



Preliminary Ignition Investigation Report

Ignition Database Index:	20241487
Electric Incident Investigation (EII) Number:	N/A
Incident Name:	Ridge
PG&E Facility Ignition?	Yes
CPUC Reportable Ignition?	Yes
Date & Time of Incident:	October 14, 2024 at approximately 0954 hours
Street Address:	4619 Tulle Lane
City:	Shingle Springs
County:	El Dorado
Latitude/Longitude:	38.659627, -120.910922
State Responsibility Area (SRA) / Local Responsibility Area (LRA) / Federal Responsibility Area (FRA)	State Responsibility Area (SRA)
PG&E Division:	Sierra
High Fire Threat District (HFTD):	Tier 3
High Fire Risk Area (HFRA):	Yes
EPSS Buffer:	No
Fire Index Area (FIA):	305
Fire Potential Index (FPI) Rating: FIA	R3
Fire Potential Index (FPI) Rating: Circuit	R3
Was there a PSPS event at the time of ignition?	No
Suspected Initiating Event:	Equipment – PG&E
Failure Driver:	Equipment Failure
Failure Sub-driver:	Capacitor Bank Failure
Circuit:	Shingle Springs 2110
Circuit Protection Zone:	Shingle Springs 21107742 ¹
Nominal Voltage:	12kV
Pole SAP Equipment ID:	101380976
Subject to PRC 4292 Veg Pole Clearance:	Yes
PG&E Equipment associated with ignition:	Capacitor Bank, Universal Fuse
EPSS enabled at time of ignition?	Yes
Fault Type:	Line-to-Line
Wire Down (Primary)?	No
Lead Agency/Agency Having Jurisdiction:	CAL FIRE
Fire Size:	0.26 to 9.99 acres

¹ Line Recloser 7742 is no longer the closest upstream device on the circuit. Line Recloser 634118 was installed on December 4, 2024, so the Circuit Protection Zone would not be Shingle Springs 2110634118.

FAS Field Remarks²:	"2of3 blown fuses at C2044, caused EPSS outage. made safe. reenergized all customers. power ok"	
HAWC Summary³:	<p>"Resources responded to a vegetation fire at Ridge Drive, Shingle Springs in a Tier 3 area. The fire was contained at 2 acres.</p> <p>There was an outage in the immediate area. The outage was on the SHINGLE SPRINGS 2110 circuit impacting approximately 721 customers on OIS # 2594214.</p> <p>This was an EPSS enabled circuit. Per Fas Comments 2 of 3 blown fuses, caused EPSS outage. made safe. Reenergized all customers. Power ok</p> <p>An EPSS Everbridge message was sent.</p> <p>Notifications: HAWC Ops, PSS, DCC, GCC"</p>	
Injuries / Fatalities / Property Damage / Media Attention:	No	
Weather Conditions:	<p>At 1000 hours near the Incident Location:</p> <ul style="list-style-type: none"> • Temperature: 73.4°F • Relative Humidity: 49% • Wind Speed: 2.9 mph • Wind Gust: 5.6 mph 	
Red Flag Warning (RFW) / High Wind Warning (HWW):	No	
911 Standby Relief Time:	24 minutes	
OIS #:	2594214	
ILIS #:	24-0122861	
FAS #:	T006525582, T006525599	
TOTL #:	N/A	
Assigned Attorney:	N/A	
Ignition Investigator & Phone:	██████████	██████████
	██████████	██████████

² FAS Field Remarks entered verbatim.

³ HAWC Summary entered verbatim.

Executive Summary

On October 14, 2024, at 0954 hours, PG&E received SmartMeter™ auto-generated outage reports downstream of capacitor bank C2044. At 0958 hours, Line Recloser (LR) 7742 on the three-phase, primary overhead 12kV Shingle Springs 2110 opened on a B-C phase fault, causing a power outage to 721 customers. At the same time, Troubleshooter #1 was dispatched to patrol for the EPSS outage. At 1005 hours, PG&E received a call from CAL FIRE reporting a vegetation fire under power lines near the intersection of Tulle Lane and Ridge Road in Shingle Springs (“Incident Location”, see Figure 1), a Tier 3 HFTD and HFRA. Troubleshooter #2 was dispatched to the Incident Location at 1010 hours and arrived at 1023 hours. Troubleshooter #1 also arrived at the Incident Location shortly after for his patrol at 1026 hours.

Upon arrival, Troubleshooter #1 reported that two of three Universal Fuses on capacitor bank C2044 were blown. CAL FIRE was on scene mopping up the extinguished fire when the troubleshooters arrived. At 1047 hours, the Distribution Operator (“DO”) gave Troubleshooter #1 the go ahead to place C2044 offline when the troubleshooters could gain access. The troubleshooters noted that the two outside phase fuses were blown and that the fuses expelled paper material when they blew. One of the pieces of paper material fell outside of the cleared area around the base of the pole, igniting the dry grass and leading to an approximately two-acre fire (see Figure 3, Figure 4, Figure 5, and Figure 6). At 1116 hours, Troubleshooter #1 reported that C2044 was placed offline and that the troubleshooters patrolled back to LR 7742 and found no other trouble. The troubleshooters created Priority F Critical Operating Equipment (COE) notification 129684037 to repair the capacitor bank.

On the day of the incident at 1000 hours, the temperature was 73.4°F, relative humidity was 49%, and wind speed was 2.9 miles per hour with gusts up to 5.6 miles per hour. The weather does not appear to have contributed to the incident.

On October 24, 2024, a local Maintenance and Construction Supervisor created Priority X Electric Corrective (EC) Notification 129725347 to replace the broken capacitor bank, cutouts, and lightning arrester. On October 25, a PG&E crew replaced C2044 and, subsequently, sent the failed capacitor bank, fuse cutouts, and two fuses to Applied Technology Solutions (“ATS”) for analysis. ATS determined that the capacitor bank’s failure mode appeared to be an internal short in one of the six capacitor units. One of the phase C units measured zero capacitance and was confirmed to be a dead short. Radiography of the capacitor unit was not conclusive in providing a root cause of the failure. ATS determined that the fault from the capacitor bank failure was momentary but caused two fuses to operate and expel flammable material into the surrounding grass, igniting the fire. Based on discussion with an engineer from a fuse testing lab, expulsion of fuse link material outside of 10 feet from a pole is typical normal behavior for a fuse operation. ATS report 006.6-24.71 describes the laboratory analysis of the failed capacitor unit.

Asset Failure Analysis performed an Extent of Condition (XOC) analysis and Safety Condition Assessment Review (SCAR). The XOC did not identify any corrective actions for the incident nor an increase in capacitor bank failures in the last two years. The SCAR did not identify any issues related to the incident capacitor bank, fuses, or pole.

System Protection Analysis

EPSS was enabled for the Shingle Springs 2110 circuit on May 26, 2024, and was enabled the day of the ignition due to R3 conditions in the area. On October 14, 2024, at approximately 0958 hours, LR 7742 detected a low-impedance line-to-line fault with 1,807 Amps on the B phase and 1,825 Amps on the C phase and tripped within

100ms. In addition, two of three fuses at capacitor bank C2044 opened. PG&E received no partial voltage alarms. While EPSS devices are meant to trip as fast as possible, sometimes upstream and downstream devices trip along with EPSS-enabled devices. In this case, protection worked as designed.

Ignition Impact

The ignition burned a dry grassy area surrounding C2044 approximately 2 acres in size and caused an outage to 721 customers for approximately 84 minutes. There were no injuries, fatalities, property damage, or media attention identified for this incident.

Sequence of Events

October 14, 2024

- 0954 hours: SmartMeter™ outages reported downstream of C2044.
- 0958 hours: LR 7742 opened on a Line-to-Line Fault (B and C phases), causing outage to 721 customers.
- 0958 hours: Troubleshooter #1 dispatched to patrol Shingle Springs 2110 for EPSS outage.
- 1005 hours: CAL FIRE reported vegetation fire under power lines at the intersection of Tulle Lane and Ridge Road (Incident Location).
- 1010 hours: Troubleshooter #2 dispatched to Incident Location.
- 1023 hours: Troubleshooter #2 arrived at Incident Location.
- 1026 hours: Troubleshooter #1 arrived at Incident Location.
- 1047 hours: Troubleshooter #1 reported that 2 of 3 fuses were blown at C2044. Fire was out and CAL FIRE was doing mop up. DO gave go ahead to place C2044 offline per the switching job aid when they could gain access.
- 1116 hours: Troubleshooter #1 reported that C2044 was placed offline and that troubleshooters patrolled all the way back to LR 7742.
- 1122 hours: DO closed LR 7742, re-energizing 721 customers.

Corrective Notification Associated with Ignition

Troubleshooter #1 created Priority F COE notification 129684037 to repair the capacitor bank. The capacitor bank was replaced on October 24, 2024, but the COE notification is still pending replacement of the capacitor bank controller as of December March 7, 2025. In addition, the local Maintenance and Construction supervisor created Priority X EC Notification 129725347 to replace the capacitor bank, cutouts, and lightning arrester. The EC notification was completed on October 25, 2024.

Pending Work

Type	Number	Description	Priority	Date Identified	Due Date
EC Notification	123626260	Replace decayed and leaning pole. Safety reassessment January 2024.	E	May 18, 2022	November 18, 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.

This report is preliminary and based on available information as of March 7, 2025; event data is subject to change based upon subsequently discovered information.

Asset Info & Most Recent Inspections and Tests

Incident Structure	101380976	
Info / Inspection	Most Recent Date	Findings
Install Date:	1973	N/A
Inspection:	May 18, 2022	Pole leaning or out of plumb by more than 10% of its height above ground. Woodpecker hole damage and crossarms twisted. Insulators or king pin chipped, cracked, corroded, contaminated, flashed, or have signs of tracking, broken, or damaged.
	March 30, 2021	No compelling conditions.
Corrective History:	November 10, 2022	ST 6257923: Reinforce pole created after Pole Intrusive Test. Tag cancelled on September 27, 2024.
	February 12, 2022	COE 122977365: Found two of three fuses blown at C2044. Replaced two capacitor units that were out of range. Completed April 8, 2022.
	February 16, 2021	COE 120537844: Found two of three fuses blown and three kyle switch handles loose. Replaced two capacitor units and three kyle switches. Completed March 30, 2021.
	April 2, 2019	EC 116900873: Replace broken LAPP insulator, replace crossarm. Tag cancelled on August 16, 2019.
Aerial Inspection Records:	February 3, 2025	SCAR results available in iHawk.
Equipment Test:	January 28, 2024	No adverse conditions
	March 31, 2023	No adverse conditions
	February 12, 2022	Two fuses blown, unable to test. COE Tag 122977365 created.
Pole Intrusive Test:	November 10, 2022	Fail: Reinforce, 96% remaining strength.
WSIP Inspection:	April 2, 2019	Insulators chipped, cracked, corroded, flashed, signs of tracking, broken, damaged, or LAPP manufactured.

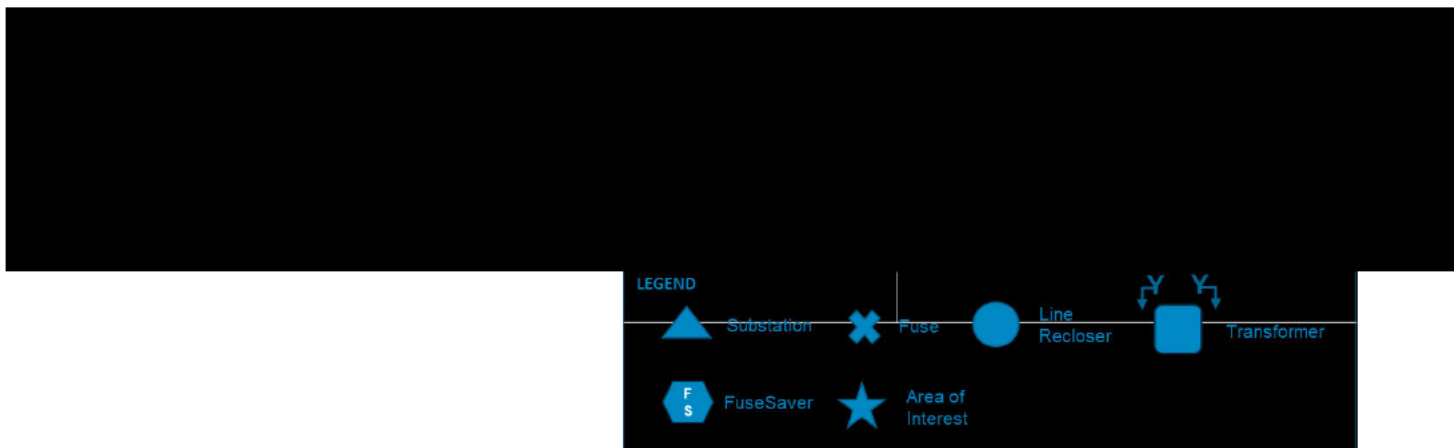
Hazard Barrier Analysis:

Hazard	Equipment Failure	Sub-Hazard	Capacitor Bank Failure
Target	Capacitor bank failure in Tier 3 HFTD leading to 0.25-10 acre fire.		
Barrier	Expected vs. Observed Performance	Why did the barrier not prevent the ignition event? (See ICF Codes)	Comments
Relevant Barriers Assessed			
Critical Operating Equipment Testing	<p>Expected Performance: Identify issues with capacitor bank</p> <p>Observed Performance: Barrier performed as expected</p>	A1B2C6D1 – Equipment defect did not exist at time of last test or inspection	Capacitor bank testing performed regularly and most recently on January 28, 2024. Capacitor bank tested normally at that time.
Enhanced Powerline Safety Settings - Instantaneous Trip Settings	<p>Expected Performance: Trip in response to capacitor bank fault</p> <p>Observed Performance: Barrier performed as expected</p>	A1B2C2D3 – Device tripping time is limited	LR responded within 10.4ms and cleared within 35.4ms.
Pole Clearing Program	<p>Expected Performance: Decrease ignition potential and fire spread from operation of non-exempt universal fuses.</p> <p>Observed Performance: Barrier did not perform as expected</p>	A2B2C2D5 – Non-exempt equipment caused ignition outside of cleared radius	Fuses operated and expelled flammable paper material, igniting dry grass outside of 10-ft cleared area.

Potential Next Steps / Associated CAP Items:

- The Ignitions team will be tracking ignitions on poles that were cleared as part of the Pole Clearing Program and will flag these for Vegetation Management moving forward. This will support an ongoing analysis to identify an adequate pole clearing radius.

Single Line Diagram



Photos and Diagrams of Events

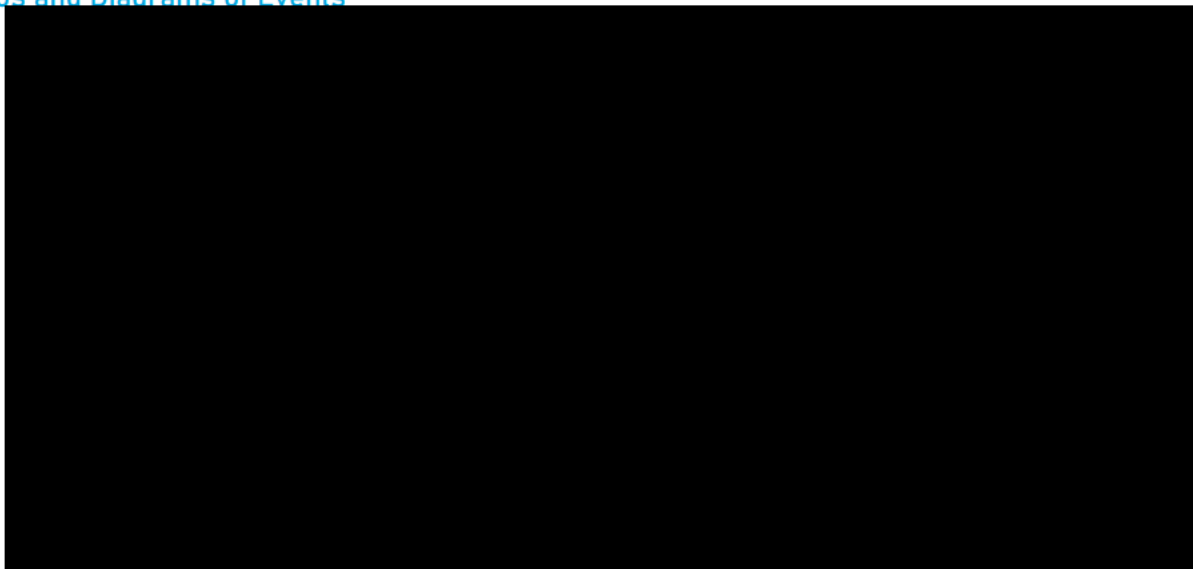


Figure 1. EDGIS map of Incident Span.



Figure 2. Fire footprint surrounding pole SAP ID 101380976 with capacitor bank C2044 (taken October 14, 2024).



Figure 3. Incident photos showing pole SAP ID 101380976 (left), burned area outside of base of pole (center), and capacitor bank C2044 (right) (taken October 14, 2024).



Figure 4. Incident photos showing two burned paper elements of fuse link (taken October 14, 2024).



Figure 5. Example intact fuse link photo provided by Maintenance and Construction Crew Lead.



Figure 6. Post-incident photos showing blown fuses on capacitor bank C2044 (taken October 22, 2024).

Attachments

The ESA folder below contains attachments and references related to this incident:

[REDACTED]
[REDACTED]

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