



Preliminary Ignition Investigation Report

Ignition Database Index:	20240704
Electric Incident Investigation (EII) Number:	N/A
Incident Name:	N/A
PG&E Facility Ignition?	Yes
CPUC Reportable Ignition?	Yes
Date & Time of Incident:	June 20, 2024 @ approximately 1937 hours
Street Address:	[REDACTED]
City:	Glen Ellen
County:	Sonoma
Latitude/Longitude:	[REDACTED]
State Responsibility Area (SRA) / Local Responsibility Area (LRA) / Federal Responsibility Area (FRA)	State Responsibility Area
PG&E Division:	Sonoma
High Fire Threat District (HFTD):	Tier 3
High Fire Risk Area (HFRA):	Yes
EPSS Buffer:	No
Fire Index Area (FIA):	180
Fire Potential Index (FPI) Rating: FIA	R1
Fire Potential Index (FPI) Rating: Circuit	R1
Was there a PSPS event at the time of ignition?	No
Suspected Initiating Event:	Equipment – PG&E
Failure Driver:	All types of equipment/facility failure
Failure Sub-driver:	Conductor failure – all
Circuit:	Dunbar 1101 12kV
Circuit Protection Zone:	LR 49556
Nominal Voltage:	120V
Pole SAP Equipment ID:	101986859
Subject to PRC 4292 Veg Pole Clearance:	No
PG&E Equipment associated with ignition:	Service Drop/Ground Run
EPSS enabled at time of ignition?	Yes (<i>did not impact this incident</i>) – Service Drop/Ground Level Outage
Fault Type:	Short Circuit – <i>No Fault</i>
Wire Down (Primary)?	No
Lead Agency/Agency Having Jurisdiction:	CAL FIRE
Fire Size:	50' x 30'

FAS Field Remarks¹:	Upon arrival, CAL FIRE had extinguished small grass fire around base of pole. Customers was still in power, but I replaced damage triplex service
HAWC Summary:	N/A
Injuries / Fatalities / Property Damage / Media Attention:	No/No/No/No
Weather Conditions²:	At 1910 hours near the Incident Location: Temperature: 69.8° Relative Humidity: 55% Wind Speed: 1.8 MPH out of the WNW Wind Gust: 3.4 MPH
Red Flag Warning (RFW) / High Wind Warning (HWW):	RFW – Yes HWW – No
911 Standby Relief Time:	53 minutes
OIS #:	TR6996302
ILIS #:	N/A
FAS #:	T006425117
TOTL #:	N/A
Assigned Attorney:	N/A
Ignition Investigator & Phone:	

¹ FAS Field Remarks entered verbatim.

² Weather Observation Site: PG977 (Elevation 1615 ft. approximately 0.1 miles west of the Incident Location)

Executive Summary

On June 20, 2024, at 1937 hours, PG&E dispatched a troubleshooter to the two-phase overhead (OH) segment of the Dunbar 1101 12kV distribution line on Cavedale Road in Glen Ellen in response to a request from CAL FIRE. Upon arrival, the troubleshooter observed a burn scar around the base of SAP Pole ID 101986859 ("Incident Location" – "Pole #1") that had been extinguished by customers onsite. CAL FIRE was already onsite conducting mop up suppression efforts around a burn scar approximately 50-feet x 20-feet in size. The troubleshooter observed Pole #1 was still energized and serving a single customer. Upon closer inspection in the bucket, they observed the polymer coating on the hot leg servicing the home was damaged (See Figures 4-6, 8) and the neutral was completely severed (See Figures 4-6, 9). The contact between the exposed conductor of the hot leg and the neutral caused arcing, igniting the grassy fuel at the base of Pole #1. The ground wire was not stapled against the pole nor underneath the molding, leaving it to hang loose/dangle from the pole (See Figure 1). After de-energizing the location, working off of FAS trouble report (#T006425117), the troubleshooter repaired the damaged hot leg and neutral. The troubleshooter also secured the ground wire to the pole before restoring service to the customer.

The incident and failure were reviewed by an Asset Failure Analysis (AFA) engineer. AFA concluded that due to a lack of air gap between the impacted hot leg/conductor and neutral messenger, the two components rubbed against each other over the course of several years. The friction from the consistent contact allowed the polymer coating covering the hot leg to become compromised, exposing the conductor underneath. Once the conductor was exposed, the metal components came into contact with the aluminum neutral, creating short circuit/arcing conditions.

The failed hot leg (See Figures 4-6, 8) and failed neutral (See Figures 4-6, 9) were collected and sent to Applied Technology Services (ATS) to be analyzed by an engineer. The surface ignition is likely caused by dripping of molten material from the failed connector (polymer coating) on the triplex hot leg. A visual inspection of the service wire (hot leg) shows significant thermal damage near the sleeve (polymer coating) connector on one of the hot legs. The exposed conductor of the hot leg appears to have made short contact with the neutral messenger which melted the messenger conductor (See Figures 4-6).

It was a seasonably cool and partly cloudy day on June 16, 2024, near the Incident Location. The high temperature for the day was 74.0°F at 1610 hours and the low temperature was 47.8°F at 0400 hours. The relative humidity was as high as 95% at 0400 hours and as low as 41% at 0610 hours. The strongest wind gust was 9.2 miles per hour (MPH) out of the south-southeast at 1130 hours.

System Protection Analysis

The Dunbar 1101 12kV distribution circuit was enabled with Enhanced Powerline Safety Settings (EPSS) at the time of the incident as a result of a Red Flag Warning (RFW) in the area that day. Due to the location of the failure (at the service drop), EPSS would not have de-energized this location and was not a factor in this ignition.

Ignition Impact

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The ignition was isolated to the dry, grassy vegetation at the base of Pole #1, leaving a burn scar approximately 50-feet x 30-feet in size. There were no reports of injuries, fatalities, or property damage. The incident happened on the hot leg/neutral beneath the pole mounted transformer of a pole serving one customer who was impacted for 214 minutes.

Sequence of Events

June 20, 2024 (no ILIS record for this event)

- 1935 Hours – Start Time (OIS) – *Customer did not lose power.*
- 1937 Hours – Troubleshooter dispatched.
- 2020 Hours – Troubleshooter onsite – *Begins repairs off FAS tag, de-energizes customer for repair work.*
- 2209 Hours – Troubleshooter completes repairs - *Customer restored by troubleshooter.*
- 2221 Hours – Troubleshooter departs Incident Location.

Corrective Notification Associated with Ignition

The responding troubleshooter replaced the damaged neutral and hot leg while they were onsite, working off of the FAS trouble report (#T006425117), on June 20, 2024.

Pending Work

Type	Number	Description	Priority	Date Identified	Due Date
EC Notification	111918131	August 31, 2016 – Replace all wood ground molding. October 3, 2019 – Confirming that work will be incorporated into a Priority ‘H’ Hardening project. June 25, 2020 – Field Safety Reassessment (FSR) Priority ‘B’ based on current field condition. April 15, 2021 – Condition needs to be addressed within the next 12-months w/ comments: Pole ground molding broken top to bottom, stick of pole needs new pipe. July 31, 2023 – FSR completed for Tier 2/3 EC notifications that are not in 2023 work execution plan or	E	August 31, 2016	April 1, 2021 (tag still open/pending)

		scheduled or detailed inspection.			
COE Notification	N/A				
LC Notification	N/A				
Veg Work Order	N/A				

Please note this may not include pending major program or project work at the incident location.

Asset Info & Most Recent Inspections and Tests

Incident Structure		
Info / Inspection	Most Recent Date	Findings
Install Date:	1979	Wood – Douglas Fir, Koppers Co., Cellon Gas Treated, Class 4, 45' tall
Inspection ³ :	June 27, 2022	Structure – Pole broken, damaged, burnt, deformed, corroded, gunshot, or showing signs of cracking, rotten or decay. Hardware Framing Issues – Molding missing, broken, damaged, or loose. Grounds exposed, broken, damaged, disconnected, unsecured, or missing.
Patrol:	N/A	
Corrective History:	N/A	
Aerial Inspection Records:	N/A	
VM Inspection:	N/A	
EVM Inspection:	N/A	
Equipment Test:	N/A	
Pole Intrusive Test:	November 1, 2017	Wood Strength 100%, Pass
WSIP Inspection:	April 19, 2019	There were no compelling abnormal conditions for the pole, equipment, and its associated spans.

*Incident Location: SAP Pole ID #: 101986859

Hazard Barrier Analysis:

Hazard	All types of equipment/facility failure	Sub-Hazard	Conductor failure-all (hot leg & neutral service)
Target	The ignition events have caused property damage/equipment, long outages, and also create a public safety hazard.		

³ General Order 165 – The CPUC establishes requirements for electric distribution and transmission facilities (excluding those facilities contained in a substation) regarding inspections in order to ensure safe and high-quality electrical service.

Barrier	Expected vs. Observed Performance	Why did the barrier not prevent the ignition event? (See ICF Codes)	Opportunity
Barriers that Negatively Affected Ignition			
Equipment Work Management	Expected Performance: Complete maintenance identified through patrols and inspections in timely and correct manner. (Assess this barrier if there was any overdue or pending work.); Observed Performance: Barrier did not perform as expected	[A3B1C2D2 - Non-Conformance: Work Non-Conformance; Work Execution; Work not complete, past due]	The tag was consistently pushed out for seven years and was still open at the time of the incident.
Proper Construction & Installation	Expected Performance: Installation and construction are in accordance with design documents, guidance documents, and manufacturer instructions.; Observed Performance: Barrier did not perform as expected	[A2B1C1D1 - Malfunction: Operational Malfunction; Installation Malfunction; Equipment improperly installed]	Not following work methods and construction. STD 025202 - "Methods of Attaching Services to Customer Premises" and STD 028852 - "Connectors for Aluminum Conductors on Distribution Lines."
Barriers that were Evaluated as an Opportunity			
Pole Clearing Program	Expected Performance: Limit fire spread potential near poles for a PG&E equipment involved ignition event within State Responsibility Areas, poles with non-exempt equipment, and selected poles outside of the regulations of PRC 4292. Clear 10-ft radius around subject poles from 0-8 feet above ground level.; Observed Performance: Barrier did not exist	[A4B2C3D1 - Strategy: Program Strategies; Pole-Clearing-Related ; Only applies to poles with non-exempt equipment]	There is a possibility this ignition could have been prevented or much smaller in size if the pole had been cleared of all vegetation for a 10-foot radius from its base.

Potential Next Steps / Associated CAP Items:

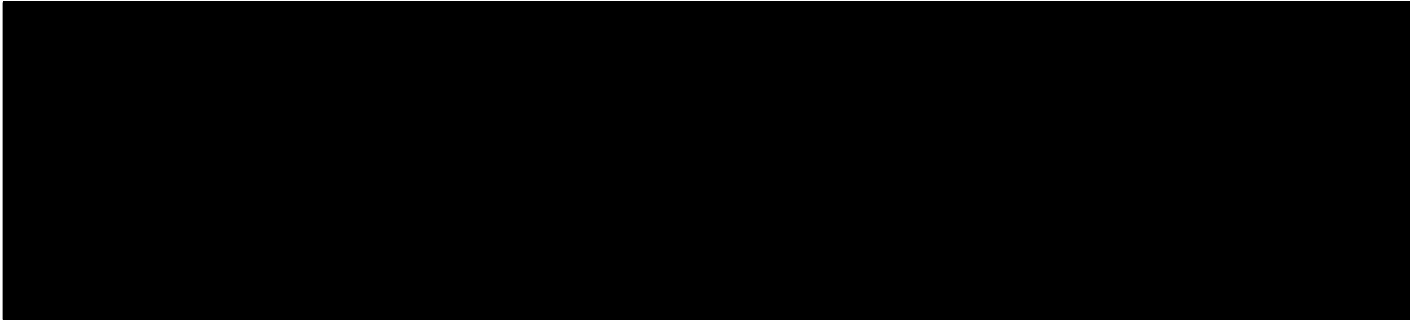
The following corrective actions/next steps will be taken by AFA:

- Review all EC Tags that were postponed to later date due to potential hardening projects.

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- Review the Centralized Inspection Review Team (CIRT) team's process for adjusting priority on existing EC/LC tags. Pending meeting between AFA and CIRT team – to take place some time in August of 2024.

Single Line Diagram



Photos and Diagrams of Events

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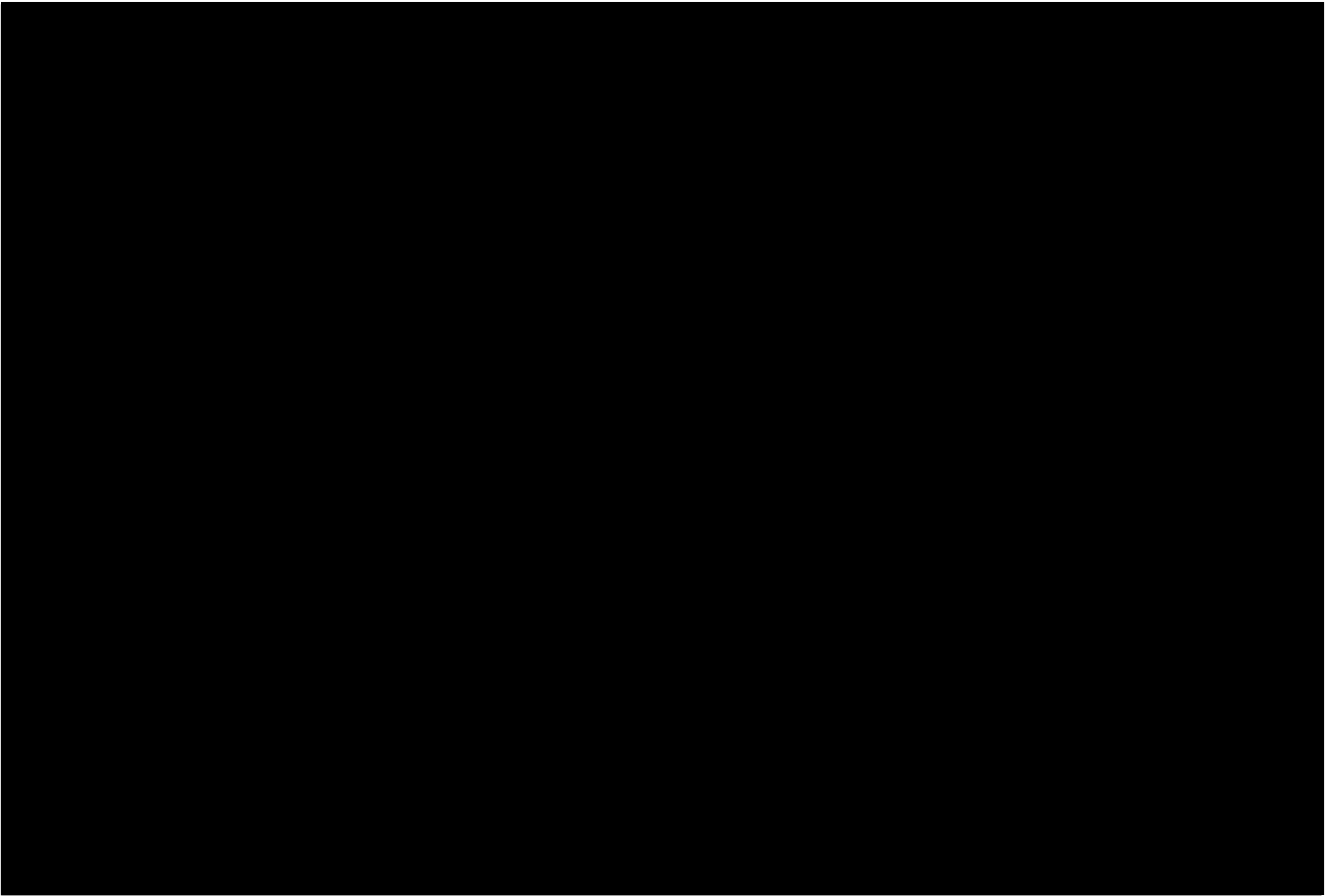


Figure 1 EDGIS map of Incident Location.



Figure 2 Burn scar at the base of Pole #1, photo facing east. Photo taken by troubleshooter on June 20, 2024.



Figure 3 Burn scar at the base of Pole #1. Photo facing south, taken by troubleshooter on June 20, 2024.



Figure 4 Damaged neutral and hot leg. Photo taken by troubleshooter on June 20, 2024.



Figure 5 Damaged neutral and hot leg. Photo taken by troubleshooter on June 20, 2024.



Figure 6 Photo looking up at damaged equipment on Pole #1. Photo taken by troubleshooter on June 20, 2024.

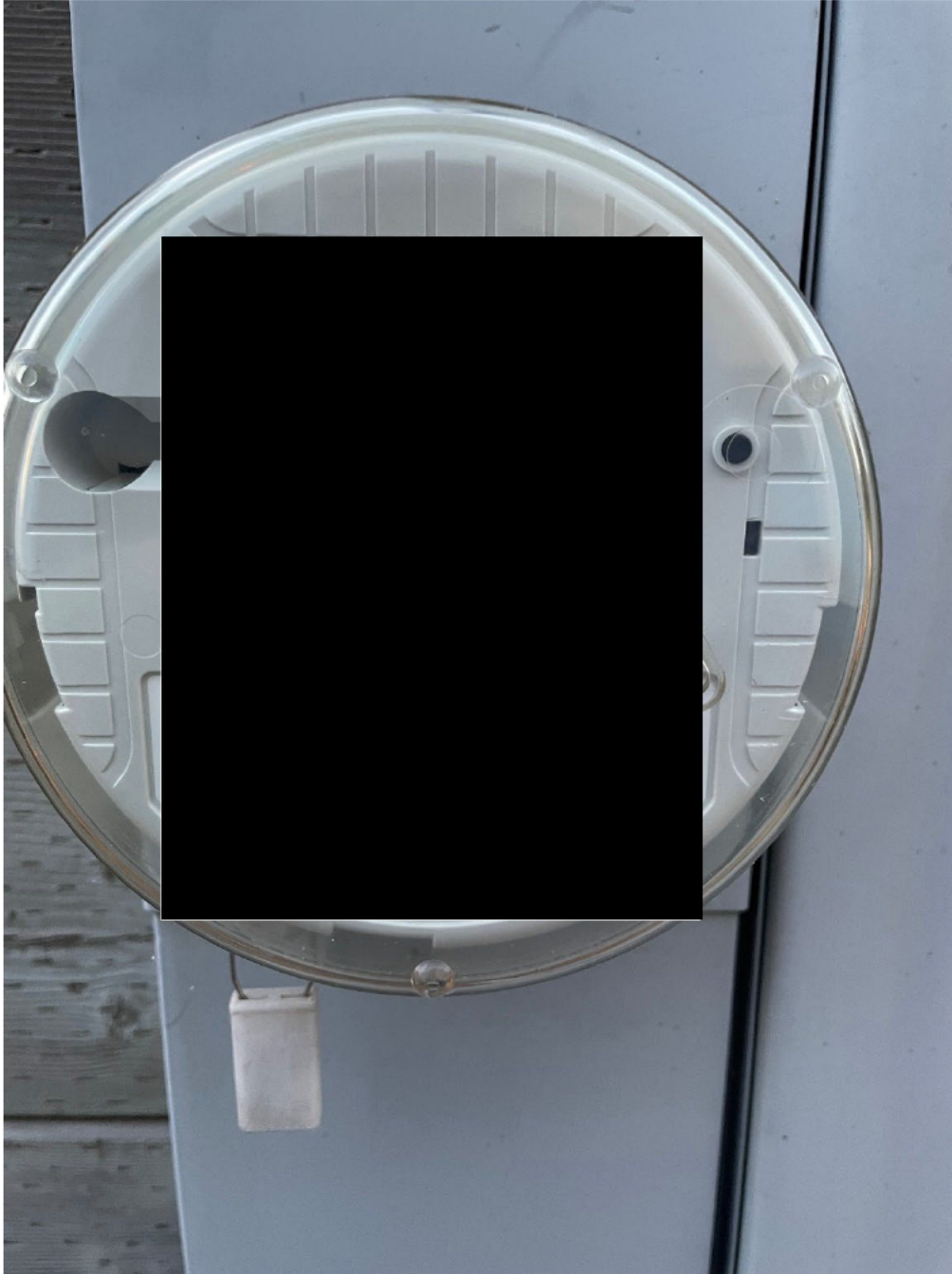


Figure 7 Customer meter reading/maintaining high voltage reading 8-10 minutes after initial power demand to energize the home. Photo taken by troubleshooter on June 20, 2024.



Figure 8 Failed hot leg. Photo taken at ATS by engineer who analyzed the incident.

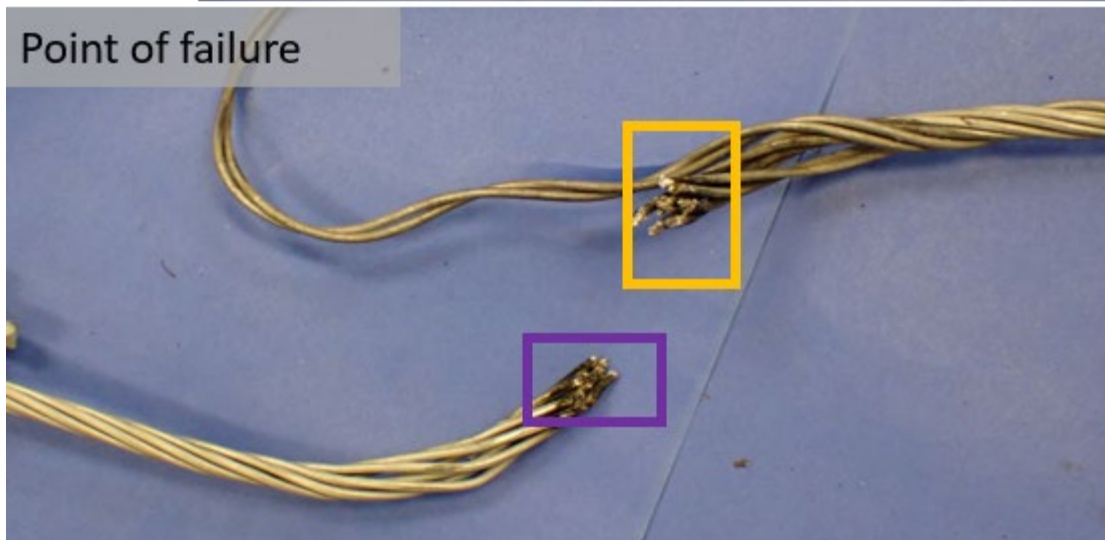
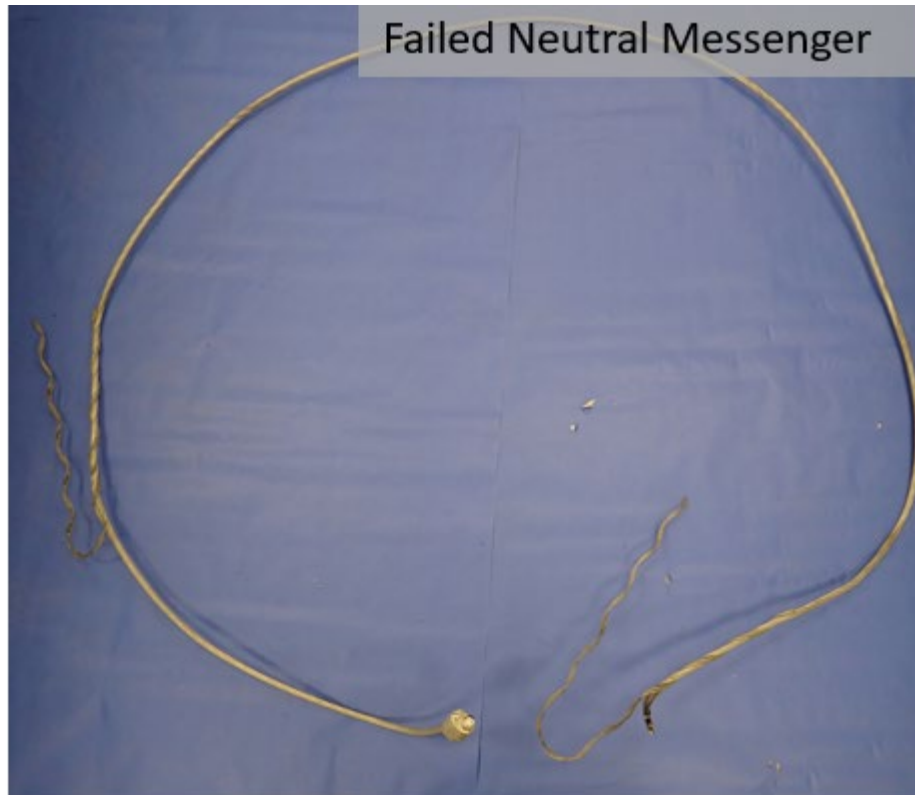


Figure 9 Failed neutral messenger. Photo taken at ATS by engineer who analyzed the incident.

Attachments

Attachments and references can be located in the ESA folder, located below:



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