



Preliminary Ignition Investigation Report

Ignition Database Index:	1215
Electric Incident Investigation (EII) Number:	N/A
HAWC Incident Name:	N/A
PG&E Facility Ignition?	Y
CPUC Reportable Ignition?	Y
Date & Time of Incident:	July 20, 2022 @ 1834 hours
Street Address:	[REDACTED]
City:	Oroville
County:	Butte
Latitude/Longitude:	[REDACTED]
PG&E Division:	North Valley
High Fire Threat District (HFTD):	Non-HFTD
High Fire Risk Area (HFRA):	N
Non-Tier Buffer:	Y
Fire Index Area (FIA):	280
Fire Potential Index (FPI) Rating: Circuit	R3
Fire Potential Index (FPI) Rating: FIA	R4
Was there a PSPS event at the time of ignition?	N
Failure Driver:	Contact from object
Failure Sub-driver:	Veg. contact
Circuit:	Wyandotte 1109
Circuit Protection Zone:	Wyandotte 11095973
Nominal Voltage:	12kV
PG&E Equipment associated with ignition:	Conductor
EPSS enabled at time of ignition?	Y
Fault Type:	Hi-Z / Force out
Wire Down (Primary)?	N
MAVF Score	166.6
Lead Agency/Agency Having Jurisdiction:	CAL FIRE
Fire Size:	20 foot x 20 foot
FAS Field Remarks:	UPD Remarks: Remove tree limb, trim tree OFC Remarks: A.;x.;r:give to tman Woodmansee, pwr-y Hazard Info: Queen
HAWC Summary:	N/A
Injuries / Fatalities / Property Damage / Media Attention:	N/A
Weather Conditions:	Sunny and hot - 100.2 degrees @ 1810hours
Red Flag Warning (RFW) / High Wind Warning (HWW):	Red Flag Warning (RFW) - No High Wind Warning (HWW) - No

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911 Standby Relief Time:	29 Minutes
OIS #:	1761607, 1761676
ILIS #:	22-0087886
FAS #:	0925378435 - Patrol T005685005 - Assist T005684953 - Cancelled T005685003 - Cancelled T005685027 - Cancelled
Assigned Attorney:	N/A
EII Ignition Investigator & Phone:	[REDACTED]

Executive Summary

On July 20, 2022 at 1750 hours, PG&E was notified by a 911 call that CAL FIRE called in regarding a Vegetation fire threatening a power pole and a request for de-energization. There was also multiple SmartMeter™ auto-generated outages reported near Lincoln Boulevard and Stanley Drive, Oroville, CA. The fire occurred near a primary two-phase overhead section of the Wyandotte 1109 12kV distribution circuit in a Local Responsibility Area ("LRA"), Non High Fire Threat District (NON-HFTD) in a Non-Tier Buffer Zone (See figure 1). PG&E's Enhanced Powerline Safety Settings (EPSS) was enabled for this circuit at the time of the incident.

The PG&E troubleman arrived on scene at approximately 1818 hours and observed a burnt #6 solid copper jumper at SAP pole ID # 100393765 (pole 1) and a tree limb on the Aluminum Conductor Steel Reinforced (4 ACSR) conductor near SAP pole ID # 100393766 (Pole 2). The troubleman also noted that once the PG&E repair crew arrived onsite, the PG&E repair crew removed the tree limbs growing over and laying on the primary conductors.

CAL FIRE in Oroville responded to and extinguished the approximately 20 foot x 20 foot fire, (see figure 5).

According to PG&E meteorology, it was a sunny and hot day on July 20, 2022 with slightly above normal temperatures near the incident location. The highest temperature for the day was 100.2 degrees at 1810 hours and the lowest temperature was 65.8 degrees at 0540 hours. The relative humidity was as high as 47% at 0550 hours and as low as 9% at 1930 hours. The strongest wind gust was 14.2 miles per hour (mph) from the west at 1420 hours.

According to the Vegetation Management (VM) extent of conditions and incident reports, the VM team patrolled the area on July 25, 2022 and found that the incident tree was cut down, the larger wood was cut into four to six foot lengths, and the smaller brush removed during the fire response, limiting the observations that could be made during the investigation. The failed branch described by a property owner eyewitness could not be located or examined for defects. The suspected cause of the ignition was an estimated 70 foot tall X 37 inch Diameter Breast Height (DBH) gray pine tree that grew over and partially failed. The eyewitness stated an approximately 12-inch diameter X 16 foot limb partially broke out of the mid-canopy of the tall, mature, live gray pine and fell into the 12kV primary conductors located approximately 15 feet from the base of the tree. The branch hinged at the union and rested on at least one phase of the conductors, which likely resulted in falling sparks, igniting the dry vegetation below the conductor, (see figure 3 and 6).

Previous pictures of the incident tree prior to removal, show that there was an abundance of pinecones adding weight on a large branch over the conductors and multiple sagging branches below. A work request # OVVV1018335 was created during a prior inspection to trim the overhanging branches clear to sky in 2019 and that work was completed on January 28, 2020. Based on these findings the gray pine tree should have been removed due to poor structure and a significant lean towards the conductors which led to the current incident on July 20, 2022, (see figure 2). The next inspection was scheduled for August 2022, a month after the incident and likely would have resulted in a tag for removal of this subject gray pine tree.

VM also noted that this Incident occurred on a first tap span next to three-way pole. VM patrolled five spans north and five spans south from the three-way pole as well as one span east to end-pole on tap. The summary of their findings stated that the Extent of Condition (EOC) patrol was performed to identify P1/P2 trees or trees with similar conditions to the subject tree in the immediate area of the ignition. One 15-inch DBH P2 gray pine was identified for removal on the next tap span adjacent to the incident span. The tree exhibited a significant wound or gall half-way up the trunk as well as poor taper, high crown ratio, signs of decline, and a lean toward the conductors, (see figure 7 and 8).

According to recent studies (links attached below) conducted by Butte County and local landscaping informational websites the gray pines are endemic to California and are highly flammable, as their needles contain ether extracts, their wood, bark, cones, and needle sheaths all contain pitch, and their trunks are often resin-coated. The gray pine is the specific host for *Ips spinifer*, which is a type of bark beetle known to attack drought-weakened trees. California is entering its third year of drought and as of a map released on May 19, 2022, Oroville was categorized between a "D2" severe drought and a "D3" extreme drought status.

1. <https://www.chicoer.com/2019/03/08/finding-an-ecological-niche-part-3-the-gray-pine/>
2. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjo3fnp7Kb5AhXWKEQIHSpRB5sQFnoECA8QAw&url=https%3A%2F%2Fgroundhognh.com%2Fwhy-are-there-so-many-pinecones-this-year%2F&usg=AOvVaw3AqUydcPVt5b7e0VDeUYcR>
3. <http://www.buttecounty.net/drought>

As a result of this incident, one EO-Overhead Tag priority A # 124130514 was submitted for remediation of the burnt jumpers and chance clamps at SAP pole ID# 100393765 (Pole 1). The force out fault outage affected 377 customers, with 374 initial customers affected for five minutes each and the other three customers for a total of 712 customer minutes.

The powerline was fully returned to service by 0626 hours on July 21st, 2022.

EPSS Analysis

PG&E's Distribution Engineering team confirmed that EPSS was activated for the Wyandotte 1109 circuit during the date of July 20, 2022 at the time of the event. This was a high impedance fault as there was a tree branch in contact with a primary conductor and caused a small fire. Line Recloser (LR) 1040 Cooper F6 was EPSS active at the time of the event but did not see any fault and was forced out to deenergize (external trip initiated).

Ignition Impact

This ignition on July 20, 2022 resulted in a fire that was approximately 15 foot x 30 foot in size. The associated outage affected 377 customers, with 374 initial customers affected for five minutes each and the other three customers for a total of 712 customer minutes. There were no injuries, fatalities or media attention associated with this ignition. However, there was property damage noted where the fire scorched the property owner's perimeter fence. No claims were found to be filed at this time.

Sequence of Events

July 20, 2022

- 1750 hours: PG&E was notified by CAL FIRE's report of a tree fire threatening a power pole and their request for de-energization
- 1751 hours: PG&E troubleman is dispatched
- 1818 hours: Troubleman arrives on scene at SAP pole ID # 100393765 and reports a tree stem failed causing it to fall onto the primary conductor
- 1822 hours: CAL FIRE have the fire scene and burn area controlled
- 1826 hours: Troubleman reports tree online needs de-energized to open jumpers
- 1834 hours: Line recloser 1040 opened, 377 customers affected by forced outage
- 1838 hours: OJ'S feeding CGC 221269864884 TX opened
- 1839 hours: Line recloser 1040 closed, 374 customers power restored
- 1903 hours: CAL FIRE have cleared the scene and left the area

July 21, 2022

- 0626 hours: Overhead Jumper's feeding CGC 221269864884 TX closed, all 377 customers power now restored

Corrective Notification Associated with Ignition

One EO-Overhead Tag priority A (Notification # 124130514) was generated because of this incident. On July 20, 2022 a PG&E crew repaired the burnt jumpers and chance clamps at SAP pole ID# 100393765 (Pole # 1).

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Pending Work

Type	Number	Description	Priority	Date Identified	Due Date
EC Notification	124287780	GO165 Inspection _ Chance clamp installed incorrectly	E	August 13, 2022	August 13, 2023
COE Notification	N/A				
LC Notification	N/A				
Veg Work Order	XJNV10014 35	15" DBH Gray Pine P2 – FP-RMV-2B	P2	July 25, 2022	August 22, 2022

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, 1976	Original installation date for SAP pole ID# 100393765. Douglas Fir, Class 3
Inspection:	June 28, 2017	SAP pole ID# 100393765 had no compelling abnormal conditions to report during this inspection.
	August 13, 2022	SAP pole ID# 100393765 had one compelling abnormal conditions to report. One EO-Overhead priority E-Tag # 124287780 was created during this inspection to repair the chance clamps that were installed incorrectly. Completed due date of August 13, 2023.
Patrol:	N/A	
	N/A	
Corrective History:	July 20, 2022	One EO-Overhead Tag priority A (Notification # 124130514) was generated because of this incident. On July 20, 2022 a PG&E crew repaired the burnt jumpers and chance clamps at SAP pole ID# 100393765 (Pole # 1).
Aerial Inspection Records:	N/A	No records available within Sharper Shape.
VM Inspection:	June 27, 2019 & July 19, 2021	Assessments, Consulting, Representations and Training (ACRT) which is an Independent Utility VM Inspection consulting firm that utilized Mountain F. Enterprises Tree Company to perform the Last inspection date of subject tree before incident, Tree is alive. During the June 27, 2019 inspection a Work Request # OVVV1018335 was created to trim branches that were broken, touching conductors, and knocked out power- clear to sky. Work request was completed on January 28, 2020.

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		The next planned inspection was scheduled for August, 2022.
EVM Inspection:	N/A	Enhanced Vegetation Management (EVM) Ran proximity search for a 1/8 th mile radius. There is no EVM data related to the area around the incident coordinates provided.
Equipment Test:	N/A	
Pole Intrusive Test:	February 5, 2008	SAP pole ID# 100393765 (Pole # 1) Passed the Pole test and treat on this date with 100% wood strength noted Report for Pole Number:100393765 (pge.com)
WSIP Inspection:	N/A	No records available.

*Incident Location: SAP Pole ID #: 100393765

Hazard Barrier Analysis:

Hazard	Partial Tree Failure				
Target	Fallen tree branch contacting PG&E assets				
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. The latest pre-incident GO165 Patrol and Inspection were conducted on SAP Pole ID #: 100393765 by PG&E on June 28, 2017 respectively and found no abnormal conditions at the incident location area	No	None
Tree Mortality (Formerly CEMA) Inspections	Identify dead or dying trees that could fall into primary or secondary PG&E facilities	Inspection would identify any dead or dying trees and mark them for removal.	The incident tree is not on a Tree Mortality Inspections record due to being located in a Non-HFTD area.	No	None
Vegetation Management (VM) Inspection (Routine)	Identify any trees that need work	Inspection would identify any vegetation that could cause a potential hazard.	No. July 19, 2021 was the last inspection date of subject tree before incident, Tree is alive but a Work	Yes	A work request # OVVV1018335 was created during a prior

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			Request # OVVV1018335 was created to trim branches that were broken, touching conductors, and knocked out power-clear to sky.		inspection to trim the overhanging branches clear to sky in 2019 and that work was completed on January 28, 2020. The gray pine tree should have been removed at the time based on poor structure and a significant lean towards the conductors which led to causing current incident on July 20, 2022.
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. line Recloser (LR) 1040 Cooper F6 was EPSS active at the time of the event but did not see any fault and was forced out to deenergize (external trip initiated).	No	Hi-z fault conditions leading to ignition is a known limitation of the EPSS program.
Enhanced Vegetation Management (EVM) Risk Inspection	Identify any trees that do not meet the state standards for minimum clearance around the power lines.	Trimming overhanging limbs & branches directly above & around the lines. Targeted removal of dead & dying trees as well as certain species that pose an increased potential risk of falling into power lines.	No. EVM Ran proximity search for a 1/8 th mile radius. There is no EVM data related to the area around the incident coordinates provided.	No	None

Potential Next Steps / Associated CAP Items:

- None at this time.

Single Line Diagram

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Doc. R3 – Jan 2022

Internal



LEGEND



Device ID	Brand	Type
1109/2	G F60/SEL 351	IPAC
LR_702710	Cooper	Form – Rev 30
LR_758802	Beckwith	Viper
LR_1040	Eaton	Cooper F6
TS_5973	Trip Saver	S&C

Photos and Diagrams of Events

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Doc. R3 – Jan 2022

Internal

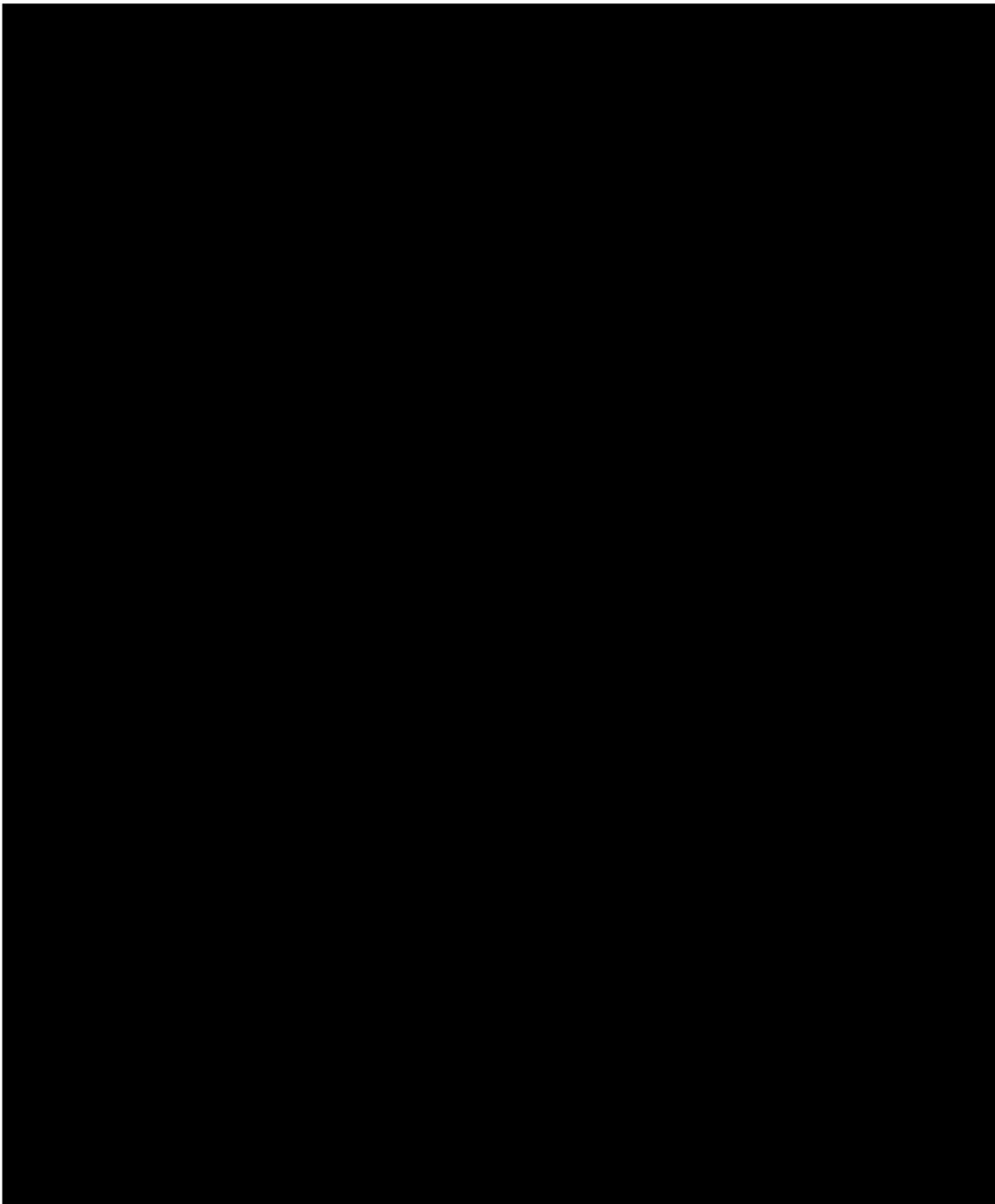


Figure 1 - Google earth Diagram of the Wyandotte 1109 12kV Circuit. Location of fires is approximate based on reports and pictures provided.

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Doc. R3 – Jan 2022

Internal

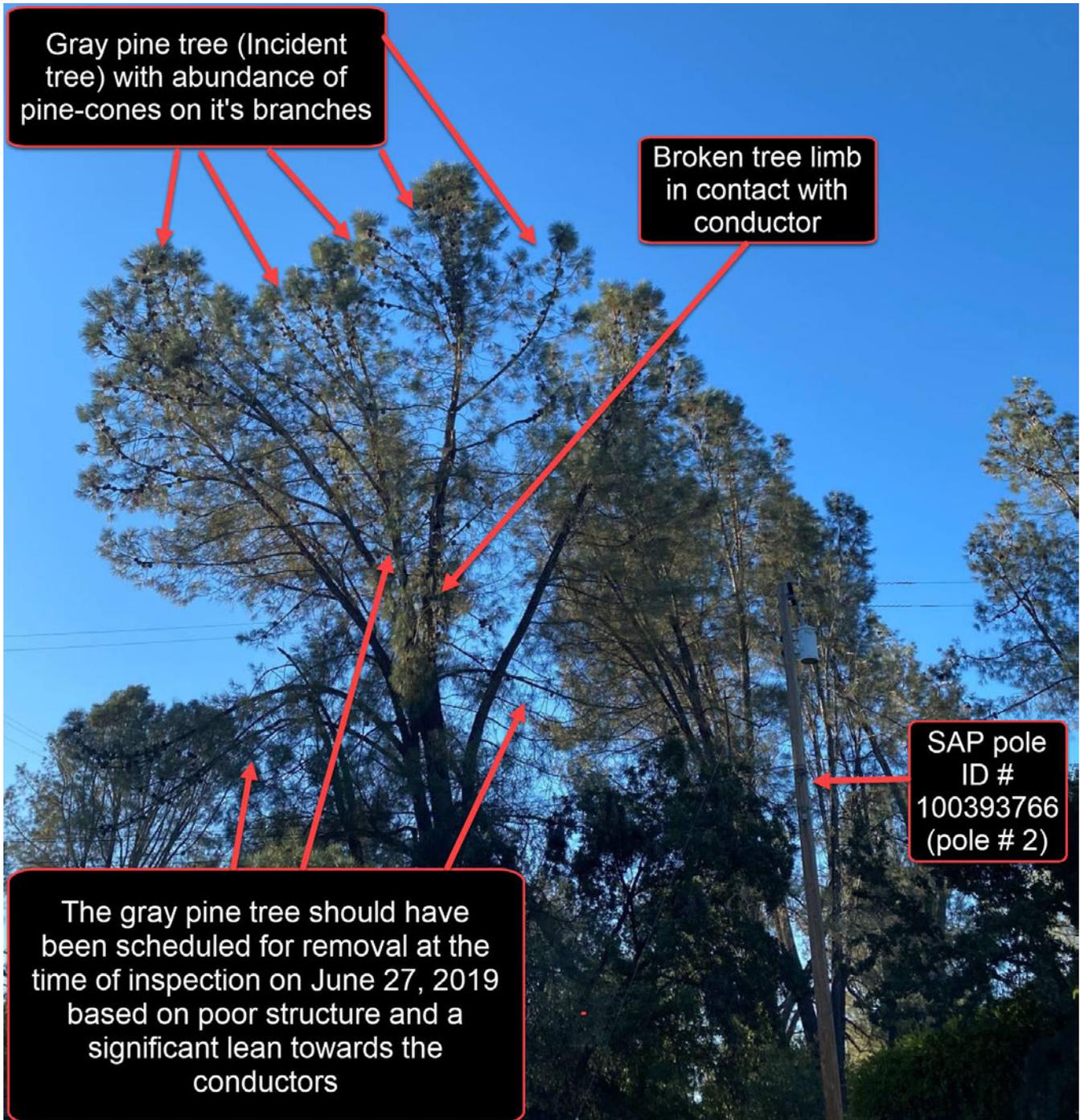


Figure 2 - A work request # OVVV1018335 was created during a prior inspection to trim the overhanging branches clear to sky in 2019 and that work was completed on January 28, 2020. The gray pine tree should have been removed at the time based on poor structure and a significant lean towards the conductors. Picture taken by property owner witness and provided to the VM inspector on July 25, 2022.



Figure 3 - Gray pine tree limbs overhang and contacting the conductors, based on this picture either the clearance to sky was never achieved in 2020 or the whole tree may have partially uprooted and shifted the tree over the lines sometime between last inspection and the incident. picture taken by the troubleman on July 20, 2022.



Figure 4 - SAP pole ID # 100393765 (pole # 1) were the PG&E repair crew placed the jumpers and chance clamps on July 20, 2022, picture taken from the GO165 inspection form that took place on August 13, 2022.

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Doc. R3 – Jan 2022

Internal



Figure 5 - CAL FIRE onsite suppressing the 20' X 20' burn area, picture taken by the troubleman on incident date July 20, 2022.

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Doc. R3 – Jan 2022

Internal



Figure 6 - Post incident picture taken by the VM inspector on July 25, 2022. The gray pine tree was cut down on July 21, 2022 by a PG&E contract tree removal company.

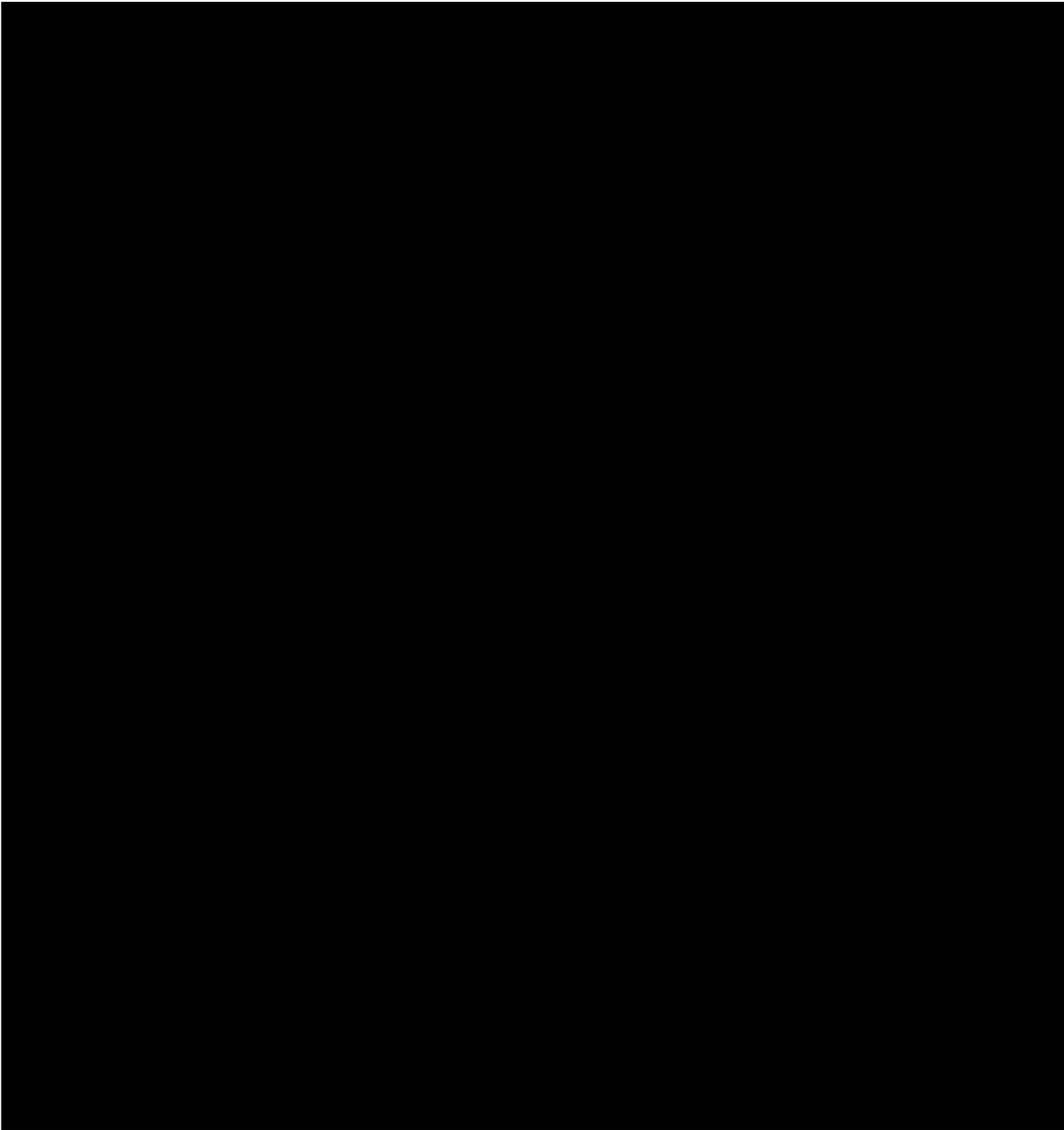


Figure 7 - VM EOC Patrol Area that was conducted on July 25, 2022 were one 15 inch DBH P2 gray pine was identified on the next tap span adjacent to the incident span. The tree exhibited a significant wound or gall half-way up the trunk as well as poor taper, high crown ratio, signs of decline, and a lean toward the conductors



Figure 8 – 15 inch DBH P2 gray pine identified on EOC Patrol on July 25, 2022, picture taken by the VM inspector.

Attachments

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

[REDACTED]

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