State of California – A Natural Resources Agency
Gavin Newsom, Governor

OFFICE OF ENERGY INFRASTRUCTURE SAFETY
715 P Street, 20th Floor | Sacramento, CA 95814
916.902.6000 | *www.energysafety.ca.gov*

Caroline Thomas Jacobs, Director

TRANSMITTED VIA ELECTRONIC MAIL

March 23, 2022

Erik Takayesu

Vice President Asset Strategy and Planning

Southern California Edison

2244 Walnut Grove

Rosemead, CA 91770

NOD_SCE_ATJ_20211208-01

NOTICE OF DEFECT

Mr. Takayesu,

Pursuant to Government Code § 15475.1, the Office of Energy Infrastructure Safety (Energy Safety) has completed a compliance assessment of Southern California Edison (SCE) and determined the existence of one or more defects. In accordance with Government Code § 15475.2 and the California Code of Regulations, Title 14, Division 17 § 29302(b)(2), a deficiency, error, or condition increasing the risk of ignition posed by electrical lines and equipment is considered a defect.

Anthony Trujillo, Energy Safety staff, conducted a walking inspection on December 08, 2021, in San Bernardino County and discovered the following defect(s):

1. Defect 1: Pole numbered 1008927E showed a guy wire within six inches of a 12kV primary conductor. Energy Safety considers energized conductors that are in close radial proximity of a guy wire to be a potential ignition driver. Guy wires that may slap energized conductors may cause arcing, increasing an electrical corporation's ignition risk. Energy Safety considers this defect to be in the Moderate risk category.
2. Defect 2: Pole numbered 453043E had vegetation contacting guy wire above the insulator. Guy wires can cause wildfires if energized while in contact with vegetation. Energy Safety considers this defect to be in the Minor risk category.
3. Defect 3: Pole numbered 4920022E had three or more splices in a single-phase conductor. Energy Safety considers the presence of three or more splices along a single

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phase of conductor to be excessive and require assessment for potential corrective action. Splices are used to connect two strands of conductor. Excessive splicing is indicative of potential issues with electrical loading, physical weakening of the line, or a pattern of repeated failures. Therefore, a span with an excessive number of splices is an indicator of increased the risk of conductor failure and potential ignition. Energy Safety considers this defect to be in the Minor risk category.

In accordance with the Energy Safety Compliance Process, outlined in Table 1 below are the correction timelines for identified defects relative to their risk category. Within 30 days from the issuance date of this notice of defect (NOD), April 22, 2022, advise Energy Safety of corrective actions taken or planned by SCE to remedy the above identified defect(s) and prevent recurrence. This response shall be filed in the Energy Safety e-Filing system under the 2021-NOD docket[1] and the associated file name(s) must begin with the NOD identification number provided above.

Table 1 Energy Safety Defect Correction Timeline by Risk Category

Risk Category	Violation and defect correction timeline
Severe	• Immediate resolution
Moderate	• 2 months (in HFTD Tier 3) • 6 months (in HFTD Tier 2) • 6 months (if relevant to worker safety; not in HFTD Tier 3)
Minor	• 12 months or resolution scheduled in WMP update

Pursuant to Government Code § 15475.4(b), this NOD is served electronically, and SCE may request a hearing to take public comment or present additional information. Per statute, the deadline to request a hearing is within 30 days from the issuance date of this NOD – April 22, 2022. If a petition for hearing is not received by the deadline, then the determination and conditions set forth in this NOD become final.

Pursuant to Public Utilities Code § 8389(g), following receipt of SCE's response to this NOD and resolution of any disputes, this matter may be referred to the California Public Utilities Commission (CPUC) for its consideration of potential enforcement action, as the CPUC deems appropriate.

Sincerely,

[1] https://efiling.energysafety.ca.gov/EFiling/DocketInformation.aspx?docketnumber=2021-NOD

March 23, 2022 NOD_SCE_ATJ_20211208-01

Koko Tomassian
Program Manager
Compliance Assurance Division
Office of Energy Infrastructure Safety

Cc:
Gary Chen, SCE
Elizabeth Leano, SCE
Diana Gallegos, SCE
Johnny Parker, SCE
Jonathan Chacon, SCE
Melissa Semcer, Energy Safety
Edward Chavez, Energy Safety
Anthony Trujillo, Energy Safety

Energy Safety Inspection Report

CALIFORNIA
OFFICE OF ENERGY
INFRASTRUCTURE
SAFETY

Table of Contents

Report Name: ATJ_SCE_20211208-01
Date(s): December 8, 2021
Inspector: Anthony Trujillo
Utility: Southern California Edison
Attention: Erik Takayesu, Vice President Assets Strategy and Planning

I. BACKGROUND

While wildfires are a natural part of California's ecosystem, the “fire season” in California and throughout the West is beginning and finishing earlier and later each year. Climate change and drought are believed to be a major contributor to this unsettling pattern. Utility-ignited wildfires are also a significant contributor to the wildfire risk in the Golden State, as this ignition cause category represents a disproportionate amount of the largest and most destructive fires in state history. Consequently, the Office of Energy Infrastructure Safety (Energy Safety) was established per the California Energy Infrastructure Safety Act (Government Code Sections 15470 – 15476) with the primary purpose of ensuring electrical corporations are reducing wildfire risk and complying with energy infrastructure safety measures. One such method for Energy Safety meeting its objective is to conduct detailed visual inspections of electrical infrastructure.

Inspections are carried out by Energy Safety’s Compliance Division on a regular basis to verify the work performed by utilities, as reported in approved wildfire mitigation plans (WMPs) or subsequent filings and assess general conditions of electrical infrastructure that may adversely impact an electrical corporation’s wildfire risk. Accordingly, Energy Safety inspections are distinguished into two lines of effort. Inspections related to an electrical corporation’s execution of its WMP initiatives is referred to as “WMP Initiative Inspections,” findings of which are detailed in Table 2. Issues discovered during these inspections are categorized as violations and are accompanied by a notice of violation (NOV). In addition to assessing compliance with WMP initiatives, Energy Safety inspectors also visually assess the electrical infrastructure and surrounding vegetation to determine whether conditions are present which increase an electrical corporation’s ignition and wildfire risk. These inspections are referred to as “General Wildfire Safety Inspections” and findings are detailed in Table

3 below. Issues discovered during these inspections are categorized as defects and are accompanied by a notice of defect (NOD).

This report details the findings of a recent Energy Safety inspection.

Section 15475.1. of the Government Code states that:

(a) The office may determine that a regulated entity is not in compliance with any matter under the authority of the office. If necessary, the office may undertake an investigation into whether the regulated entity is noncompliant with its duties and responsibilities or has otherwise committed violations of any laws, regulations, or guidelines within the authority of the office.
(b) The office's primary objective is to ensure that regulated entities are reducing wildfire risk and complying with energy infrastructure safety measures as required by law.

On Wednesday, December 8, 2021, I performed a walking inspection of Southern California Edison (SCE) covered conductor installations, 2021 WMP initiative number 7.3.3.3.1, in various locations in the city of Lake Arrowhead, California. I was accompanied by Energy Safety Supervisor Edward Chavez. Detailed findings from this field inspection are laid out in Section II below.

II. RESULTS

In accordance with Energy Safety's Wildfire Mitigation Plan Compliance Process, violations and defects discovered by Energy Safety must be corrected in a timely manner. The timeline for corrective action is dependent on the risk category, location, and potential impact to worker safety of the violation or defect discovered. Risk categories range from severe to minor, and locational risks are determined with tier levels in the California Public Utility Commission's High Fire Threat District (HFTD) map. Table 1 below outlines violation and defect risk categories and their associated correction timelines. The correction timelines identified below apply to the results of both WMP initiative inspections as well as general wildfire safety inspections.

Table 1. Risk Category and Correction Timelines

Risk Category	**Violation and defect correction timeline**
Severe	• Immediate resolution
Moderate	• 2 months (in HFTD Tier 3) • 6 months (in HFTD Tier 2) • 6 months (if relevant to worker safety; not in HFTD Tier 3)
Minor	• 12 months or resolution scheduled in WMP update

Table 2. WMP Initiative Inspections

Item	Structure ID	HFTD	Initiative Number	Violation Type	Severity	Violation Description
1	1008927E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
2	1008927E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install bolted wedge connector cover
3	1008927E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install two fiberglass guy strain insulators
4	4092838E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
5	4621322E	Tier 3	7.3.3.3.1	Data Accuracy	Minor	Wrong pole ID reported. Actual pole ID: 4611322E. Reported: 4621322E
6	4621322E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
7	453043E	Tier 3	7.3.3.3.1	Data Accuracy	Moderate	Covered Conductor reported as completed, and has not started
8	453043E	Tier 3	7.3.3.3.1	Completeness	Moderate	Failure to install covered conductor
9	4920022E	Tier 3	7.3.3.3.1	Data Accuracy	Moderate	Covered Conductor reported as completed, and has not started
10	4920022E	Tier 3	7.3.3.3.1	Completeness	Moderate	Failure to install covered conductor

Item	Structure ID	HFTD	Initiative Number	Violation Type	Severity	Violation Description
11	710038E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
12	1513770E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration damper on one of three phases
13	1513760E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install fiberglass guy strain Insulator

Table 3. General Wildfire Safety Inspections

Item	Structure ID	HFTD	Defect Type	Severity	Defect Description
1	1008927E	Tier 3	Potential for wire slap	Moderate	Down guy wire is within six inches of 12kV primary conductor
2	453043E	Tier 3	Vegetation contacting guy wire above insulator	Minor	Vegetation touching guy wire above insulator
3	4920022E	Tier 3	Excessive splicing in single span	Minor	Three splices found on one phase

III. DISCUSSION

In its 2021-Q1 and 2021-Q2 quarterly data report (QDR) submission on May 1, 2021, and August 1, 2021, respectively, SCE provided initiative data indicating that covered conductor installation projects (WMP initiative number 7.3.3.3.1) in Lake Arrowhead were completed. This QDR submission represented the reporting periods of January through March (Q1) and April through June (i.e., Q2) of 2021. Based on this information received from SCE, Energy Safety planned an inspection of select structures in this area to assess the accuracy of SCE data, the completeness of SCE's work, and whether SCE followed its protocols for covered conductor installation. Upon arriving to the inspection location, Energy Safety observed that covered conductor was not installed in several instances where SCE's QDR indicated covered conductor work had a status of "Complete." These structures are noted in Table 2 above.

In accordance with SCE's protocols for covered conductor installation, Distribution Overhead Construction Standards (DOH) PO section 300, SCE states, "In HFRA installations of covered conductor it is required to upgrade down guy/span guy insulation to include Fiberglass Guy Strain Insulators."[1] In addition, SCE's Distribution Design Standards (DDS), section DDS-10 indicate that, "Beginning July 2020, SCE has transitioned to a standard requirement in guying to utilize the fiberglass guy strain insulators where traditional porcelain guy strain insulators have been applied."[2] Further, in response to Energy Safety Data Request (DR-030), SCE stated "In HFRA installations of covered conductor it is required to… upgrade down guy/span guy installation to include Fiberglass Guy Strain Insulators."[3] During the inspection, Energy Safety found two instances where fiberglass guy wire strain insulators were not installed where covered conductor work was completed, per SCE's protocols. Structures where this protocol was not followed are noted in Table 2 above.

Per SCE's DDS and DOH, when installing covered conductor, vibration dampers must also be installed.[4] Energy Safety staff found that vibration dampers were not installed at multiple structures

[1] **DOH PO section 300, page 3 of 9**
[2] **DDS section DDS-10, page 10-26**
[3] **Data Request Set (Energy Safety DR-030), Question 3, ES-SCE-CC Protocols, (see Appendix B)**
[4] **DOH CC section 190, DDS section DDS-10, page 10-82**

where covered conductor was completed. The structures missing vibration dampers where covered conductor was installed are identified in Table 2 above. On November 19, 2021, SCE submitted a memo to Energy Safety titled, "Interim Deviation from Standards on Vibration Damper for Covered Conductor"[5] (hereafter, “Memo”). This Memo was dated August 18, 2021, and indicates that due to supply chain issues, SCE will suspend the installation of vibration dampers until December 31, 2021. In accordance with SCE’s Q2 QDR submission, the covered conductor installations inspected by Energy Safety were completed prior to the issuance of the Memo. Also, SCE informed Energy Safety of this supply chain issue only after inspections commenced. Consequently, Energy Safety finds that SCE is still in violation of its protocols requiring the installation of vibration dampers as part of covered conductor installations.

Per SCE's DOH, Section CC 150, page 3 of 5, in circumstances of 4-wire covered conductor double dead-end construction, if conductor is exposed, bolted wedge connector covers must be installed. Also, DDS, Section 10, 5.7.C.1.f. states, “Covered conductor systems shall be an all-covered system.” Per SCE’s DOH, Section CC 150.4, page 5 of 5, “All overhead equipment shall utilize appropriate wildlife covers. This means that wildlife covers shall be installed on dead-ends, terminations, connectors, equipment bushings, and any partially covered exposed conductor." Energy Safety observed structure numbered 4487750E that did not have bolted wedge connector cover installed when transitioning from bare to covered conductor. This structure is noted in Table 2 above.

During the inspections, Energy Safety also found one structure where the structure identification number provided by SCE did not match the structure identification number observed in the field. The structure where Energy Safety observed this data accuracy issue is noted in Table 2 above.

In addition to the violations discovered during WMP inspections of SCE’s covered conductor installations, Energy Safety discovered vegetation contacting a guy wire above the insulator. Guy wires are metallic and can become energized in some circumstances. Insulators break the current path and prevent electricity from reaching the ground where a down guy wire is anchored. However, the portion above the insulator can remain energized until the circuit is deenergized and may cause an ignition if energized while in contact with vegetation. Accordingly, Energy Safety considers vegetation in contact with down guy wires above the insulator a condition that increases an electrical corporation’s ignition risk. The structure where Energy Safety observed vegetation in contact with the guy wire above the insulator is noted in Table 3.

Energy Safety also discovered a conductor that had an excessive number of splices along a single phase. Energy Safety considers the presence of three or more splices along a single-phase conductor to be an indicator of potential issues with electrical loading or physical weakening of the line. The weakening of conductors can result in heightened risk of conductor failure or of arcing that could

[5] **Interim Deviation from Standards on Vibration Damper for Covered Conductor, See Appendix B**

result in an ignition. The structure where Energy Safety observed excessive splices observed along a single phase is identified in Table 3.

Finally, Energy Safety discovered a guy wire that was within six inches of a 12kV primary conductor. Energy Safety considers energized conductors that are in close proximity of a guy wire a potential ignition driver. Guy wires that may slap energized conductors may cause arcing, increasing an electrical corporation's ignition risk. The structure where Energy Safety observed a down guy wire in close proximity of bare conductor is identified in Table 3.

IV. CONCLUSION

Pursuant to its objectives and statutory obligations, Energy Safety has completed the above referenced inspection and discovered violations and/or defects by Southern California Edison. Southern California Edison's required response to these non-compliances and options for hearing are detailed in the associated notice of violation and/or defect, respectively.

V. APPENDICES

APPENDIX A: Photo Log

Structure ID: 1008927E
General Photo

	
Item1GImg1: Overall pole	**Item1GImg2**: Pole ID

Initiative Activity #1 Photo

Item1IA1Img1: No vibration dampers

Initiative Activity #2 Photo

Item1IA2Img1: Guy wire is within 6 inches of bare conductor (top of photo, guy wire coming out of the picture)

Initiative Activity #3 Photo

Item1IA3Img1: Porcelain guy wire insulator

Conductor Question #2 Photo

Item1CD2Img1: No wildlife covers at transition from bare to covered conductor

Structure ID: 4560199E

General Photo

	
Item2GImg1: Overall pole	**Item2GImg2**: Pole ID

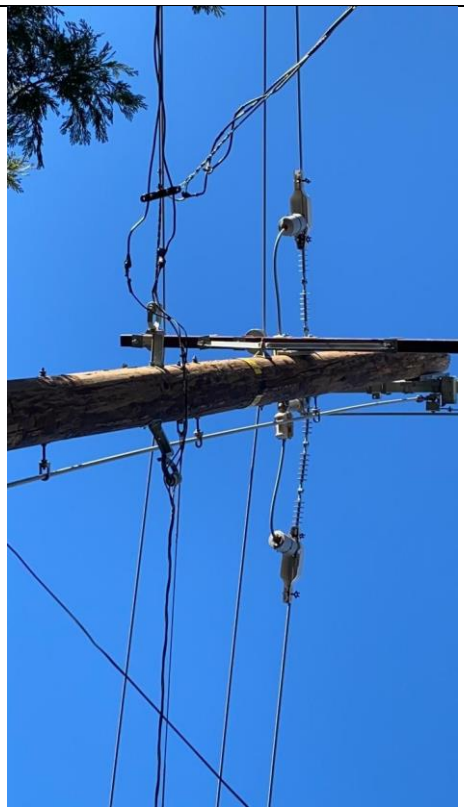
Structure ID: 4092838E

General Photo

Item3GImg1: Overall pole

Item3GImg2: Pole ID

Initiative Activity #1 Photo



Item3IA1Img1: No vibration dampers

Structure ID: 4621322E

General Photo

Item4GImg1: Overall pole

Item4GImg2: Pole ID

Initiative Activity #2 Photo

Item4IA2Img1: No vibration dampers

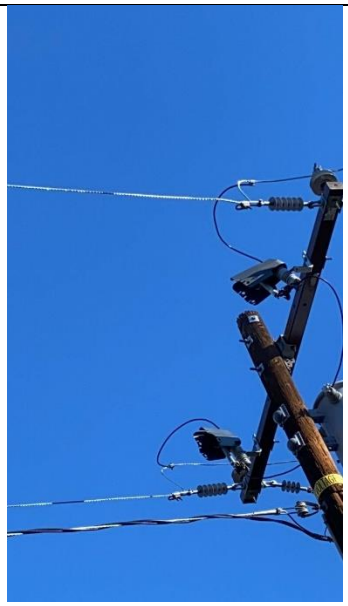
Structure ID: 453043E

General Photo

Item5GImg1: Overall pole

Item5GImg2: Pole ID

Initiative Activity #1 Photo



Item5IA1Img1: Bare wire

Guy Wire Question #2 Photo

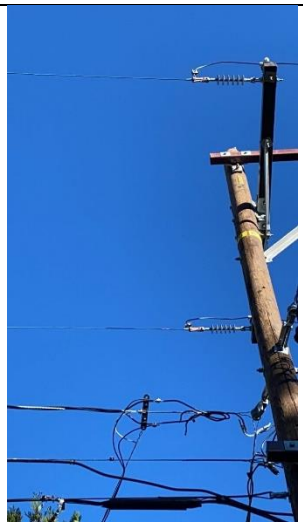
Item5GW2Img1: Vegetation touching guy wire above insulator

Structure ID: 4920022E

General Photo

	
Item6GImg1: Overall pole	**Item6GImg2**: Pole ID

Initiative Activity #1 Photo


Item6IA1Img1: Bare wire

Conductor Question #9 Photo

Item6CD9Img1: 3 splices on one phase

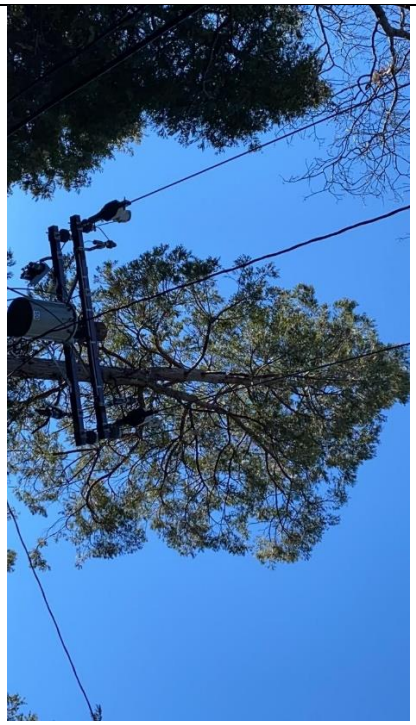
Structure ID: 710038E

General Photo

Item7GImg1: Overall pole

Item7GImg2: Pole ID

Initiative Activity #1 Photo



Item7IA1Img1: No vibration dampers

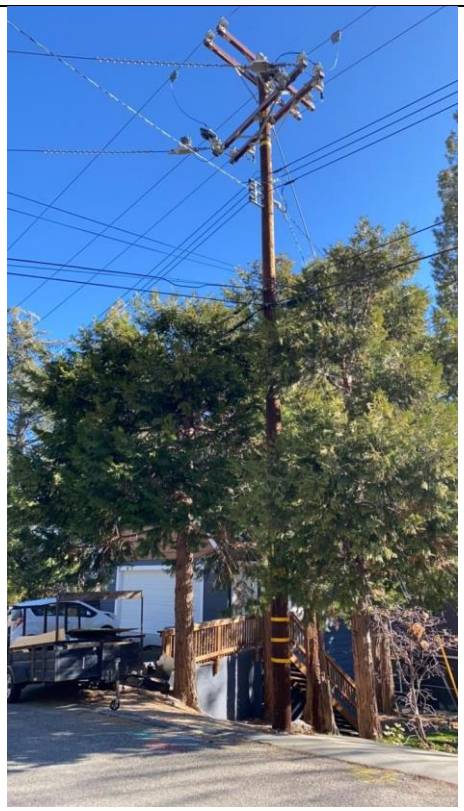
Structure ID: 710036E

General Photo

	
Item8GImg1: Overall pole	**Item8GImg2**: Pole ID

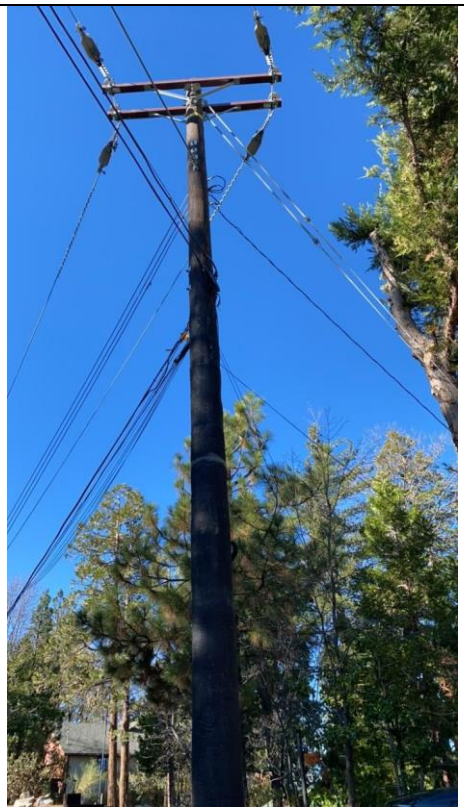
Structure ID: 1649668E

General Photo

	
Item9GImg1: Overall pole	**Item9GImg2**: Pole ID

Structure ID: 1669456E

General Photo

	
Item10GImg1: Overall pole	**Item10GImg2**: Pole ID

Structure ID: 1669454E

General Photo

	
Item11GImg1: Overall pole	**Item11GImg2**: Pole ID

Structure ID: 4574898E

General Photo

	
Item12GImg1: Overall pole	**Item12GImg2**: Pole ID

Structure ID: 1513774E

General Photo

	
Item14GImg1: Overall Pole	**Item14GImg2**: Pole ID

Structure ID: 1513772E

General Photo

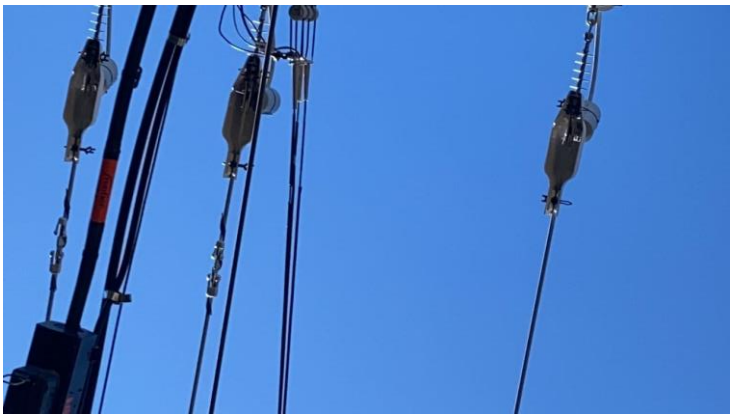
	
Item15GImg1: Overall Pole	**Item15GImg2**: Pole ID

Structure ID: 1513770E

General Photo

Item16GImg2: Pole ID

Initiative Activity #1 Photo



Item16IA1Img1: In photo, right phase missing vibration damper

Structure ID: 1513768E

General Photo

	
Item17GImg1: Overall pole	**Item17GImg2**: Pole ID

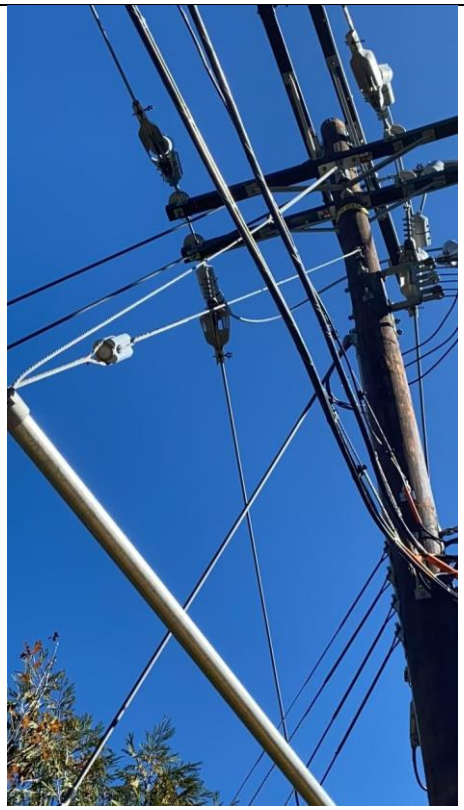
Structure ID: 1513760E

General Photo

Item19GImg1: Overall pole

Item19GImg2: Pole ID

Initiative Activity #1 Photo



Item19IA1Img1: Missing fiberglass guy wire insulator

Data Request Set, Question 3, ES-SCE-CC Protocols:

Southern California Edison
WSD Compliance – WSD Compliance

DATA REQUEST SET E S - S C E - C C - P r o t o c o l s

To: Energy Safety
Prepared by: Jerald Foster
Job Title: Senior Manager
Received Date: 10/11/2021

Response Date: 10/25/2021

7.3.3.3.1: Covered Conductor installation (SH-1)
Per SCE's 2021 WMP update, "In 2021 SCE continues its Wildfire Covered Conductor Program (WCCP), a multi-year program initiated in 2018 that replaces bare overhead conductor with covered conductor in HFRA. SCE also continues installing covered conductor in HFRAs during post-fire restoration work (outside of the WCCP). Poles that require replacement as part of WCCP are replaced with Fire Resistant Poles (FRP)." 1 Pursuant to this statement and SCE's WCCP, Energy Safety requests the following:

1 2021 WMP Update page 213

Question 03:
When installing covered conductors, do SCE's current protocols and construction standards require the simultaneous installation or upgrade of other equipment (i.e., crossarms, insulators, jumper wires, etc.)?
a. If so, list and describe all such installations or upgrades.

Response to Question 03:

Per the attached document titled "DDS_10 Surge Arresters" it is a requirement to install surge arresters on all equipment connected to covered conductor.

The attached "DOH CC section 190" provides requirements to install vibration dampers on covered conductor systems.

In HFRA installations of covered conductor it is required to upgrade wood crossarms with composite, upgrade all insulators to a polymer insulator, install wildlife protection covers, upgrade fuses where applicable, and upgrade down guy/span guy installation to include Fiberglass Guy Strain Insulators. The standards outlining these requirements are attached in the document titled "DDS Requirements Binder" as well as the attached "DOH Section CC".

Interim Deviation from Standards on Vibration Damper for Covered Conductor

TRANSMISSION & DISTRIBUTION HOTLINE

PUBLISHED BY T&D CONSTRUCTION METHODS, CHINO

8/18/2021 Ref. No. HL-1921

Interim Deviation from Standards on Vibration Damper for Covered Conductor

This Bulletin Supersedes HL-0821

Purpose

This Hotline Bulletin provides SCE, Contract Construction, and Quality Control Personnel guidance on the requirement for installation of vibration dampers due to the temporary shortage of vibration dampers. This deviation allows installation of covered conductor without dampers.

This deviation only applies if the work location does not have the required dampers to complete the installation and will be in effect until December 31, 2021; dampers are still required to be installed for the work locations that have inventory on hand.

Background

Installing vibration dampers on the covered conductor mitigates Aeolian vibration by protecting the covered conductor from abrasion and fatigue damage. The vibration damper standard was put into effect in October 2020 and is required for all covered conductors in light loading areas (elevation below 3,000 feet). Recently, SCE has been experiencing an acute shortage of Stockbridge Dampers (refer to Figure 1) for 336 ACSR Covered Conductor due to the high demand and supplier constraints. Additionally, the spiral vibration dampers (refer to Figure 2) for 1/0 ACSR, #2 Copper, and 2/0 Copper may be running low on stock.

Figure 1: Stockbridge Damper

Figure 2: Spiral Damper

Discussion

Apart from supply shortages, a review of the orders placed for vibration dampers indicates inconsistent ordering practices at various store locations. For example, the analysis shows that some locations are ordering up to ten times more vibration dampers than needed based on the circuit miles of covered conductors to be installed. On the other hand, the analysis shows that some locations with high covered conductor orders are not ordering enough dampers. To ensure consistent delivery of vibration dampers, the following guidance is developed by Supply Chain and Asset & Engineering Strategy team, and it will be applied towards the field requests.[1]
As more inventories become available, Supply Chain will distribute vibration dampers based on the guidance developed and the covered conductor assigned on-site at the designated location.

- 10214215 Spiral Dampers: 1 damper required per phase per span
  - 30 dampers should be allocated per 5,280 feet of covered conductor [2]

- 10214216 (Spiral), 10214493, 10214494, 10214495, 10214496, 10214497, 10214498, 10214499 Stockbridge Dampers: 2 dampers required per phase per span
  - 60 dampers allocated per 5,280 feet of covered conductor [2]

Action

Deviation from Distribution Overhead Construction Standards CC 190 when dampers are not available is acceptable for the duration of the damper shortage[3], which is projected to last until December 31, 2021. SCE field crews and contractor personnel shall record any spans/locations on the Job Information Sheet (JIS) and Damper Shortage Report, which can be filled out online or in the form attached at the end of this bulletin (refer to Appendix A). The Damper Shortage Report is intended to capture pertinent information where vibration dampers were not installed due to the shortage. The Shortage Reports shall be sent to Niousha Tavakoli biweekly for damper retrofit determination[4]. Then, they will be compiled and sent to the Quality Organization to ensure that no QC corrective actions are given on these work orders. Once the material shortage has been resolved, another bulletin will be published to revoke the deviation process.

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[1] This is distinguished from the standard installation requirement, and it is only for inventory purposes.
[2] Damper allocation assumptions are based on a system average of 180 feet span and should be utilized as guidance, not a one size fits all.
[3] The interim deviation from the standard only applies to construction, and planners need to plan the projects in accordance with the standard as required.
[4] The go back will only target the high vibration susceptibility areas.

Standards Affected

DOH CC 190

Contact Information

If you have any questions related to this bulletin, please contact:

- Niousha Tavakoli: 949-910-8819
  - Niousha.Tavakoli@sce.com

Appendix A- Damper Shortage Report

Date	TD Number	Company Name	District	System Voltage	Structure Number		Circuit Name	Covered Conductor Size
					From	To		