



Preliminary Ignition Investigation Report

Ignition Database Index:	20240431
Electric Incident Investigation (EII) Number:	N/A
Incident Name:	N/A
PG&E Facility Ignition?	Yes
CPUC Reportable Ignition?	Yes
Date & Time of Incident:	May 18, 2024, at 0323 Hours
Street Address:	Near [REDACTED]
City:	Clearlake
County:	Lake
Latitude/Longitude:	[REDACTED]
State Responsibility Area (SRA) / Local Responsibility Area (LRA) / Federal Responsibility Area (FRA)	Local Responsibility Area (LRA)
PG&E Division:	Humboldt
High Fire Threat District (HFTD):	Tier 2
High Fire Risk Area (HFRA):	Yes
EPSS Buffer:	No
Fire Index Area (FIA):	175
Fire Potential Index (FPI) Rating: FIA	R1
Fire Potential Index (FPI) Rating: Circuit	R2
Was there a PSPS event at the time of ignition?	No
Suspected Initiating Event:	Equipment – Overloaded
Failure Driver:	All Types of Equipment / Facility Failure
Failure Sub-driver:	Splice/Clamp/Connector
Circuit:	Highlands 1102
Circuit Protection Zone:	Highlands 1102 LR 75140
Nominal Voltage:	750v
Pole SAP Equipment ID:	102150165
Subject to PRC 4292 Veg Pole Clearance:	No
PG&E Equipment associated with ignition:	Secondary
EPSS enabled at time of ignition?	No
Fault Type:	Line to Ground
Wire Down (Primary)?	No
Lead Agency/Agency Having Jurisdiction:	Lake County Fire Protection District
Fire Size:	<3 meters
FAS Field Remarks:	Secondary connection at tx pole caused small fire at base of pole no damage. Replaced connections at tx

	pole. Fire dept. called in on wrong tx. Original OIS 2462012 ¹
HAWC Summary:	N/A
Injuries / Fatalities / Property Damage / Media Attention:	No reports of injuries, fatalities, property damage or media attention
Weather Conditions:	54.5° F; 94% Humidity; 1.4mph Wind Speed; ENE Wind Direction; 2.2mph Wind Gusts
Red Flag Warning (RFW) / High Wind Warning (HWW):	No Red Flag Warning or High Wind Warning issued
911 Standby Relief Time:	N/A
OIS #:	2462012, 2462022
ILIS #:	24-0067451
FAS #:	T006397432, T006397414
TOTL #:	N/A
Assigned Attorney:	N/A
Ignition Investigator & Phone:	██████████ ██████████

¹ FAS Field Remarks entered verbatim.

Executive Summary

On May 18, 2024, at 0323 hours, a PG&E troubleshooter was dispatched to the Highlands 1102, 12kV Distribution Circuit on Davis Avenue east of Ernie Avenue in response to a request from St. Helena CAL FIRE asking for PG&E assistance with an active fire. CAL FIRE called back at 0352 hours to advise PG&E dispatch that the fire was extinguished, and their resources were released from the incident. CAL FIRE still wanted a troubleshooter to respond to inspect a transformer at the Incident Location (see Figure 1). The ignition occurred in a High Fire Risk Area (HFRA) with the origin of the fire occurring in a Tier 2 High Fire Threat District (HFTD). Enhanced Powerlines Safety Settings (EPSS) were not enabled for the Highlands 1102 circuit at the time of ignition. Additionally, the ignition occurred on a secondary segment of line, which is not included in the protection of EPSS.

PG&E Meteorology data pulled from the MesoWest observation site that was approximately 1.6 miles north-northwest of the Incident Location indicates it was a fair and dry day. At the time of the ignition, the temperature was 54.5°F and the relative humidity was 94%. Winds registered 1.4 Miles Per Hour (MPH) out of the east-northeast, with a wind gust of 2.2 MPH near the approximate time of the ignition. There were no Red Flag or High Wind Warnings in effect nor did this ignition occur during a Public Safety Power Shutoff (PSPS) event.

The troubleshooter was dispatched to the outage at approximately 0337 hours and arrived at the ignition location (Pole SAP ID 102150165) at approximately 0412 hours. According to the troubleshooter, the fire was not actively burning upon his arrival, but ensured the fire was fully extinguished. While inspecting the pole, the troubleshooter noticed a secondary connector from the transformer had failed, possibly causing an arc and igniting the vegetation below. The fire footprint was under three meters in size. The troubleshooter replaced the failed connector and restored power to the single affected customer at 0449 hours. The failed connector was collected and sent to Applied Technology Services (ATS) for further failure analysis.

On May 29, 2024, testing of a segment of the hot leg was completed by ATS. Visual examination of the connector indicated overheating patterns and melting of the polymer insulation around the connector. Molten aluminum seeped out of the connector, indicating excessive Joule heating created by electrical overload. ATS reviewed the SmartMeter™ data for the property and discovered that the customers' use continually exceeded the transformer capacity as of December 2023. From this data, it was determined the ignition was likely caused by molten drops stemming from the hot leg connector on the 1/0 Triplex service drop as it was not designed to accommodate the increased load.

On June 12, 2024, PG&E's Revenue Assurance team provided input as to the activity on the property. The address has both residential and nonresidential service. Revenue Assurance indicated that on November 3, 2023, an analog electric meter for the residential premise (service point [REDACTED]) was replaced with a SmartMeter™. However, during the time of the meter change, the technician did not report any observations of unauthorized electric use.

To note, the electric service for the residence had recently been converted to NEMS solar as the property address received permission to operate their solar equipment on May 15, 2024, three days prior to the outage/ignition.

In reviewing the address energy-usage, the metered load for the residential premise is on 12-hour cycles between non-generation and solar generation. Revenue Assurance confirmed 12-hour cycles of non-generation is a common pattern among indoor grow operations.

With the recent installation of the solar panels, Revenue Assurance reviewed the electric consumption for both the residential and non-residential premises. As a result of this review, it was determined there was a significant discrepancy in the solar production and electric consumption prompting Revenue Assurance to conduct a commercial premise field investigation for unauthorized use.

A Safety Condition Assessment Review (SCAR) was completed on August 1, 2024. A SCAR looks at five poles in each direction from the Incident Pole to assess the condition of adjoining poles and to ensure no similar instances of connector failures are present, as well as to identify any other potential issues. As a result of the SCAR, 14 facility items were identified needing action taken. Nine EC tags were created to correct these deficiencies on August 9, 2024.

System Protection Analysis

EPSS was not enabled for the Highlands 1102 distribution circuit at the time of the ignition due to the R2 Fire Potential Index (FPI) conditions for the circuit, the expected wind speeds, relative humidity, and fuel moisture thresholds for the service area.

Ignition Impact

The ignition that occurred on May 18, 2024, burned less than three meters of grass and was extinguished by the troubleshooter. The associated outage affected a single customer. PG&E is not aware of any injuries, fatalities, property damage or significant media attention associated to this ignition event.

Sequence of Events

May 18, 2024

- 0323 Hours: CAL FIRE St Helena contacts PG&E dispatch requesting a troubleshooter
- 0337 Hours: Troubleshooter dispatched
- 0352 Hours: CAL FIRE St Helena contacts PG&E dispatch advising their resources are no longer at scene, but a troubleshooter is still needed
- 0412 Hours: Troubleshooter arrived at scene
- 0449 Hours: Service restored to customer

Corrective Notification Associated with Ignition

The responding troubleshooter was able to make corrections to the bad secondary connection onsite, therefore, a corrective notification was not warranted.

Pending Work

Type	Number	Description	Priority	Date Identified	Due Date
EC Notification	126595324	Connector insulation deteriorated, needs to be tapped. Guy loose.	E	07/15/2023	07/15/2024
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

Info / Inspection	Most Recent Date	Findings
Install Date:	1982	45-foot, Douglas Fir, Class 5 wood pole
Inspection:	July 15, 2023	Connector, insulation deteriorated - repair, loose guy- adjust
	June 8, 2020	No anchor, guys, hardware, framing or vegetation conditions reported.
Patrol:	N/A	
Corrective History:	N/A	
Aerial Inspection Records:	July 27, 2019	Aerial view of pole SAP ID 102150165 in Sharper Shape (see Figure's 3 & 4).
VM Inspection:	N/A	
EVM Inspection:	N/A	
Equipment Test:	N/A	
Pole Intrusive Test:	April 15, 2019	No Findings
WSIP Inspection:	May 2, 2019	No compelling abnormal conditions for the pole, equipment and associated spans were noted.

*Incident Location: SAP ID 102150165

Hazard Barrier Analysis:

Hazard	Equipment Overloaded	Sub-Hazard	Connector Failure
Target	Customer exceeded load capacity, resulting in a failed connection		
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.)	A3B1C1D3-Non-Conformance, Work Non-Conformance; work Identification; Maintenance tag	Tag priority should have been higher to prevent failure

	Observed Performance: Barrier performed as expected	priority ineffective in preventing failure	
Barriers that were Assessed as Opportunities			
Connector Resistance Testing	<p>Expected Performance: (Opportunistic barrier) Test to assess splice integrity across a connector. Resistance across a connector should be less than line resistance. Could be applied by operator (OhmStik) or using a drone (LineBird)</p> <p>Observed Performance: Barrier did not exist</p>	N/A	Could identify weak connections and prevent ignitions
Infrared Inspections	<p>Expected Performance: Inspections to reduce potential for component failures and facility damage. Identify abnormal conditions such as connector temperatures greater than conductor temperatures and count number of splices.</p> <p>Observed Performance: Barrier did not exist</p>	N/A	Potential to identify overloaded equipment, and take action to prevent failures
Secondary Service Testing	<p>Expected Performance: Measures the resistance of the entire service drop. Higher than usual resistance is an indicator of a bad connection or damaged conductor</p> <p>Observed Performance: Barrier did not exist</p>	N/A	Prevention of failed connections/service drops that can start ignition

Potential Next Steps / Associated CAP Items:

- Revenue Assurance is going to do a commercial site investigation to determine if there is unauthorized use of power from the PG&E system.

Single Line Diagram



LEGEND



Substation



Fuse



Line
Recloser



Area of
Interest

Photos and Diagrams of Events

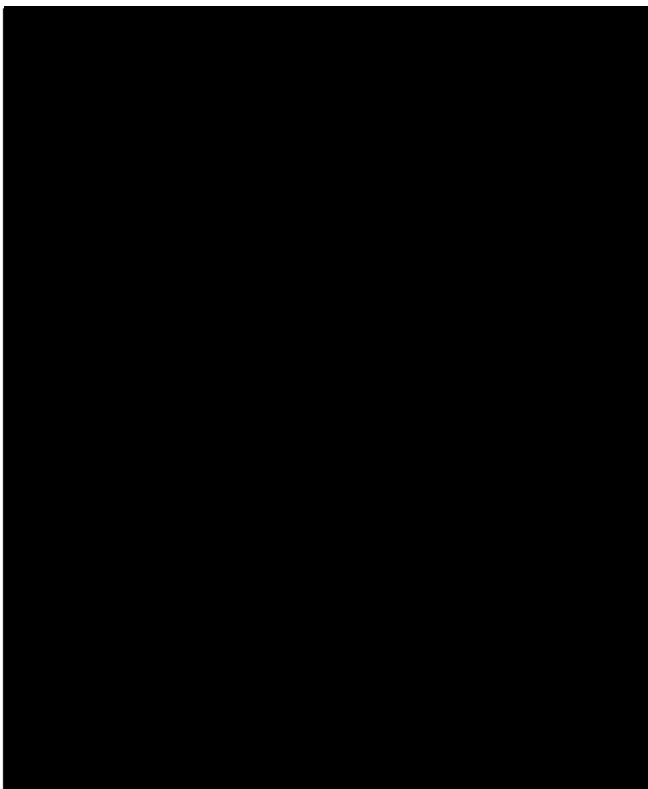


Figure 1 – EDGIS diagram of the Incident Location on the Highlands 1102 distribution circuit.

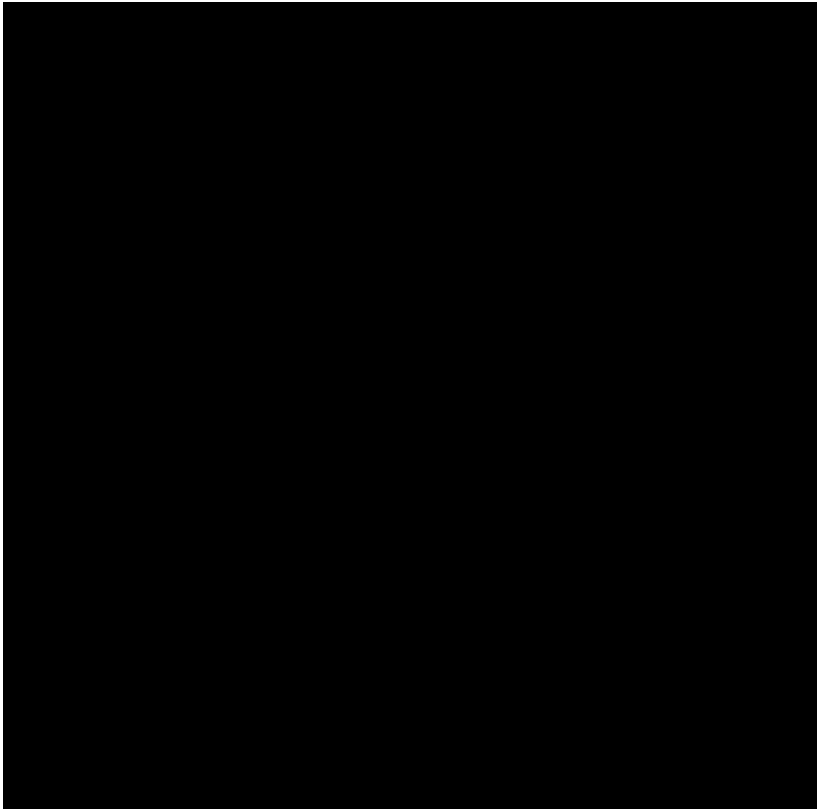


Figure 2 -Google Earth image of location of ignition



Figure 3 – Aerial image captured on July 27, 2019, of Pole SAP ID 102150165



Figure 4 -Close-up of aerial image captured on July 27, 2019, of Pole SAP ID 102150165

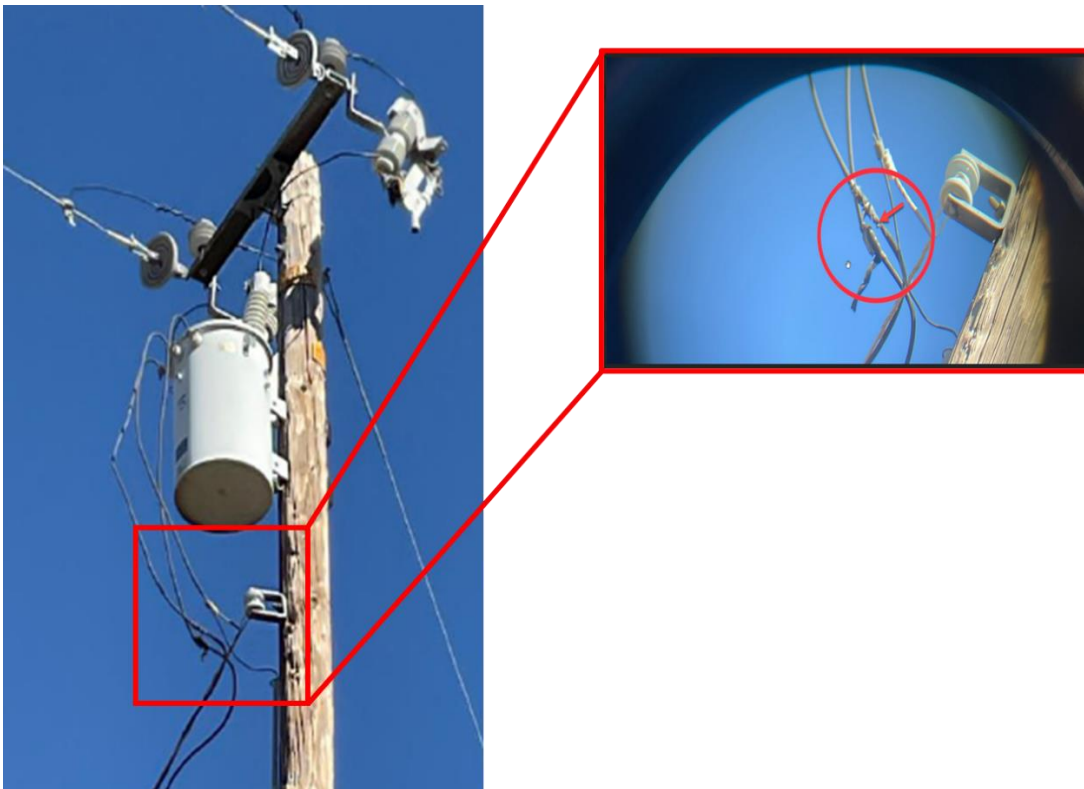


Figure 5 – GO 165 inspection photos from July 15, 2023, showing connector insulation deteriorated and exposed



Figure 6 – Compliance inspection photo from July 17, 2023, of subject pole, SAP ID 102150165

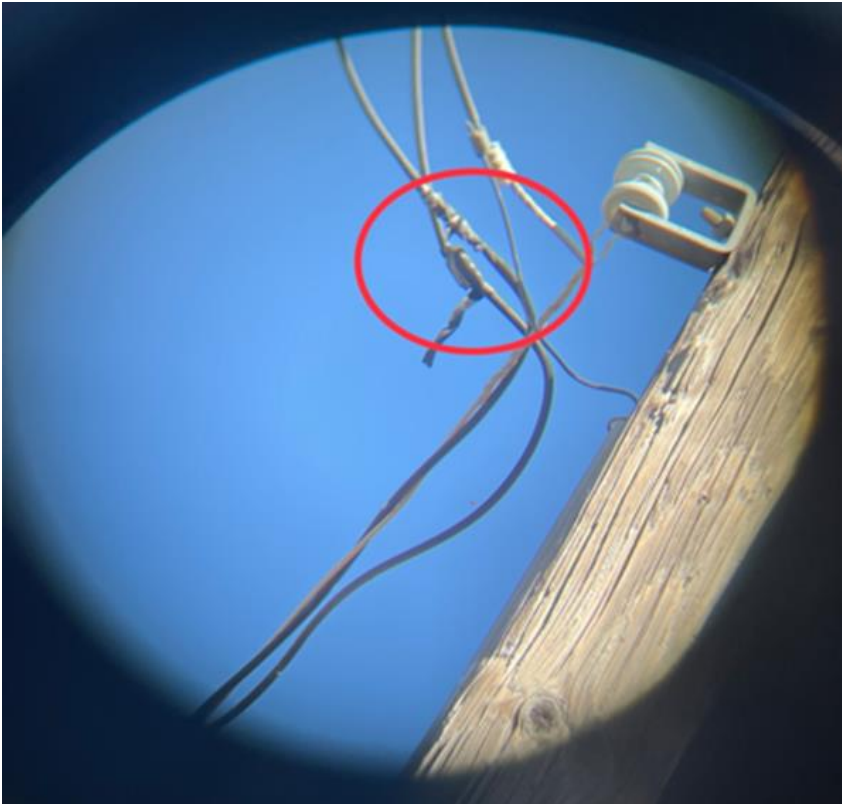


Figure 7 – Compliance inspection photo dated July 17, 2023, of subject pole showing loose electrical tape around connector.



Figure 8 – Photo of subject pole taken by troubleshooter on May 18, 2024.

This report is preliminary and based on available information as of **May 30, 2024**; event data is subject to change based upon subsequently discovered information.

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Figure 9 – Photo of fire area burned taken by troubleshooter on May 18, 2024.

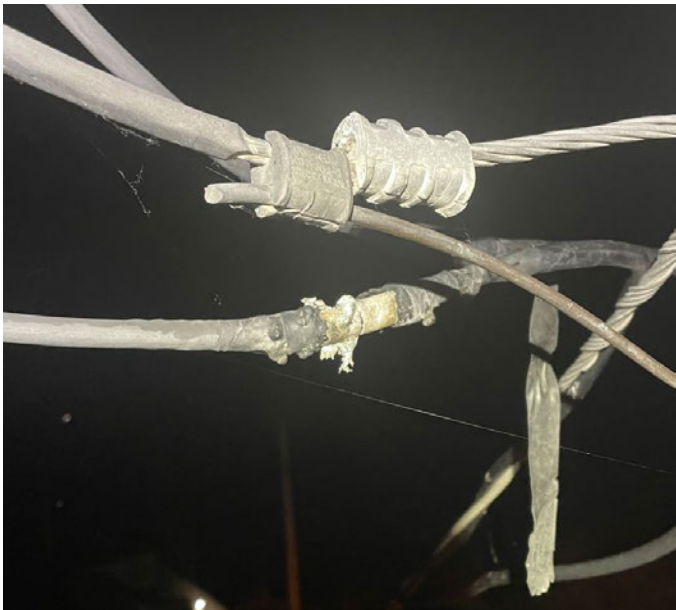


Figure 10 – Photo of exposed connector taken by troubleshooter on May 18, 2024, with electrical tape hanging in the background and bare neutral.

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Doc. R18 – Mar 2024

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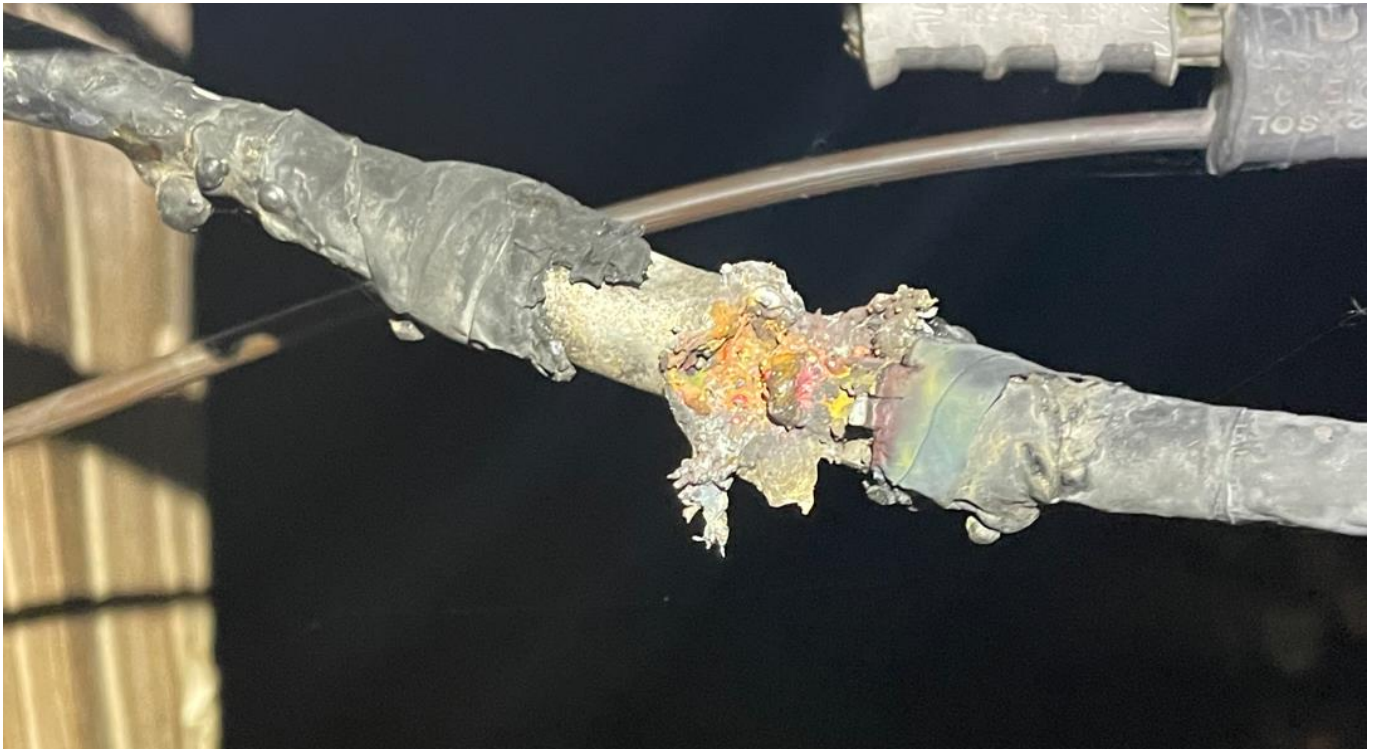


Figure 11 – Close-up photo of exposed connector taken by troubleshooter on May 18, 2024.

Attachments

Attachments and references are the ESA folder, located below:



-----END of REPORT-----