



Preliminary Ignition Investigation Report

Ignition Database Index:	1443
Electric Incident Investigation (EII) Number:	N/A
HAWC Incident Name:	N/A
PG&E Facility Ignition?	Y
CPUC Reportable Ignition?	N
Date & Time of Incident:	August 5, 2022 at approximately 1123 hours
Street Address:	Near [REDACTED]
City:	Catheys Valley
County:	Mariposa
Latitude/Longitude:	[REDACTED]
PG&E Division:	Yosemite
High Fire Threat District (HFTD):	Non-HFTD
High Fire Risk Area (HFRA):	N
EPSS Buffer Zone:	Y
Fire Index Area:	N/A
Fire Potential Index (FPI) Rating:	R3
Was there a PSPS event at the time of ignition?	N
Failure Driver:	Contamination
Failure Sub-driver:	Tracking
Circuit:	Bear Valley 2101, 25219-2101
Circuit Protection Zone:	Bear Valley 2101 LR 4500
Nominal Voltage:	12kV
PG&E Equipment associated with ignition:	Insulator on pole SAP ID 101069880
EPSS enabled at time of ignition?	Y
Fault Type:	Line to Line
Wire Down (Primary)?	Y
MAVF Score	TBD
Lead Agency/Agency Having Jurisdiction:	N/A
Fire Size:	Less than one meter
FAS Field Remarks:	Pole fire, broken pole. Need crew to replace. Isolated with fuse 21996. Heli patrol EPSS outage. Responded to outage. No ignition. Helicopter patrolled lines. Tied in with troubleman.
HAWC Summary:	N/A

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Doc. R3 – Jan 2022

Internal

Injuries / Fatalities / Property Damage / Media Attention:	No Injuries/Fatalities/Property Damage/Media Attention
Weather Conditions:	Cloudy and cool at 75.8F
Red Flag Warning (RFW) / High Wind Warning (HWW):	RFW – N HWW – N
911 Standby Relief Time:	N/A
OIS #:	1774190
ILIS #:	22-0094274
FAS #:	T005698340 T005698341 T005698359 - cancelled T005698369 T005698371 T005698375
Assigned Attorney:	N/A
EII Ignition Investigator & Phone:	

Executive Summary

On August 5, 2022 at approximately 1129 hours, PG&E dispatched multiple troublemen in response to a pole fire and an associated outage near [REDACTED] in the City of Catheys Valley. The ignition occurred on the Bear Valley 2101 12kV distribution circuit (see Figure 1) in a High Fire Risk Area (HFRA) “Non-Tier Buffer” Zone during R3 conditions. PG&E’s Enhanced Powerline Safety Settings (EPSS) were enabled for this circuit at the time of the incident.

PG&E Meteorology data pulled from the MesoWest observation site that was approximately 6.04 miles northeast of the Incident Location recorded that it was a cloudy and seasonably cool day with temperatures at 75.8F and relative humidity at 81%. Isolated showers near the vicinity of the Incident Location measured 0.3 inches of rain over the course of the day on August 5, 2022. Winds registered 3.2 Miles Per Hour (MPH) from the south with gusts up to 5.5. MPH at the approximate time of the incident. There were no Red Flag or High Wind Warnings in effect nor did this ignition occur during a Public Safety Power Shutoff (PSPS) event.

Multiple troubleman (five total) were dispatched to this outage. The first troubleman arrived onsite at approximately 1217 hours. Pole SAP ID 101069880 (see Figure 2) is a three-phase line and buck pole that was identified and observed to be noticeably dirty. The crossarm was found on the ground with a small fire that burned less than a meter (see Figure 3). The troublemen made the scene safe by isolating and opening fuse 21996, as well as suppressing the fire. Initial analysis indicates it is likely that the combination of the rain and contaminants on the insulators and pole created an improper path to ground that resulted in tracking, which led to the ignition on the pole. The fire then spread to the crossarm and caused the crossarm to break and fall to the ground.

As a result of this incident, a priority “A” EC tag (#124238880) was created to replace the burnt and broken pole. Replacement of the pole was completed by a PG&E Crew on August 5, 2022. There were no EC tags that were open or pending prior to this ignition.

PG&E's mapping data through the Electric Distribution Geographic Information System (EDGIS) Web Viewer has been updated since the ignition event. Originally, the mapping system displayed a few protective devices in the system that have since been removed. Line Recloser (LR) 4500 and LR 4160 were part of the removal. LR 10000 and Fuse 25276 now currently display with the EDGIS update. LR 10000 was the protective device tasked with the zone of protection for this Incident Location.

EPSS Analysis

Engineers from PG&E's Distribution Asset Planning team confirmed that EPSS was enabled for the Bear Valley 2101 circuit and the automatic devices on the circuit at the time of the ignition event. Per engineering, LR 10000 was set to active profile 1 with sensitive ground fault (SGF) enabled. The protective device worked as designed and operated as intended per the settings.

This incident was likely the result of tracking and a high impedance fault that developed into a bolted line-to-line fault. Tracking events are often associated with high impedance faults (faults that are low enough to go undetected by conventional protection systems as well as those equipped with EPSS). This occurrence resulted in the crossarm burning and breaking off from the pole, which then caused the crossarm to hit the ground and the wires contacting one another, igniting the receptive fuel bed below.

The aftermath of the line-to-line contact registered a fault magnitude of 221 amps. Based on the settings programmed, the minimum threshold was a fault of 110 amps. The detected fault exceeded the minimum trip setting and the protective device operated.

Ignition Impact

This ignition on August 5, 2022 resulted in a pole fire that caused the crossarm to burn, break, and then fall to the ground. The resulting ground fire was less than one meter. The associated outage affected 259 customers for a total of approximately 52,848 customer minutes. PG&E is not aware of any injuries, fatalities, property damages or media attention related to this ignition.

Sequence of Events

August 5, 2022

- 1123 Hours: First No Light (FNL), LR 10000 opens and 259 customers lost power
- 1129 Hours: Troublemaker #1 and #2 dispatched
- 1151 Hours: Troublemaker #3 dispatched
- 1152 Hours: Troublemaker #4 dispatched
- 1154 Hours: Troublemaker #5 dispatched
- 1217 Hours: First troublemaker to arrive onsite
- 1431 Hours: Fuse 21996 opens
- 1444 Hours: LR 10000 closes, 256 customers restored
- 1907 Hours: Fuse 21996 closes, remaining customers restored

Corrective Notification Associated with Ignition

A priority "A" EC tag (#124238880) was created to replace the burnt and broken pole SAP ID 101069880. New pole SAP ID is 104127347.

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Doc. R3 – Jan 2022

Internal

Pending Work

Type	Number	Description	Priority	Date Identified	Due Date
EC Notification	N/A				
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:	January 1, 1974	40-foot, Western Red Cedar, Class 6
Inspection:	December 20, 2018	Inspection identified bird nest on pole.
Patrol:	N/A	
Corrective History:	December 20, 2018	EC tag (#115582233) created to remove tree/vine due to impaired clearance.
	August 12, 2013	EC tag (#107163510) created to install animal mitigation (bird guard).
Aerial Inspection Records:	N/A	No aerial images available in Sharper Shape.
VM Inspection:	N/A	
EVM Inspection:	N/A	
Equipment Test:	N/A	
Pole Intrusive Test:	September 10, 2013	Pole detail report indicates passing results with the following conditions: Fair pole top condition with bottom condition categorized as "Penta 10-50 years." Wood strength tested at 100%.
WSIP Inspection:	N/A	

*Incident Location: Pole SAP ID 101069880 (has since been replaced with pole SAP ID 104127347)

Hazard Barrier Analysis:

Hazard	Pole Fire				
Target	Pole Tracking from Rain and Contamination				
Barrier	Objective	Expected Performance	Did Barrier Perform as Expected	Did Barrier Contribute to Incident	Defect
Patrol & Inspection (P&I) Records	Identify any nonconformances with poles or lines.	Inspection or patrol would identify any issues with PG&E equipment.	Yes No issues identified regarding equipment and the pole.	No	None
Wildfire Safety Inspection Program (WSIP) Inspections in high fire threat districts (HFTD)	Identify any nonconformances with structures in HFTD	Inspection would identify any issue with PG&E equipment.	N/A WSIP records not located/available		
Enhanced Powerline Safety Settings (EPSS)	De-energize sections of the distribution grid when a fault is experienced to make the line safe.	De-energize sections of the distribution grid until restored after visual inspection.	Yes The protective device worked as designed and operated per the settings once a line-to-line fault was detected.	No	Though the device operated after a registered fault, EPSS does have limitation regarding detection of high impedance faults.
Washing Program	To remove contamination on pole and equipment.	Washing program will reduce the likelihood of tracking failure.	No This incident occurred in a geographical location that was not identified and recommended for wash.	Yes	Electrical tracking in this location still caused a pole fire.

Potential Next Steps / Associated CAP Items:

- Exploring available relaying technologies capable of detecting high impedance faults.

Single Line Diagram



LEGEND

	Substation		Fuse		Line Recloser		Area of Interest
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Photos and Diagrams of Events

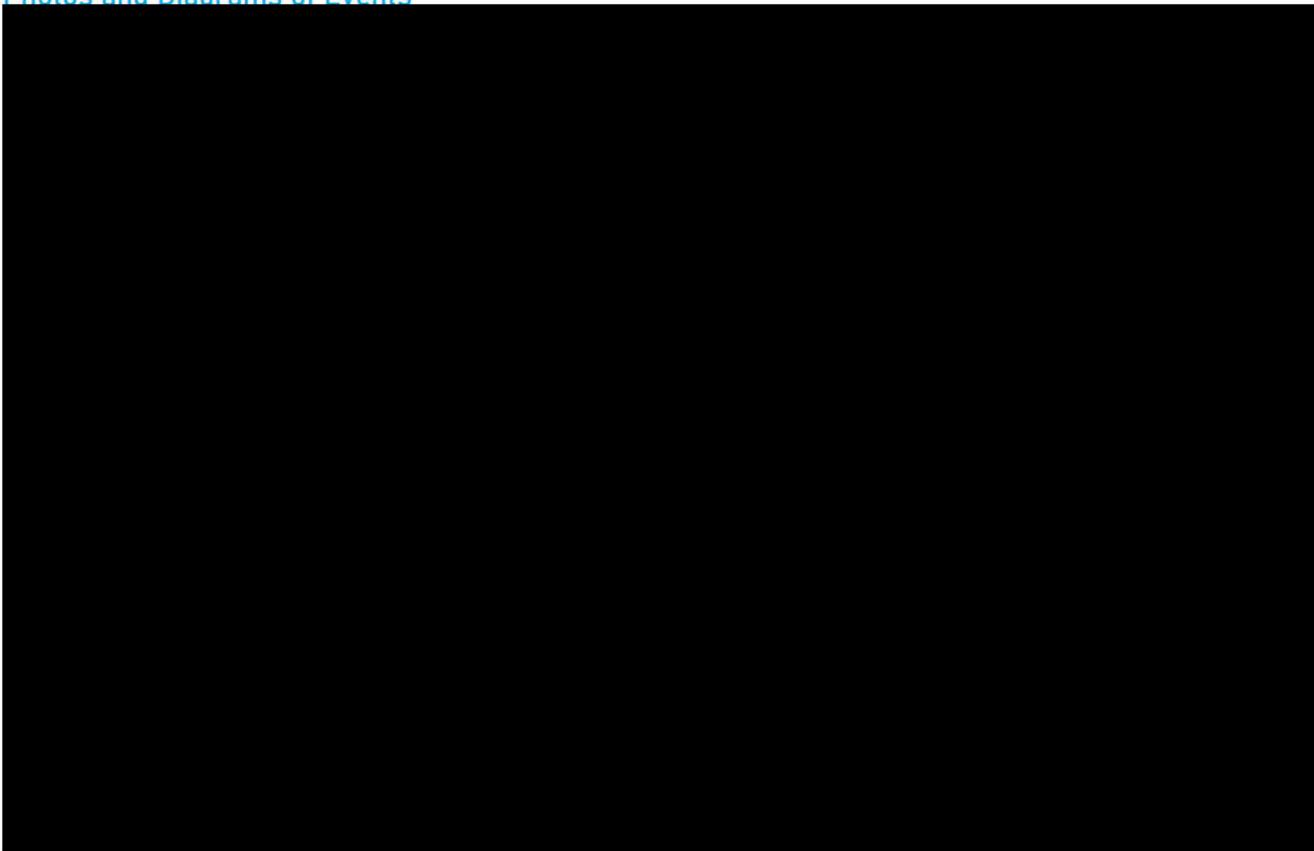


Figure 1 – EDGIS diagram of Bear Valley 2101 circuit.

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Doc. R3 – Jan 2022

Internal



Figure 2 – Photo of Pole SAP ID 101069880. Taken by the troubleman.

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Doc. R3 – Jan 2022

Internal



Figure 3 – Photo of broken crossarm on ground. Taken by the troubleman.

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Doc. R3 – Jan 2022

Internal

Attachments

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



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