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

OFFICE OF ENERGY INFRASTRUCTURE SAFETY
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Caroline Thomas Jacobs, Director

February 24, 2022 NOD_SCE_ATJ_20211115-01

TRANSMITTED VIA ELECTRONIC MAIL

February 24, 2022

Erik Takayesu NOD_SCE_ATJ_20211115-01

Vice President Asset Strategy and Planning

Southern California Edison

2244 Walnut Grove

Rosemead, CA 91770

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 in Ventura County and discovered the following defect(s):

1. Defect 1: Poles numbered 1473787E and 1473789E had loose guy wires. The primary purpose of a guy wire is to provide stability to a structure (e.g., a pole) where imbalanced loads are present. To provide this stability a guy wire must be maintained taut. A loose guy wire increases the risk of structure failure and potential ignition under adverse weather conditions, as the guy wire can no longer serve its intended purpose of balancing an imbalanced load. Energy Safety considers this defect to be in the Minor risk category.

2. Defect 2: Pole numbered 1473789E had a frayed conductor strand. Broken strands weaken the tensile strength of a conductor. Therefore, a conductor with frayed strands can increase the risk of conductor failure and ignition. Energy Safety considers this defect to be in the Minor risk category.
3. Defect 3: Pole numbered 1473789E had three or more splices in a single-phase conductor. Energy Safety considers the presence of three or more splices along a single 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), March 28, 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 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 – March 28, 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,

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

Cc:
Gary Chen, SCE
Elizabeth Leano, SCE
Diana Gallegos, 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: SCE_ ATJ_20211115-01
Date(s): November 15, 2021
Inspector: Anthony Trujillo
Utility: Southern California Edison
Attention: Erik Takayesu, Vice President Asset 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 November 15, 2021, I performed a walking inspection of Southern California Edison (SCE) covered conductor installations, 2021 WMP initiative number 7.3.3.3.1, along Tierra Rejada Road and in Arroyo Park in the city of Simi Valley. I was accompanied by Energy Safety Environmental Scientist Gary Candelas. 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	4194265E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
2	4194264E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
3	4194263E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
4	4194261E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
5	4194260E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
6	4194259E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span
7	4194258E	Tier 3	7.3.3.3.1	Adherence to Protocol	Minor	Failure to install vibration dampers on a span

Table 3. General Wildfire Safety Inspections

Item	Structure ID	HFTD	Defect Type	Severity	Defect Description
1	1473787E	Tier 3	Down guy wire loose	Minor	Loose guy wire
2	1473789E	Tier 3	Conductor frayed or broken strands	Minor	Conductor strands are broken
3	1473789E	Tier 3	Excessive splicing in single span	Minor	Three splices found on phase east of pole
4	1473789E	Tier 3	Down guy wire loose	Minor	Loose guy wire

III. DISCUSSION

In its 2021-Q2 quarterly data report (QDR) submission on August 1, 2021, SCE provided initiative data indicating that a covered conductor installation project (WMP initiative number 7.3.3.3.1) in Simi Valley was completed. This QDR submission represented the reporting periods of 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.

Per SCE's Distribution Design Standards (DDS) and Distribution Overhead Construction Standards (DOH), when installing covered conductor, vibration dampers must also be installed.[1] Energy Safety staff found that vibration dampers were not installed at multiple structures 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"[2] (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.

In addition to the violations discovered during WMP inspections of SCE's covered conductor installations, Energy Safety discovered two structures that had loose guy wires. Energy Safety considers loose guy wires as a condition that increases an electrical corporation's ignition risk because the primary purpose of a guy wire is to provide stability to a structure (e.g. a pole) where imbalanced loads are present. If a guy wire is loose and not maintained taut, it cannot serve its intended purpose of balancing load and adding stability, thus increasing the risk of structure failure and potential ignition under adverse weather conditions. Structures where loose guy wires were observed are identified in Table 3.

Energy Safety also discovered a conductor that had a broken strand. Energy Safety considers the presence of broken or frayed conductor strands a condition that increases the electrical corporation's ignition risk because the broken strands can weaken the conductor. The weakening of conductors can result in increased risk of conductor failure or arcing that could result in an ignition. The structure where the broken conductor strand was observed is identified in Table 3.

[1] **DOH CC section 190, DDS section DDS-10, page 10-82**

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

Energy Safety discovered a conductor that had an excessive number of splices along a single phase of overhead conductor. Energy Safety considers the presence of three or more splices along a single phase of conductor to be excessive. This excessive splicing is indicative of potential issues with electrical loading, physical weakening of the line, or a pattern of repeated failures. The weakening of conductors can result in increased risk of conductor failure or arcing that could result in an ignition. Repeated failures and splicing of a particular phase conductor highlights that the span in question is subject to risk drivers that cause line failures and increase the risk of causing a potential wildfire ignition. The structure where excessive splicing was observed is identified in Table 3.

IV. CONCLUSION

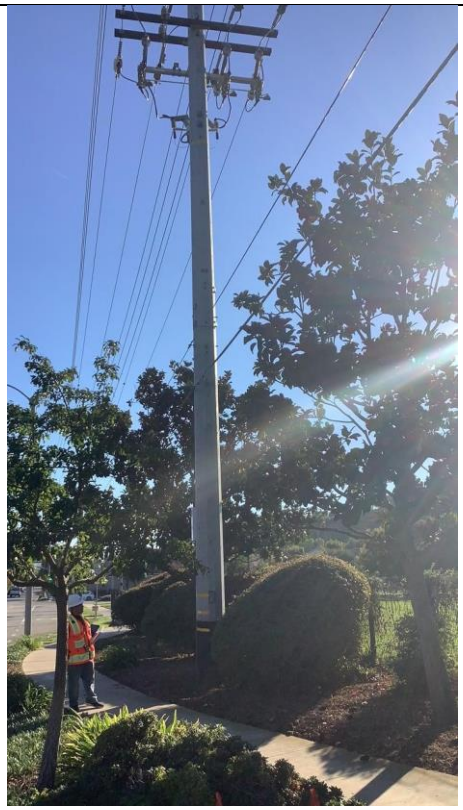
Pursuant to its objectives and statutory obligations, Energy Safety has completed the above referenced inspection and discovered violations and/or defects by Southern California Edison. Southern California Edison's required response to these non-compliances and options for hearing are detailed in the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

V. APPENDICES

APPENDIX A: Photo Log

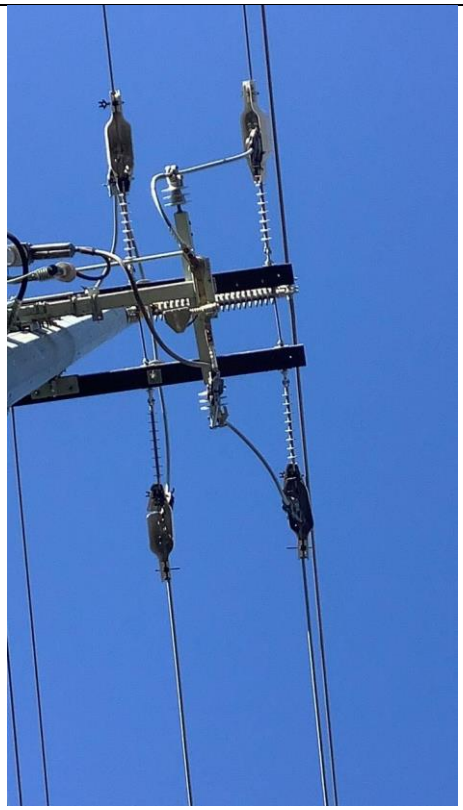
Structure ID: 4194265E

General Photo

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

Initiative Activity #1 Photo

	
Item1IA1Img1: At dead end, no vibration dampeners installed	**Item1IA1Img2**: Showing where covered conductor ends and bare conductor begins

	
Item1IA1Img3: Close up of one phase showing no vibration dampers	

Initiative Activity #2 Photo

	
Item1IA2Img1: Overall pole	**Item1IA2Img2**: Pole ID

Initiative Activity #3 Photo

	
Item1IA3Img1: Overall view of vegetation	**Item1IA3Img2**: Overall view of vegetation

Structure ID: 4194264E

General Photo

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

Initiative Activity #1 Photo

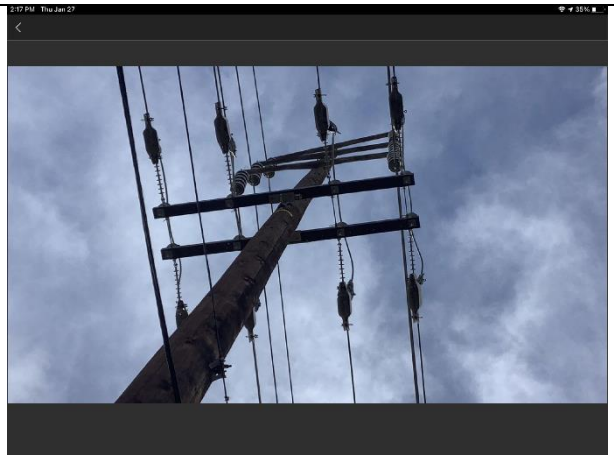
	
Item2IA1Img1: Vibration dampers not installed	

Structure ID: 4194263E

General Photo

	
Item3GImg1: Overall pole	**Item3GImg2**: Pole ID

Initiative Activity #1 Photo

	
Item3IA1Img1: Vibration dampers not installed	

Structure ID: 4194261E

General Photo

	
Item4GImg1: Overall Pole	**Item4GImg2**: Pole ID

Initiative Activity #1 Photo

	
Item4IA1Img1: Vibration dampers not installed	

Structure ID: 4194260E

General Photo

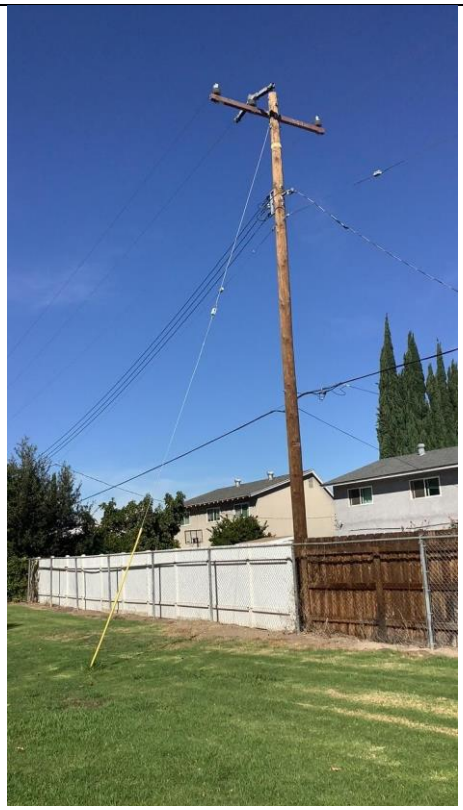
	
Item5GImg1: Overall view of pole	**Item5GImg2**: Pole ID

Initiative Activity #1 Photo

	
Item5IA1Img1: Vibration dampers not installed	

Structure ID: 1473787E

Guy Wire Question #1 Photo

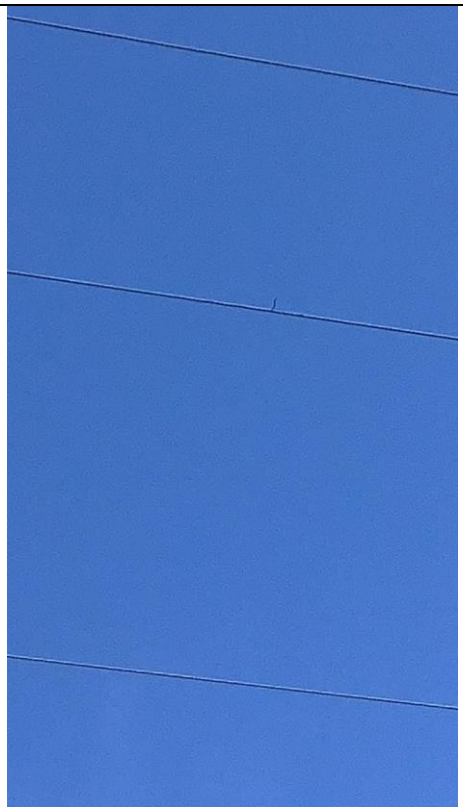
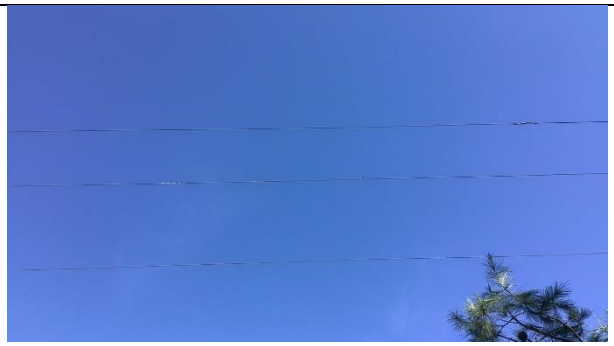
	
Item6GW1Img1: Overall view of loose guy wire	

Structure ID: 1473789E

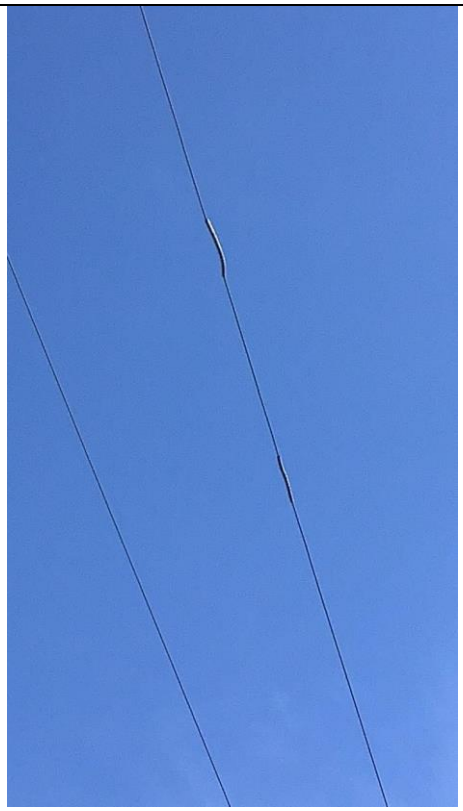
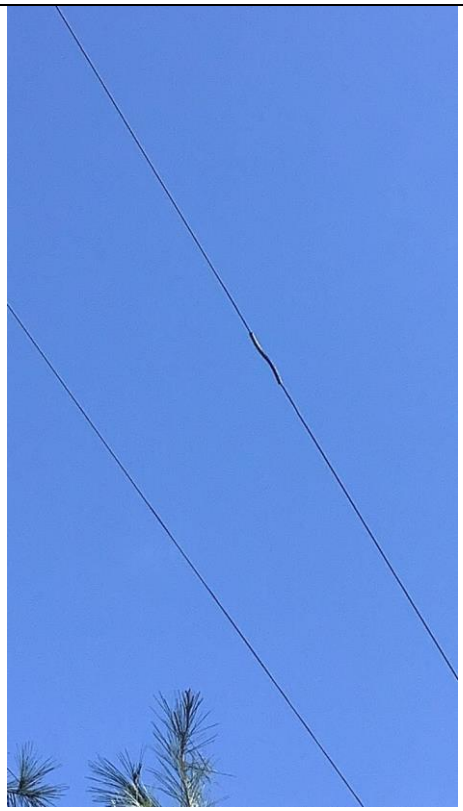
General Photo

	
Item7GImg1: Overall pole	**Item7GImg2**: Pole ID

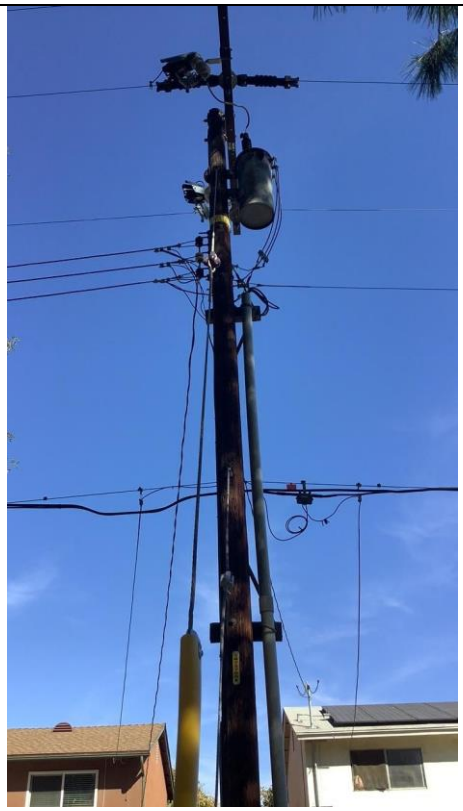
Conductor Question #4 Photo

	
Item7CD4Img1: Overall view of pole looking East containing three splices	**Item7CD4Img2**: Close up of frayed conductor
	
Item7CD4Img3: Two splices and frayed wire	

Conductor Question #9 Photo

	
Item7CD9Img1: Two splices on one phase	**Item7CD9Img2**: Third splice on same phase

Guy Wire Question #1 Photo

	
Item7GW1Img1: Loose guy wire	

Structure ID: 4194259E

General Photo

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

Initiative Activity #1 Photo

	
Item8IA1Img1: No vibration dampers installed	
	
Item8IA1Img3: No vibration dampers installed	

Structure ID: 4194258E

General Photo

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

Initiative Activity #1 Photo

	
Item9IA1Img1: Vibration dampers not installed	

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		