



## Preliminary Ignition Investigation Report

<b>Ignition Database Index:</b>	20240860
<b>Electric Incident Investigation (EII) Number:</b>	N/A
<b>Incident Name:</b>	Schow – 05 Jul 2024
<b>PG&amp;E Facility Ignition?</b>	Yes
<b>CPUC Reportable Ignition?</b>	Yes
<b>Date &amp; Time of Incident:</b>	July 5, 2024 @ 1555 hours
<b>Street Address:</b>	27150 Schow Road
<b>City:</b>	Willits
<b>County:</b>	Mendocino
<b>Latitude/Longitude:</b>	39.467718 / -123.369611
<b>State Responsibility Area (SRA) / Local Responsibility Area (LRA) / Federal Responsibility Area (FRA)</b>	State Responsibility Area (SRA)
<b>PG&amp;E Division:</b>	Humboldt
<b>High Fire Threat District (HFTD):</b>	Tier 3
<b>High Fire Risk Area (HFRA):</b>	Yes
<b>EPSS Buffer:</b>	No
<b>Fire Index Area (FIA):</b>	154
<b>Fire Potential Index (FPI) Rating: FIA</b>	R4
<b>Fire Potential Index (FPI) Rating: Circuit</b>	R4
<b>Was there a PSPS event at the time of ignition?</b>	No
<b>Suspected Initiating Event:</b>	Vegetation
<b>Failure Driver:</b>	Contact from object
<b>Failure Sub-driver:</b>	Contact - Vegetation
<b>Circuit:</b>	Willits 1103
<b>Circuit Protection Zone:</b>	Willits 11032506
<b>Nominal Voltage:</b>	12kV
<b>Pole SAP Equipment ID:</b>	102305064 (source side of failure) 102211682 (load side of failure)
<b>Subject to PRC 4292 Veg Pole Clearance:</b>	No
<b>PG&amp;E Equipment associated with ignition:</b>	Conductor - Primary
<b>EPSS enabled at time of ignition?</b>	Yes
<b>Fault Type:</b>	Line to Ground
<b>Wire Down (Primary)?</b>	Yes
<b>Lead Agency/Agency Having Jurisdiction:</b>	CAL FIRE
<b>Fire Size:</b>	3 meters to 0.25 acres

<b>FAS Field Remarks:</b>	“crew to replace pole and repair wire down. inaccessible to trucks. need track machine. tree crew and veg inspectors to assess fire damaged trees in area. EC tag created on Inspect, notification 129175992”	
<b>HAWC Summary:</b>	“Resources responded to a vegetation fire at 27150 Schow Rd in Willits in a Tier 2 area. The fire was contained / forward progress stooped at 0.25 acres. There was an outage in the immediate area. The outage was on the Willits 1103 circuit impacting approximately 474 customers on OIS # 2506250. This was an EPSS enabled circuit. SIPT responded to this incident. An Everbridge message was sent.”	
<b>Injuries / Fatalities / Property Damage / Media Attention:</b>	None	
<b>Weather Conditions:</b>	It was a very hot and sunny day near the incident location. Conditions at the time of the incident: Temperature 96°F, relative humidity 24%, 7.2 mph sustained winds out of the northwest with up to 11.7 mph gusts	
<b>Red Flag Warning (RFW) / High Wind Warning (HWW):</b>	No/No	
<b>911 Standby Relief Time:</b>	None	
<b>OIS #:</b>	2506250	
<b>ILIS #:</b>	24-0084378	
<b>FAS #:</b>	T006439653	
<b>Assigned Attorney:</b>	N/A	
<b>Ignition Investigator &amp; Phone:</b>	██████████	██████████
	██████████	██████████

## Executive Summary

On July 5, 2024, at 1555 hours, Line Recloser (LR) 696 opened automatically on Downed Conductor Detection (DCD) targets. This was due to a high impedance line-to-ground fault on the Tier 3 HFTD Willits 1103 12kV two-phase primary overhead distribution circuit near 27150 Schow Road in Willits, California (“Incident Location”, Figure 1 and Figure 2).

At 1600 hours, PG&E dispatched a troubleshooter (“Troubleshooter 1”) to Fuse 2779 located on the Willits 1103 circuit. At 1620 hours PG&E dispatched an additional troubleshooter (“Troubleshooter 2”) to the Incident Location and by 1725 hours, they arrived at the Incident Location and observed both phases of 4-ACSR wire down between poles with SAP IDs 102305064 and 102211682 (“Incident Span”), load side of Fuse 2779. In addition, Troubleshooter 2 observed damage to pole SAP ID 102305064 (“Incident Pole”) and burnt vegetation in the surrounding area, including a burnt tree trunk from the tree that had fallen into the Incident Span (“Incident Tree”) (see Figure 3 through Figure 5). By 1900 hours, Troubleshooter 1 had patrolled Willits 1103 and safely restored service to the majority of customers impacted by the incident. At 1925 hours, Troubleshooter 2 created an EC tag (#129175992) to replace the damaged pole and repair the downed conductor and by 1410 hours the following day, a PG&E repair crew completed all repairs and restored service to the remaining impacted customers.

On July 6, 2024, Vegetation Management (“VM”) examined the Incident Location and observed that the Incident Tree, a 65-foot-tall black oak, had a trunk failure approximately 20-feet above the ground (see Figure 6). The failed trunk was on the ground within the burned area. Slightly above the failure point, there was an approximate six-inch diameter wound of unknown origin present on the burned trunk. Discussion with VM revealed the trunk failed at a point which did not have sound wood, proximate to the large wound, indicating the tree had internal decay emanating from the area of the wound<sup>1</sup>. Figure 7 shows the condition of the broken trunk after the fire and the locations of the wound and unsound wood. The presence of the wound and associated internal decay would have contributed to structural weakness in the trunk and were likely contributing factors to the tree failure and subsequent ignition. VM performed an Extent of Conditions Patrol investigation (XoC) in the vicinity of the Incident Pole; the patrol did not identify any trees requiring priority mitigation work.

This information is preliminary, and all times, customer numbers and measurements described in this report are approximate.

## System Protection Analysis

The Willits 1103 circuit was equipped with EPSS-enabled devices at the time of the incident. Protective devices upstream of the Incident Location, listed in the order of closest proximity, include Fuse 2781 (12 ELF fuse Part 44), LR 2506 (Brand: Rxe; Type Form 6 – Rev 30), and LR 696 (Brand: We; Type Form 6 – Rev 30). At the time of the incident, LR 2506 was equipped with Sensitive Ground Fault (SGF) capability, but it is not DCD capable; LR 696 was equipped with both SGF and DCD capabilities.

The Incident Tree falling onto the Incident Span causing wires down created a high impedance, line-to-ground fault resulting in LR 696 operating automatically on DCD targets. LR 696 cleared the fault after 1.9 seconds. The

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<sup>1</sup> Electronic Communication with Vegetation SME on August 21, 2024. The VM Incident investigation report findings do not align with the photographic documentation provided with the report.

fault load was below the minimum LR 2506 protective device setting thresholds and Fuse 2781 device rating. The EPSS protective devices operated as expected.

### Ignition Impact

The tree falling on the Willits 1103 distribution circuit resulted in both phases of 4-ACSR primary overhead conductor to fall to the ground and ignite a ground vegetation fire that spread to approximately 0.25 acres. The fire burnt the Incident Pole and surrounding vegetation and damaged the crossarms and anchor. Other than these items and the downed wires, there was no damage to surrounding property, no individuals were injured, and there was no reported media exposure. The outage associated with this event affected 460 customers for approximately two-hours, eight customers for approximately three-hours, and three customers for approximately twenty-two hours.

### Sequence of Events

July 5, 2024

- 1555 hours, LR 696 opens placing 470 customers out-of-service and PG&E records first no light (FNL)
- 1600 hours, Troubleshooter 1 dispatched to Fuse 2779 (near Incident Location)
- 1620 hours, Troubleshooter 2 dispatched to Incident Location
- 1630 hours, Troubleshooter 2 arrives at Incident Location
- 1720 hours, Troubleshooter 1 reports wire down, tree through line; Fuse 2779 opened by Troubleshooter 1
- 1725 hours, Troubleshooter 2 reports wire down at Incident Location
- 1745 hours, Troubleshooter 1 reports main line patrol completed from Fuse 2779 back to LR 696 and line found ok to energize
- 1750 hours, DCC closed LR 696 via SCADA returning service to 460 customers and Troubleshooter 1 arrives at Incident Location
- 1835 hours, Fuse 2781 opened by Troubleshooter 1
- 1900 hours, Troubleshooter 1 reports line patrol from Fuse 2781 to Fuse 2779 complete. Willits 1103 EPSS disabled, and Troubleshooter 1 closes Fuse 2779 returning service to eight customers
- 1910 hours, Troubleshooter 1 leaves Incident Location
- 1915 hours, Willits 1103 EPSS enabled
- 1925 hours, Troubleshooter 2 creates Notification 129175992
- 1930 hours, Troubleshooter 2 leaves Incident Location

July 6, 2024

- 0820 hours, Repair Crew dispatched Incident Location
- 1140 hours, Repair Crew arrives at site
- 1355 hours, Repair Crew reports all repairs complete and Willits 1103 EPSS disabled
- 1410 hours, Fuse 2781 closed by Repair Crew returning service to three customers.
- 1415 hours, Willits 1103 EPSS settings enabled
- 1745 hours, Repair Crew leaves site

### Corrective Notification Associated with Ignition

Corrective Notification EC-129175992 Priority A was created on July 5, 2024, to replace the Incident Pole, crossarms, and anchor and to repair the downed #4 ACSR conductors. Repairs were completed on July 6, 2024.

### Pending Work

Type	Number	Description	Priority	Date Identified	Due Date
EC Notification Incident Pole	123905959	Tighten loose crossarm and install split bolt to repair split pole.	E	June 23, 2022	December 23, 2022
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 Pole Source Side		
Info / Inspection	Most Recent Dates	Findings
Install Date:	1954	Wood Pole, 40-feet high
Inspection:	June 23, 2022	GO165 Detailed Ground Inspection: No vegetation related issues or compelling abnormal conditions identified. Top of pole splitting and loose crossarm; EC notification 123905959 created (current pending notification) to address these conditions.
	June 29, 2021	GO 165 Detailed Ground Inspection: No vegetation present. No compelling, abnormal conditions reported.
Patrol:	November 13, 2023	No abnormal conditions identified
Corrective History:	None	See pending tag above.
Infrared Inspection	N/A	
VM Inspection:	September 29, 2023	Inspection did not identify any conditions requiring work. No prior work on incident tree.
EVM Inspection:	N/A	No Enhanced Vegetation Inspection (EVM) work was identified in the areas surrounding the Incident location
Equipment Test:	N/A	
Pole Intrusive Test:	July 5, 2013	Pole top and bottom condition Fair; Result status Pass
WSIP Inspection:	April 15, 2019	No vegetation related issues or compelling abnormal conditions reported for the pole, equipment, and associated spans.

\*Incident Location: Pole SAP ID: 102305064

<b>Pole 2 Load Side</b>		
<b>Info / Inspection</b>	<b>Most Recent Dates</b>	<b>Findings</b>
Install Date:	1954	Wood Pole, 40-feet high
Inspection:	June 24, 2022	GO165 Detailed Ground Inspection: No vegetation related issues or compelling abnormal conditions identified. Notes unauthorized attachment on pole by 3 <sup>rd</sup> party – non-utility.
	June 29, 2021	GO 165 Detailed Ground Inspection: No compelling abnormal conditions reported.
Patrol:	November 13, 2023	No abnormal conditions identified
Corrective History:	June 24, 2022	EC 123914010: Unauthorized attachment (contact sign) on pole
	May 12, 2022	EC 11902091: four guy markers missing, two anchors covered in dirt.
Infrared Inspection	N/A	
VM Inspection:	September 29, 2023	Inspection did not identify any conditions requiring work. No prior work on incident tree.
EVM Inspection:	N/A	No Enhanced Vegetation Inspection (EVM) work was identified in the areas surrounding the Incident location
Equipment Test:	N/A	
Pole Intrusive Test:	July 15, 2013	Poll top and bottom condition Fair; Result status Pass
WSIP Inspection:	April 16, 2019	No vegetation related issues or compelling abnormal conditions reported for the pole, equipment, and associated spans.

\*Incident Location: Pole SAP ID: 102211682

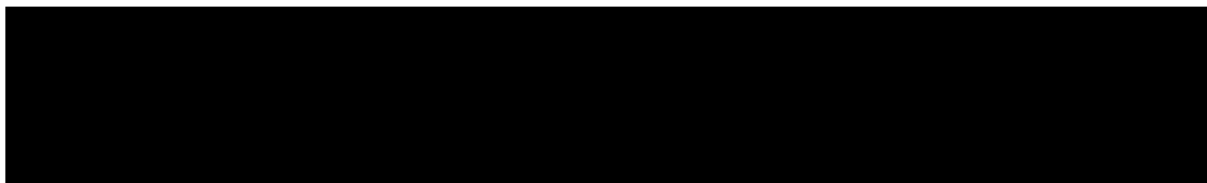
## Hazard Barrier Analysis

Hazard	Vegetation Contact	Sub-Hazard	Fallen Tree Trunk
	Tree trunk falling on conductor in Tier 3 HFTD leading to 0.25-acre ignition.		
Barrier	Expected vs. Observed Performance	Why did the barrier not prevent the ignition event? (See <a href="#">ICF Codes</a> )	Opportunity
Barriers that Positively Affected Ignition			
Enhanced Powerline Safety Settings - Downed Conductor Detection  Document: TD-2700P-26 Rev. 1	Expected Performance: Automatically turn off power when a downed conductor is detected; Observed Performance: Barrier performed as expected.	N/A	The second upstream LR operated on DCD targets, interrupting the fault within 1.9 seconds, potentially limiting the size and impact of the ignition.
Barriers that were Assessed as Opportunities			
Enhanced Powerline Safety Settings - Downed Conductor Detection  Document: TD-2700P-26 Rev. 1	Expected Performance: Automatically turn off power when a downed conductor is detected; Observed Performance: Barrier did not exist on 1 <sup>st</sup> upstream LR	N/A	The first upstream LR did not have DCD capabilities. LR replacement with a DCD capable device may not have reduced the clearance time, however it may have reduced the # of customers affected.

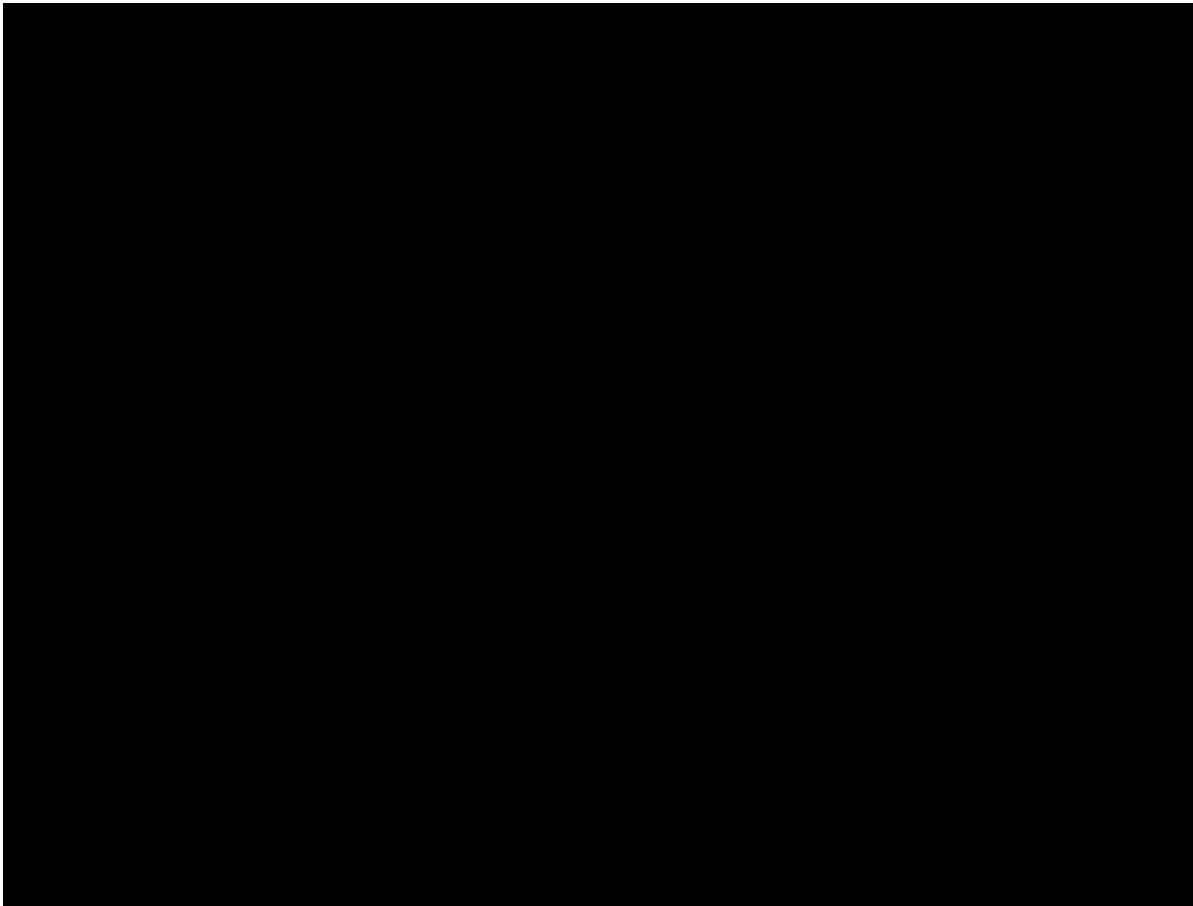
## Potential Next Steps / Associated CAP Items:

No corrective actions or additional activities were identified as a result of this investigation.

## Single Line Diagram

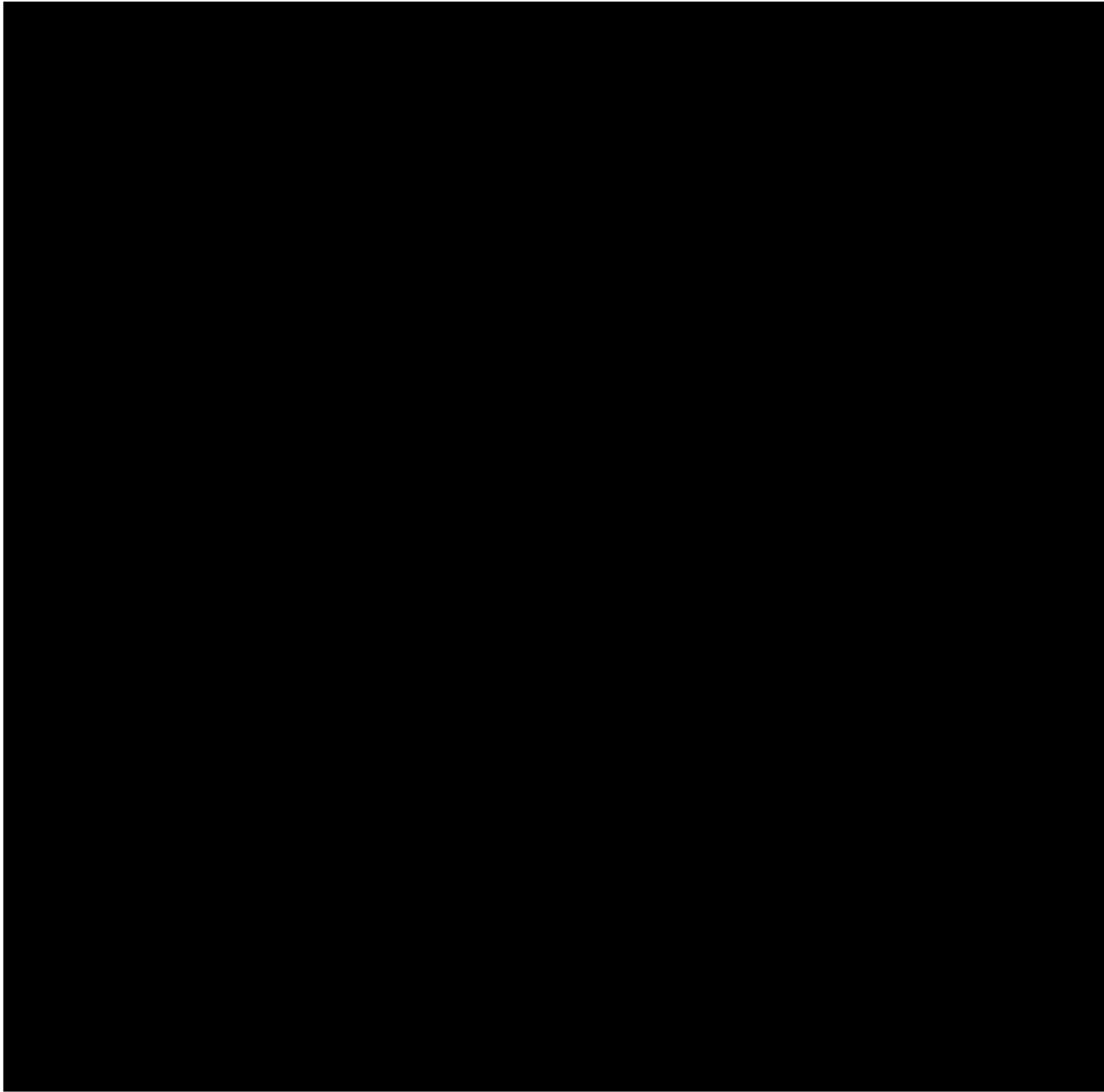


## Photos and Diagrams of Events



*Figure 1 Excerpt from EDGIS showing distribution lines in vicinity of incident.*





*Figure 2: Aerial photograph of Distribution Line of line layout in vicinity of Incident Location (approximate Incident Location indicated with red "X"). Source: Google Earth.*

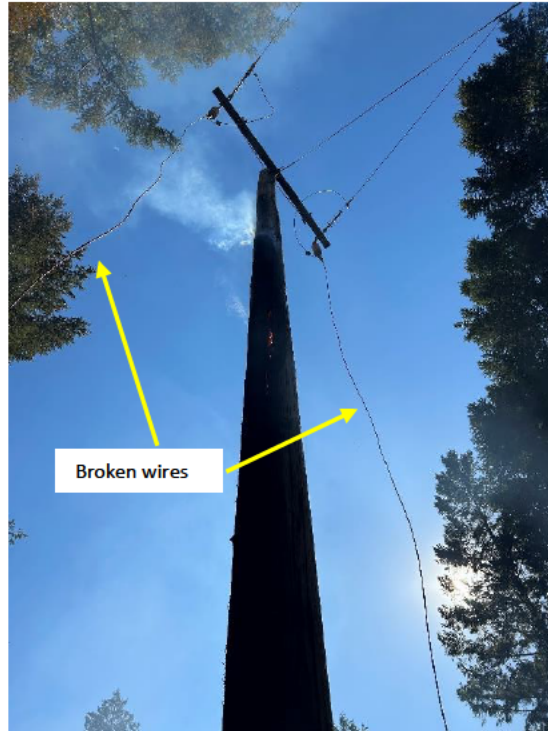


Figure 3 Photograph of burnt Incident Pole and broken wires. Photograph Source: Troubleshooter 2 (dated July 5, 2024)



Figure 4 Photograph showing broken wires, Incident Pole, fallen trunk and smouldering vegetation. Photograph Source: EC# 129175992 (dated July 5, 2024)





*Figure 5 Photographs showing burned vegetation. Photograph Source: Troubleshooter 2 (dated July 5, 2024)*





*Figure 6 Remaining tree stump of Incident Tree (indicated) and surrounding burnt vegetation. Photograph Source: VM Incident Report (dated July 6, 2024)*





Figure 7 Views of failed trunk. Arrow in the left photograph points to location of apparent internal degradation. Arrow in right photograph indicates location of tree “wound” above failure location. Photograph Source: VM Incident Report (dated July 6, 2024)

## Attachments

Attachments and references are located in the ESA folder below:



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