CALIFORNIA PUBLIC UTILITIES COMMISSION
Safety and Enforcement Division
Electric Safety and Reliability Branch

Incident Investigation Report

Report Date: 10/25/2021

Incident Number: E20210601-01 (Slope Fire)

Utility: Pacific Gas and Electric Company (PG&E)

Date and Time of the Incident: 5/31/2021 at 1843 hours

Location of the Incident: 30548 Sunnyslope Road
Sanger, California
Fresno County

Summary of Incident:
On June 1, 2021, at approximately 1605 hours, PG&E became aware of an incident that received significant media coverage. The Slope Fire incident began on May 31, 2021, at approximately 1515 hours, near Sunnyslope Road and Trimmer Springs Road in Sanger (Fresno County) (Incident Location). The Incident Location is served by the Tivy Valley 1107 12 kilovolt (kV) overhead distribution circuit. PG&E reported this incident under the California Public Utility Commission's (Commission's) media attention criterion.[1]

Fatality / Injury: None

Property Damage: None

Utility Facilities involved: Tivy Valley 1107 12 kV / 240 V Distribution Circuit

Witnesses and Investigators:

	Name	*Title*
1	Rickey Tse	CPUC Investigator
2	Robert Rasmussen	PG&E Senior Investigation Specialist
3	Amanda Maino	Incident Investigations Senior Manager
4	Richard Knoeber	Compliance and Risk Consultant, Expert

[1] Per Commission Resolution E-4184, reportable incidents include those "which are the subject of significant public attention or media coverage and are attributable or allegedly attributable to utility facilities"

5	Anna Hettig	Compliance and Risk Consultant, Expert
6	Heidi Ramos	Compliance and Risk Consultant, Senior

Evidence:

	Source	*Description*
1	PG&E	Initial Utility Report
2	PG&E	Final Utility Report
3	PG&E	Amended Final Utility Report
4	CPUC	Data Request #1
5	PG&E	Data Request Response #1
6	CPUC	Data Request #2
7	PG&E	Data Request Response #2
8	PG&E	Photographs

Observations and Findings:

On May 31, 2021, at 1620 hours, PG&E Distribution Control Center (while monitoring news of a vegetation fire) dispatched a troubleman to the Incident Location near the north shore of Pine Flat Reservoir outside the City of Sanger to patrol the area and check on potential impacts to PG&E facilities. The Tivy Valley 1107 12 kV overhead distribution circuit serves the area impacted by the fire. Per CAL FIRE, the Slope Fire burned approximately 25 acres and was fully contained as of June 2, 2021.

Figure 1. Photo showing burned area (Source: PG&E).

Arriving on-scene, the troubleman witnessed multiple media outlets reporting on the fire, and CAL FIRE units suppressing a 25-acre vegetation fire in the vicinity of PG&E facilities. The troubleman spoke with a CAL FIRE officer investigating the incident who stated he was focusing his investigation in an area below PG&E's secondary conductors passing through an oak tree at the mid-span. The open wire secondary conductor span in question traveled from a vertical configuration on a transformer pole to a secondary pole serving a pump. The troubleman observed that the middle phase, mid-span, was splattered and pitted with one or two broken strands, damage consistent with wire-to-wire contact. The secondary conductor did not fall, and the suspected wire-to-wire contact did not cause any outages.

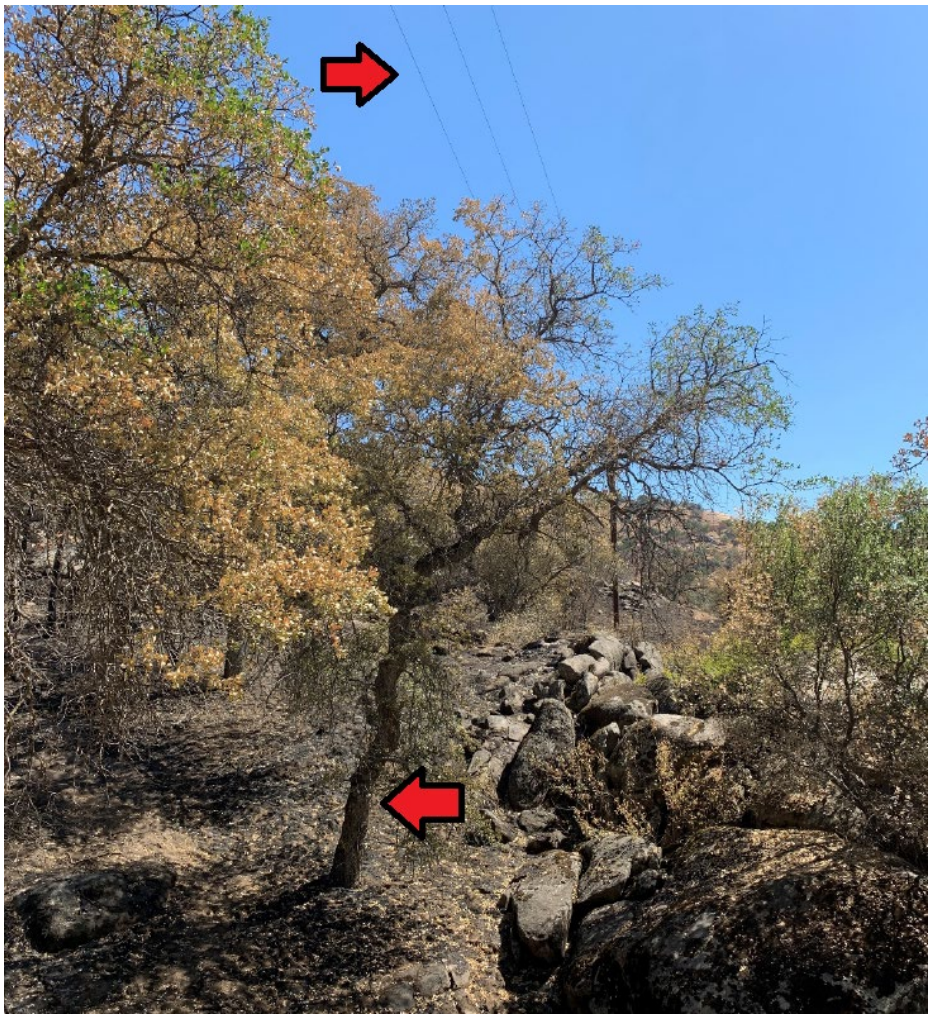

Figure 2. Photo showing PG&E secondary conductors passing through an oak tree at the mid- span (Source: PG&E).

At 2200 hours, A PG&E repair crew arrived on-scene. The troubleman and repair crew reported that a 35-foot Blue Oak tree (Subject Tree) likely made contact with the 240 Volts open wire secondary conductors and contributed to wire-to-wire contact.

Under its Enhanced Vegetation Management Program, PG&E had previously identified the Subject Tree for removal on June 11, 2020, due to potential impacts from future growth. PG&E contacted the customer on June 11, 2020 to request permission to remove the tree, but the customer verbally refused. PG&E documented the refusal in its database, but did not obtain the refusal in writing, nor did PG&E obtain a signed liability release from the customer due to the tree being in compliance with General Order (GO) 95 and Public Resources Code (PRC)[2] at the time. When PG&E reinspected the tree on January 13, 2021, PG&E determined that the tree was still in compliance with regulatory requirements.

Figure 3. Photo showing Blue Oak tree marked with a yellow "X" for removal (Source: PG&E).

To repair damage on the middle phase conductor at mid-span, PG&E created a Priority A tag (EC Notification #121434976) to replace approximately 230 feet of secondary conductor. PG&E also replaced the 35-foot secondary pole with a 40-foot Class 4 pole, raising the span above the Blue Oak tree. No repair work was done to the transformer pole. The repair

[2] Public Resource Code Section 4293

resulted in an outage to one customer. PG&E completed the repair on June 1, 2021, at 0700 hours. PG&E collected the three phases of conductor into evidence. CAL FIRE did not take any PG&E assets into evidence.

The Incident Location is in a Tier 2 High Fire Threat District (HFTD). Weather Station PG408, located one mile northeast of the Incident Location, reported conditions at the time were clear and hot (98°F) with breezes 5 to 6 miles per hour (MPH) and gusts up to 13 MPH. PG&E reported this incident to the CPUC on June 1, 2021, under the media criterion due to at least four media outlets reporting the fire.

*Figure 4. Photo showing the 35-foot secondary pole with **vertical** rack configuration. PG&E replaced this pole with a new 40-foot pole and triplex with a horizontal configuration (Source: PG&E).*

*Figure 5. Photo showing the new 40-foot **replacement** pole and triplex with a **horizontal** configuration (Source: PG&E).*

Figure 6. Photo showing the transformer pole. No work was performed on this pole (Source: PG&E).

In accordance with GO 165 (*Inspection Requirements for Electric Distribution and Transmission Facilities*), PG&E had last conducted *patrol* inspections of the incident facilities in March 2018 and July 2020, and *detailed* inspections in February 2014 and March 2019.

PG&E's March 2019 detailed inspection identified that both the transformer and secondary poles (Figures 4 and 6 above) needed replacement.[3] As a result, PG&E created two Priority E tags to replace the poles (EC Notification #116807973 and #116807908). The tags had a required completion date of twelve months or by March 21, 2020. This schedule was set based on PG&E's Electric Distribution Preventative Maintenance Manual (published April 1, 2016), which defined the priority codes and associated time frames for completion as follows:

[3] PG&E Electric Maintenance Patrol/Inspection Daily Log Order #4356-8833 (Date: 3/21/19), Loc. 51 and 52, indicated Pole #100721546 and #100721539 need replacement.

- Priority A – Safety / Emergency Immediate Response

  An emergency is defined as any activity in response to an outage to customer(s) or an unsafe condition requiring immediate response or standby to protect the public.

- Priority B – Urgent Compliance (Due within 3 months)
- Priority E – Compliance (Due 3-12 months)
- Priority F – Compliance (For Regulatory Conditions, the Recommended Repair Date is the due date for the next Inspection (UG = 3 years, OH = 5 years).

In April 2020 (shortly after the tags were due), PG&E conducted a safety reassessment of the poles for the upcoming fire season. PG&E conducted safety reassessment on Tier 2 and 3 EC notifications that could not be completed as scheduled, such as these two Priority E tags to replace the poles. The purpose of the reassessment is to determine whether the identified defect has declined, and/or if a deferral on the repair would be acceptable. Approximately one year later, in March 2021, PG&E conducted another safety reassessment. Both reassessments indicated *no change* in conditions and suggested deferring the replacement in the next 12 months or by March 24, 2022.

SED's review of the patrol inspection records did not identify any equipment defects and/or abnormalities with the facilities that might have attributed to the incident. However, the investigation found that PG&E had failed to timely conduct its July 2020 patrol inspection.

GO 165 requires overhead patrol inspections to be conducted every two years in rural areas. However, this frequency is increased to once per year in Tier 2 and 3 HFTD.[4] Due to this location being in a Tier 2 HFTD, PG&E should have conducted a patrol inspection prior to the end of 2019.[5] Instead, PG&E conducted the subsequent patrol inspection in July 2020, six months after it was due. However, upon further review, SED determined that the six-month delay in the patrol inspection would not have changed the outcome or contributed to the incident.

Although the Blue Oak tree grew into the line (resulting in a phase-to-phase contact that likely sparked the fire), per GO 95 Rule 35, there is no radial clearance requirement for conductors below 750 Volts (Table 1 Case 14 Column D). Rule 35 only requires mitigating actions if such

[4] Refer to General Order 95 Rule 21.2.D for definitions of High Fire Threat District.
[5] General Order 165 Table 1 Note: "For the purpose of implementing the patrol and detailed inspection intervals in Table 1 above, the term "year" is defined as 12 consecutive calendar months starting the first full calendar month after an inspection is performed [March 2018], plus three full calendar months, not to exceed the end of the calendar year [2019] in which the next inspection is due."

a conductor shows *strain* or *abrasion* from vegetation contact. On January 13, 2021, PG&E conducted a visual inspection and noted that the tree showed no strain or abrasion, and determined that the tree met GO 95 Rule 35 requirements. As such, PG&E complied with the Commission's vegetation management requirement at the time.

Table 1 (Continued)

Case No.	Nature of Clearance	Wire or Conductor Concerned						
		A Span Wires (Other than Trolley Span Wires) Overhead Guys and Messengers	B Communication Conductors (Including Open Wire, Cables and Service Drops), Supply Service Drops of 0 - 750 Volts	C Trolley Contact, Feeder and Span Wires, 0 - 5,000 Volts	D Supply Conductors of 0 - 750 Volts and Supply Cables Treated as in Rule 57.8	E Supply Conductors and Supply Cables, 750 - 22,500 Volts	F Supply Conductors and Supply Cables, 22.5 - 300 kV	G Supply Conductors and Supply Cables, 300 - 550 kV (mm)
10	Radial centerline clearance of conductor or cable (unattached) from non-climbable street lighting or traffic signal poles or standards, including mastarms, brackets and lighting fixtures, and from antennas that are not part of the overhead line system.	-	1 Foot (u) (rr) (ss)	15 inches (bb) (cc)	3 Feet (oo)	6 Feet (pp)	10 Feet (qq)	10 Feet (ll)
11	Water areas not suitable for sailboating (tt) (uu) (ww) (xx)	15 Feet	15 Feet	-	15 Feet	17 Feet	25 Feet	25 Feet (kk)
12	Water areas suitable for sailboating, surface area of: (tt) (vv) (ww) (xx) (A) Less than 20 acres (B) 20 to 200 acres (C) Over 200 to 2,000 acres (D) Over 2,000 acres	 18 Feet 26 Feet 32 Feet 38 Feet	 18 Feet 26 Feet 32 Feet 38 Feet	 - - -	 18 Feet 26 Feet 32 Feet 38 Feet	 20 Feet 28 Feet 34 Feet 40 Feet	 27 Feet 35 Feet 41 Feet 47 Feet	 27 Feet (kk) 35 Feet (kk) 41 Feet (kk) 47 Feet (kk)
13	Radial clearance of bare line conductors from tree branches or foliage (aaa) (ddd)	-	-	18 inches (bbb)	-	18 inches (bbb)	1/4 pin spacing shown in table 2, Case 15 (bbb) (ccc)	1/2 pin spacing shown in table 2, Case 15
14	Radial clearance of bare line conductors from vegetation in the Fire-Threat District (aaa) (ddd) (hhh)(jjj)			18 inches (bbb)		48 inches (bbb) (iii)	48 inches (fff)	120 inches (ggg)

Figure 7. Table 1 Case 14 Column D of GO 95 prescribes no radial clearance requirement for conductors below 750 Volts.

Further, even if there were a clearance requirement, Exception 2 in Rule 35[6] would have exempted the tree from compliance with such a requirement. PG&E identified the tree for removal due to future impacts but was not able to obtain permission from the customer to do so. Although PG&E did not obtain the customer's written refusal or signed release of liability, (due to the tree being in compliance with vegetation requirements at the time), PG&E did document the customer's refusal in its database.

To prevent future recurrence of tree contact, PG&E replaced the existing 35-foot secondary pole that had a vertical rack configuration with a new 40-foot pole with a horizontal configuration. The new pole will provide greater ground clearance and the horizontal configuration will minimize the risk of future phase-to-phase contacts due to greater separation

[6] **Exception 2:** Rule 35 requirements do not apply where the utility has made a "good faith" effort to obtain permission to trim or remove vegetation but permission was refused or unobtainable. A "good faith" effort shall consist of current documentation of a minimum of an attempted personal contact and a written communication, including documentation of mailing or delivery. However, this does not preclude other action or actions from demonstrating "good faith".

between the phases. PG&E also removed the Blue Oak Tree on July 19, 2021 and verified the work on July 20, 2021.

SED's investigation determined that a 35-foot Blue Oak tree (previously identified for removal) grew into PG&E's 240-volt secondary conductors at mid-span, causing a phase-to-phase contact that resulted in arc sparks that likely ignited the Slope Fire. Although the conductor did not fail and fall, it did exhibit damage consistent with wire-to-wire contact (middle phase was splattered and pitted with one or two broken strands). PG&E identified the tree for removal on June 11, 2020, due to potential impacts from future growth.

Based on the evidence reviewed and examined, SED's investigation did not find PG&E in violation of any GO or PRC provisions. PG&E reported the incident promptly after becoming aware that it met the reportable criteria of significant media coverage. PG&E became aware the incident was reportable on June 1, 2021, at approximately 16:05 hours, and reported it at approximately 17:36 hours on the same day.

PG&E conducted patrol and detailed inspections of the incident facilities per the cycles required in GO 165. These inspections did not identify any equipment defects and/or abnormalities with the facilities that might have attributed to the incident. Although PG&E failed to conduct its July 2020 patrol inspection on time, it does not appear that the six-month delay in the patrol inspection would have changed the outcome or contributed to the incident. Therefore, SED has determined that PG&E's failure to comply with the GO 165 timing requirement for patrol inspections is not substantive in this instance.

Preliminary Statement of Pertinent General Order, Public Utilities Code Requirements, and/or Federal Requirements:

	Requirement	*Rule*	*Violation*
1	Decision 06-04-055	Resolution E-4184 Appendix B	No
2	GO 165	Table 1. Distribution Inspection Cycles	Yes[7]
3	GO 95	Rule 35	No
4	PRC	Section 4293[8]	No

Conclusion:

[7] SED's investigation identified that PG&E conducted its July 2020 patrol inspection late. However, this late inspection would not have changed the outcome or contributed to the incident.
[8] Clearance requirement is the same as GO 95 Rule 35 for 240 Volts.

Even though the Blue Oak tree grew into the line resulting in a phase-to-phase contact that likely sparked the fire, PG&E did not violate GO 95 because Rule 35 has no radial clearance requirement for conductors below 750 volts (Table 1 Case 14 Column D). Even if there were an applicable clearance requirement, Rule 35 Exception 2 would have exempted the tree from such a requirement due to the customer's refusal to allow removal of the tree. Similarly, PRC Section 4293 has no clearance requirement for 240-volt circuits. Accordingly, SED found no violation of PRC Section 4293 requirements. Therefore, for the reasons stated above, SED's investigation found that PG&E was not in violation of any applicable GO or PRC requirements in connection with the Slope Fire.