/2021 14:56	9/10/2020 8:09	NA		761 668	-117.1398598	32.8982435	
Lift	FAST	1	4	1	Primary Distribution	N	Y	P133484	P133483	N	6/28/2021 12:39	8/29/2018 15:42	2		350 NONE	-117.0979152	33.30009383	
Climb	MED	1	1	1	Primary Distribution	N	Y	Z16538	P258935	N	5/19/2021 12:17		NA		175 634	-117.0325823	33.02006167	
Climb	SLOW	2	1	1	Primary Distribution	N	Y	Z91156	Z91157	N	5/11/2021 10:01	6/24/2003 0:00	NA		64 600	-117.231067	32.84312617	
Climb	MED	1	2	1	Primary Distribution	N	Y	P173982	P173545	Y	6/9/2021 13:22	8/13/2020 12:44	3		442 NONE			
Climb	SLOW	3	1	1	Primary Distribution	N	Y	P26819	P26820	N	5/26/2021 15:48		NA	EN1	NONE			
Lift	MED	1	2	1	Primary Distribution	N	Y	P131429	P131430	N	5/27/2021 9:59	8/25/2020 15:26	2		520 NONE	-117.249333	33.39567533	
Lift	FAST	1	1	1	Primary Distribution	N	Y	P109397	P192124	N	8/2/2021 12:18	11/24/2020 15:40	2		217 NONE	-116.9854625	33.3338812	
Lift	SLOW	1	1	1	Primary Distribution	N	Y	P25032	P25033	N	7/16/2021 9:26			2	312 NONE	-117.7385952	33.49639333	
Lift	VFST	1	3	1	Primary Distribution	N	Y	P810842	P810843	N	8/9/2021 11:41	10/26/2019 10:39	2		217 NONE	-117.0141193	33.33955883	
Lift	SLOW	1	1	1	Primary Distribution	N	Y	P42807	P42806	Y	9/28/2021 17:03	12/19/2013 9:40	3		449 NONE			
Climb	VFST	2	1	1	Primary Distribution	N	Y	P2258569766	P2259669769	N	7/27/2021 10:55	4/23/2021 15:28	NA		546 NONE	-117.2345545	32.783559	
Climb	SLOW	1	1	1	Primary Distribution	N	Y	P517029	P517030	Y	9/9/2021 10:55	12/6/2011 0:00	3		220 NONE	-116.7823932	33.20159683	
Climb	MED	1	3	1	Primary Distribution	N	Y	P127656	P127655	N	7/9/2021 10:54	10/1/2014 15:58	NA		792 NONE	-117.658817	33.46199184	
Lift	MED	1	1	1	Primary Distribution	N	Y	P117127	P516298	N	7/28/2021 12:11	9/24/2019 15:35	2		908 NONE	-117.029441	33.28565433	
Climb	MED	1	3	1	Primary Distribution	N	Y	P274873	P274874	Y	9/20/2021 11:09	12/23/2020 14:00	3		442 NONE	-116.5773305	32.76564222	
Lift	VFST	1	1	1	Primary Distribution	N	Y	P170229	P170230	Y	9/16/2021 14:51	12/22/2020 20:25	3		246 NONE	-116.8397347	32.85559083	
Climb	FAST	1	1	1	Primary Distribution	N	Y	P	P	N	7/27/2021 14:28		NA		310 NONE			
Climb	FAST	1	1	1	Primary Distribution	N	Y	P418648	P616776	N	8/11/2021 13:42	11/28/2018 15:34	2		217 NONE	-117.0221393	33.320756	
Climb	SLOW	1	1	1	Primary Distribution	N	Y	Z14173	P14172	N	7/6/2021 10:53		NA		470 681			
Lift	SLOW	1	1	1	Primary Distribution	N	Y	P219241	P219242	Y	8/12/2021 9:38	9/13/2012 0:00	3		214 NONE	-116.8785363	33.3218885	
Lift	MED	1	1	1	Primary Distribution	N	Y	P46665	P46666	Y	7/1/2021 12:46	8/10/2017 20:05	3		1215 NONE			
Climb	FAST	1	1	1	Primary Distribution	N	Y	P278454	P175435	N	11/1/2021 14:11	2/12/2021 14:07	2		240 NONE	-116.9225141	32.88977677	
Lift	FAST	2	1	1	Primary Distribution	N	Y	P33917	P875797	Y	12/13/2021 12:14	5/12/2020 7:06	3		73 NONE	-116.7016743	32.75575881	
Lift	SLOW	1	1	1	Primary Distribution	N	Y	P2133974306	P2132174319	N	12/7/2021 13:06	3/28/2005 0:00	NA		431 NONE	-117.086531	32.7501265	
Lift	VFST	1	1	1	Primary Distribution	N	Y	P710509	P710508	N	12/21/2021 8:13	2/11/2021 15:42	2		1001 NONE	-117.2112317	33.06704686	

Lift	MED	1	1	1 Primary Distribution	N	Y	P239474	P213395	N	11/11/2021 12:52	4/10/2020 10:38	2	908 NONE	-117.0162453	33.24200133
Lift	FAST	1	4	1 Primary Distribution	N	Y	P103112	P103113	N	11/22/2021 8:50	4/22/2020 11:06	2	246 NONE	-116.8790245	32.83483967
Lift	FAST	1	1	1 Primary Distribution	N	Y	P176389	P176391	Y	12/22/2021 16:16	4/8/2021 8:55	3	356 NONE	-116.8332695	32.81742483
Both	MED	1	2	1 Primary Distribution	N	Y	P511031	P511030	N	11/11/2021 10:21	2/23/2021 15:51 NA		307 NONE	-117.1943713	33.01844267
Lift	VFST	1	1	1 Open-wire Secondary	N	Y	P372860	P475345	N	10/27/2021 15:00	3/17/2021 13:47 NA	AM1	NONE		
Lift	MED	1	4	1 SSC Secondary	N	Y	P	P677249	N	12/1/2021 13:51		2	355 NONE	-116.7658373	32.83648417
Lift	VFST	1	4	1 Primary Distribution	N	Y	P22654	P22653	N	10/11/2021 12:17	12/23/2020 14:49 NA		286 NONE	-117.2985555	33.07269167
Lift	SLOW	1	1	1 Primary Distribution	N	Y	P415405	P216297	N	12/1/2021 10:34	NA		305 NONE		
Both	SLOW	1	1	1 Primary Distribution	N	Y	P203121	P203121	N	12/27/2021 13:02	NA		114 NONE		
Lift	MED	1	1	1 Primary Distribution	N	Y	P218819	P113631	N	11/16/2021 12:32	3/26/2021 16:23 NA		305 NONE	-117.2057058	33.01203867
Lift	MED	1	2	1 Primary Distribution	N	Y	P773158	P278064	N	11/26/2021 11:37	4/9/2020 13:59 NA		415 NONE	-116.9361469	32.82111879

HFTD_TIER1

2

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR15 - 7.3.4.14

Substation Inspection Reports

District	Quarter	Pole ID	Damage Code	Code Description	HFTD	Results	Results Description
NE	1	P32529	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
NE	1	P114207	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
RA	1	P715874	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
NE	1	P818242	R227	R227 Damaged Missing Warning Signs (Mr.	Tier 2	D299	No Repairs Needed
EA	1	P472519	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
NE	1	P612746	R227	R227 Damaged Missing Warning Signs (Mr.	Tier 2	D299	No Repairs Needed
RA	1	P137739	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
RA	1	P813546	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
RA	1	P712134	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
RA	1	P294847	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
NE	1	P254489	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
EA	1	P208192	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
RA	1	P411579	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
NE	1	P204979	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
EA	1	P678714	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed

District	Quarter	Pole ID	Damage Code	Code Description	HFTD	Results	Results Description
RA	2	P111317	I246	I246 SDGE/Cust Pole or Stub Pole Dmged/B	Tier 2	D299	No Repairs Needed
NE	2	P100078	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
EA	2	P275521	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
EA	2	P252060	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
NC	2	Z12394	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
EA	2	P878395	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
NE	2	P719413	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
NE	2	P238048	R227	R227 Damaged Missing Warning Signs (Mr.	Tier 3	D299	No Repairs Needed
NE	2	P101317	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
NE	2	P815568	I234	I234 Damaged/Missing High Volt Signs - 2	Tier 2	D299	No Repairs Needed
NE	2	P716677	R227	R227 Damaged Missing Warning Signs (Mr.	Tier 2	D299	No Repairs Needed
EA	2	P74673	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
EA	2	P274788	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
NE	2	P190345	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
RA	2	P113281	I246	I246 SDGE/Cust Pole or Stub Pole Dmged/B	Tier 2	D299	No Repairs Needed

District	Quarter	Pole ID	Damage Cc	Code Description	HFTD	Results	Results Description
EA	3	P270388	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
ME	3	P874181	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
EA	3	P472282	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
ME	3	Z173157	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
ME	3	P258548	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
ME	3	P258530	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
ME	3	P42083	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
ME	3	P176990	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
EA	3	P878561	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
ME	3	P178077	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
EA	3	P169582	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
EA	3	P33787	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
EA	3	P167480	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
EA	3	P878963	I234	I234 Damaged/Missing High Volt Signs - 2	Tier 3	D299	No Repairs Needed
EA	3	P166657	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed

District	Quarter	Pole ID	Damage Cc Code	Description	HFTD	Results	Results Description
EA	4	P770722	R227	R227 Damaged Missing Warning Signs (Mr.	Tier 2	D299	No Repairs Needed
EA	4	P205906	R227	R227 Damaged Missing Warning Signs (Mr.	Tier 3	D299	No Repairs Needed
EA	4	P770731	I246	I246 SDGE/Cust Pole or Stub Pole Dmged/B	Tier 2	D299	No Repairs Needed
EA	4	P971779	I230	I230 Damaged Ground Molding	Tier 3	D299	No Repairs Needed
EA	4	P972460J	I234	I234 Damaged/Missing High Volt Signs - 2	Tier 3	D299	No Repairs Needed
NE	4	P613814	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
NE	4	P417588	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
RA	4	P13828	I246	I246 SDGE/Cust Pole or Stub Pole Dmged/B	Tier 2	D299	No Repairs Needed
RA	4	P224642	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed
RA	4	Z206030	D299	No Repairs Needed	Tier 3	D299	No Repairs Needed
RA	4	P169785	D299	No Repairs Needed	Tier 2	D299	No Repairs Needed

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR16 - 7.3.1.1 WRRM-Ops Fire Risk Maps

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR16-7.3.2.5 - PSPS Report
Nov 24-26 2021

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR16 - 7.3.3.6

2021 HFTD Pole Replacements 5-27-22

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR16 - 7.3.4.7

LiDAR_flights

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR16 - 7.3.4.8

LiDAR & Transmission Report 2 of 6 2021

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR16 - Batch 1
SDGE_narrative_responses

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR16 - QA/QC Reports

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR16 - Response 19

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.8.4.1 WMP Weekly Tracking Reports

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.9.5 - Mutual Assistance Payment Log

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.10.1.1 PSPS Awareness Campaign Documentation

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.10.2.1

FSCA Stakeholder Collaboration

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.10.3

Cooperation with Suppression Agencies

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - Batch 2 Narrative Responses

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 -7.3.9.3

Customer Support During PSPS

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.9.7

Emergency Management Operations

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.9.7

Emergency Management Operations (Training Documentation)

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.9.7

Emergency Management Operations (Exercise Documentation)

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.9.2

Wildfire Safety Campaign Materials 2021

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.9.1

Service Restoration Workforce

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.10.2.1

FSCA Stakeholder Collaboration

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.10.2.2 IWRMC Participation

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR17 - 7.3.10.5 Non-Conductive Balloon IEEE Correspondence

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.1

Wildfire Safety Fairs Fliers

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.3

vegmgmt_around_transmission

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.4

VMA_in_RFW

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.6

VMS_sched+dispatchWO_Q4-2021

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.8

LiDAR-distribution+flights

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.10 Inspection_reports

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.11

Patrol Inspection Reports Distribution

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.12 Patrol Inspection Reports Transmission

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.13 QA/QC Reports on Vegetation Management

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.14

Arborist Trainee Program 2021

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.15 Discretionary Inspections for At Risk Trees

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.16

Removal of Trees with Strike Potential

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.5.19

Vegetation Inventory System
Response_DR_18_Question_16a

&

Response_DR_18_Question_16ab

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.6.1.1 Recloser Sample Test Report

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.6.1.2

Recloser Sensitive Settings Test Report

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.6.2 ESP113.1 on Use of CFR

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FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.6.3

Fire Training Presentation 2021

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.6.6.1

Aviation Firefighter Dispatches 2021

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.7.1

WMP-Centralized Data Repository

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - 7.3.10.5

AL 3841-E Mylar Balloon Filed 08.31.21

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

DR18 - Batch 3- SDGE_narrative_responses

Disclaimer: Per a request by Energy Safety, the IE has removed these documents due to confidentiality concerns. Please contact SDG&E directly should you have any questions.

FINAL INDEPENDENT EVALUATOR ANNUAL REPORT ON COMPLIANCE

APPENDIX

7.3.5.5 - Aerial Assessment of Fuels Management



ANALYSIS REPORT

Date: June 7, 2022

Author: Nenad Surjanac, Senior Environmental Engineer and GIS Expert

RE: 7.3.3.5. – Fuels Management and Reduction of “Slash” From Vegetation Management Activities

In 2021 SDG&E planned to complete expanded thinning of vegetation within a 50-foot radius on a total of 500 poles. Of the 500 planned poles, SDG&E reported actual work done on 463 poles.

In the 2021 WMP Compliance Report SDG&E reported that work on thinning had not begun until Q3.

After reviewing the data provided in the form of GIS data IE finds that in

- Q1 -- Fuel management shows 335 entries marked as completed, however those were completed between October 1st - December 11th 2020. These were excluded from the work performed in 2021.
- Q2 – has no entries regarding WMP initiative 7.3.5.5.
- Q3 – has no entries regarding WMP initiative 7.3.5.5.
- Q4 – has 203 entries with status “Complete” and comment of Quarterly progress of 203. Status “Planned” has 2 entries. Status “In progress” has 65 entries.

In all, the IE failed to find 463 locations for initiative 7.3.5.5, fuel management, in the data provided by SDG&E. Activities reported as “Planned” in Q4, if added to the work reported as Completed in Q4, still does not reach the 463 poles reported as Actual work done in SDG&E’s 2021 WMP Compliance Report.

The IE sought a minimum sample size of 29 for this initiative, per the Sampling Plan summarized in Table 2 of the Annual Report on Compliance. The actual total number of samples was 38. Locations were inspected by reviewing high resolution aerial images. Images were taken in the period from January to April 2022. Sampled locations were based in the areas with most intensive work reported (Map 1).

Aerial imagery is commonly described in terms of two factors: the color spectrum utilized and the angle at which the images are obtained. The images used in this analysis were taken using two different portions of the light spectrum, described as in RGB and CIR modes. RGB (Red-Green-Blue) is a natural color mode which captures images as they are seen with the naked eye. CIR (Color-Infra-Red) is a type of imagery in which the Red component in RGB is switched with the Near Infra-Red (NIR) portion of the light spectrum. The intensity of the NIR spectrum reflected from plants is very sensitive to the health status of the plants. Healthy and physiologically active plants tend to have high reflectance in NIR, while plants in poor health, dry plants, and artificial surfaces have very low NIR reflectance. When switched with RED in CIR modes, the level of NIR reflectance is directly proportional to the intensity of the RED color. The more intensive the red color in the image, the higher is the NIR reflectance and the healthier the vegetation. Using CIR imagery in this manner helps to determine the presence of vegetation in



ANALYSIS REPORT

images, and in estimating the level of physiological activity in that vegetation. Poor health in plants, in combination with low humidity, high wind and high temperatures, can easily increase the availability of potential fire fuel. Therefore, in this analysis, CIR was used to look for the presence of vegetation around the poles and to look for remains of slash vegetation around the poles.

In the balance of this report, Images 1 – 31 are presented as pairs of RGB-CIR images taken of the same inspected locations. Most images, 27 of them, show clean clearance around the poles. In most cases, clearances appear to be mostly 30 - 40-foot clearance. However, several image-pairs caught the IE's attention due to the possible issues visible:

- Image 1 showed canopy of tree very close to the pole.
- Image 12 showed potential low vegetation growth in the base of the pole.
- Image 21 showed dead trunks and branches of trees no further than 12-15 feet from the pole.
- Image 30 showed canopies surrounding the pole in close proximity.
- Additional issues were noticed on images 32 – 35. On these images high level of inaccuracy of GPS positioning of poles were noticed.

In addition to aerial imagery, IE also used drone images provided by SDG&E under their drone inspection program. For this purpose, SDG&E secured approximately 20 images per pole.

IE tested the idea that these images would be an ideal source of information for high-detail inspection of the immediate environment of the pole. Images 36, 37, 38 show drone images of sampled poles.

Images 36 – 38 show clean base of the pole, with little to no needs for trimming of vegetation.

Observed trends

This analysis highlights several observations of note:

- First, a correlation is noticeable between the location of the poles and the accuracy of the provided pole locations. As long as poles are located near roads, accuracy is sufficient for pole detection.
- As soon as the pole location moves away from the road and recognizable landmarks, the accuracy of locational data drops dramatically.
- Second, many of the poles included in 7.3.5.5 fuels management work have mostly a low level of vegetation surrounding the pole.
- Although it is expected that high levels of vegetation presents more challenge to management, it is also observable that this challenge may not be adequately met, as high levels of accumulated vegetation are occasionally visible.

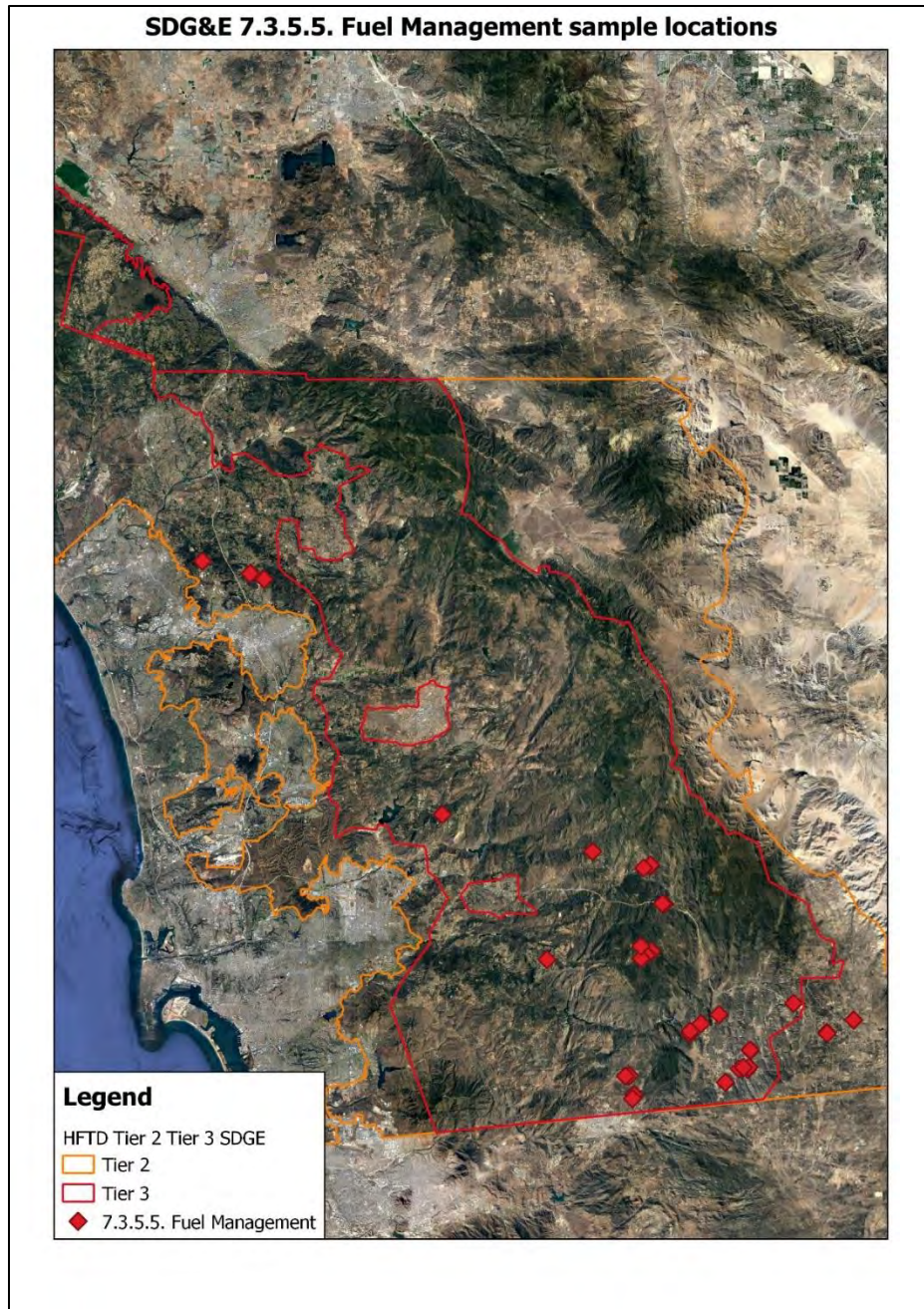


ANALYSIS REPORT

While evaluating the work performed in 7.3.5.5. initiative, IE observed situation with pole P612045 that may rise question about selection criteria for 7.3.5.5.

Please see the report on the observation below.

Based on selected samples IE can draw conclusion that on population of 203 poles for which IE received the data, SDG&E did sufficiently good work on 88%, but 12% of samples failed to meet the requirements. The sample showed there is a lot of room for improvement especially in providing the clearance in the proximity of high vegetation. Beside the fact that data provided by SDG&E (total number of poles in 7.3.5.5.) did not concur with the number reported in WMP, observation IE made on pole P612045 raise suspicion on vegetation inspection process.



Map 1. Sample locations

From the reported 203 locations, 38 samples were selected as shown in Table 1.



ANALYSIS REPORT

Table 1.

#	ID	Latitude	Longitude
1	Q4-7355-11673	33.197216	-117.088921
2	Q4-7355-11678	32.685444	-116.282898
3	Q4-7355-11688	32.864975	-116.559151
4	Q4-7355-11689	32.865788	-116.559097
5	Q4-7355-11691	32.766018	-116.558052
6	Q4-7355-11726	32.670521	-116.506470
7	Q4-7355-11730	32.881489	-116.638382
8	Q4-7355-11731	32.705246	-116.364677
9	Q4-7355-11732	32.671505	-116.319305
10	Q4-7355-11735	32.670265	-116.319206
11	Q4-7355-11741	32.673866	-116.506073
12	Q4-7355-11742	32.629040	-116.428024
13	Q4-7355-11747	32.600597	-116.582504
14	Q4-7355-11748	32.600594	-116.583160
15	Q4-7355-11749	32.595974	-116.585060
16	Q4-7355-11757	32.924732	-116.843872
17	Q4-7355-11787	32.820663	-116.540009
18	Q4-7355-11790	32.631592	-116.426178
19	Q4-7355-11792	32.821106	-116.543129
20	Q4-7355-11799	32.762222	-116.564697
21	Q4-7355-11800	32.761757	-116.565102
22	Q4-7355-11818	32.757980	-116.572662
23	Q4-7355-11822	32.771881	-116.572876
24	Q4-7355-11834	32.692646	-116.466522
25	Q4-7355-11842	32.614372	-116.458496
26	Q4-7355-11845	32.629799	-116.439575
27	Q4-7355-11846	32.631390	-116.433662
28	Q4-7355-11855	32.622635	-116.589081
29	Q4-7355-11856	32.622124	-116.594757
30	Q4-7355-11861	32.862381	-116.568680
31	Q4-7355-11868	32.756905	-116.701210
32	Q4-7355-11744	32.650650	-116.424026

33	Q4-7355-11752	32.651683	-116.424407
34	Q4-7355-11804	32.682159	-116.491287
35	Q4-7355-11672	33.196388	-117.088043
36	Q4-7355-711567	33.217206	-117.172753
37	Q4-7355-115804	33.203211	-117.106038
38	Q4-7355-115803	33.202996	-117.107297

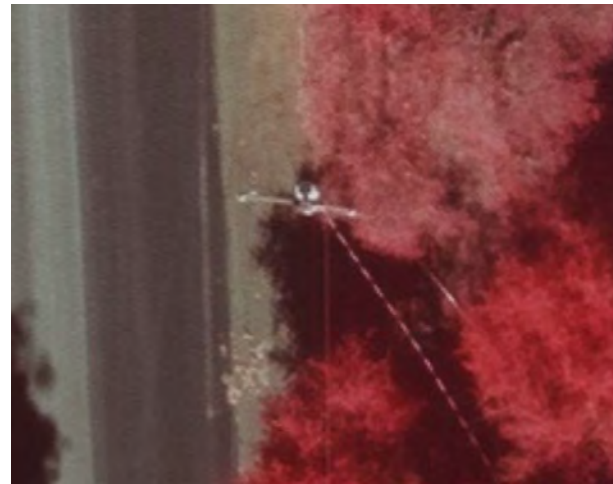


Image 1. Q4-7355-11673

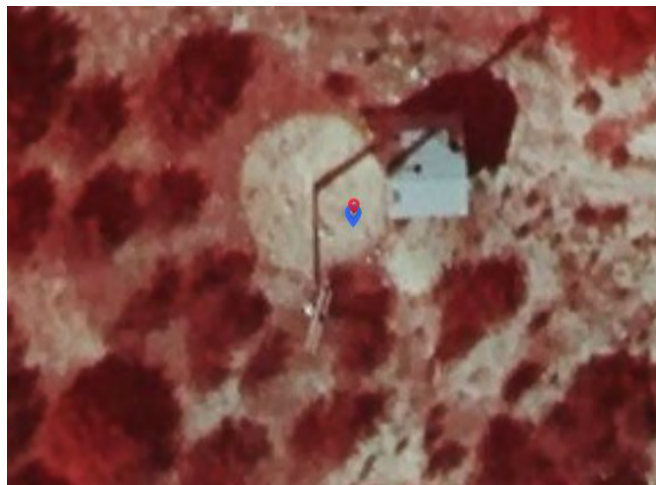
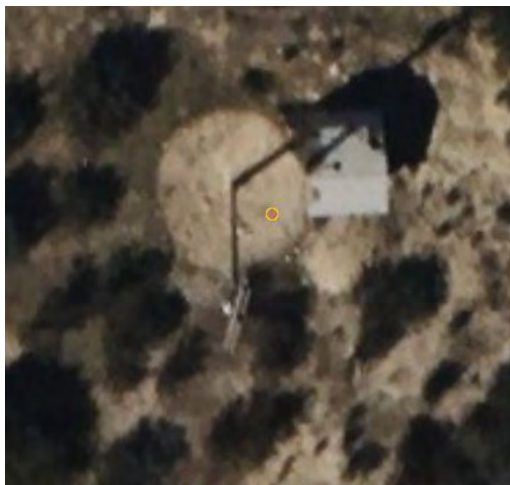


Image 2. Q4-7355-11678

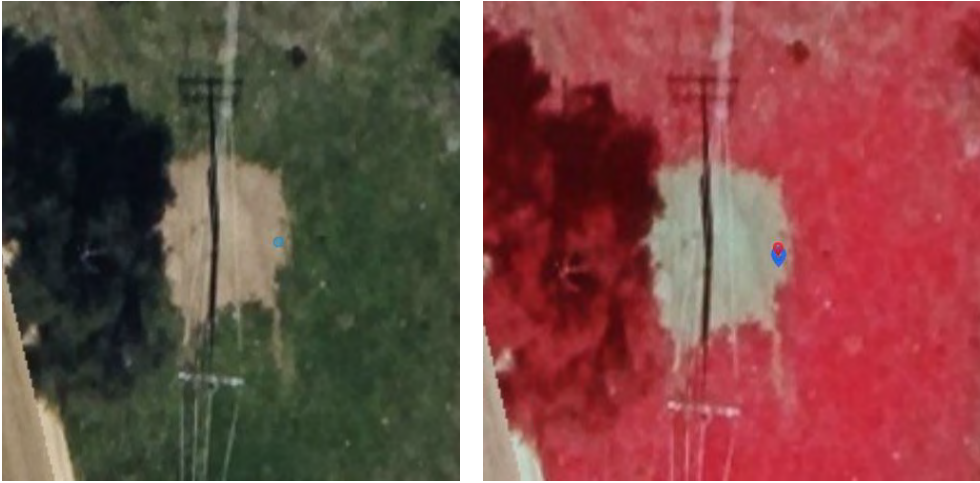


Image 3. Q4-7355-11688



Image 4. Q4-7355-11689



Image 5. Q4-7355-11691



Image 6. Q4-7355-11726

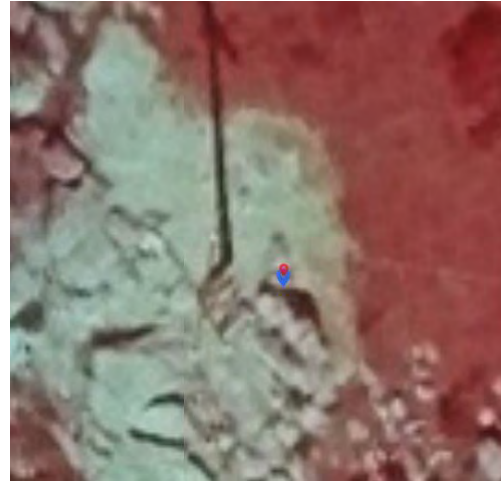
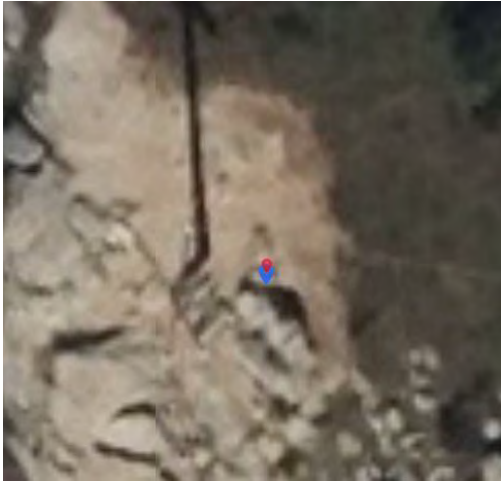


Image 7. Q4-7355-11730

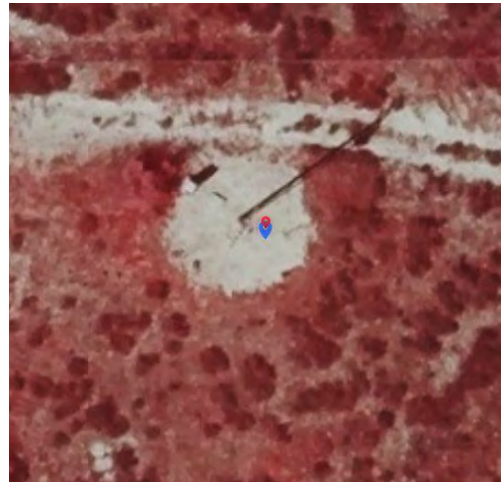


Image 8. Q4-7355-11731

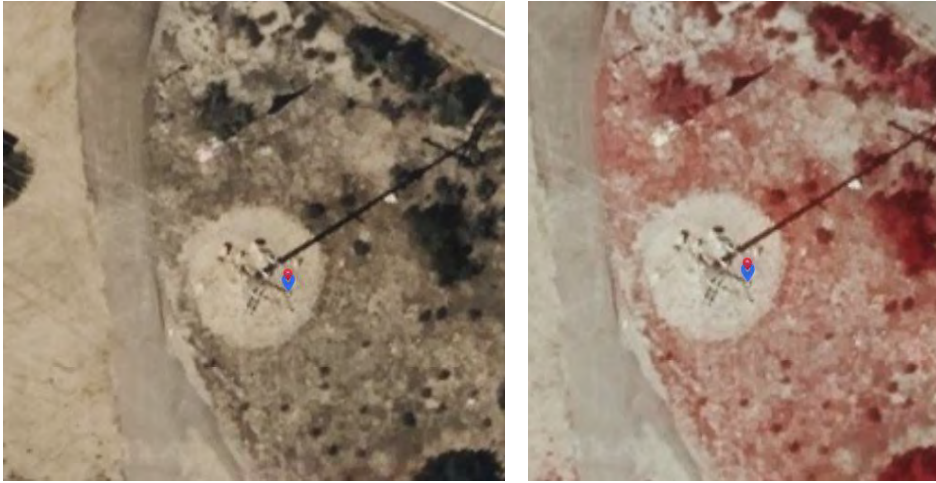


Image 9. Q4-7355-11732

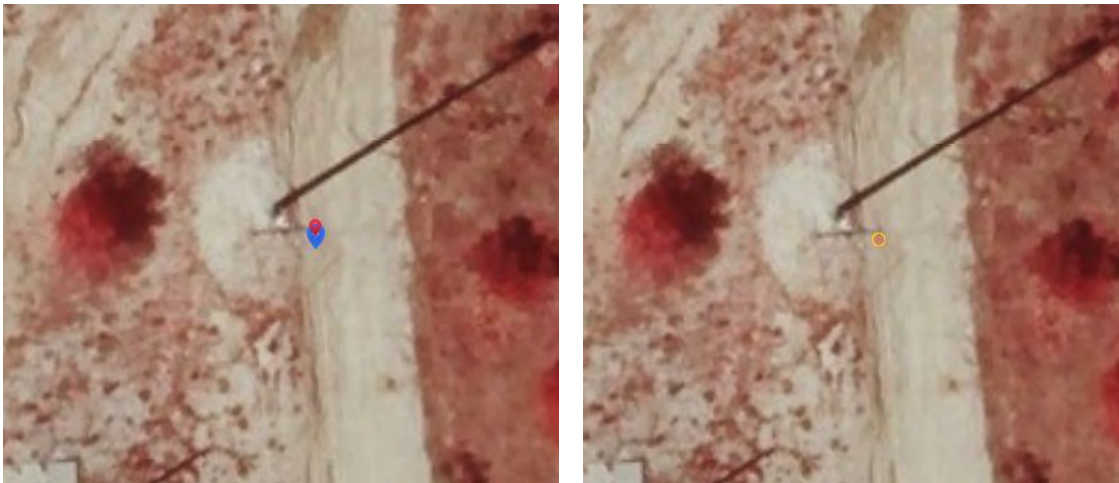


Image 10. Q4-7355-11735

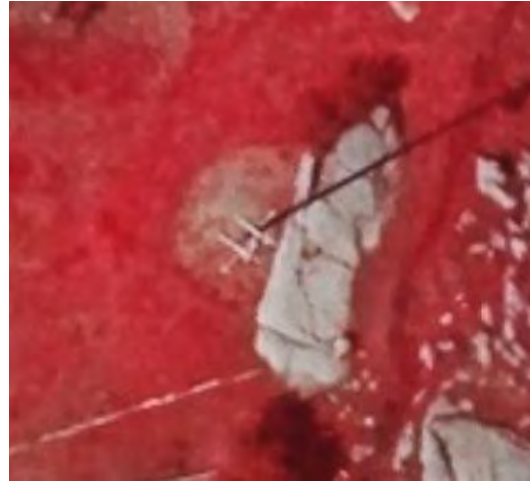


Image 11. Q4-7355-11741

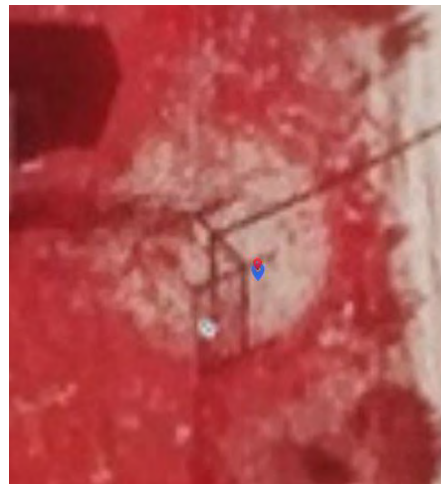
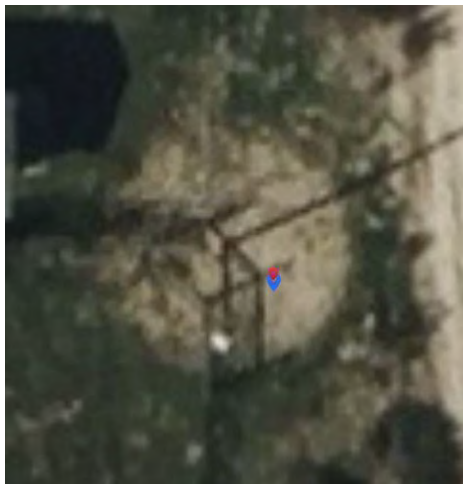


Image 12. Q4-7355-11742



Image 13. Q4-7355-11747

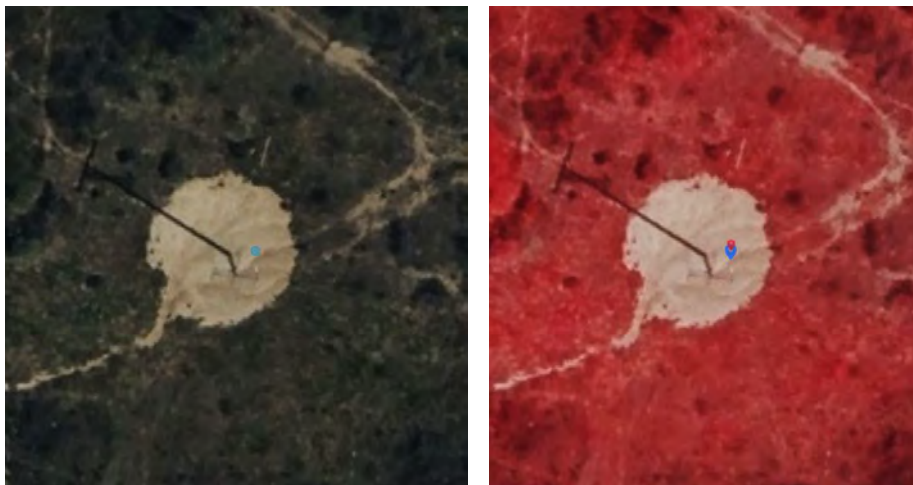


Image 14. Q4-7355-11748

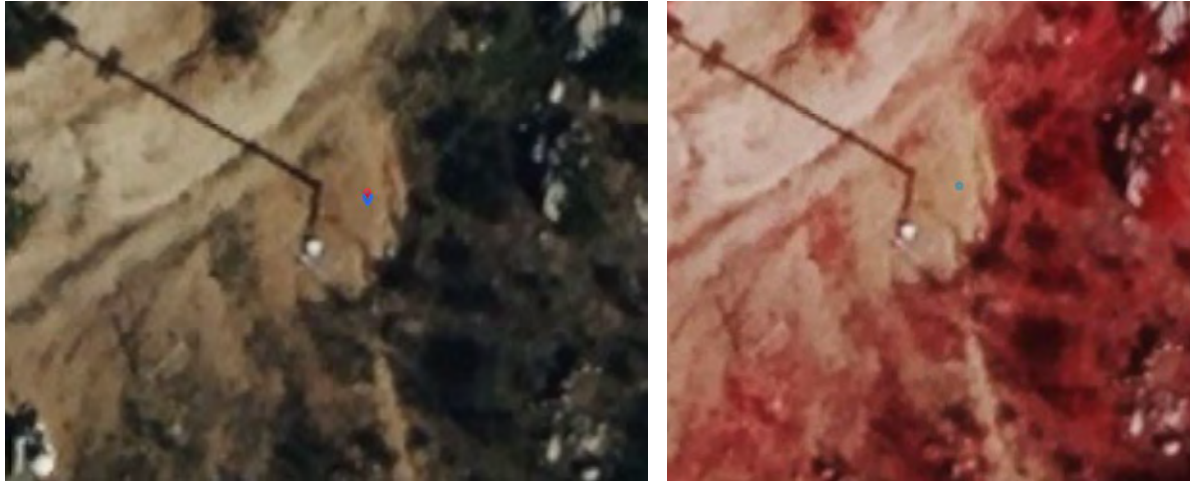


Image 15. Q4-7355-11749



Image 16. Q4-7355-11757



Image 17. Q4-7355-11787



Image 18. Q4-7355-11790



Image 19. Q4-7355-11792



Image 20. Q4-7355-11799

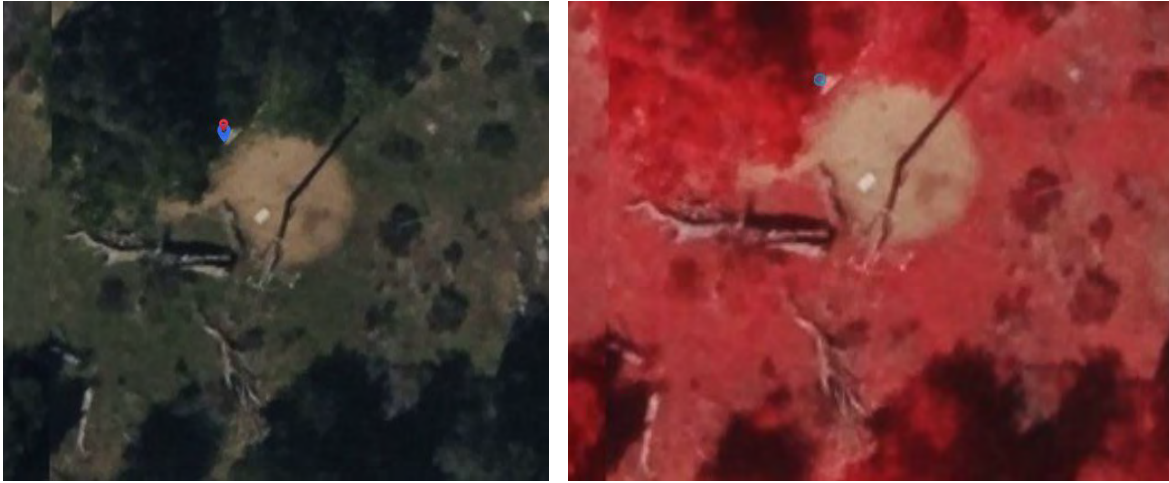


Image 21. Q4-7355-11800

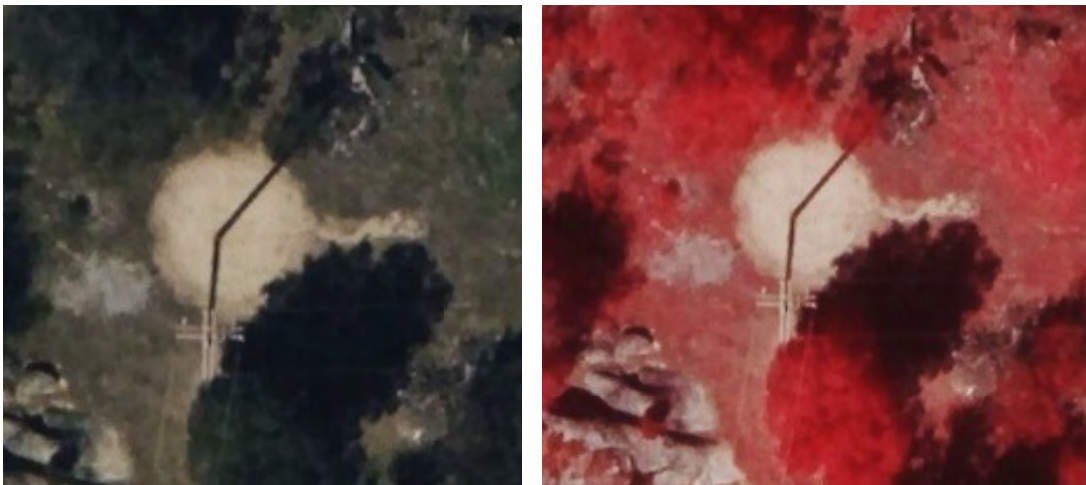


Image 22. Q4-7355-11818

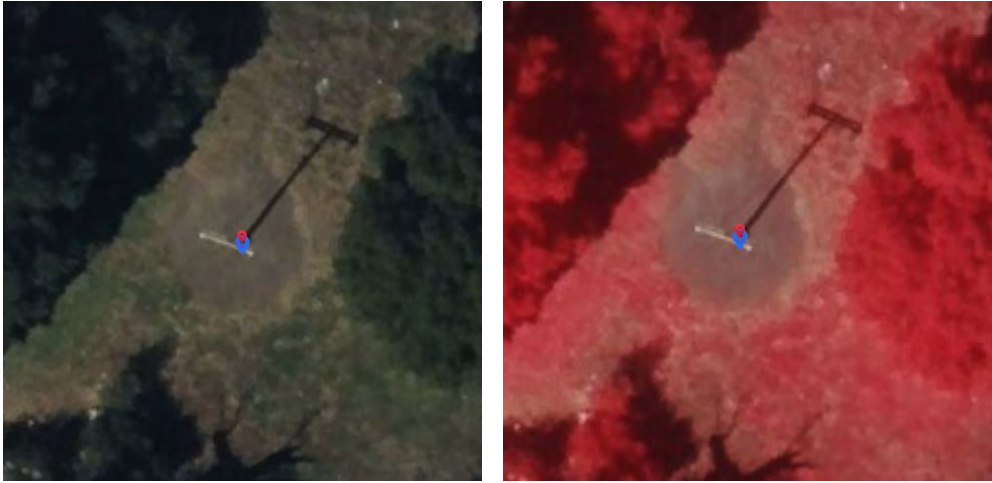


Image 23. Q4-7355-11822

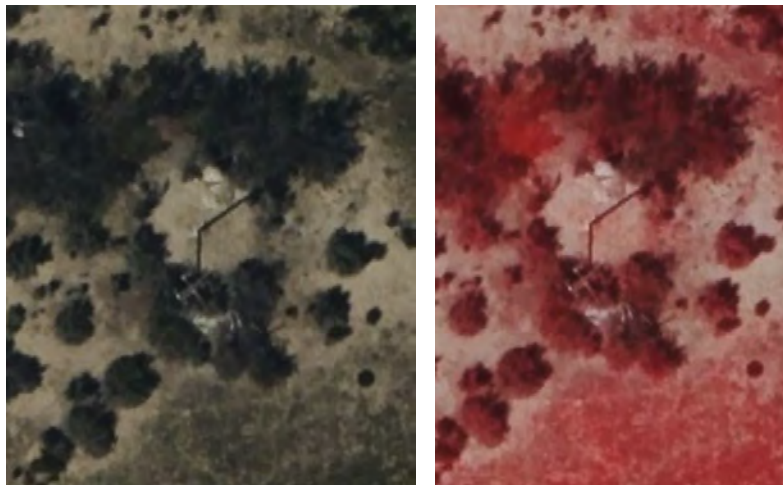


Image 24. Q4-7355-11834

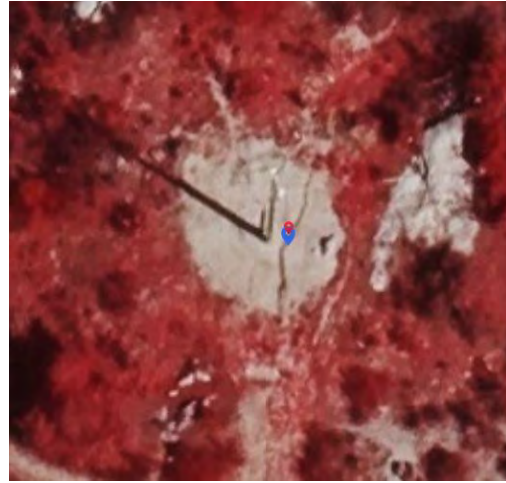
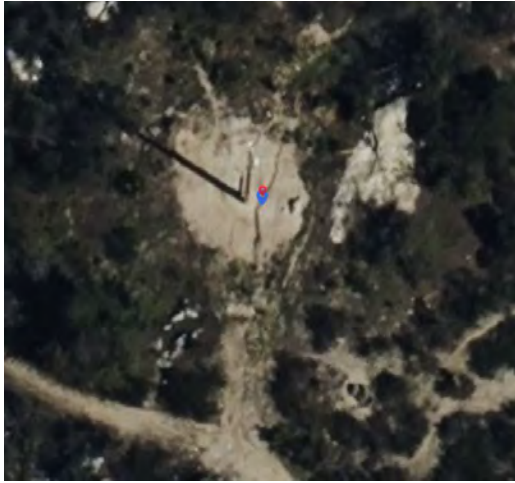


Image 25. Q4-7355-11842

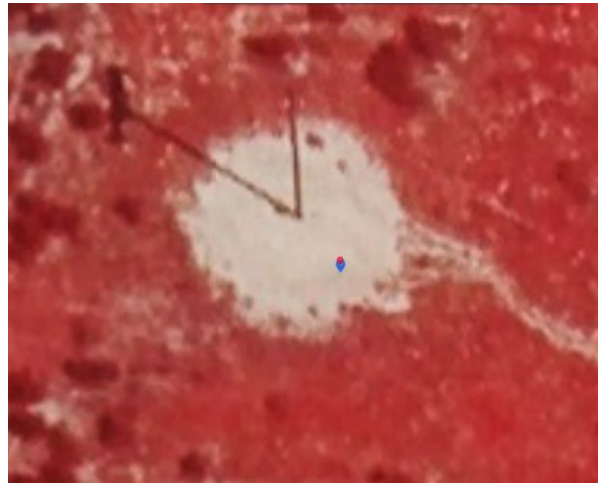


Image 26. Q4-7355-11845



Image 27. Q4-7355-11846



Image 28. Q4-7355-11855



Image 29. Q4-7355-11856

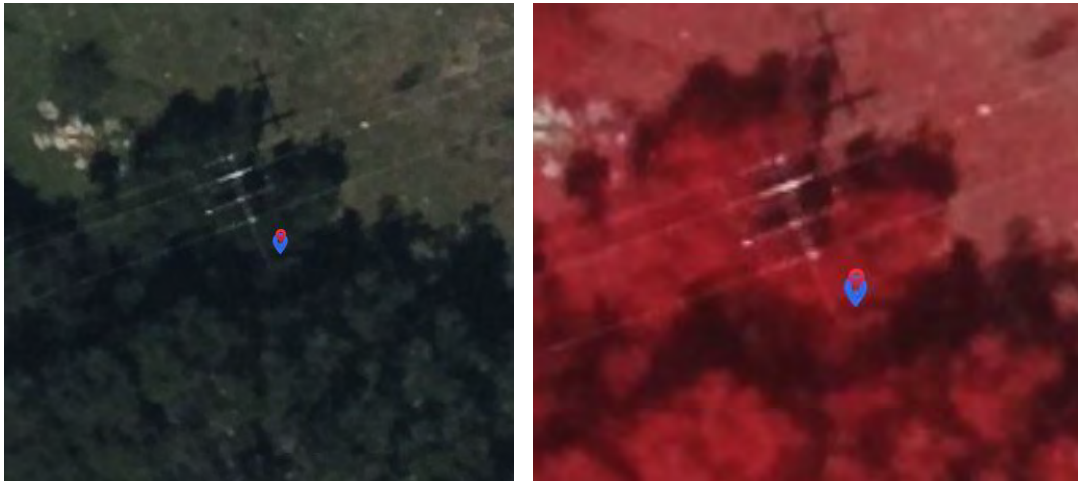


Image 30. Q4-7355-11861



Image 31. Q4-7355-11868

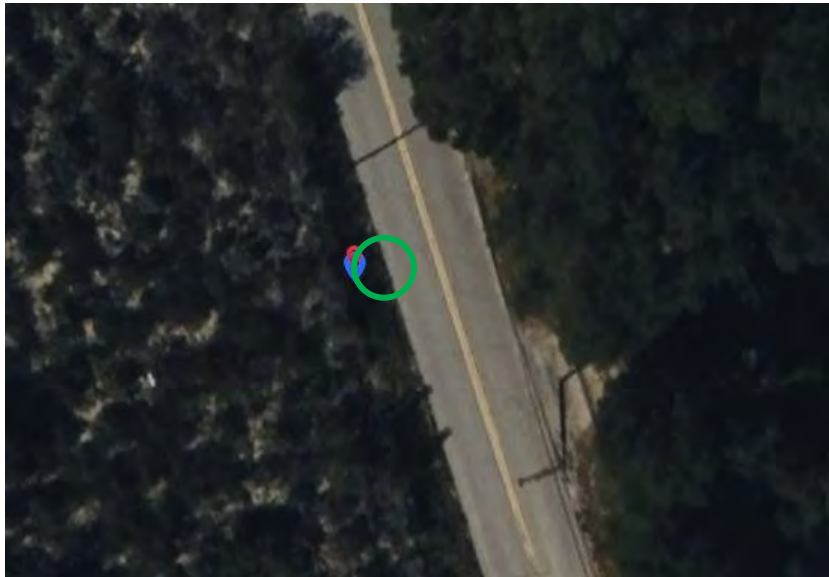


Image 32. Q4-7355-11744



Image 33. Q4-7355-11752



Image 34. Q4-7355-11804



Image 35. Q4-7355-11672



Image 36. Drone image of pole P711567



Image 37. Drone image of pole P115804



Image 38. Drone image of pole P115803

P612045 observation

During the evaluation of work performed under the initiative 7.3.5.5 – Fuel management, several connected poles were observed. The source of information was drone imagery provided by SDG&E. Drone imagery was collected as a part of aerial inspection of infrastructure.

Three poles that were observed (image 1):

- P115804, 33.203211181, -117.1060387031
- P612045, 33.2030883448, -117.1062870924
- P115803, 33.2029969348, -117.1072979326



Image 1. Locations of 3 observed poles – from left to right P115804, P612045, P115803

Poles P115804 and P115803 had trimming (7.3.5.20) and fuel management done (7.3.5.5). Although P115803 had been trimmed and base of pole kept clean, P115804, requires very little trimming (if any) and consequently very little fuel management activities. This was observed for fuel management activities. Poles were sampled blindly, and many of them that had fuel management activity had been surrounded only with low vegetation. Positive observation was that those poles had very well-defined clearance around the basis.

All that was the reason that draw attention of IE on pole P612045 (image 2). By reviewing all the vegetation management activities from Q1 to Q2, the only vegetation management that was performed was inspection on

vegetation 15 meters from the pole. There was no trimming, nor fuel management done nor planned for this pole.

The images 2, 3, 4, and 5 shows the high level of vegetation encroachment of pole and presence of high amount of dry vegetation around the pole base.

IE would consider this kind of vegetation presence around the pole to be a priority for trimming and cleaning, and it was obviously skipped while 2 closest poles had vegetation management work performed. This could raise a question on the vegetation inspection criteria and the criteria on selection of work to be done.

Also, IE find the drone imagery which was the source of this information extremely valuable for detailed inspection of poles and their immediate environment.



Image 2. Pole P612045



Image 3. Pole P612045



Image 4. Pole P612045



Image 5. Pole P612045