

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

**Incident Investigation Report**

**Report Date:** May 10, 2019

**Incident Number:** E20171011-02

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

**Date and Time of the Incident:** October 8, 2017, 0051 hours

**Location of the Incident:** 1350 Sulphur Bank Drive  
Clearlake Oaks, CA  
County: Lake

**Fatality / Injury:** None reported

**Property Damage:** \$3 million in PG&E restoration costs

**Utility Facilities Involved:** Redbud 1102, 12 kV Circuit

**Violation:** Yes

**I. Summary**

On October 8, 2017, a PG&E pole that was part of the Redbud 1102 circuit failed and fell to the ground which resulted in arcing of the conductors and started the "Sulphur Fire". The fire ignited at 1350 Sulphur Bank Drive in the city of Clearlake Oaks in Lake County. The Sulphur Fire burned approximately 2207 acres, 134 residential structures, two commercial structures, and 26 buildings.

SED's investigation found that the PG&E pole failed due to the combination of high winds and weakening from woodpecker infestation. The pole and attached fuses fell to the ground and ignited the grass fire.

Based on SED's review, SED found that PG&E violated the Commission's General Order (GO) 95 as listed below:

GO Rule	Violations
GO 95, Rule 19	Evidence disposal
GO 95, Rule 31.1	Records of 2016 CEMA inspection not maintained

#### **A. Rules Violated**

**General Order 95, Rule 19 – Cooperation with Commission Staff; Preservation of Evidence Related to Incidents Applicability of Rules** states in part:

*“Each utility shall provide full cooperation to Commission staff in an investigation into any major accident (as defined in Rule 17) or any reportable incident (as defined in CPUC Resolution E-4184), regardless of pending litigation or other investigations, including those which may be related to a Commission staff investigation. Once the scene of the incident has been made safe and service has been restored, each utility shall provide Commission staff upon request immediate access to:*

*... Any factual or physical evidence under the utility or utility agent's physical control, custody, or possession related to the incident.”*

**General Order 95, Rule 31.1 – Design, Construction and Maintenance** states:

*“Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.*

*For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.*

*A supply or communications company is in compliance with this rule if it designs, constructs, and maintains a facility in accordance with the particulars specified in General Order 95, except that if an intended use or known local conditions require a higher standard than the particulars specified in General Order 95 to enable the furnishing of safe, proper, and adequate service, the company shall follow the higher standard.*

*For all particulars not specified in General Order 95, a supply or communications company is in compliance with this rule if it designs, constructs and maintains a facility in accordance with accepted good practice for the intended use and known local conditions.”*

## **B. Witnesses**

<b>No.</b>	<b>Name</b>	<b>Title</b>
1	Ivan Garcia	CPUC Lead Investigator
2	Brandon Vazquez	CPUC Investigator
3	Charles Filmer	PG&E, CPUC Reporting
4	[REDACTED]	PG&E, Troubleman Humboldt South Restoration
5	Joseph Baldwin	CAL FIRE Battalion Chief, Sonoma-Lake-Napa Unit

## **C. Evidence:**

<b>No.</b>	<b>Source</b>	<b>Description</b>
1	PG&E	Initial Online Incident Report 10/10/17
2	PG&E	20-day Incident Report, 11/6/17
3	CPUC	Data Request #1, 11/21/17
4	PG&E	Data Request Response #1, 12/29/17 through 6/29/18
5	CPUC	Field visit, 11/1/17
6	CPUC	PG&E Evidence Inspection, 6/11/18
7	CPUC	Data Request #2, 7/19/18
8	CPUC	Data Request Response #2, 8/3/18 through 9/21/18
9	CPUC	Data Request #3, 8/16/18
10	PG&E	Data Request Response #3, 8/31/18 through 9/21/18
11	CALFIRE	Investigation Report and Attachments, 17CALNU010055
12	PG&E	Data Request Response #3, 8/31/18 through 9/21/18
13	CPUC	CAL FIRE Evidence Viewing Photos, 7/6/18
14	CPUC	Data Request #4, 10/19/18
15	PG&E	Data Request Response #4, 11/15/18 through 12/14/18
16	CPUC	Data Request #5, 1/3/19
17	PG&E	Data Request Response #5, 1/25/19 through 2/6/19
18	CPUC	Data Request #6, 2/8/19
19	PG&E	Data Request Response #6, 2/15/19 through 3/15/19
20	CPUC	Data Request #7, 2/25/19
21	PG&E	Data Request #7 Response, 3/18/19

## **II. Background**

On January 17, 2014, Governor Edmund G. Brown Jr. proclaimed a State of Emergency and directed state officials to take actions to mitigate conditions that could result from the drought and cause a fire. On February 18, 2014, in response to the proclamation, SED issued a letter to PG&E directing PG&E to take all practicable measures to reduce the likelihood of fires caused by utility facilities, including, increasing inspections, taking corrective actions and modifying protective schemes. On June 12, 2014, the California Public Utilities Commission (CPUC) issued Resolution ESRB-4 directing all Investor Owned Electric Utilities (IOU) to take remedial measures to reduce the likelihood of fires started by or threatening utility facilities. On October 30, 2015, Governor Edmund G. Brown Jr. declared a Tree Mortality State of Emergency due to tree mortality caused by the state's prolonged drought and bark beetle infestations.

On October 8, 2017 at approximately 2359 hours, a top section of a PG&E pole (Fused Cutout Pole 1447) of PG&E's Redbud 1102 12 kV circuit located near Pomo Road and Sulphur Bank Road broke off near the communication level of the pole and fell to the ground. This section of the pole also contained three non-exempt fuses, of which two of them failed. The failure of the two fuses caused the dry grass at the base of the pole to ignite, which led to the Sulphur Fire.

Weather station Konocti, located approximately 7.5 miles south of the origin of the Sulphur Fire, recorded wind gusts of up to 40 miles per hour (mph) on October 8, 2017 between 2300 and 0000 hours the next day.





**Figure 1.** Fire origin/incident location (39.127, -122.785) near 1350 Sulphur Bank Drive, Clearlake Oaks (Source: CAL FIRE)

### III. SED Review and Analysis

#### A. PG&E's Distribution Facilities Inspection Program

##### i. Overhead Patrols and Detailed Inspections

Rural areas are defined by GO 165 as “those areas with a population of less than 1,000 persons per square mile.” GO 165 requires biennial patrol inspections and detailed inspections at five-year intervals for rural areas. The Sulphur Fire incident location is defined as a rural area.

GO 165 defines a patrol inspection as a “simple visual inspection” meant to identify “obvious” structural problems and hazards (e.g., leaning poles, loose crossarms, etc.) and may be carried out during other company business. For the incident area, SED reviewed PG&E's 2016 and 2017 distribution patrol inspection documentation. No conditions or issues were documented during PG&E's patrol inspections for November 7, 2016<sup>1</sup> and February 28, 2017<sup>2</sup>.

<sup>1</sup> Bates PGE-CPUC\_00009819

<sup>2</sup> Bates PGE-CPUC\_00009821

GO 165 defines a detailed inspection as one where facilities are “carefully examined” to gather and record conditions of overhead facilities. A detailed inspection is meant to identify “obvious” structural problems and hazards, in addition to issues such as loose hardware, transformer oil leaks, contaminated insulators, etc. SED reviewed PG&E’s 2008 and 2013 detailed inspection records for the incident area. PG&E did not find any abnormal conditions in the incident area during their inspections on October 17, 2008<sup>3</sup> and October 3, 2013<sup>4</sup>.

## **ii. Intrusive Pole Inspection**

GO 165 defines an intrusive inspection “as one involving movement of soil, taking samples for analysis, and/or using more sophisticated diagnostic tools beyond visual inspections or instrument reading.” GO 165 requires intrusive inspections at 10-year intervals if the pole is over 15 years old. Once a pole passes its first intrusive inspection, the interval may increase to an intrusive inspection every 20 years.

SED reviewed PG&E intrusive inspections for the subject failed pole that were performed in September 2000 and April 2013. The pole was a Douglas Fir tree class 4, 45-foot pole manufactured and installed in 1956. The first intrusive inspection was conducted on September 11, 2000<sup>5</sup>. The pole passed the intrusive inspection and had a circumference of 38 inches.

Per GO 165, the next intrusive inspection of the subject pole would be due in 2020. However, PG&E decided to perform the second intrusive inspection of the subject pole on April 8, 2013.<sup>6</sup> The intrusive inspection states that it passed the inspection but the inspector included comments stating that he had found “Shell Rot / Decay, Insect or Animal Damage, Excessive Checking or Cracked” along the pole. SED found these comments too general to identify the exact issue with the pole. Nevertheless, the PG&E inspector marked the pole as having passed the intrusive inspection with a finding of no reduction in shell thickness but a circumference reduction to 36 inches.

SED reviewed the applicable PG&E Utility Procedure, TD-2325P-01, Wood Poles – Testing, Reinforcing, and Reusing. The procedure includes Appendix 6, ANSI Pole Dimension Criteria for Douglas Fire Poles and their minimum circumference allowed at 6 feet from the butt of the pole. For a similar class 4, 45-foot pole the minimum circumference allowable is 35 inches.

SED concluded that based on the April 8, 2013 intrusive inspection results, the circumference of 36 inches was adequate and therefore the pole did not require replacement or reinforcement at that time.

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<sup>3</sup> Bates PGE-CPUC\_00009765

<sup>4</sup> Bates PGE-CPUC\_00009814

<sup>5</sup> Bates PGE-CPUC\_00006368, PGE-CPUC\_00006369

<sup>6</sup> Bates PGE-CPUC\_00006368

### **iii. Pole Loading Calculations**

SED reviewed pole loading calculations for the subject pole and a newly installed pole to the west. The calculations were completed using the O-Calcul® Pro software program.

Based on the calculations and the requirements of GO 95, the subject pole was designed as Grade “B” Construction and located in a light loading district. Per GO 95, Rule 44.1, Installation and Reconstruction, Table 4, the minimum bending factor of safety for a wood pole with Grade “B” Construction in a light loading district is 3.00. For the subject pole (Class 4, 45-foot), a calculation was completed that computed the minimum bending factor of safety at 8.14<sup>7</sup>. Based on this calculation, SED found that the pole was adequate; however, the calculation did not take into account the defects caused by animal intrusion at points above the ground level. SED could not determine the safety factor at the height of the woodpecker cavity.

The newly installed pole to the west was designed as a Grade “A” Construction located in the light loading district. Per GO 95, Rule 44.1, Installation and Reconstruction, Table 4, the minimum bending factor of safety for a wood pole with Grade “A” Construction in a light loading district is 4.00. Based on PG&E’s calculations, this new pole (Class 3, 50-foot) has a calculated minimum bending factor of safety at 8.70<sup>8</sup>. The calculated 8.70 bending factor of safety exceeds the minimum requirement.

### **B. PG&E’s Vegetation Management Program**

SED did not observe any overhead vegetation that impacted the circuit at the Sulphur incident site, but SED reviewed PG&E’s Vegetation Management (VM) records and maps for completeness.

In a data response<sup>9</sup>, PG&E states, “In addition to the enhanced ground patrols documented in these hard copy inspection maps, PG&E’s Project Management Database (PMD) indicates that the following drought response patrols were also completed on the subject circuits in the last five years. After reasonable search of its records, PG&E is unable to locate the maps for these patrols. As such, PG&E cannot definitively determine whether the precise incident locations were included in these patrols.”

PG&E identified a 2016 Catastrophic Event Memorandum Account (CEMA) patrol for the Sulphur incident location as missing. CEMA is an account used to recover the costs associated with the restoration of service and facilities affected by catastrophic events that have been declared disasters or states of emergency by federal or state authorities. PG&E will file an application to recover the CEMA balance through rates. The amount

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<sup>7</sup> Bates PGE-CPUC\_00012110 to PGE-CPUC\_00012113

<sup>8</sup> Bates PGE-CPUC\_00012151 to PGE-CPUC\_00012153

<sup>9</sup> Bates PGE-CPUC\_DR-112117\_Common\_Q10\_part3

to be recovered are the reasonable costs incurred, which are determined after CPUC review and audit of the recorded CEMA balance. The enhanced Vegetation Management inspections fall under CEMA.

SED found PG&E in violation of GO 95, Rule 31.1 for failing to maintain records related to its 2016 CEMA patrol inspection in accordance with PG&E's best practices. This violation did not directly cause the subject fire, but it is nevertheless a violation of the Commission's GO and impeded SED's ability to review and assess PG&E's 2016 CEMA patrol inspection.

### **C. PG&E's Infrastructure**

SED assessed compliance with GO 95 construction standards and GO 95, Rule 31.1 during their review of PG&E's physical infrastructure.

The subject conductors were size 4 AR (Aluminum Conductor, Steel Reinforced) and were part of PG&E's Redbud 1102, 12 kV circuit. The subject conductors spanned approximately 100 feet between poles and were installed in 1966.

On November 1, 2017 at 1000 hours, SED conducted a field investigation with PG&E Liaisons, Charles Filmer and [REDACTED] at PG&E's Clearlake Service Center on 14730 Olympic Drive in Clearlake. [REDACTED] was one of the first PG&E responders at the incident site. He stated that he was called in by CAL FIRE on Monday, October 9, to de-energize lines at the incident site. He and a second PG&E troubleman, [REDACTED] arrived at the site. They de-energized the lines to make the area safer for CAL FIRE employees fighting the fire.

A few days later, [REDACTED] returned to the site and noticed that an approximately 4 to 6-foot section of the Fuse Cutout Pole 1447 had been removed by CAL FIRE. The pole section removed was located just above the communication level and below the first cross arm. In addition, [REDACTED] stated that CAL FIRE took the three fuses, fuse holders, and fuse cutouts and brackets from the first primary cross arm. The jumper wire that went between the two cross arms was also retained by CAL FIRE.

SED observed the pole and equipment that was left by CAL FIRE for PG&E to store for evidence. SED observed the pole and the section of the pole where CAL FIRE removed the 4 to 6-foot pole section. The three fuse cutout brackets and a section of jumper wire that went to the two cross arms were missing from the pole. SED did not observe any burn marks on the pole. SED observed the pole top may have had some type of decay, but could not make a clear assessment. It was later clarified in a PG&E Data Request Response #1 that the top of the pole was not rotten. SED took numerous pictures of the pole and the evidence tags.





**Figure 2.** Fuse Cutout pole at PG&E's Clearlake Service Center

██████████ also mentioned that a second pole about 100 feet west from the subject pole was burnt down and not kept by CAL FIRE. He believes that someone from the PG&E Claims Department did not need the pole and disposed of it.

SED asked PG&E in Data Request #3 about the second pole involved in the Sulphur Fire that a PG&E employee allegedly disposed of. PG&E responded by stating that restoration work which included debris removal work was performed by Luchetti Enterprises. The second pole west of the subject Fuse Cutout Pole 1447 was found, burnt at the base and it appeared to have fallen as a result of the fire. The pole was loaded into waste collection bins and brought to a landfill in Clearlake on October 24, 2017. The landfill manager reported that there is no way to locate the second pole. At the time of the incident PG&E did not consider the burnt second pole as potential evidence. PG&E concluded by stating they presently believe that the second pole may have been physical evidence related to the Sulphur Fire<sup>10</sup>.

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<sup>10</sup> Bates PGE-CPUC\_DR-081618\_Sulphur\_Q04

On November 1, 2017, after SED completed their evidence viewing, SED drove about 11 miles to a road near the intersection of Pomo Road and Sulphur Bank Road in Clearlake. There, SED staff observed the new Fuse Cutout Pole 1447 PG&E installed and the new pole, #120143559, that replaced the burnt down second pole. Visually, the poles in the area appeared to be newly installed.

Furthermore, SED reviewed the work orders for replacement of both poles. PG&E work orders #113702903<sup>11</sup> and #113723126<sup>12</sup> were completed on October 13, 2017.



**Figure 3.** New Fuse Cutout Pole 1447 (left) and new second pole to the west #120143559 (right).

██████████ stated that when he first arrived at the incident site, he saw the subject pole top broken and on the ground suspended by the three conductors. The conductors going from the Fuse Cutout Pole 1447 bottom cross arm and the second pole that burnt down were #4 ASCR. The conductors on the top of Fuse Cutout Pole 1447 and part of the main line Redbud 1102, 12 kV circuit were #397 Aluminum (AAC) conductors. The three #4 ASCR conductors were lying on a barbed wire fence and on the dirt road. After de-energizing the circuit, ██████████ cut the #4 ASCR conductors and removed them from the road.

SED found PG&E in violation of GO 95, Rule 19 for disposing of evidence related to a reported incident and Commission investigation. SED did not identify the second pole to the west as the cause of the subject fire, but it is nevertheless a violation of the

<sup>11</sup> Bates PGE-CPUC\_00015786 to PGE-CPUC\_00015790

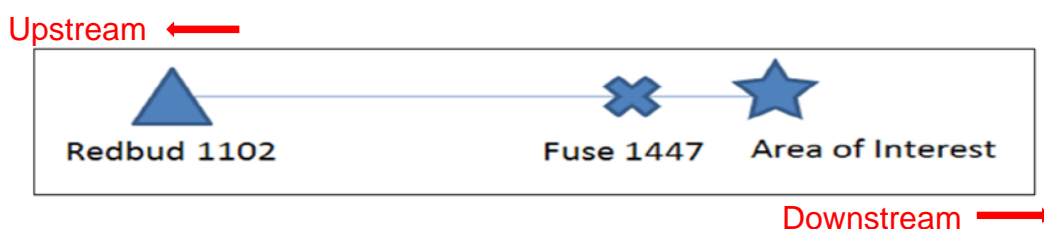
<sup>12</sup> Bates PGE-CPUC\_00015791 to PGE-CPUC\_00015793

Commission's GO and impeded SED's ability to review and assess evidence involved in the incident.

#### D. PG&E's Equipment Operations

SED investigated compliance with GO 95, Rule 31.1 in this respect during their review of PG&E distribution equipment operations and maintenance records.

The Redbud 1102 Circuit Breaker (CB) is the source and protection device for the Redbud 1102 Circuit and is located at the Redbud Substation. Fuse 1447 is essentially at the same location as the area of interest since the fuses were located on the incident pole.



**Figure 4.** Single-line Diagram showing the fuse 1447 and CB 1102 upstream of the area of Interest/incident location. Not drawn to scale. (Source: PG&E)

##### i. Event Timeline

According to PG&E records, on October 9, 2017 at 0051 hours, the Redbud 1102 CB operated and locked out.<sup>13</sup> At 0241 hours, Switch 88137, a switch upstream of the incident location, was manually opened by PG&E and isolated the fire.<sup>14</sup> PG&E then remotely closed the Redbud 1102 Circuit Breaker at 0220 hours via SCADA.<sup>15</sup> These events can be seen on the SCADA load record of the Redbud 1102 Circuit Breaker (Figure 5).

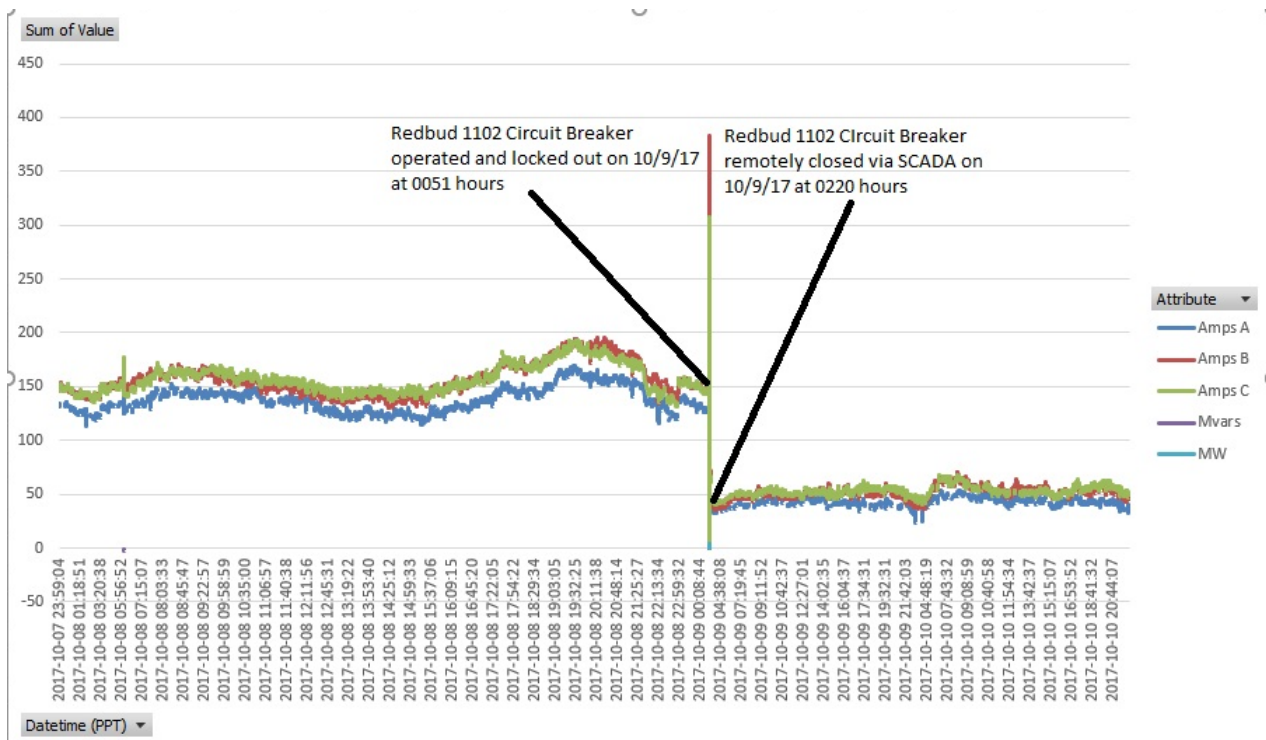
On October 13, 2017, PG&E contractor crews completed the repair work which consisted of replacing the subject pole and the second pole (one pole west of the subject pole).<sup>16</sup> After the poles were replaced, PG&E manually closed Switch 88137 on October 13, 2017 at 2020 hours restoring power to the incident location.

<sup>13</sup> Bates PGE-CPUC\_00015148 to PGE-CPUC\_00015153

<sup>14</sup> Bates PGE-CPUC\_00015148 to PGE-CPUC\_00015153

<sup>15</sup> Bates PGE-CPUC\_00015148 to PGE-CPUC\_00015153

<sup>16</sup> Bates PGE-CPUC\_00015791 and PGE-CPUC\_00015786 to PGE-CPUC\_00015787



**Figure 5.** Plot of the Redbud 1102 Circuit Breaker SCADA load from October 7, 2017 to October 10, 2017.

Based on PG&E's outage reports, smart meter data, and SCADA load data, SED did not identify a violation of GO 95, Rule 31.1.

### **E. Other Field Observations and Review of Physical Evidence**

On July 6, 2018 SED met with CAL FIRE Battalion Chief Joseph Baldwin in Middletown to view the evidence CAL FIRE retained from the Sulphur Fire incident site. Chief Baldwin stated the broken portion (top section) of the Fuse Cutout Pole 1447 was found standing upright from its broken point with burn marks found at the bottom. (Figure 6)





**Figure 6.** The subject pole (Fuse Cutout Pole 1447) found after arrival. (Source: CAL FIRE)

The bottom section of the pole was broken off at approximately 18 inches above the communication cable attachment. There were various woodpecker holes in this broken section of the pole. (Figure 7)



**Figure 7.** Break 18 inches above the communication conductor attachment on Fuse Cutout Pole 1447 with woodpecker holes (Source: CAL FIRE)

The bottom section of the subject failed pole was still standing and had burns at its base. CAL FIRE had cut out an approximately 4 to 6-foot pole section to retain as evidence. One cut was made on the top section, approximately 3 feet from where the break occurred. The other cut on the bottom section was approximately 1 foot from the break.

Chief Baldwin stated that he believes that the force of impact from the broken portion of the pole caused all three fuses to open and arc. SED viewed the three fuse insulators, three fuses and the section of the pole CAL FIRE had cut from Fuse Cutout Pole 1447. All three fuses were opened, and SED observed signs of arcing (greenish coloring) on all three fuse insulators.



**Figure 8.** Signs of arcing on the fuses (Source: CAL FIRE)





**Figure 9.** More signs of arcing (greenish coloring) on the fuses (Source: CAL FIRE)

The fuses that were on these poles were Part 44, Cut-Out 10T fuses and were non-exempt. The non-exempt fuses are subject to vegetation clearances for a 10-foot radius from the outer circumference of the pole.

The section of pole that had been cut by CAL FIRE was covered in woodpecker holes. Chief Baldwin stated that the amount of woodpecker holes severely weakened the pole and contributed to its failure.

During his investigation, he observed that at the top of the broken pole was a dead woodpecker. The top of the pole was hollowed out with an exterior wall thickness of approximately one inch or less around the perimeter and was full of acorns. (Figure 10)

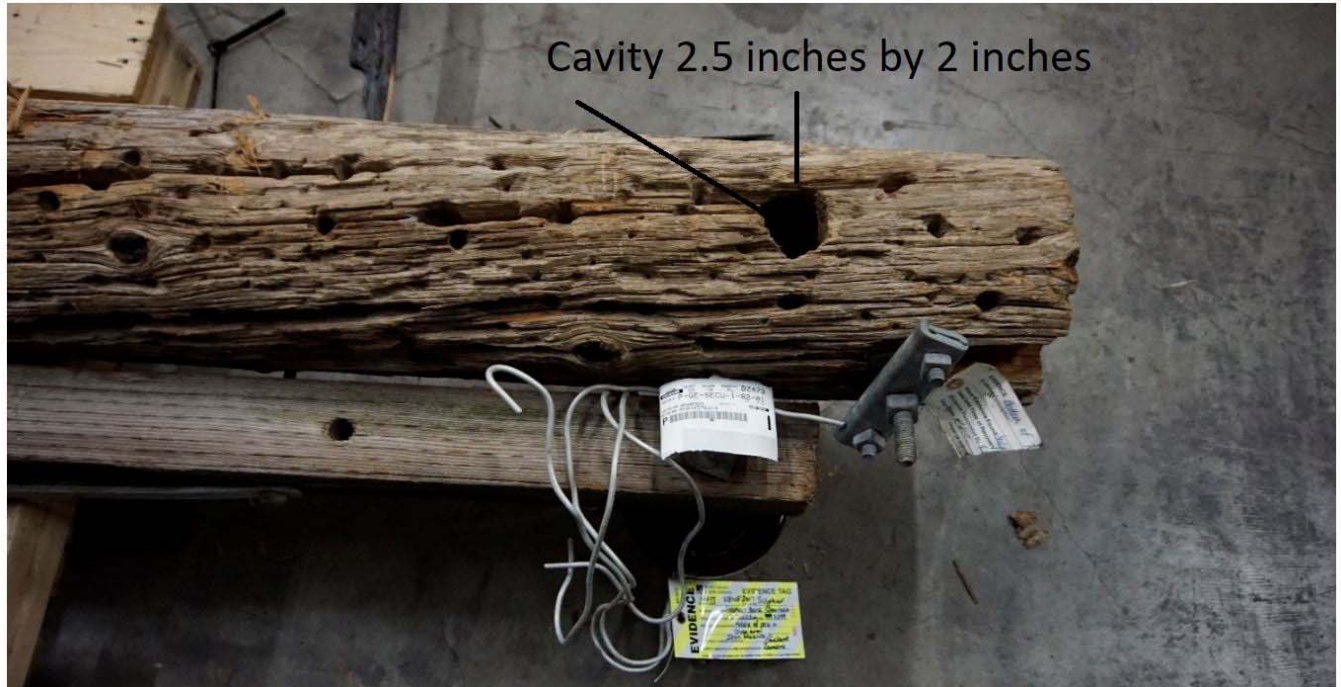


**Figure 10.** Top view of break on Fuse Cutout Pole 1447 full of acorns (Source CAL FIRE)

Chief Baldwin stated that he spoke with CAL FIRE Senior Environmental Scientist-Forest Practice Biologist Anastasi Stanish about the pole in question. Ms. Stanish mentioned that woodpeckers are usually looking for imperfections or soft spots in wood to make nests. The nests found on this pole could have been accomplished over a couple of days, but most likely occurred over the course of weeks or even months.

As a result of Chief Baldwin's discovery of woodpecker holes, SED reviewed PG&E's 2016 Electric Distribution Preventive Maintenance Manual (EDPM) regarding assessment of woodpecker damaged poles. The assessment gives conditions in which a pole may remain in service if it meets certain criteria for cavity size and shell thickness. PG&E did not use the woodpecker assessment guideline because they did not identify an issue with the subject pole being damaged by woodpeckers during inspections. PG&E's last patrol was on February 28, 2017; last detailed inspection was on October 3, 2013; and last intrusive pole inspection was on April 8, 2013. None of these inspections mention anything about woodpecker damage on the subject pole.

PG&E did report in Data Response Request #1 that there was a cavity located in the vicinity of the communication level attachment, approximately 8 inches below the point of failure of the pole still in the ground. The cavity measured approximately 7 inches deep and 5 inches in diameter at the base of the cavity. The entrance to the cavity is approximately 2.5 inches wide and 2 inches tall.



**Figure 11.** Cavity found on incident pole (2.5 inches wide and 2 inches tall)

According to PG&E's EDPM for assessing woodpecker damaged poles, poles are suitable for restoration and can remain in service if they have an outside hole diameter that is less than 4 inches wide. Since the outside hole diameter of the cavity was measured at approximately 2.5 inches, PG&E could allow the pole to be restored and remain in service.

SED reviewed the fact that a patrol was done on the subject pole on February 28, 2017, approximately 7 months prior to the start of the "Sulphur Fire" on October 8, 2017. PG&E's February 28, 2017 patrol found no issues on the subject pole. In addition, CAL FIRE Senior Environmental Scientist-Forest Practice Biologist Anastasi Stanish stated that the nests found on the pole were most likely accomplished over weeks or months, which leads SED staff to conclude that the woodpecker holes and damage to the pole may have occurred at some time between PG&E's patrol on February 28, 2017 and the start date of the fire.

In addition, SED discussed with Chief Baldwin the adjacent west pole that was missing from the scene and viewed as possible evidence. He was aware of the missing pole and believed it was an area of concern and that PG&E did not allow CAL FIRE to review the second pole to the west and retain it as evidence.

A letter addressed from PG&E to SED on February 16, 2018, states in part, "... after CAL FIRE had investigated the Sulphur Fire and collected potentially relevant evidence, including portions of Fuse Cutout Pole 1447, PG&E performed restoration work. Following the restoration work, a contractor hired by PG&E to collect remaining debris encountered a tap pole west of Fuse Cutout Pole 1447 that was burned at the base and was found on the ground. On October 13, 2017, the contractor took the pole to PG&E's



Clearlake service yard where the pole was loaded into waste collection bins. A waste disposal company collected those bins, including the pole, on October 24, 2017, and brought them to the landfill in Clearlake. The landfill manager reported that there is no way to locate poles deposited in October 2017.”<sup>17</sup>

SED asked PG&E about the second pole (the tap pole referenced above) west of the subject pole in a data request. PG&E responded<sup>18</sup> by stating it did not consider the burnt tap pole as potential physical evidence relevant to the reportable electric incident for the Sulphur Fire. PG&E concluded by stating, “PG&E presently believes that the tap pole may have been physical evidence related to the Sulphur Fire.”

SED found PG&E in violation of GO 95, Rule 19 for failing to preserve physical evidence related to a reportable incident and Commission investigation. The violation impeded SED’s ability to review and assess evidence that may have been directly related to the start of the fire.

#### **IV. CAL FIRE Investigation**

CAL FIRE’s investigation report, case number 17CALNU01005, determined that the cause of the Sulphur Fire involved electric facilities. There were no other ignition sources near the Specific Origin Area (SOA) that caused the fire. PG&E Fuse Cutout Pole 1447 was full of acorns and woodpecker nesting cavities. The fuses used at this pole were non-exempt and should have had a firebreak clearance around the pole as required by Title 14 California Code of Regulations §1254 Minimum Clearance Provisions – PRC §4292.

The report concludes, “Based on the facts and information provided above, on the morning of October 9, 2017, at approximately 12:51 AM, the north winds caused the portion of PG&E pole 1447 which was severely weakened by woodpeckers to break. When the pole broke, the top portion containing the three universal fuses fell to the ground. The impact with the ground caused all three fuses to open and two of them to fail. This process caused the dried grass at the base of PG&E pole 1447 to ignite. When the grass ignited, the north wind caused the fire to quickly grow, crossing Pomo Road and Sulphur Bank Road, becoming both wind and topography driven. The resulting fire burned approximately 2207 acres of vegetation and 162 structures.”

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<sup>17</sup> Attachment D - PG&E letter to SED, dated February 16, 2018

<sup>18</sup> PGE-CPUC\_DR-081618\_Sulphur\_Q04

## **V. Conclusion**

Based on the evidence reviewed and CAL FIRE's investigation, SED found PG&E in violation of:

- ... GO 95, Rule 19 by failing to preserve a burnt pole as evidence related to a reportable incident and Commission investigation. PG&E stated in a data request response<sup>19</sup> that the pole may have been physical evidence related to the Sulphur Fire and that a contractor put the pole into waste collection bins on October 13, 2017.
- ... GO 95, Rule 31.1, for failure to maintain VM inspection records related to a 2016 CEMA patrol inspection according to best practices. PG&E could not locate records related to this inspection and informed SED of the lost records on March 30, 2018.

If SED becomes aware of additional information that could modify SED's findings in this Incident Investigation Report, SED may re-open the investigation and may modify this report or take further actions as appropriate.

## **VI. Attachments**

Attachment A – CAL FIRE Investigation Report – Case Number 17CALNU010055

Attachment B – PG&E Sulphur Incident Description and Factual Summary

Attachment C – PG&E Data Request #5 Response, Common Question #1, "Circuit Map of Clark 1102 12-kV"

Attachment D – PG&E Letter to SED, dated February 16, 2018

Attachment E – PG&E Data Request #1 Response, Question 10

Attachment F – PG&E Data Request #3 Response, Sulphur Question 4

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<sup>19</sup> Bates PGE-CPUC\_DR-081618\_Sulphur\_Q04



# **ATTACHMENT A**

## **CAL FIRE Investigation Report Case Number 17CALNU010055**

# ***CAL FIRE***



## **CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION SONOMA-LAKE NAPA UNIT**

1199 Big Tree Rd  
St Helena, CA 94574

# **INVESTIGATION REPORT**

**CASE NUMBER:** 17CALNU010055

**CASE NAME:** Sulphur

**DATE:** 10/09/2017

**INCIDENT TYPE:** Wildland Fire

**INCIDENT INVESTIGATOR:** Joseph BALDWIN, Battalion Chief- LNU

**1 - VIOLATION:****CALIFORNIA HEALTH AND SAFETY CODE § 13001**

Every person is guilty of a misdemeanor who, through careless or negligent action, throws or places any lighted cigarette, cigar, ashes, or other flaming or glowing substance, or any substance or thing which may cause a fire, in any place where it may directly or indirectly start a fire, or who uses or operates a welding torch, tar pot or any other device which may cause a fire, who does not clear the inflammable material surrounding the operation or take such other reasonable precautions necessary to insure against the starting and spreading of fire.

**PUBLIC RESOURCES CODE § 4292**

Except as otherwise provided in Section 4296, any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such pole or tower. This section does not, however, apply to any line which is used exclusively as telephone, telegraph, telephone or telegraph messenger call, fire or alarm line, or other line which is classed as a communication circuit by the Public Utilities Commission. The director or the agency which has primary fire protection responsibility for the protection of such areas may permit exceptions from the requirements of this section which are based upon the specific circumstances involved.

**2 - SUMMARY:**

On Monday, October 9, 2017, at approximately 12:53 AM, CAL FIRE and cooperating agency units responded to a reported vegetation fire near Sulphur Bank Road and Pomo Road near the community of Clearlake Oaks in Lake County. Fire units contained the fire on October 20, 2017. The fire destroyed approximately 2207 acres, 134 residential structures, two commercial structures, and 26 outbuildings. The Sulphur Fire also damaged three outbuildings and five residential structures. The fire originated on the privately owned property north of Sulphur Bank Road and east of Pomo Road in the community of Clearlake Oaks.

During the origin and cause investigation I determined the fire was caused when a PG&E power pole weakened by bird damage, consistent with a woodpecker nesting cavity, broke and caused the top of the pole to fall to the ground. When the pole fell to the ground, it caused arching of the conductors which resulted in molten material being dropped into the fine dead fuels below causing the vegetation to catch fire. The fire burned uncontrolled onto numerous properties not owned or controlled by PG&E.

The fire occurred during a high fire hazard, red flag condition which was declared by the National Weather Service.

**3 - SUBJECTS:**

S-1 Pacific Gas and Electric Company

77 Beale Street, 24<sup>th</sup> Floor

Mail Code B24W

San Francisco, CA 940105

Phone: (415)973-8200

*Owns electrical equipment which failed and caused the fire.*



**4 – VICTIMS, WITNESSES, & OTHERS:****VICTIMS:**

The Sulphur Fire burned approximately 2207 acres within Lake County. The fire destroyed approximately 162 structures. See Attachment # 2 for the initial Sulphur Incident Damage Inspection Report. This summary does not account for all damage to infrastructure, mobile property, miscellaneous property improvements, natural vegetation, livestock, wildlife or other miscellaneous damage.

**WITNESSES:**

W-1 Greg Roath

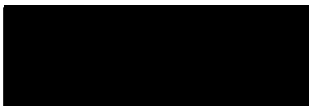
1809 Fairlane Rd

Yreka, CA 96097

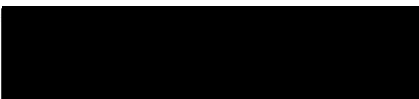
Phone: (530)842-3516

*CAL FIRE Investigator*

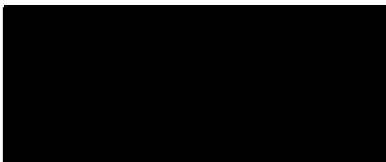
W-2 Mike CIANCIO

Phone: *North Shore Fire Protection District*

W-3 Adrian JOHN

*Witnessed fire in early stage and took video*

W-4 George MURCH

*Lake County Fire Battalion Chief*

1 W-5 Dan TOWERS

2 [REDACTED]  
3 [REDACTED]  
4 Phone: [REDACTED]

5 *Took photographs of fire*  
6

7 W-6 Ron PETERSON

8 [REDACTED]  
9 [REDACTED]  
10 Phone: [REDACTED]

11 *Reported Sulphur Fire and witnessed it in early stages*  
12

13 W-7 Jay BERISTIANOS

14 [REDACTED]  
15 [REDACTED]  
16 Phone: [REDACTED]

17 *North Shore Fire Chief, can testify to not giving any variance to PG&E*  
18

19 W-8 Anastasia STANISH

20 6105 Airport Rd

21 Redding, CA 96002

22 (916)616-8643

23 *CAL FIRE Senior Environmental Scientist- Forest Practice Biologist, can*  
24 *testify to woodpecker behavior*  
25  
26  
27  
28  
29  
30



**5 – EVIDENCE:**

- E-1 Fuse Insulator from southern end of cross arm
- E-2 Fuse Insulator from middle of cross arm
- E-3 Fuse Insulator from northern end of cross arm
- E-4 End of broken pole top 1447
- E-5 End of broken pole bottom 1447
- E-6 Broken pieces of power pole
- E-7 South fuse
- E-8 Middle fuse
- E-9 North fuse
- E-10 Compact Discs containing photographs and video



**6 – PHYSICAL CONDITION OR CONDITIONS:**

The weather was obtained from Konocti Remote Weather Station (RAWS). I obtained the stored data on November 3, 2017. On October 9, 2017, at 1:00 AM, the Konocti RAWS recorded the following weather; the temperature was 60 degrees Fahrenheit, 16% relative humidity, wind speed up to 28 MPH from the northeast. The region was in high fire hazard red flag condition which was declared by the National Weather Service. The recorded conditions on October 8, 2017, from 11:00 PM until midnight includes wind speeds up to 40 miles per hour at the Konotci RAWS. The Konocti RAWS is located approximately seven and one half air miles south of the origin of the Sulphur Fire. The fire originated on flat terrain in annual grasses. It burned in a southerly direction influenced by a north wind. After crossing Sulphur Bank Road to the south, the fire burned 2207 acres of annual grasses and brush, 134 residential structures, two commercial structures, and 26 outbuildings. The Sulphur Fire also threatened the lives of hundreds of civilians, firefighters, and law enforcement. The origin of the fire was located on privately owned property, away from the roadway behind a locked gate.

**7 – EQUIPMENT:**

Pacific Gas & Electric Corporation Redbud 1102 Circuit powerline facilities.

**8 – PROPERTY:**

The Sulphur Incident originated on the following property:

APN: 010-002-370-000

Address: 1350 Sulphur Bank Dr, Clearlake Oaks, CA 95426

Owner: [REDACTED]

Latitude: N 39 00.458

Longitude: W -122 39.486

The fire ultimately burned approximately 2207 acres within Lake County

**9 – NARRATIVE:**

On Monday, October 9, 2017, at approximately 12:53 AM, a wildland fire occurred in the area of Sulphur Bank Road and Pomo Road near the community of Clearlake Oaks in Lake County. Fire units from CAL FIRE and cooperating agencies responded. Fire Units contained the fire on October 20, 2017. The fire burned approximately 2207 acres and damaged or destroyed 162 structures.

I responded to the fire from St. Helena, departing at approximately 2:30 AM to investigate the fire. I arrived at the Incident Command Post (ICP) for the Sulphur Fire located on Sulphur Bank Road at approximately 4:00 AM. I met with North Shore Chief Mike CIANCIO who was the first fire resource to arrive at the fire. I asked CIANCIO if he knew where the fire started. CIANCIO told me he did not know and the fire was at least ten acres and rapidly growing when he arrived at scene. CIANCIO told me he assumed it started on the north side of Sulphur Bank Road near the Elem Colony.

After meeting with CIANCIO, I left the ICP at approximately and drove towards the fire to attempt to locate the origin. When I arrived at the fire's eastern edge on Sulphur Bank Road, I observed the fire had crossed the road and was over the ridge, burning to the southwest. I drove to the intersection of Sulphur Bank Road and Sulphur Bank Mine Road. The fire appeared to be progressing to the southwest. Sulphur Bank Mine Road is where the intersection of Pomo Road is located stemming off of Sulphur Bank Road. The fire was burning laterally toward the Elem Colony to the west at the end of Pomo Road, but had not yet reached the Elem colony. There was fire to the north of Sulphur Bank Road from this location and on two sides of a gated dirt road that extended off of Sulphur Bank Road.

I saw power lines to the east of the dirt road which ran north to south. The power lines appeared to be sagging on the north side of Sulphur Bank Road. I did not drive down the dirt road because of darkness and I did not know if the lines were energized. I



1 wanted to wait for daylight for safety reasons before I returned. I then drove up Sulphur  
2 Bank Road to the intersection of North Drive. I drove to a vantage point where I could  
3 see the rest of the fire. The fire appeared to have burned into the city limits of Clearlake  
4 to the south and over a ridge to the west. I continued on Sulphur Bank Road to the  
5 south and eventually stopped on San Joaquin Ave. The fire had burned to the shore of  
6 Clearlake and I could see dozens of structures on fire.

7  
8 I then received a phone call from CAL FIRE Battalion Chief Mike THOMPSON.  
9 THOMPSON told me he had just arrived in Clearlake and wanted to meet with me. I met  
10 with THOMPSON and CAL FIRE Captain Russell WEST at the Clearlake Police  
11 Department. THOMPSON and I discussed investigative needs for the multiple fires  
12 currently burning in the Sonoma-Lake-Napa unit. After talking with THOMPSON, I  
13 waited for daylight so I could safely investigate the Sulphur Fire.

14  
15 I returned to the area of Sulphur Bank Road and Pomo Road at approximately 8:00 AM  
16 on October 9, 2017. I began to look for macro fire pattern indicators. I drove to the end  
17 of Pomo Road into the Elem Colony looking at macroscale fire pattern indicators. I  
18 observed angle of char, protection, and stem fall. Based on my observations, I  
19 determined the fire progressed laterally toward the Elem Colony. I drove down a dirt  
20 road located off of Pomo Road to the north until I reached a dozer line used to contain  
21 this portion of the fire. I walked the area and observed stem fall and protection fire  
22 pattern indicators. The fire pattern indicators I located were from fire moving in both a  
23 lateral and backing direction. I then drove back to Sulphur Bank Road and parked near  
24 the power lines east of the intersection of Pomo Road. I walked Sulphur Bank Road to  
25 the east looking at fire pattern indicators. I located both advancing and lateral fire  
26 pattern indicators in the form of angle of char in the trees and protection behind rocks  
27 and other debris. These fire pattern indicators showed the fire originated on the north  
28 side of Sulphur Bank Road.



1 When I returned to my vehicle there were several utility company vehicles parked near  
2 the power and utility lines. One was a white PG&E pick-up. I asked if the power lines on  
3 the pole were energized. One of the men wearing a blue shirt told me they were not.  
4 After speaking to the individuals, I walked north along dirt road, crossing back and forth  
5 in a serpentine pattern, following fire pattern indicators. I came to an area in the road  
6 where there were three conductors on the ground which had been cut and pulled off of  
7 the road (ROATH Photograph IMG\_0005, Attachment 10). I later learned the  
8 conductors had been cut and removed from the road by PG&E (Attachment 24). All of  
9 the fire spread indicators I had seen from the south to this point were either advancing  
10 or lateral. When I reached the area to the north of the conductors on the ground, I  
11 located the transitional zone where the fire pattern indicators changed from advancing  
12 and lateral to backing. I identified the transitional zone by the increase in grass stem fall.  
13 I then walked back to my vehicle so I could move it closer to the area of the transitional  
14 zone.

15  
16 When I arrived at my vehicle I was contacted by personnel on a fire engine who told me  
17 there was a man at the Elem Colony who had a video of the fire when it started. He  
18 described where he was located so I drove to that location. At approximately 11:30 AM,  
19 I interviewed an adult male who identified himself as Adrian JOHN. JOHN told me the  
20 following in summary: at approximately 1:00 AM the power went out at his house. He  
21 drove down Pomo Road toward Sulphur Bank Road to see what had happened. He saw  
22 the field was on fire and began to take a video of the fire with his cellular phone. JOHN  
23 described the fire to be approximately 100 yards long and four feet wide. JOHN told me  
24 the fire was located on the east side of the fence located adjacent to the dirt road.  
25 JOHN told me the fire was from the area where the top of the power had pole broken off  
26 burning to the south. JOHN told me the fire was closer to the pole with the top broken  
27 off and had not burned to a power pole laying on the ground which was located to the  
28 west of the one with the broken top. JOHN told me the pole laying on the ground was  
29 still standing when he first saw the fire. JOHN told me he went back to his house and





1 watched throughout the night as the fire burned into the hills. JOHN then sent the video  
2 to me via email.

3  
4 After speaking with JOHN, I returned to the dirt road off of Sulphur Bank Road to the  
5 area of the backing fire pattern indicator transitional zone near three downed  
6 conductors. I walked to the north and went through a gate on the east side of the dirt  
7 road. I looked for fire pattern indicators as I worked my way to the south in a serpentine  
8 pattern. I identified several backing indicators until I approached a power pole with black  
9 and yellow number 1447 attached to it. This location is where the three conductors were  
10 previously attached to the lines servicing the Elem Colony which had been cut and were  
11 now on the ground. The top of the pole was broken off above a communication line and  
12 two woodpecker nesting holes. The top portion of the pole had three open fuses  
13 between the conductors running north to south and the conductors running to the west,  
14 servicing the Elem Colony. The top broken portion of the power pole was approximately  
15 30 feet from the fence adjacent to the dirt road (ROATH Photograph IMG\_0006,  
16 Attachment 10). I could see no foot prints in the fragile burned grass leading to the  
17 fuses.

18  
19 I walked to the east of PG&E pole 1447 and to the south to Sulphur Bank Road. From  
20 this location, I searched in a serpentine pattern to the north. I observed lateral and  
21 advancing indicators in the form of protection, staining, sooting and angle of char. I  
22 came to a power pole with a raptor nest in it. The power pole was detached from its  
23 base at ground level. The base of this power pole had received heavy burn damage.  
24 This area contained areas of low intensity burning.

25  
26 I continued working in a serpentine pattern and as I approached PG&E pole 1447 I  
27 identified the area to the north where the transitional zone showed backing fire pattern  
28 indicators. I identified this area as the General Origin Area (GOA). It was approximately  
29 70 feet by 70 feet in size. I walked twice around the GOA in opposing directions looking  
30 at fire pattern indicators and confirmed my previous findings.



1  
2 I returned to my vehicle and retrieved yellow barrier flagging. I flagged two separate  
3 areas with yellow barrier flagging which were approximately 70 feet by 70 feet each.  
4 The first flagged off area was around the power pole with the broken top which I  
5 identified as the GOA (ROATH Photograph IMG\_0008, Attachment 10). The second  
6 area was the power pole detached at ground level containing the raptor nest. I placed  
7 yellow and black flagging at the second area around the pole with the raptor nest  
8 because of the lower intensity burning which appeared to have occurred because I  
9 wanted to protect it for closer examination.

10  
11 After flagging off both areas I began to place pin flags to mark fire pattern indicators. I  
12 started at the northern power pole with the broken top. I walked around the GOA in  
13 opposing directions two more times. I observed fire pattern indicators along the  
14 southern edge of the GOA showing advancing fire. On the northern edge of the GOA I  
15 observed stem fall, protection, and sooting indicators showing the fire backed north  
16 away from broken PG&E pole 1447. The indicators showed the fire moved laterally to  
17 the west toward the fence and Elem colony and to the east through the grass field.  
18 Within the GOA was the base of PG&E pole numbered 1447 and the broken top of the  
19 PG&E pole also numbered 1447 containing the three open fuses. I entered the GOA  
20 from the side with advancing fire pattern indicators. I walked in a serpentine pattern  
21 across the advancing indicators placing red pin flags as I progressed. I was also able to  
22 identify lateral fire pattern indicators which I marked with yellow pin flags. I continued my  
23 serpentine search of indicators until I identified the Specific Origin Area (SOA) which  
24 was approximately eight feet by ten feet in size (ROATH Photograph IMG\_0021,  
25 Attachment 10). Within the SOA was the standing base of PG&E pole 1447 as well as  
26 the broken top portion. The fuel in the SOA contained burned annual grasses.

27  
28 After identifying the SOA near the broken PG&E pole number 1447, I went to the  
29 southern pole with the raptor nest which I had previously placed yellow and black barrier  
30 tape around. I began to place pin flags in the area within the barrier tape working from



1 the southern advancing fire pattern indicators. I was only able to locate advancing  
2 indicators in this location. The fire spread indicators I located were protection and  
3 staining of various rocks. The fire was lower in intensity but did not contain either a GOA  
4 or SOA. There were several small diameter sticks consistent with those located in the  
5 raptor nest scattered on the ground in this area. All of the sticks appeared to have  
6 landed on the ground after the fire passed and had very little fire damage.

7  
8 After examining the area of the power pole with the raptor nest I returned to my vehicle  
9 and drove it closer to the GOA. I received a phone call from CAL FIRE Captain Greg  
10 ROATH informing me he was on his way to assist me.

11  
12 At approximately 1:30 PM on October 9, 2017 CAL FIRE Investigator ROATH arrived at  
13 my location. I asked ROATH to look at both areas with the barrier flagging to evaluate  
14 my findings. ROATH began at PG&E pole 1447 and then worked his way to the north,  
15 well outside of the yellow and black barrier flagging. ROATH told me his findings were  
16 consistent with mine. ROATH then examined the area of the pole with the raptor nest to  
17 the south. He again confirmed the fire appeared to be low intensity advancing within the  
18 barrier tape. We then removed the barrier tape and pin flags from the area of the pole  
19 with the raptor nest and returned to my vehicle. I assigned ROATH to photograph my  
20 GOA and SOA around PG&E pole number 1447 (See Attachments 9 and 10). ROATH  
21 took the photographs and left at approximately 4:00 PM to respond to a different fire  
22 investigation. I instructed ROATH to get the photographs to me when he was able to  
23 along with a Supplemental Investigation Report (LE 71) (Attachment 9).

24  
25 After ROATH left, I searched the SOA near PG&E pole 1447. Within the SOA was the  
26 standing portion of the pole and the broken top of the pole containing the three  
27 fuses (ROATH Photograph IMG\_0021, Attachment 10) . I conducted a serpentine grid  
28 search of the SOA. I divided the SOA into grids with string to ensure I thoroughly  
29 searched for ignition sources. I visually searched with a magnifying glass and carefully  
30 removed overburden burned grass with a hair pick as I progressed. I then swept a





1 magnet over the area I had previously searched visually. I continued past the base of  
2 PG&E pole 1447 searching to the north into the backing indicators. The base of the  
3 broken power pole top was resting on the ground being suspended by the conductor  
4 wires running north to south. The open fuses and insulators were approximately four  
5 feet above the ground (BALDWIN Photograph IMG\_0005, Attachment 11). I observed a  
6 wire fence to the west which appeared could have been contacted by the three downed  
7 conductors (BALDWIN Photograph IMG\_0012, Attachment 11). I found no evidence of  
8 energized conductors contacting the wire fence. The copper wire attaching to the top of  
9 the fuse insulator (Evidence Item #2) in the middle of the cross arm appeared to have  
10 been stressed near its point of attachment. It appeared stressed because the wire was  
11 pulled into a straighter line than the other wires attached to insulators. Additionally, the  
12 connecting bracket at the cross arm appeared bent (BALDWIN IMG\_0021, Attachment  
13 11). The same situation with a bent connecting bracket existed with the fuse insulator at  
14 the northern portion of the cross arm (Evidence Item #3). It appeared the force of the  
15 impact from falling caused the stress on the copper wire and bent the insulator brackets.  
16 I examined the ends of the fuses and their contact points at the insulator and observed  
17 what appeared to be evidence of arcing. It appeared the force of impact caused all three  
18 fuses to open and arch. I examined the top of the broken PG&E pole 1447 with  
19 binoculars. I saw two woodpecker nests near the attached communication line  
20 (BALDWIN Photograph IMG\_0027, Attachment 11). PG&E pole 1447 had no fire  
21 damage on the standing bottom portion in the area where it broke (ROATH Photograph  
22 IMG\_0016, Attachment 10). After examining and photographing my findings, I  
23 maintained security of the GOA until private security arrived.  
24

25 At approximately 8:45 PM on October 9, 2017, Brothers In Law security officer Daniel  
26 BOOTH arrived at my location. I instructed BOOTH not to allow anyone into the area  
27 with yellow and black barrier tape and to document anyone who came into or near the  
28 area. I instructed BOOTH to call me if anyone went into the area surrounded by barrier  
29 tape. I provided BOOTH with a note pad and instructed him to document the names of  
30 anyone who came into the area. I then left the scene.



1 On October 10, 2017 at approximately 8:30 AM, while returning to the GOA, I met  
2 CIANCIO at the intersection of Sulphur Bank Road and Sulphur Bank Mine Road.  
3 CIANCIO told me the following in summary: He responded to the Sulphur Fire from  
4 another call, which delayed his response. The other call was for power lines down near  
5 the intersection of Highway 20 and High Valley Road in the community of Clearlake  
6 Oaks in Lake County. He was the first fire resource to arrive at the Sulphur Fire. He  
7 estimated the fire to be greater than ten acres, and it was on both sides of Sulphur Bank  
8 Road when he first saw it. He said he did not see where the fire started. He met with  
9 Lake County Fire Protection District Battalion Chief George MURCH shortly after  
10 arriving at the fire who responded from the opposite direction. MURCH told him the fire  
11 was at least 50 to 75 acres.

12 I asked CIANCIO if he could send personnel to my location later with a ladder and a  
13 chain saw.  
14

15 After interviewing CIANCIO, I returned to the GOA and relieved BOOTH. BOOTH told  
16 me nobody came in the area all night. He did not document anything in the notebook I  
17 provided him because there was no breach of the GOA. I released BOOTH and told him  
18 I would advise the security company if there was an additional need for officers.  
19

20 After releasing BOOTH, I began to collect evidence. I removed the fuse insulators and  
21 fuses from the cross arms and marked them with the appropriate item numbers. At  
22 approximately 9:30 AM on October 10, 2017, the ladder and saw arrived at my location.  
23 I placed the ladder against PG&E pole 1447. I climbed the pole to examine the broken  
24 top. The top of the pole was hollowed out by what appeared to be a woodpecker and  
25 was full of acorns (BALDWIN Photograph IMG\_0039, Attachment 11). The exterior wall  
26 thickness of the pole was approximately an inch or less around the entire perimeter. I  
27 photographed the broken power pole top. I then instructed CAL FIRE Firefighter Jack  
28 STERN to climb the ladder and remove the top of the pole above the communication  
29 line with a chainsaw (BALDWIN Photograph IMG\_0040). STERN began to cut the top of  
30 the pole. The pole fell into pieces because of being in a weakened state from the



1 woodpecker damage. I marked the top of the pole as Evidence Item E- 5. STERN then  
2 removed the bottom portion of the of PG&E pole 1447 which previously contained the  
3 fuses. I marked this as Evidence Item E-4. I located two aluminum tags attached to pole  
4 1447 which appeared to be inspection markers. One inspection tag was dated 2000  
5 (BALDWIN Photograph IMG\_0042, Attachment 11) and the other was dated 2013  
6 (BALDWIN Photograph IMG\_0043, Attachment 11). I finished collecting evidence and  
7 left the scene. I locked all of the evidence in the prisoner compartment of my vehicle  
8 until I could store it in the evidence locker in Middletown in Lake County on October 11,  
9 2017.

10  
11 On Wednesday, October 11, 2017, PG&E reported to the California Public Utilities  
12 Commission (CPUC) an event occurring on the Redbud 1102 Circuit. PG&E reported  
13 the top portion of Cutout Pole 1447 had broken off and fallen to the ground with an  
14 additional pole one span to the west burning and falling to the ground (Attachment 14).

15  
16 On October 13, 2017, at approximately 12:00 PM I interviewed MURCH. MURCH told  
17 me the following in summary: He responded to the Sulphur Fire from his home. His  
18 response was delayed. When he approached the fire, he got to the ridge on Sulphur  
19 Bank Drive and heard CIANCIO give a report on condition over the radio. He heard  
20 CIANCIO report the fire was larger than 10 acres. From his vantage point he estimated  
21 the fire to be between 50 and 75 acres. As he traveled to the fire, he noticed the fire  
22 was across Sulphur Bank Road and east of Pomo Road, but had not crossed Pomo  
23 Road yet. He did not know where the fire started.

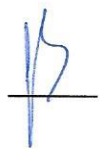
24  
25 On October 13, 2017, at approximately 1:00 PM I interviewed Dan TOWERS. TOWERS  
26 is a resident of Clearlake Oaks and witnessed the Sulphur fire when it was small in size,  
27 shortly after it started. TOWERS told me the following in summary: He saw two fires  
28 from the south facing deck of his home located at [REDACTED]  
29 Oaks. When he first saw the fire, he estimated one was larger than a bus and the other  
30 was smaller than a car. The larger fire was the one located farthest to the north. He



1 estimated the time he first saw the fires to be approximately 12:55 AM on October 9,  
2 2017. He called 911 and reported the fires. After calling 911 he began to take  
3 photographs of the fires with his cellular phone. He took photographs from  
4 approximately 1:04 AM until approximately 2:30 AM as the fire progressed into the hills.  
5 He provided the pictures to Lake County Fire Protection District Firefighter Eric  
6 VINYARD who later emailed them to me (Attachment 12). On November 9, 2017, I went  
7 to TOWERS home located on Lakeview Drive in Clearlake Oaks. I met with TOWERS  
8 and he showed me the location he took the pictures from, and he described and pointed  
9 out the location of the fires when he first saw them. The location TOWERS described  
10 the fires to be was in the same location I identified as the GOA. Based on the pictures  
11 provided to me by TOWERS' and his description of size along with the fact it was  
12 located downwind of the larger fire, it appeared the smaller fire to the south of the larger  
13 fire was a spot fire.

14  
15 On November 9, 2017 at approximately 3:37 PM I interviewed Ron PETERSON via  
16 telephone. PETERSON reported the Sulphur Fire in its early stages. PETERSON's  
17 phone number was listed on a Lake County Computer Aided Dispatch (CAD) Incident  
18 Report I obtained from North Shore Fire Protection District for the Sulphur Fire.  
19 PETERSON's phone number was in the box on the CAD Incident Report labeled "Caller  
20 Phone". PETERSON told me the following in summary: He was at his home located at  
21 [REDACTED] in Clearlake Oaks and the power went out. He got up to light some  
22 candles. He then went outside and saw the fires and called 911. There was one large  
23 fire and a smaller one a little farther away. The large fire was about 100 yards long  
24 when he first saw it. They were located next to the dirt road that comes off of Sulphur  
25 Bank Road. A couple days later he saw the power pole being replaced in exactly the  
26 same spot he saw the fires when he called 911.

27  
28 In December, 2017, I started receiving PG&E maintenance and inspection records from  
29 CAL FIRE Assistant Chief Shawn ZIMMERMAKER. In reviewing these records, PG&E  
30 identified a pole with excessive bird damage in the top requiring further inspection



Equipment ID 10214746 (Attachment 18). The inspection date for this pole was April 8, 2013. PG&E pole 1447's most recent inspection tag was dated 2013 (BALDWIN Photograph IMG\_0043, Attachment 11). I was unable to determine the pole location referenced in the inspection for Equipment ID 10214746 because the GPS coordinates were incorrect and the report did not include a pole number. I determined the GPS coordinates were incorrect by having the St Helena Emergency Command Center (ECC) enter them in their map as I observed. The location was near PG&E pole 1447, but there were no power poles at the exact coordinates provided with the PG&E inspection records (Attachment 22). I requested clarifying information for this record from PG&E through ZIMMERMAKER. On May 25, 2018, I received an email from ZIMMERMAKER with a letter (ATTACHMENT 25) attached clarifying this information. PG&E's Pole 1447 equipment ID Number is 102215609. The inspection report for PG&E Pole 1447 dated April 8, 2013 indicated shell rot, insect or animal damage, and excessive checking and cracking with 100% wood strength. The most recent inspection indicated on the report provided by PG&E occurred on April 8, 2013. The Pole Report Detail PG&E provided also indicates PG&E Pole 1447 was manufactured and installed in 1956. Information received from PG&E by ZIMMERMAKER is on a USB drive located in the CAL FIRE evidence locker located in Santa Rosa, CA (See Attachment 23).

On Friday, February 16, 2018, PG&E wrote a letter to CPUC informing them they had thrown away a "tap pole" (ROATH Photograph IMG\_0004, Attachment 10) located to the west of Fuse Cutout Pole 1447. This appears to be the same pole PG&E identified in an area of concern in their October 11, 2017, report to the CPUC. General Order 95 rule 19 which states, in part, "*Any and all documents or evidence collected as part of the utility's own investigation related to the incident shall be preserved for at least five years*". (Attachment 15)

On Thursday, March 8, 2018, I met with James NOLT. NOLT is an electrical engineer and owns J H Nolt and Associates. I had NOLT look at Redbud 1102 circuit Supervisory Control and Data Acquisition (SCADA) data provided to me by PG&E (Attachment 16).





1 NOLT told me the data indicated a power outage occurred on October 9, 2017, at  
2 12:51:46 AM.

3  
4 On Thursday, March 8, 2018 I spoke with CAL FIRE Senior Environmental Scientist-  
5 Forest Practice Biologist, Anastasia STANISH. I asked STANISH if she knew how long  
6 it would take a woodpecker to bore a hole in a power pole for a nest. I also provided  
7 STANISH with a picture of the pole in question. STANISH told me in summary  
8 woodpeckers are usually looking for imperfections or soft spots in wood to make nests.  
9 This could have been accomplished over a couple days, but most likely over the course  
10 of weeks or even months.

11  
12 On Wednesday, April 4, 2018, I evaluated the three fuses I collected as evidence (E-7,  
13 E-8, E-9) with an ohm meter for conductivity. Two of the fuses appeared to have failed,  
14 and there was no resistance when tested with the ohm meter. These two fuses were E-  
15 7 and E-8. When I looked into the end of each of the fuses, E-7 and E-8 were damaged  
16 and E-9 was intact. E-9 showed resistance when tested with the ohm meter. I utilized  
17 my Powerline Equipment Identification Pocket Guide to identify the three fuses as  
18 universal fuses. The pocked guide was prepared by Robert LOGGINS, PG&E VC  
19 Project Manager.

20  
21 On Friday, May 25, 2018, I received the Sulphur Incident Description & Factual  
22 Summary from PG&E (Attachment 24). The document confirms an issue with PG&E  
23 equipment near the SOA I identified on October 9, 2017. PG&E also discloses the  
24 event occurred at 12:51 AM on October 9, 2017. This is approximately two minutes  
25 before the Sulphur Fire was first reported at 12:53:28 AM to Lake County Sheriff's  
26 Office Central Dispatch via 911 (Attachment 2).

**OPINIONS & CONCLUSIONS**

Based on my experience, training as a wildland fire investigator, and the facts documented above, it is my opinion the cause of the Sulphur Fire was electrical. There were no other ignition sources near the SOA which could have caused the fire. For an unknown period of time prior to the fire starting, PG&E pole 1447 was being utilized by woodpeckers to cache acorns and build nesting cavities. PG&E pole 1447 is part of the Redbud 1102 Circuit. Records provided by PG&E indicated the most recent inspection occurred on April 8, 2013. Shell rot, decay, insect or animal damage, and excessive checking or cracking are noted on the report for PG&E Pole 1447 which was installed in 1956.

PG&E pole 1447 also contained a total of three universal fuses which I identified utilizing PG&E's Powerline Equipment Identification Pocket Guide. Universal fuses are nonexempt and subject to Title 14 California Code of Regulations § 1254 Minimum Clearance Provisions – PRC 4292, which states; *The firebreak clearances required by PRC 4292 are applicable within an imaginary cylindroidal space surrounding each pole or tower on which a switch, fuse, transformer or lightning arrester is attached and surrounding each dead end or corner pole unless such pole or tower is exempt from minimum clearance requirements by provisions of 14 CCR 1255 or PRC 4296. The radius of the cylindroid is 3.1 m (10 feet) measured horizontally from the outer circumference of the specified pole or tower with height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid with the ground to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space shall be treated as follows:*

*(a) At ground level -remove flammable materials, including but not limited to, ground litter, duff and dead or desiccated vegetation that will allow fire to spread, and;*





1 (b) From 0-2.4 m (0-8 feet) above ground level -remove flammable trash, debris or other  
2 materials, grass, herbaceous and brush vegetation. All limbs and foliage of living trees  
3 shall be removed up to a height of 2.4 m (8 feet).


4 (c) From 2.4 m (8 feet) to horizontal plane of highest point of conductor attachment -  
5 remove dead, diseased or dying limbs and foliage from living sound trees and any dead,  
6 diseased or dying trees in their entirety. All limbs and foliage of living trees shall be  
7 removed up to a height of 8 feet. The vegetation surrounding the pole had not been  
8 cleared pursuant to PRC 4292 as evidence by the remaining burned grass surrounding  
9 the pole. The fire started in Local Responsibility Area and ultimately burned into the  
10 State Responsibility area which is within 300 yards of PG&E pole 1447. I spoke with  
11 North Shore Fire Protection Chief Jay BERISTIANOS and he told me North Shore Fire  
12 Protection District did not give any exemptions to PG&E regarding clearance  
13 requirements. The SOA for the Sulphur Fire was approximately eight feet by ten feet  
14 and within the SOA were both the bottom and the top of broken PG&E pole 1447.  
15

16 Based on the facts and information provided above, on the morning of October 9, 2017,  
17 at approximately 12:51 AM, the north winds caused the portion of PG&E pole 1447  
18 which was severely weakened by woodpeckers to break. When the pole broke, the top  
19 portion containing the three universal fuses fell to the ground. The impact with the  
20 ground caused all three fuses to open and two of them to fail. This process caused the  
21 dried grass at the base of PG&E pole 1447 to ignite. When the grass ignited, the north  
22 wind caused the fire to quickly grow, crossing Pomo Road and Sulphur Bank Road,  
23 becoming both wind and topography driven. The resulting fire burned approximately  
24 2207 acres of vegetation and 162 structures.

25  
26 \*I reserve the right to amend or augment this opinion if new pertinent information is  
27 provided to me or is discovered by me at a later date.  
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Signature

5/27/15  
Date

Joseph BALDWIN, Badge #2488

Battalion Chief



**10 – ATTACHMENTS:**

- 1 - FC- 34 Interagency Report of Incident Dispatch Actions
- 2 - Lake County Sheriff's Central Dispatch CAD Report
- 3 - Evidence Log
- 4 - Weather Data
- 5 - Lightning Map
- 6 - Parcel Map of Origin
- 7 - Operations Map
- 8 - Progression Map
- 9 - Sketch
- 10 - ROATH LE 71
- 11 - ROATH Photographic Log
- 12 - BALDWIN Photographic Log
- 13 - Dan TOWERS Photographs
- 14 - Additional Photographs
- 15 - CPUC Electrical Safety Incident Report- PG&E Incident No: 171011-8562
- 16 - PG&E Notification to CPUC of Destruction of Evidence
- 17 - PG&E SCADA Report
- 18 - PG&E Inspection Records
- 19 - PG&E GO 165 Pole Inspections
- 20 - PG&E Evidence Collection Log
- 21 - Victim List and Damage Inspection Report
- 22 - Google Earth Image Indicating location of PG&E Pole 1447 in relation to  
GPS Coordinates documenting bird damaged pole
- 23 - ZIMMERMAKER LE 71's
- 24 - PG&E Sulphur Incident Description and Factual Summary
- 25 - PG&E Letter to CAL FIRE Dated 5/25/18

# **ATTACHMENT B**

## **PG&E Sulphur Incident Description and Factual Summary**

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## SULPHUR INCIDENT DESCRIPTION & FACTUAL SUMMARY

For completeness, this incident description and factual summary should be read in conjunction with the contemporaneously submitted response to Question 62.

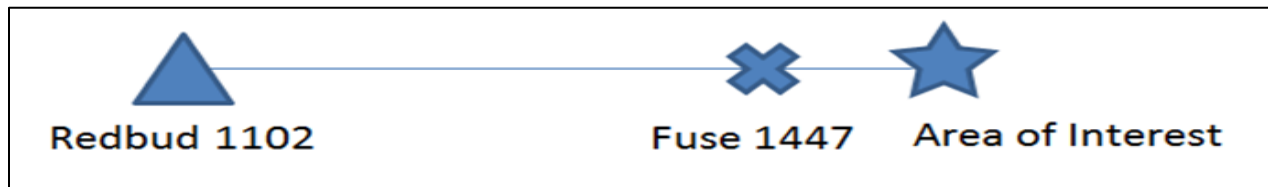
### **Background:**

On October 11, 2017, PG&E filed an Electric Safety Incident Report (Incident No. 171011-8562) concerning an incident that occurred near Pomo Road and Sulphur Bank Road, Clearlake, Lake County (the “incident location” as defined by the CPUC’s December 7, 2017, letter). PG&E identified two poles on the Redbud 1102 (12kV) Circuit at this location that had broken. The top section of Fuse Cutout Pole 1447 had broken and fallen to the ground, and the pole one span to the west had burned at the base and fallen to the ground.

According to CAL FIRE’s website, CAL FIRE has identified the location of the Sulphur fire as off Highway 20 and Sulphur Bank Road, Clearlake Oaks, Lake County.

According to CAL FIRE’s website, the Sulphur incident started at 11:59 PM on October 8, 2017.

### **Incident Overview:**



The Redbud 1102 Circuit Breaker is a protective device for the Redbud Circuit, upstream from the incident location, and is located at the Redbud Substation. Per PG&E records, on October 9, 2017 at 12:51 AM, the Redbud 1102 Circuit Breaker operated and locked out.

PG&E records indicate that at 2:14 AM on October 9, Switch 88137, a switch upstream of the incident location, was manually opened due to fire in the area, isolating the incident location. Per PG&E records, the Redbud 1102 Circuit Breaker then was remotely closed via SCADA at 2:20 AM on October 9, 2017.

Per a troubleman, the troubleman was the first PG&E employee at the incident location on October 9, 2017. According to the troubleman, he arrived at the incident location at approximately 9:00 AM. While at the incident location, the troubleman observed that fire had burned through the area. He also observed that Fuse Cutout Pole 1447 had broken near the communication line attachment. The portion of Fuse Cutout Pole 1447 below the break point was still standing. The portion of Fuse Cutout Pole 1447 above the break point was touching the ground only at the break point. No portion of Fuse Cutout Pole 1447 was lying on the ground.

The troubleman also observed that three out of three conductors of the tap line, load side of Fuse 1447, were lying on the ground and across a dirt access road. All three conductors of the tap line

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remained attached to Fuse Cutout Pole 1447 and the crossarm of the next pole. He observed that there were tire tracks of a dual wheel vehicle crossing the tap line conductors where they lay across the dirt access road. The troubleman cut three of three conductors of the tap line where they crossed the dirt access road and removed them from the road. Three of three conductors of the main line remained attached to Fuse Cutout Pole 1447 and the load and supply side poles adjacent to Fuse Cutout Pole 1447. The main line conductors were not in contact with the ground.

According to PG&E records, crews completed repair work on October 13, 2017, and a PG&E employee manually closed Switch 88137 at 8:20 PM, restoring power to the incident location.

### **Evidence Collection:**

CAL FIRE collected approximately 12 feet of the center section of Fuse Cutout Pole 1447, portions of the wooden crossarm, and fuse cutouts. PG&E does not know whether CAL FIRE collected additional evidence at the incident location.

On October 12, 2017, PG&E collected the remaining portions of Fuse Cutout Pole 1447, the remaining portions of the crossarm, and both ends of the conductors. The conductors were 4AR (Aluminum Conductor, Steel Reinforced) installed in 1966. An examination of the remaining portion of Fuse Cutout Pole 1447 not collected by CAL FIRE revealed no damage that would have warranted replacement. There is a cavity located in the vicinity of the communications level, approximately 8 inches below the section of pole removed by CAL FIRE. The top of Fuse Cutout Pole 1447 was not rotten.

During efforts to restore service in the aftermath of the fire, the pole one span to the west of Fuse 1447 was replaced and not retained. PG&E previously informed the CPUC that a waste disposal company took the pole to a landfill in Clearlake, and the landfill manager reported that there is no way to locate it.

### **Timeline:**

<b><u>Sulphur</u></b>		
<b><u>Event</u></b>	<b><u>CPUC Bates Number Reference</u></b>	<b><u>CAL FIRE Bates Number Reference</u></b>
<u>October 8, 2017, 11:59 PM</u> : CAL FIRE reported start time for the Sulphur fire.		
<u>October 9, 2017, 12:51 AM</u> : Per PG&E records, Redbud 1102 Circuit Breaker operated and locked out.	PGE-CPUC_00015148, at 153; PGE-CPUC_00007908	PGE-CF_00136331; PGE-CF_00000020
<u>October 9, 2017, 2:14 AM</u> : Per PG&E records, Switch 88137 was manually opened.	PGE-CPUC_00015148, at 153	PGE-CF_00136331
<u>October 9, 2017, 2:20 AM</u> : Per PG&E	PGE-CPUC_00015148,	PGE-CF_00136331

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<b><u>Sulphur</u></b>		
<b><u>Event</u></b>	<b><u>CPUC Bates Number Reference</u></b>	<b><u>CAL FIRE Bates Number Reference</u></b>
records, Redbud 1102 Circuit Breaker was remotely closed via SCADA.	at 153; PGE-CPUC_00007908	
<u>October 9, 2017, approximately 09:00 AM:</u> Per a troubleman, the troubleman was the first PG&E employee who arrived at incident location.		
<u>October 13, 2017:</u> Per PG&E records, PG&E contractor crews completed repair work.	PGE-CPUC_00015791; PGE-CPUC_00015786, at 786-787	
<u>October 13, 2017, 8:20 PM:</u> Per PG&E records, Switch 88137 was manually closed, restoring power to the incident location.	PGE-CPUC_00015148, at 154	PGE-CF_00136331

**Source List:**

<b>Source</b>	<b>Brief Description</b>
PGE-CPUC_00017161	Log of Evidence PG&E Collected (amended response)
PGE-CPUC_00012216	Log of Evidence Collected by CAL FIRE (amended response)
PGE-CPUC_00015148	ILIS Outage Report 17-0085343
PGE-CPUC_00015786	Electric Overhead Tag Notification #113702903
PGE-CPUC_00015791	Electric Overhead Tag Notification #113723126
CPUC Website	10/11/2017 Electric Safety Incident Report to the CPUC, <a href="http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171011-8562.pdf">http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/USRB_FW_%20Electric%20Safety%20Incident%20Reported-%20PGE%20Incident%20No_%20%20171011-8562.pdf</a>
Sulphur Electrical Safety Incident Report	11/8/2017 20-Day Electric Incident Report to the CPUC
Response to Question 35	12/29/17 Response to CPUC's October 2017 Wildfire Data Request
Response to Question 36	12/29/17 Response to CPUC's October 2017 Wildfire Data Request
CAL FIRE Website	"Sulphur Fire (Mendocino Lake Complex) Incident Description" <a href="http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1876">http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1876</a> (last updated Feb. 9, 2018).
Response to Sulphur Question 2	02/28/18 PG&E Response to CPUC's October 2017 Wildfire Data Request
Response to Sulphur Question 3	02/28/18 PG&E Response to CPUC's October 2017 Wildfire Data Request
Response to Sulphur Question 5	02/28/18 PG&E Response to CPUC's October 2017 Wildfire Data Request
PGE-CPUC_00001207	Redbud 1102 Single Line Diagram
PGE-CPUC_00007908	SCADA Data Produced to the CPUC

## **Factual Report Guidance:**

PG&E is providing Incident Description and Factual Summaries (the “Reports”) for each incident location, as defined by the CPUC’s December 7, 2017, letter. In addition to Question 62, these Reports provide a complete response to Question 1. These Reports also provide a partial response to Question 54. Documents and attachments responsive to Question 54 are being produced with that response.

PG&E’s review and collection of records are ongoing, and these Reports are based on information that PG&E believes may be relevant to the incident location, as defined by the CPUC’s December 7, 2017, letter, based on information currently known. In preparing these Reports, PG&E has not included data or information that may not be relevant to the incident location, as defined by the CPUC’s December 7, 2017, based on information currently known, for example:

- Transmission-level outages, which because of their wide-spread impact, may have caused an outage at the incident location, unless the source of the outage appears to have been related to the incident location or the transmission-level outage de-energized the incident location; or
- Certain minor alarms sent by protection devices that did not result in a sustained outage at the incident location.

Raw data has, however, been provided in response to other questions.

PG&E has not reviewed potentially relevant information that is in the possession of CAL FIRE or any other entity. The causes of the incidents are still under investigation and it is premature to draw conclusions about whether the “fire locations” or “incident locations” addressed by these Reports are points of origin.

Moreover, PG&E has relied on some publicly available information provided by third parties, such as CAL FIRE. For example, PG&E has relied on the start times designated by CAL FIRE as indicated in PG&E’s response to Question 25, submitted to the CPUC on January 31, 2018, in generating these Reports. PG&E is not presently able to validate this information.

For these reasons, among others, the facts described in the Reports may or may not be relevant to questions of causation or origin with respect to any incidents, and there may also be other facts not in the Reports that are relevant to questions of causation or origin of any incidents.







In addition, please find a list of additional explanations related to particular points.

## **Single Line Diagrams**

For ease of reference, PG&E has included reproductions of the single line diagrams produced in response to Question 28, submitted to the CPUC on December 29, 2017.. Any reference to “area of interest” in the single line diagrams refers to the incident location, as defined by the CPUC’s December 7, 2017, letter. The single line diagrams show the incident location and the location of all protection devices upstream of the incident location back to the distribution circuit breaker at the substation. Smart Meters, switches, and any devices downstream of incident locations are not shown on the single line diagrams, although they may be referenced in the Reports.

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Below please find a legend that explains the symbols used in the diagrams.

LEGEND					
	Circuit Breaker		Fuse		Line Recloser / Sectionalizer
	Distribution Transformer		Auto Transformer		Area of Interest

### First Responders

As indicated above, in response to Question 54, PG&E has included in its Reports an account of the first PG&E employee who attempted to access the incident location before the CPUC's site visit with PG&E to the incident location, as defined by the CPUC's December 7, 2017, letter.

### Repair and/or Restoration Work

PG&E has included information related to when repair and/or restoration work was completed. PG&E has not attempted to include all dates on which repair crews were present at or near incident locations, as defined by the CPUC's December 7, 2017, letter, either in the incident overview or the timeline.

### Timeline

As indicated above, in response to Question 1, PG&E has included a timeline of certain equipment operations and actions of PG&E employees at or near the incident locations, including during the period 12 hours prior to CAL FIRE's designated start time, as indicated in PG&E's response to Question 25, until the date (if known) when CAL FIRE obtained PG&E facilities for evidence, CAL FIRE released the incident scene, or repair and/or restoration work was completed, whichever event came last. PG&E has not included every possible data point during the timeline time period. Rather, as indicated above, the timelines include information that PG&E believes may be relevant to the incident location, as defined by the CPUC's December 7, 2017, letter, based on information currently known. Where records have been produced, PG&E provided the Bates number. Within a single row, some information may be based on records that have been produced, while other information may be based on records or other information that have not been produced.

### Operational Data

PG&E has relied on certain operational data sets (*e.g.*, SCADA, AMI) in preparing these Reports. There may be data discrepancies between different operational data sources. For example, timestamps of a common event across different operational data sources may differ. In these Reports, PG&E has documented to the best of its ability the most accurate occurrence time based on its current understanding.

### *SCADA Data*

SCADA (Supervisory Control And Data Acquisition) data includes alarm and event data remotely collected in real time from data-collection capable devices on PG&E's electric distribution and transmission circuits. Reclosers and circuit breakers are examples of devices that may report SCADA data. Fuses do not have SCADA connectivity and, therefore, do not report SCADA data. SCADA alarms and events memorialize electrical events on a circuit. However, they are associated with the device that collected them and do not include information on the specific cause or precise origin location of the electrical event that they memorialize.

As noted above, PG&E has not included all SCADA events in the Incident Overview or the Timeline. For example, Minimum To Trip ("MTT") alarms have not been included. MTT alarms are generated when a SCADA-enabled device identifies a circuit load that exceeds a maximum threshold load but for less than a certain amount of time. MTT alarms can be frequent and do not include information on the specific cause or origin location of the event that triggered them. A record of all SCADA events and alarms that occurred during the requested time periods has been previously produced in response to Question 25, submitted to the CPUC on January 31, 2018, in the Bates range PGE-CPUC\_00007875-7911.

### *AMI Data*

Smart Meters are electric meters designed to record customer electricity usage, primarily for billing purposes. They can record and transmit electrical data including usage, voltage and event data ("Smart Meter" or "AMI" data). In certain situations, data collected by these meters may be helpful to determine information about outages. For example, a Smart Meter's "last gasp" is an event that may show the time at which a specific Smart Meter lost power. In conjunction with data from other Smart Meters, "last gasp" data might indicate when a certain location on the electric grid lost power or some other secondary problem. A "NIC power down" is a recorded log event when a Smart Meter initiates a shut down. A "zero volt reading" occurs when a meter is partially energized (between 25% and 75%) at the time of a reading. Each of these readings will only occur if the communication from the Smart Meter is successfully received (or subsequently retrieved and downloaded if the Smart Meter is still accessible).

As noted above, PG&E has not included all AMI events in the Incident Overview or the Timeline. For example, sag or swell events have not been included. Smart Meters record these events when they detect a decrease (sag) or increase (swell) in voltage above or below a certain threshold for more than a certain period of time. Sag and swell events do not have specific timestamps; the data indicates only that they occurred during a certain time interval. Sag and swell events may indicate unusual activity; however, they do not indicate the location of that unusual activity. Smart Meter data was not requested in the November 21, 2017, Data Requests and has not been produced in response to those Data Requests.

### Reclosing Device Operations

PG&E is providing certain times at which reclosing devices "operated" (opened or closed), which could include multiple operations depending on the device's settings before the device ultimately stayed closed or stayed open.

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## Outage Records

PG&E has relied on certain information from its Integrated Logging Information System Operations Database (“ILIS”) in preparing these Reports. As explained in response to Question 27, submitted to the CPUC on March 30, 2018, ILIS is PG&E’s system of record for distribution transformer-level and above outages. ILIS is the application used by the distribution system operators to document information pertinent to the operation of the electric system. Due to the nature of how information is documented in the application, there may be discrepancies in outage start times and other information between ILIS and other data sources. For example, ILIS does not record single-customer or service-level outages, in accordance with CPUC Decision 96-09-045 and Advice Letter 3812-E on outage reporting requirements. Data from these ILIS records should be reviewed and considered together and in conjunction with those other data sources.

Outage cause information in ILIS is preliminary and is based on the best available information at the time, from initial field intelligence and through spot check quality reviews.

## Smart Meter Service Point ID Numbers

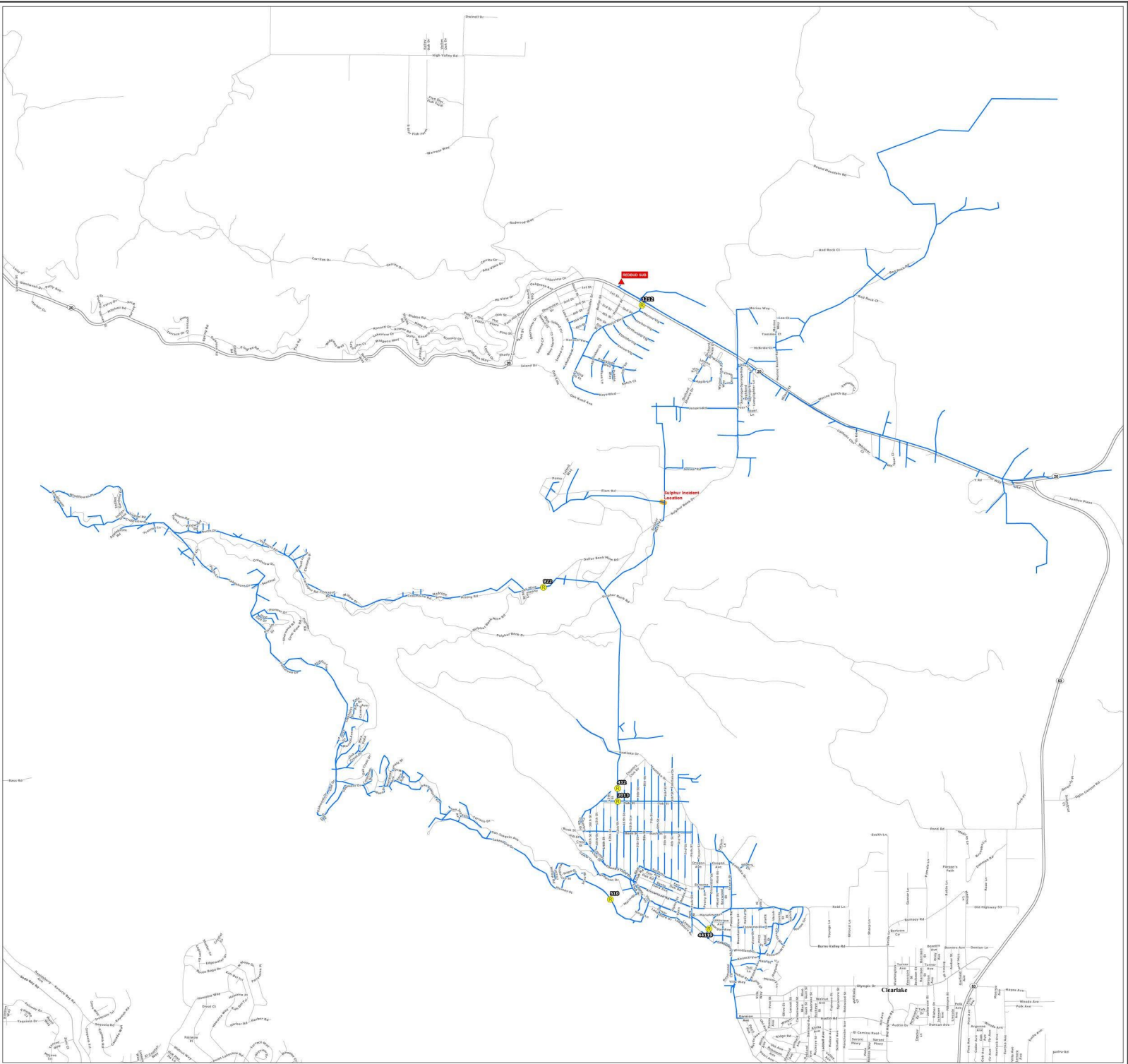
Some PG&E records identify Smart Meters by their associated Service Point ID number (“SP\_ID”), while other records identify Smart Meters by their associated “Badge” numbers. For consistency, all Reports use SP\_ID to identify Smart Meters. PG&E will provide a translation between SP\_ID and Badge numbers upon request.

## Source List

At the end of each Report, PG&E has included a list of records on which it relied in drafting each Report. When PG&E indicates in a Report that information is per PG&E records, PG&E is referring to the records identified at the end of the Report. Where records have been produced, PG&E provided the Bates number. In addition to the items on the source list, PG&E relied on a variety of internal databases to make an assessment of location information regarding devices and individuals (*e.g.*, GIS, GPS) and observations made by PG&E employees including the first PG&E employee who attempted to access the incident location before the CPUC’s site visit with PG&E to the incident location.

# **ATTACHMENT C**

**PG&E Data Request # 5 Response,  
Common Question # 1,  
“Circuit Map of Clark 1102 12-kV”**



# **ATTACHMENT D**

**PG&E Letter to SED, Dated February 16, 2018**



February 16, 2018

Elizaveta Malashenko  
Director, Safety and Enforcement Division  
California Public Utilities Commission  
505 Van Ness Avenue  
San Francisco, CA 94102

Dear Ms. Malashenko:

We want to inform you of information that we have learned regarding the collection of potentially relevant evidence related to four areas of interest that CAL FIRE has identified to date and one other site that PG&E reported to the CPUC.

PG&E has recently determined that during efforts to restore service in the aftermath of the October 2017 Wildfires, certain damaged equipment was replaced and was not retained. Specifically, we have learned that: (1) after CAL FIRE had collected potentially relevant evidence at 11253 Orion Way, Grass Valley, Nevada County (the "Orion Way site") for the McCourtney fire, PG&E did not retain sections of conductors and a pole replaced as part of the restoration efforts; (2) after CAL FIRE had collected potentially relevant evidence at the location of the Sulphur fire, PG&E did not retain a tap pole replaced as part of the restoration efforts; (3) two fuses collected by CAL FIRE from the Tubbs fire had already been replaced at the time of their collection; (4) after CAL FIRE had collected potentially relevant evidence at an area of interest for the Point fire, PG&E did not retain a broken cross arm replaced as part of the restoration efforts; and (5) although PG&E is not aware that CAL FIRE is investigating the Maacama fire, a conductor and two burned poles south of the Maacama fire incident site were replaced as part of the restoration efforts and were not retained. Each of these restoration efforts is described more fully below.

#### McCourtney Fire

After CAL FIRE had collected potentially relevant evidence at the Orion Way site and cleared the scene for restoration, a PG&E crew restored service and did not retain the sections of damaged conductor that required replacement.

As you know, there was some initial confusion about whether CAL FIRE had collected downed conductors from the Orion Way site. Although PG&E initially reported that CAL FIRE had collected downed conductors from Orion Way, we later learned that the conductors in question had been collected by CAL FIRE from McCourtney Road. After correcting this error in Amended Response to Question 44, Bates number PGE CPUC\_00005394, we then followed up



to determine what happened to the conductors at Orion Way and learned that the damaged portions had not been retained following restoration. The non-damaged portions of the conductors were re-hung. We do not know whether CAL FIRE collected any portions of the damaged conductors prior to the restoration work.

The restoration crew also installed a new pole. The existing pole was cut above the communication line and the top portion of the pole was removed. The new pole was installed next to the lower portion of the cut pole, which was left on the subject property. The top portion of the pole was recycled. The restoration crew also replaced the pole's transformer, which has been retained by PG&E.

### Sulphur Fire

Similar to the Orion Way site, after CAL FIRE had investigated the Sulphur Fire and collected potentially relevant evidence, including portions of Fuse Cutout Pole 1447, PG&E performed restoration work. Following the restoration work, a contractor hired by PG&E to collect remaining debris encountered a tap pole west of Fuse Cutout Pole 1447 that was burned at the base and was found on the ground. On October 13, 2017, the contractor took the pole to PG&E's Clearlake service yard where the pole was loaded into waste collection bins. A waste disposal company collected those bins, including the pole, on October 24, 2017, and brought them to the landfill in Clearlake. The landfill manager reported that there is no way to locate poles deposited in October 2017.

### Tubbs Fire

PG&E has learned that two of the three fuses at Fuse Cutout Pole 773 collected by CAL FIRE at the incident site for the Tubbs fire, had already been replaced at the time they were collected. Without inspecting the fuses, PG&E has no way to identify which of the three fuses had been replaced prior to CAL FIRE's collection. On October 11, 2017, a PG&E employee was performing restoration work and replaced two blown fuses at Fuse Cutout Pole 773. The blown fuses were numbers 1 and 2 when counting fuses from left to right while facing the cutouts from the position in which they will be opened. The blown fuses were not retained and were discarded shortly after the restoration work had been completed. We have notified CAL FIRE of this new information, and we also plan to send CAL FIRE a copy of this letter.

At a site visit on February 7, 2018, third-party investigators identified parts of a fuse (2 copper wires and 4 pieces of paper casing) underneath the current Fuse Cutout Pole 773. These may be pieces of the blown fuses. PG&E collected this evidence and has updated the evidence log, which was provided to you on February 14, 2018, and will be provided in an amended response to Question 41 of the CPUC's data request.

### Point Fire

After CAL FIRE had collected potentially relevant evidence at an area of interest for the Point Fire site, PG&E performed restoration work, which included replacing a broken cross-arm that CAL FIRE had not collected. PG&E did not retain the broken cross-arm. PG&E believes that the broken cross arm was discarded on October 9 or shortly thereafter and that the service crews

rehung the conductor found at the scene, but PG&E's inquiry into the restoration work at this site continues.

### Maacama Fire

To PG&E's knowledge, CAL FIRE is not investigating the Maacama fire. However, PG&E submitted an incident report for this fire based on property damage estimated to exceed \$50,000. On October 10, 2017, while performing restoration work PG&E cleared and replaced downed conductors. On January 12, 2018, PG&E replaced two burnt poles south of the Maacama fire incident area. PG&E did not collect the downed conductors or the two burnt poles. On December 19, 2017, PG&E collected and retained six pieces of the Valley Oak tree that had broken and fallen across the conductors, as previously reported to the CPUC.

PG&E remains committed to being open and cooperative through this process. If you have any questions, please do not hesitate to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Meredith E. Allen". The signature is fluid and cursive, with the first name "Meredith" being more prominent than the last name "Allen".

Meredith E. Allen  
Senior Director, Regulatory Relations

cc: Leslie Palmer, Deputy Director  
Nicholas Sher, Staff Attorney

# **ATTACHMENT E**

## **PG&E Data Request # 1 Response, Question 10**

**PACIFIC GAS AND ELECTRIC COMPANY**  
**October 2017 Wildfires**  
**CPUC Data Request – Common**

**Requesters: Leslie L. Palmer and Nicholas Sher**  
**Request Date: November 21, 2017**

**Question 10 – Part 3:**

Please provide all Vegetation Management records (Records for request 7 & 8) for subject circuit(s) for the past five (5) years.

**Response to Question 10 – Part 3:**

PG&E's initial response to this question was sent on February 28, 2018 and included copies of PG&E's Vegetation Management (VM) inspection records, work requests, and vegetation control inspection records for the incident locations, as defined by the CPUC's December 7, 2017, letter completed between October 8, 2012 and October 8, 2017. The response also stated that PG&E was continuing to compile hard copy inspection maps associated with the increased VM inspection activities, also known as enhanced ground patrols, for the incident locations in the last five years.

PG&E is now producing the hard copy inspection maps associated with the drought-related, increased VM inspection activities (enhanced ground patrols) for the incident locations in the Bates number range PGE-CPUC\_00012586 – PGE-CPUC\_00012651. Please note that, as requested, PG&E is only producing the map pages that include information about the incident locations. In all cases, the produced map covers patrol areas beyond the incident locations. Also note that records pertaining to LiDAR and/or spectral imagery data collected at incident locations are provided in response to Question 14.

In addition to the enhanced ground patrols documented in these hard copy inspection maps, PG&E's Project Management Database (PMD) indicates that the following drought response patrols were also completed on the subject circuits in the last five years. After a reasonable search of its records, PG&E is unable to locate the maps for these patrols. As such, PG&E cannot definitively determine whether the precise incident locations were included in these patrols. PG&E's VM records at these incident locations, produced with its initial response to this question on February 28, 2018, indicate that no work was prescribed during these enhanced ground patrols.

- Adobe (Incident No. 171010-8558): 2015 CEMA WUI Patrol
- Lobo (Incident No. 171012-8565): 2014 CEMA Patrol
- Potter Valley (Incident No. 171009-8553): 2016 CEMA WUI Patrol
- Sulphur (Incident No. 171011-8562): 2016 CEMA WUI Patrol

*Response provided by:*



 Principal, Vegetation Management, 245 Market Street, San Francisco, CA  
91405

# **ATTACHMENT F**

## **PG&E Data Request # 3 Response, Sulphur Question 4**

**PACIFIC GAS AND ELECTRIC COMPANY**  
**October 2017 Wildfires**  
**CPUC Data Request – Sulphur**

**Requesters: Leslie L. Palmer and Nicholas Sher**

**Request Date: August 16, 2018**

**Response Date: September 21, 2018**

**Question 4:**

According to PG&E's letter on February 16, 2018 to Elizaveta Malashenko, PG&E states, "Following the restoration work, a contractor hired by PG&E to collect remaining debris encountered a tap pole west of Fuse Cutout Pole 1447 that was burned at the base and was found on the ground. On October 13, 2017, the contractor took the pole to PG&E's Clearlake service yard where the pole was loaded into waste collection bins. A waste disposal company collected those bins, including the pole, on October 24, 2017, and brought them to the landfill in Clearlake. The landfill manager reported that there is no way to locate poles deposited in October 2017."

In addition, PG&E's response in Data Response #1, Sulphur Fire, Question #5 states the same response. PG&E does not answer the question as to "why" the tap pole was not kept for evidence. Please answer the following questions:

- a. Who was the contractor hired by PG&E to collect the tap pole?
- b. Why did the contractor dispose of the tap pole?
- c. Is this tap pole considered physical evidence as it related to the Sulphur Fire incident? Please explain why or why not it would be considered as physical evidence.

**Response to Question 4:**

- a. PG&E hired Luchetti Enterprises to help with restoration efforts after the Sulphur fire, including clearing and hauling of debris.
- b. After the Sulphur Fire, numerous PG&E poles in the Clearlake area were found burnt as a result of the fire. PG&E requested that Luchetti Enterprises clear and haul debris, including burnt poles, to PG&E's Clearlake service yard and load that debris into waste collection bins. After CAL FIRE had already investigated the Sulphur fire and collected potentially relevant evidence, including portions of Fuse Cutout Pole 1447, Luchetti Enterprises found the tap pole west of Fuse Cutout Pole 1447 that was burned at the base and on the ground. Luchetti Enterprises cleared the pole and hauled it to PG&E's Clearlake service yard as part of PG&E's restoration work and consistent with how Luchetti Enterprises cleared and hauled other PG&E poles found burnt after the Sulphur Fire.
- c. Following the Sulphur Fire, CAL FIRE conducted its investigation and collected potentially relevant evidence, including portions of Fuse Cutout Pole 1447. CAL FIRE did not collect the tap pole west of Fuse Cutout Pole 1447.

After CAL FIRE's investigation, PG&E initiated restoration work which included debris removal work performed by Luchetti Enterprises. The tap pole west of Fuse Cutout Pole 1447 was found, burnt at the base and appeared to have fallen as a result of the fire. Consequently, as of October 13, 2017 when the debris including the burnt tap pole was removed from the field by the contractor, and October 24, 2017 when a waste disposal company collected the burnt tap pole along with other debris, PG&E did not consider the burnt tap pole as potential physical evidence relevant to Electric Safety Incident Report (Incident No. 171011-8562). PG&E presently believes that the tap pole may have been physical evidence related to the Sulphur Fire.

*Response provided by:*

Jadwindar Singh, Director, Compliance & Vegetation Management, 245 Market Street, San Francisco, CA 94105